DOCKETED	
Docket Number:	09-AFC-08C
Project Title:	Genesis Solar Energy Project
TN #:	234780
Document Title:	GSEP Heavy Equipment Parking Cover PTA
Description:	Petition To Amend; Genesis Solar Energy Project 09-AFC-08C; for the addition of a Heavy Equipment Parking (shade) Structure; PTA discusses Conditions of Certification; PTA does not suggest any actual changes to the Conditions of Certification
Filer:	Averell Rose
Organization:	Genesis Solar Inc, Nextera Energy
Submitter Role:	Applicant
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Docketed Date:	9/16/2020

Genesis Solar, LLC

(9-AFC-8)

Petition to Amend

Submitted by

Genesis Solar, LLC

August 2020

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Executive Summary

Genesis Solar, LLC as project owner, petitions the California Energy Commission (CEC or Commission) to comply with the Condition of Certification Compliance-13, Gen-1 and Gen-8 regarding the manner of regulation of new construction at the Genesis Solar Facility. Genesis Solar, LLC proposes to construct a Heavy Equipment Covered Parking Structure. The structure will create permanent, open-air shade for parking of heavy equipment. The structure would be constructed of steel with concrete foundations. The structure would be sited on the area currently used for mobile equipment parking (e.g. front loader, tractor, man lift, telescopic fork lift, all terrain crane, and similar).

Per the CEC Condition of certification, this compliance proposal is being submitted for approval due to the following condition decisions.

COMPLIANCE-13

The project owner must petition the Energy Commission pursuant to Title 20, California code of Regulations section 1769, in order to modify the project (including linear facilities) design, operation or performance requirements, and to transfer ownership or operational control of the facility. It is the responsibility of the project owner to contact the CPM to determine if a proposed project change should be considered a project modification pursuant of section 1769. Implementation of a project modification without first securing Energy Commission, or Energy Commission staff approval, may result in enforcement action that could result in civil penalties in accordance with section 25534 of the Public Resources Code.

A petition is required for amendments and for staff approved project modifications as specified below. Both shall be filed as a "Petition to Amend." Staff will determine if the change is significant or insignificant. For verification changes, a letter from the project owner is sufficient. In all cases, the petition or letter requesting a change should be submitted to the CPM, who will file it with the Energy Commission's Dockets Unit in accordance with Title 20, California Code of Regulations, section 1209.

GEN-1

The project owner shall design, construct, and inspect the project in accordance with the 2007 California Building Standards Code (CBSC), also known as Title 24, California Code of Regulations, which encompasses the California Building Code (CBC), California Building Standards Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code, California Code for Building Conservation, California Reference Standards Code, and all other applicable engineering LORS in effect at the time initial design plans are submitted to the CBO for review and approval (the CBSC in effect is the edition that has been adopted by the California Building Standards Commission and published at least 180 days previously). The project owner shall ensure that all the provisions of the above applicable codes are enforced during the construction, addition, alteration, moving, demolition, repair, or maintenance of the completed facility. All transmission facilities (lines, switchyards, switching stations and substations) are covered in the conditions of certification in the Transmission System Engineering section of this document. In the event that the initial engineering designs are submitted to the CBO when the successor to the 2007 CBSC is in effect, the 2007 CBSC provisions shall be replaced with the applicable successor provisions. Where, in any specific case, different sections of the code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern. The project owner shall ensure that all contracts with contractors, subcontractors, and suppliers clearly specify that all work performed and materials supplied comply with the codes listed above.

GEN-8

The project owner shall obtain the CBO's final approval of all completed work that has undergone CBO design review and approval. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. The project owner shall notify the CPM after obtaining the CBO's final approval. The project owner shall retain one set of approved engineering plans, specifications, and calculations (including all approved changes) at the project site or at another accessible location during the operating life of the project. Electronic copies of the approved plans, specifications, calculations, and marked-up as-builts shall be provided to the CBO for retention by the CPM.

1.0 Introduction

1.1 Overview

By this amendment Genesis Solar, LLC, petitions the Commission to consider the stated Condition of Certification to add a Heavy Equipment Covered Parking Structure.

The Heavy Equipment Covered Parking Structure:

Consists of a red-iron steel structure, I-beam construction with light weight deck material. Supported by 24 concrete foundations, one per vertical support member. Structure to be painted tan, consistent with coloring of existing structures nearby.

Approximate dimensions: Total width of 200' consisting of 8 low bays and 2 high bays. Low bays 12' high x 12' deep. High bays 20' high x 40' deep. See included drawings for details.

The Structure to be located in an open area currently being used for equipment parking. Location is east of the Administration Building and Warehouse, north of Water Treatment facility area (see drawings).

All engineering and construction to be performed by an outside contractor.

This Amendment contains all of the information that is required pursuant to the Siting Regulations (California Code of Regulations [CCR] Title 20, Section 1769, Post Certification Amendments and Changes). The information necessary to fulfill the requirements of Section 1769(a)(1) is contained in Sections 1.0 through 5.0 as summarized in Table 1 below.

TABLE 1

Informational Requirements for Post-Certification Amendments and Changes in accordance with Title 20 California Code of Regulations

Section 1769(a)(1) Requirement	Section of Petition Fulfilling Requirement
(A) A complete description of the proposed modifications, including new language for any conditions that will be affected.	
(B) A discussion of the necessity for the proposed changes	2.2
(C) If the modification is based on information that was known by the petitioner during the certification proceeding, an explanation why the issue was not raised at that time	2.2
(D) If the modification is based on new information that changes or undermines the assumptions, rationale, findings, or other bases of the final decision, an explanation of why the change should be permitted	2.2
(E) An analysis of the impacts the modification may have on the environment and proposed measures to mitigate any significant adverse impacts	1.3
(F) A discussion of the impact of the modification on the facility's ability to comply with applicable laws, ordinances, regulations, and standards;	1.3
(G) A discussion of how the modification affects the public	4.0
(H) A list of property owners potentially affected by the modification.	5.1
(I) A discussion of the potential effect on nearby property owners, the public and the parties in the application proceedings.	5.2

1.2 Ownership of Genesis Solar, LLC

Genesis Solar, LLC is a wholly owned subsidiary of NextEra Energy Resources.

1.3 Summary of Environmental Impacts

The Siting Regulations require that an analysis be conducted to address the potential impacts the proposed project change may have on the environment and proposed measures to mitigate any potentially significant adverse impacts (Title 20, CCR, Section 1769 (a)(1)(E)). The regulations also require a discussion of the impact of the proposed change on the facility's ability to comply with applicable laws, ordinances, regulations and standards ("LORS") (Title 20, CCR Section 1769 (a)(1)(F)).

Section 3.0 of this Amendment includes a discussion of the potential environmental impacts associated with the proposed additions and a discussion of the consistency of the change with LORS. Section 3.0 concludes that there would be no significant environmental impacts associated with implementing the construction of a Heavy Equipment Covered Parking Structure specified in this Amendment and that the project would continue to comply with all applicable LORS.

The proposed changes to the site will not adversely impact the environment.

2.0 Description of Project Changes

This section includes a complete description of the proposed modification consistent with the Siting Regulations (Title 20, CCR, Section 1769 (a)(1)(A)).

The proposed Heavy Equipment Covered Parking Structure consists of a red-iron steel structure of I-beam construction with light weight deck material. It shall be supported by 24 concrete foundations, one per vertical support member. Structure to be painted tan. Approximate dimensions: Total width of 200' consisting of 8 low bays and 2 high bays. Low bays 12' high x 12' deep. High bays 20' high x 40' deep (see drawings). The Structure to be located in an open area currently being used for equipment parking. Location is east of the Administration Building and Warehouse, north of Water Treatment facility area (see drawings). All engineering and construction to be performed by qualified contractors.

2.1 Changes to Condition of Certification

By way of background, the Decision for the Genesis Solar facility describes in GEN-1 any alterations or additions will be presented to the CPM 30 days before commencement of work.

"Once the certificate of occupancy has been issued, the project owner shall inform the CPM at least 30 days prior to any construction, addition, alteration, moving, demolition, repair, or maintenance to be performed on any portion(s) of the completed facility that requires CBO approval for compliance with the above codes. The CPM will then determine if the CBO needs to approve the work." (Decision, pg. 4)

The original Condition of Certification to the Decision will not be affected by the addition of the Heavy Equipment Covered Parking Structure. The Structure will be constructed to CBO specifications and inspected by the CBO as required. (Decision p.2)

Additionally, the implementation of the proposed Heavy Equipment Covered Parking Structure will not adversely affect the Conditions of Certification listed to ensure that the Genesis Solar Energy Project will be designed and constructed in conformance with the applicable LORS pertinent to the engineering aspects summarized in the Decision. (Decision, p. 3)

2.2 Necessity of Proposed Changes

The Siting Regulations require a discussion of the necessity for the proposed modification to GEN-1 and GEN-8 and whether the change is based on information known by the petitioner during the certification proceeding (Title 20, CCR, Sections 1769 (a)(1)(B), and (C)).

As described in Section 2.1 above, structural changes to the site does not change the decision as it is stated in GEN-1 and GEN-8. At the time of original approval, the project owner did not consider the need for a Heavy Equipment Covered Parking Structure. The extreme weather conditions at Genesis Solar have given rise to concerns of mobile heavy equipment deterioration. Genesis Solar, LLC proposes to build a Heavy Equipment Covered Parking Structure to protect the integrity of this necessary equipment.

3.0 Environmental Analysis of Proposed Project Changes and Consistency with LORS

The Amendment does not change the design or operation of the plant equipment. Accordingly, the proposed addition to the plant does not modify GEN-1 or GEN-8 and will not result in any significant adverse environmental impact.

The proposed change has no possible potential impact on the following environmental disciplines: Biological Resources, Cultural Resources, Geology and Paleontology, Hazardous Materials Management, Land Use, Noise and Vibration, Socioeconomics, Soil and Water Resources, Traffic and Transportation, Waste Management, and Worker Safety and Fire Protection.

3.1 Air Quality

The proposed changes that incorporate GEN-1 and GEN-8 will not cause any change to air quality.

3.2 Impact to Public Health

The proposed changes that incorporate GEN-1 and GEN-8 will have no effect on public health. Genesis Solar is well outside of the city of Blythe and approximately 11 miles from the I-10 Wiley's Well Road rest area. There are no neighbors near the facility and no threat to outside public residences.

3.3 Consistency of Amendment with the Certification and LORS

The Siting Regulations require a discussion of the consistency of the proposed project revisions with the applicable laws, ordinances, regulations, and standards (LORS) and whether the modifications are based upon new information that changes or undermines the assumptions, rationale, findings, or other bases of the final decision (Title 14, CCR Section 1769 (a)(1)(D)). If the project is no longer consistent with the certification, the petition for project change must provide an explanation for why the modification should be permitted.

This Amendment is consistent with all applicable LORS and is not based on new information that changes or undermines any bases for the Decision. The findings and conclusions contained in the Decision for the project are still applicable to the project as modified.

4.0 Potential Effects on the Public

This section discusses the potential effects on the public that may result from the modification proposed in this request for approval, per the Siting Regulations (Title 20, CCR, Section 1769(a) (1) (G)).

The proposed changes will not affect the public. There are no residential homes, hospitals or schools within a 20-mile radius of the plant.

5.0 List of Property Owners and Potential Effects on Property Owners

5.1 List of Property Owners

In accordance with the Siting Regulations (Title 20, CCR, Section 1769(a)(1)(H)), the project owner will provide the Compliance Project Manager for the project a list of all property owners whose property is located within 500 feet of the project.

There are no property owners within 500 feet of the project.

5.2 Potential Effects on Property Owners

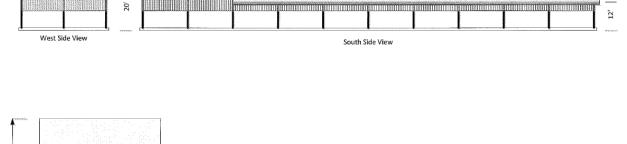
This section addresses potential effects of the modification proposed in this Amendment on nearby property owners, the public, and parties in the application proceeding, per the Siting Regulations (Title 20, CCR, Section 1769 (a)(1)(I)).

There are no property owners within 500 feet of the project.

6.0 Included Drawings

1) T1 Lead Sheet_Heavy Equipment Cover 2) **General Notes** S1.0 S1.1 General Notes and Details 3) 4) S2.0 Foundation Plan Framing Plan S3.0 5) S3.1 Sections 6) 7) S4.0 **Foundation Details** 8) S5.0 Framing Details 9) S5.1 Framing Details 10) 800.0617 Structural Calculations

Elevation View, Heavy Equipment Covered Parking Structure

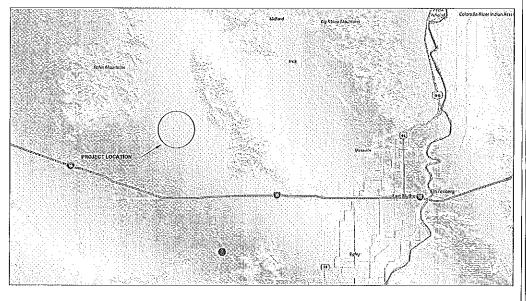


GENESIS SOLAR LLC HEAVY EQUIPMENT COVERED PARKING

SGN-7209

11995 WILEY'S WELL ROAD **BLYTHE, CALIFORNIA 92225**

SITE/FACILITY PLAN



VICINITY MAP

SCOPE OF WORK STATEMENT:

THESE IMPROVEMENTS CONSIST OF THE FOLLOWING WORK TO BE DONE ACCORDING TO THESE PLANS AND SPECIFICATIONS: PROVIDE NEW COVER ED PARKING AREA FOR FOLIPMENT.

PROJECT ADDRESS:

SGN-7209 11995 WILEY'S WELL ROAD BLYTHE, CALIFORNIA 92225

OWNER

700 UNIVERSE BLVD JUPITER, FL 33408 TELEPHONE: (760) 921-1411

ENGINEERING CONTACTS

DESERT ENGINEERS 75401 PAINTED DESERT DRIVE INDIAN YVELLS, CALIFORNIA 92210 (760) 568-9600

STRUCTURAL ENGINEER - BRAIN GOTTLIEB, PE

THE WORK SHOWN ON THESE DRAWINGS SHALL BE USED FOR CONSTRUCTION.

LICABLE LUDES:
2016 CALIFORNIA BUILDING CODE (CBC.), ITILE 24 PART 2
2016 CALIFORNIA BLECTRICAL CODE (CEC.), ITILE 24 PART 3
2016 CALIFORNIA MECHANICAL CODE (C CMC), ITILE 24, PART 3
2016 CALIFORNIA FUNDINIS CODE (CPC.), ITILE 24, PART 5
2016 CALIFORNIA FIRE CODE, ITILE 24 PART 5

Bureau Veritas North America Plan review approval of docume does not authorize construction

Doug Talmage Reason: Reviewed for Code Compliance (STRUCTURAL) Outer 2017 05. 18 1148:154

REMARKS PLAN CHECK CORRECTIONS /2



DESERT ENGINEERS

HEAVY EQUIPMENT COVERED PARKING GENESIS SOLAR SGN-7209 11995 Wiley's Well Road

DRAWN BY:

DATE 12/28/16

SCALE JOB NO.

PERFORM CONSTRUCTION AND VERKMANSHIP IN COMPLIANCE WITH THE DRAWINGS, SPECIFICATIONS AND THE 2016 CALIFORNIA BUILDING CODE (2016 CBC) & 2015 INTERNATIONAL BUILDING CODE (2015 IBC).

THE CONTRACTUR SHALL CIDERDINATE THE WORK OF ALL TRADES AND VERIFY ALL DIRENSIDIES PRICE TO THE START OF CONSTRUCTION. MOTIFY THE STRUCTURAL ENGINEER OF ANY DISCREPANCIES OR INCONSISTENCIES. BUT NOT SCALE BRAYINGS.

ALL BETAILS, SECTIONS, AND NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS ELSEWHERE, UNLESS NOTED OTHERWISE, SPECIFIC MOTES AND BETAILS ON THE DRAWINGS TAKE PRECEDENCE OVER THRESE GENERAL NOTES AND TYPICAL DETAILS.

CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE AND SHALL REPORT ANY DISCREPANCIES TO THE STRUCTURAL ENGINEER.

MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS ARE TO BE CONSIDERED PART OF THE DOCUMENT PACKMEE AND ARE TO BE USED TU DEFINE LOCATION AND CONSTIGNATIONS INCLUDING BUT INTIT LIMITED TO CHINCKETE CURP HISTORIAND LOCATION. FLOOR DRAINS, SLAB DEPRESSIONS, ROOF OPENINGS, BUCY PRETENTATIONS, FLECTRICAL COMBUT RUNS, COMPACTIONS FOR PIPES, DUCTS AND COUPPERNT, DOORS, WINDOWS, MITHERARING INTERIOR AND EXTERIOR WALLS, SLABOPES, STARRS, RACILINGS, AND WATERPROTING.

ALL DHISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS FOR THE VORKING BRAYINGS (AND/CIR ELECTRICAL/HECHANICAL, SPECIFICATIONS WHEN APPLICABLE SHALL BE BRIUGHT TO THE ATTENTION OF THE ARCHITECT AND STRUCTURAL ENGINEER REFORE PROCEEDING WITH ANY DE THE VORK INVINIVE AND APPROVAL BY GOVERNING AGENCY DOES INT CONSTITUTE

THE CUNTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE, UNLESS OTHERWISE SHOWN. THEY DO NOT INDICATE MEANS AND METHODS OF CONSTRUCTION. CONSTRUCTION PEANS, KETHODS, IECHNOWES, SEQUENCES AND PROCEDURES ARE THE SILE RESPONSIBILITY OF THE CONTRACTOR, PROVIDE ADEQUATE ERECTION SHORME, BRACKING AND GAYS THAT COMPLY WITH LOCAL STATE, USING AND MINISHED SAFETY STANDARDS.

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING AND PROTECTION OF DAJACENT PROPERTY, STRUCTURES, STREETS AND UTILITIES COMPLYING WITH ALL LOCAL STATES DISHA, AND NATIONAL SHEET Y STANDARDS. CONTRACTOR SHALL VERIFY ALL DIRECTISIONS AND CONDITIONS AT THE SITE AND SHALL REPORT ANY DISCREPANCIES TO THE STRUCTURAL TRAINER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EDUREDING THE CONTRACTOR SHALL BE RESPONSIBLE FOR EDUREDING THE PROPERTY OF ALL WORK AND MATERIALS INCLUDING THOSE FURNISHED BY SUB-CONTRACTOR.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR BRACING AND SHORING ALL EXCAVATIONS, TEMPORARY AND EXISTING STRUCTURES AND PARTIALLY COPPLETED PORTIONS OF THE VORK IN DASSUR THE SPECT OF ANY OF ALL VORK AND MATERIALS INCLUDING THOSE PERSENS COMING IN CONTACT WITH THE VORK.

THE CONTRACTOR SHALL IN VESTIGATE THE SITE FOR FILLED EXCAVATIONS OR BURIED STRUCTURES SUCH AS FOLKMATIONS, CESSFEDIA, ETC. IF ANY SUCH STRUCTURES ARE FOLKMED, THE STRUCTURED ENGINEER SHALL BE IMMEDIATELY

OBSERVATION VISITS TO THE SITE BY FIELD REPRESENTATIVES OF THE STRUCTURAL ENGINEER DO NOT INCLUDE INSPECTIONS OF THE PROTECTIVE REASURES, UN RETHODS UP CONSTRUCTION. CONSTRUCTION SUPPORT SERVICES PERFORMED BY REPRESENTATIVES OF THE STRUCTURAL ENGINEER SHALL BE DISTINGUISHED FROM CONTINUOUS AND DETAILED INSPECTION SERVICES PERFORMED BY GITHERS. OBSERVATION VISITS TO THE SITE BY THE CHRIBHERS FIELD REPRESENTATIVE SHALL RELITIES BY THE SINGHERS FIELD REPRESENTATIVES SHALL RELITIES BY CHRISTIAN OF CONSTRUCTION.

NOTIFY THE STRUCTURAL ENGINEER WHEN BRAVINGS BY DITHERS SHOW DPEHINGS, HOLES, PICKETS, ETC., IN STRUCTURAL ELEMENTS BUT ARE NOT SPECIFICALLY BETALLED DIN THE STRUCTURAL BUDCHENTS.

ALL CODES AND SPECIFICATIONS NOTED ON THESE DRAWINGS SHALL BE THE LATEST APPROVED EDITIONS AND REVISIONS BY THE GOVERNING CODE AUTHORITY HAVING JURISDICTION DVER THIS PROJECT.

SUBMISSION TO THE STRUCTURAL ENGINEER. REVIEW THE SHOP BRAVINGS FOR COMPLETENESS AND COMPLIANCE WITH THE CONTRACT BEDURALINS AND SPECIFICATIONS. SUBMIT A VIGITEN REQUEST TO THE STRUCTURAL ENGINEER FOR APPROVAL OF ANY MIDDIFICATION OF SUBSTITUTION SUBSTITUTIONS AND HODGE OF THE STRUCTURAL ENGINEER. CLUD THE STRUCTURAL ENGINEER. CLUD THE SHOP DRAVINGS AT COCATIONS OF THE SHOP DRAVINGS AT SITE OUR PROPERTY OF ALL APPROVED SHOP DRAVINGS AT SITE OUR DIRECTORS STRUCTURA.

SHOP DRAWINGS SHALL BE SUBMITTED THE BUILDING DEPARTMENT, ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO FABRICATION WITH SUFFICIENT TIME FOR REVIEW OF BESIGN INTENT CHIMMUM OF 18 WORKING DAYS).

ALL ASTM DESIGNATIONS SHALL BE AS AMENDED TO DATE UNLESS NOTED DIMERVISE.

IN NO CASE SHALL VORKING DIMENSIONS DE SCALED FROM PLANS, SECTIONS OR DETAILS ON THE STRUCTURAL DRAWINGS.

VIBRATIONAL EFFECTS OF MECHANICAL EQUIPMENT HAVE NOT BEEN CONSIDERED BY THE STRUCTURAL ENGINEER.

NO FRAMING OF ANY TYPE SHALL BE CONCEALED PRIOR TO INSPECTION BY GOVERNING AGENCIES.

GRADING AND DRAINIAGE, ALL PAVING, FLAT WORK AND PLANTERS NEXT TO BUILDING SHALL BE PROPERLY GRADED TO CARRY WATER AWAY FROM BUILDING.

NO CHANGES ARE TO BE MADE TO THOSE PLANS WITHOUT THE KNOWLEDGE AND CONSENT OF THE STRUCTURIAL ENGINEER WHOSE SIGNATURE APPEARS HEREON.

CONTINUOUS (OR SPECIAL) INSPECTION SHALL MEAN INSPECTION DONE CONTINUOUSLY BY A REGISTERED SPECIAL INSPECTOR CORRENTLY LICENSED BY THE STATE AND THE CITY AND APPROVED BY THE ENGINEER.

REFER TO SDIL INVESTIGATION BY: TERRACON CONSULTANTS, INC. DATED APRIL 10, 2014 JOS 60145006 SOIL INVESTIGATION AND ADDRANDUM SHALL BE CONSIDERED PART OF THE CONTRACT DECUMENTS.

ALLDWABLE SUIL PRESSURE 4000 PSF. ALL REQUIRED FILL AND BACKFILL SHALL BE COMPACTED TO AT LEAST (95%) OF THE MAXIMUM DENSITY DBTAINABLE BY THE ASTM DESIGNATION (0-1557-701) METHOD OF COMPACTION.

CARRY ALL FOOTINGS A MINIMUM OF 18' INTO NATURAL GRADE OR APPRILYED COMPACTED FILL. ACTUAL ELEVATION OF BUTTOM UF FOOTINGS SHALL BE AS DIRECTED BY THE SOLE. E-INGIAGER DURING CONSTRUCTION.

ALL FOOTINGS SHALL BE IN-SPECTED BY THE BUILDING DEPARTMENT PRIOR TO POURING CONCRETE.

ALL WATER SHALL BE REMOVED FROM FOUNDATION EXCAVATIONS PRIOR TO POURING CONCRETE.

AT ALL POST TENSIONED FOUNDATIONS, SHOP DRAWING SHALL BE SUBMITTED FOR REVIEW BY THE BUILDING DEPARTMENT AND STRUCTURAL ENGINEER.

CAST IN PLACE CONCRETE

 \sim $\frac{1}{1}$

SCHEDULE OF STRUCTURAL CONCRETE 28 DAY STRENGTHS AND TYPES

ANDTOURIS NI NOTROCKE STRENGTH (PSI) TYPE HARDROCK HARDROCK

CEMENT SHALL CURFORM TO ASTMICISO. TYPE VICEYENT SHALL BE USED. MIX DESIGN TO BE IN ACCORDANCE WITH CBC SECTION 19012 AND 1905.

PROVIDE SLICEOUS, HORMAL WEIGHT AGGREGATES OF NATURAL SAND AND ROCK CHAISTINING OF SILICA OR COMPOUNDS OTHER THAN CALCIUM OR MAGNESIUM CARBOHATE FOR HARDRICK CONCRETE. AGGREGATES ARE TO COMPLY WITH ASTM C33 WITH PROVEN SHRIKKAGE CHARACTERISTICS OF LESS THAN 0.05%.

ALL REINFORCING STEEL, DOWELS, ANCHOR BOLTS, AND OTHER INSERTS SHALL BE SECURED IN POSITION PRIOR TO PUBLING CONCRETE OR GROUT. ALL BE SECURELY HELD IN PLACING CONCRETE. IF GROUTE ALL BE SECURELY HELD IN PLACING CONCRETE. IF RECUIRED, ADDITIONAL BASE OR STRENGY SMALL BE PROVIDED BY THE CONTRACT DR TO FURNISH SUPPORT FOR ALL BASE.

ANCHOR BOLTS SHALL BE EMBEDDED INTO CONCRETE PER I.B.C. SECTION 1908 AND TABLE 1908.2 OR UNLESS NOTED OTHERWISE.

THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT PLACED IN CAST-IN-PLACE CONCRETE TOLERANCES SHALL BE AS FER ANERICAN CONCRETE INSTITUTE (ACT-318).

CAST AGAINST AND PERMANENTLY EXPOSED TO GROUND = 3

FORMED CONCRETE EXPOSED TO EARTH OR WEATHER #6 THROUGH #18 BASS = 2" #5 BARS W31 UR 031 WIRE, AND SMALLER = 1 1/2"

NOT EXPOSED TO WEATHER OR GROUND #14 AND #18 BARS = 1 1/2' #11 BAR AND SMALLER = 1' BEAMS, CIDLUMNS AND WALL JAMBS PRIMARY REINFORCEMENT, TIES STIRRUPS, AND SPIRALS

SLABS ON GRADE #3 THORDUCH #31 BARS = AT CENTER RESTING ON STIRRUPS IN PLACE PRIOR TO POUR

THE CONTRACTOR SHALL PLACE ALL CONCRETE IN COMPLIANCE WITH ACT 301 AND ACT 304.

SUBNIT SHOP DRAVINGS TO THE OWNER AND STRUCTURAL ENGINEER INDICATING LOCATIONS OF ALL CONCRETE CONSTRUCTION JOINT'S FOR REVIEW PRIOR TO PLACING CONCRETE. LOCATE JOINTS AT LOCATIONS TO BINDINGS THE FYECTS OF SHRINKAGE AS WELL AS LOCATIONS OF MINIMUM SHEAR STRESS.

PROVIDE KEYS IN CONSTRUCTION JOINTS UNLESS DETAILED DIHERVISE.
THOROUGHLY CLEAK, REMOVE ALL LAITANCE AND THOROUGHLY VET AND REHOVE
STANDING WATER IN CONSTRUCTION JUINTS BEFORE PLACING NEY CONSCRETATIVERTICAL JUINTS SLUSH WITH A COAT OF NEAT CEMENT BEFORE PLACING NEW

SLUKP IN CONCRETE USED FOR FLAT SURFACES SHALL NOT EXCEED 4 INCHES.

ELECTRICAL COMBUIT AND MECHANICAL PIPES IN EXCESS OF 1 INCH DIAHETER SHALL HOLT SE EMBEDDED IN CONCRETE UNLESS DETAILED. CEMBUILT AND PIPES LESS THAN 1 INCH IN DIAMETER MAY BE EMBEDDED IN SLAB DIS GRADE, AND ELEVATED SLABS FROVIDED THE SPACING EXCEEDS 2 INCHES ON CENTER IN HORIZONTAL ROIS, AND ARE PLACED WITHIN THE MIDDLE DIC-TUIND OF THE SECTION DEPTH.

PROVIDE CORNER BARS IN ALL WALLS AND AT WALL INTERSECTIONS TO MATCH SIZE AND SPACING OF HORIZONTAL BARS ON THOSE VALLS.

DIMENSIONS ARE NOT FURIUSHED TO SIMPSON 'HDA' OR 'PA' TYPE HOLDOWNS, IT IS THE RESPENSIBLITY OF THE CONTRACTOR'S SUPERINTEDDENT. THE FRANKING CONTRACTOR AND THE CONCRETE CONTRACTOR TO LOCATE THE EXACT LOCATION REFER TO THE DETAILS AND MANUFACTURER'S SPECIFICATIONS FOR PROPER INSTALLATION

FLY ASH MAYBE SUBSTITUTED FOR A PORTICH FOR THE CEMENT. A MAXIMUM OF 20% OF THE CHERNY MAY BE REPLACED BY FLY ASH WHEN REPLACEDENT IS USED THE REPLACED CENT SHALL BE SUBSTITUTED WITH DEX AND DRE HALF TIMES WITH FLY ASH, WHER CEMBUT RATIOS SHALL BE BASED DUTTHE WATER/CEMBUT FLY ASH RATIO.

MIX DESIGN SHALL NOT CONTAIN LESS THAN A WATER/CEMENT RATIO OF 0.28

FOUNDATION (WIDTHS AND DEPTHS), AND REINFURCING AS SHOWN ON PLANS ARE SUPERSEDED BY LUCAL CODES OR ORDINANCES WHICH REQUIRE INCREASES OF THE SAME.

CONCRETE MIX AND STRENGTH $f' {\subset}$ AT 20 DAYS, SHALL CONFORM TO THE FOLLOWING TABLE:

LUCATION	UNIT VEIGHT	F'€	MIN CEMENT	MAX V/C	AIR ENTRAINMENT	
SLAB DN GRADE	145 PCF	4000 PSI	470 LB/YD	0.45	3%	
FOOTINGS	L45 PCF	4000 PS1	470 LB/YD	0.45	3%	
REFERENCE I.B.C. SECTION 1904 WHEN SOIL CONTAINS MORE THAN 0.1% SULFATE CONCENTRATION AS STATED IN THE GEOTECHNICAL REPORT.						
NOT AVAI	LABLE, THE		W/C RATIO S		MIXTURES ARE AS SPECIFIED IN	

ALL REINFERRING SHALL BE SUPPORTED IN CONFORMANCE WITH THE MANUAL OF STANDARD PRACTICE FOR REINFORCED CONCRETE CLINSTRUCTION (THE LAYEST

REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR MISCELLANEOUS ITEMS TO BE CAS'T INTO CONCRETE.

INSPECTION IS REQUIRED FOR ALL CONCRETE 3000 PSI OR GREATER BY APPROVED SPECIAL INSPECIOR.

REINFORC ING STEEL

PROVIDE REINFORCING STEEL COMPLYING WITH ASTM AGIS, GRADE GO.
PROVIDE REINFORCING STEEL TO BE VELDED COMPLYING WITH ASTM A70S,
GRADE GO. FOR REDWORKING STEEL AT DUCTILE MOMENT FRAMES AND SHEAR
WALLS, PROVIDE REBROCKING STEEL HEETING ASTM A70S AND ACTUAL VIELD
STREAGTH BASED DO HILL TESTS NOT ID EXCEED SECURIED YIELD BY HORE
HAN 18/000 PSI AND THE RATHOUS FATUAL VIELDS THAN IS.
ACTUAL VIELD TEMSEE STATUS SHALL ALL VIELDS THAN IS.

PROVIDE WELDED WIRE FABRIC COMPLYING WITH ASTM ABS AND ALSS. WELDED WIRE FABRIC MINIMUM 1-1/2 SPACES OR 12 INCHES. PROVIDE DEFORMED WIRE STIRRUPS COMPLYING WITH ASTM A496 AND A497.

ALL BARS SHALL BE FREE OF LODGE AND FLAKY RUST AND SCALE, GREASE OR OTHER MATERIALS WHICH MIGHT AFFECT OR IMPAIR BOND.

LAP REINFERCING STEEL AT SPLICES, AT WELL STAGGERED LOCATIONS AND TO THE FOLLOWING MINIMUM LENGTHS WRLESS NOTED OTHERWISE

SPLICE REINFORCING STEEL WHERE INDICATED PER PLAN.

ALL REINFINITIONS SHALL BE SECURELY TIED AND BRACED IN PLACE PRIOR TO PLACING CONCRETE.

HINIHUM CLEAR DISTANCES BETVEEN PARS INCLUDING AREAS AT SPLICES SHALL BE 1 INCH DR I BAR DIAVETER, VHICHEVER IS GREATER. MINIHUM CLEAR DISTANCE AT COLUMNS SHALL BE 1-1/2 INCHES DR 1-1/2 BAR DIAHETERS, VHICHEVER IS GREATER.

DOVELS BETVEEN FOOTINGS AND VALLS OR COLUMNS SHALL BE THE SAME SIZE, GRADE, SPACING AND HAMBER AS THE SPECIFIED VERTICAL REINFORCING AND SHALL LAP AS NOTICE ABOVE, UNLESS NOTED OTHERWISE

ALL REINFERCING BAR BENDS SHALL BE MADE COLD.

EVIATIONS	ABREVIATIONS		
ANCHER BOLT	RF	ROOF	
ABOVE	RJ	ROOF	

ARV	WRITAF	ХJ	KUR JUZI
BAR	REINFORCING BAR	RR	ROOF RAFTER
BD	BEARD	RT	ROOF TRUSSES
BLKG	BLOCKING	NIZ	SIMILAR
BLKG BLW	BEL ITY	SIMP	SIMPSON PRODUCT
BM	BEAM	ZW.	SHEAR MAX
BN	BUINDARY HATI	cuc	SHEET HET AL SCREW
DCD.	DOCKERY I INSIC	202	SQUARE
BOB BW CF	DUTTER BEMT	30	200MKE
RA	BUIM ANIZ	22	SELECT STRUCTURAL
CF.	CUNTINUOS FUOTING	22.M	SIMPSON STRONG WALL
CIDH CJ	CAST-IN DRILLED HOLE	STD	STANDARD
CJ	CEILING JOIST	STL	STEEL
CL	CENTERLINE	SW	SHEAR VALL
COL	COLUMN	THK	THICK
CDRC	CONCRETE	THRD	THREADED
CONT	CONTINUES	TN	TOE NAIL
COL CONC CONT CPE	CONTINUOS COCCO	TOC	TOP OF CONCRETE
D	DEDAM AHACE EDGES	TO	TOP OF LE DGER
D Design	DEPTH	TOL	TOP OF LE DOLK
DBL, DF	DEJURE,	TUM	TOP OF MASONRY
DF	DOUGLAS FIR	TOP	TOP OF PLYWOOD
DIA	DIANETER	ZOT	TOP OF SHEATHING
DII	DITTO	TOV	TOP OF PLYVOOD TOP OF SHEATHING TOP OF VALL
(F)	EXISTING	T36	TAPPERED STEEL GIRDER
FI	EXPANSION IDINT	TYP	TYPICAL
CU	Chec MAII	O F	UNLESS NOTED OTHERWIS
EN	EDGE RHIL	U.N.U	DUTES NO LEG DIMERMIS
EU.	EUUAL	VERI	VERTICAL
EV	EACH WAY	¥	VIDTH OF FOOTING
FB	FLOOR BEAM	W/	VITH
FG	FINISH GRADE	¥P	VEAKENED PLANE JOINT
DFA DIA DIA ES	FLOOR JOIST	WVF	VELDED WIRE FABRIC
FLR	FLODR	DIA &	DIAMETER
FMG	FRAMING	P	AT
FMG FN FBC	FIFE D. HAD	MAS	MASONRY
EDC	FACE DE CONCRETE	MAY	MAXIMUM
FUC	THUE OF CUNCKETE	THA	THAIRUM
F 1215	THEE UP HASHRKY	MB	MACHINE BOLT
FUH FUS	FACE OF STUDS	114	MALLEABLE 1RON
FP	FUEL PENETRATION	भाष	HINIKUH
FIG GA GALV GLB GR BM GVB	FOOTING	MLB	MICRE LAM BEAM
GA	GAUGE	(ID	HEV
GAL V	GAL VANIZED	NG	NATURAL GRADE
GI B	GLUE-LAMINATED BEAM	n/	OVER
CD DM	CDATE PEAU	DC .	DN CENTER
CLUD	CYDELII MALLEDAND	B.	POUR JOINT
DAT	CIPTOR WALLSUARD	PJ	PUUR JUINT
GT	GIRDER TRUSS	PLB	PARALLAM BEAM
H	ния	PLAD	PLYVOOD
HDR	HEADER	Pĭ	FRESSURE TREATED
HGT	HEIGHT	RB	RODF BEAM
HGR	HANGER	REINE	REINFORCING
HGT HGR HURIZ HSS	ABUNDATION BAR BELOW BEAM BLUCKING BELOW BEAM BLUCKING BELOW BEAM BUTTER OF BEAM BOTTER OF BEAM BOTTER OF BEAM CONTROUS CONTINUS CONTROUS CONTINUS CONTROUS CONTINUS CONTROUS CONTINUS CONTROUS CONTRO	REO'D	REQUIRED
224	FULL IN STRUCTURAL STEEL		
HT	HIP TRUSS		
KP	KING POST		
N.F.	nava rusi		
	FIIA		
LT VT	LIGHT VEIGHT		
LYL	LAMINATED VENEER LUMBER		

CONTRACT DRS RESPONSIBILITY

EACH CONTRACTOR OR SUB-CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF THE VITAD AND/OR SEISHOR RESISTING SYSTEM THAT IS LISTED IN THE STATEMENT OF SPECIAL INSPECTIONS SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING DEFICIAL AND THE DWIRE PRIOR TO THE COMMENCEMENT OF YORK REQUIRING SPECIAL INSPECTION. THE

- ACKNOW LEGGMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS.
- 2. ACKNOWLEDGMENT THAT CONTROL WILL BE EXERCISED TO OBTAIN CONFIRMANCE WITH THE CONSTRUCTION DOCUMENTS APPROVED BY THE BUILDING OFFICIAL.
- PROCEDURES FOR EXERCISING CONTROL WITHIN THE CONTRACTOR'S DROADIZ ATION, THE METHOD AND FREQUENCY OF REPORTING AND THE DISTRIBUTION OF THE REPORTS.
- 4. IDENTIFICATION AND QUALIFICATIONS OF THE PERSON(S) EXERCISING SUCH CONTROL. AND THEIR POSITION(S) IN THE ORGANIZATION.

ALL NOTES ON THIS SHEET SHALL APPLY TO EACH SHEET OF THIS SET OF STRUCTURAL DRAWINGS

STRUCTURAL STEEL

STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCURDANCE WITH THE ATSC SPECIFICATION FOR THE DESIGN FABRICATION AND ERECTION OF STRUCTURAL STEEL BUILDINGS (LATEST EDITION), ALL COLUMN AND DOUBLER PLATES SHALL CONFORM TO ASTM A-572, GRARE 50, FY-50 KSJ, AND THE FILLINGING ASTM STRAIDBRG SPECIFICATIONS, UNLESS HOTED THERNISE.

ALL STRUCTURAL STEEL UNLESS NOTED BELOW = ASTM A992 (50 KS).
TUBES = ASTM A500, GRADE B (46 KS). THREADED ROUND STOCK = ASTH A36 HIGH STRENGTH BOLTS = SEE NOTE BELOW

MILL CERTIFICATES SHALL ACCOMPANY ALL STRUCTURAL STEEL. ALL STRUCTURAL STEEL SHALL BE DESCRIPTIONED IN THE FIELD WITH THE CORRESPONDING MILL CERTIFICATED.

HIGH STREAGTH BULTS

FROM THE HIGH STRENGTH BULTS, NUTS AND VASHERS COMPLYING WITH
ASTH ASES.

ALL HIGH STRENGTH BULTS SHALL BE SLIP-CRITICAL HIGH STRENGTH
BULTS (A325-SC) UNLESS NUTLED DITERVISE.

ASSEMBLE HIGH STRENGTH BULTS IN COMPLIANCE WITH THE SPECIFICA TIEN
OF STRUCTURAL JOINTS USING ASTM ASES OR A490 BLTS.

TIGHTEN ASES-N SOLITS TO A SANGTICHT CONDITION TIGHTEN ASES-SC
BULTS TO AT LEAST THE MINION PROPER TEASION USING DIE OF THE
FULLOWING TIGHTENING HEROES THE FIRST WENCH CR
BURGET TENSION HODICATION THE HEAVENING.

HEADED STUD ANCHORS SHALL BE MANUFACTURED FROM CIDIS, CIDI7, DR C1020 COLD BRAVN STEEL CONFORMING TO ASTM AIDS CS9 KSID. STUD SIZE SHALL BE AS NOTED DN PLANS.

SUBMIT SHOP DRAVINGS TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION. INDICATE A VELDING PROCEDURE FOR DUCTILE MOMENT FRAMES INCLUDING THE SCOULME OF VELDING AT GIRBER TO COLUMN AND COLUMN TO BASE PLATE CONNECTIONS AND COLUMN SPLICES AS VELL AS THE SECREDICE OF VELDING WITHIN EACH FRAME. SHIPP DRAVINGS SHALL BE SUBMITED TO THE BUILDING DEPARTMENT, ASCHITECT AND STRUCTURAL ENGINEER PRIOR TO FABRICATION WITH SUFFICIENT TIME FOR REVIEW OF DESIGN INTENT CHIMIMUM OF 10 VORKING DAYS) ALSO SEE NEXT 3 NOTES BELOW.

A WELDING PROCEDURE SPECIFICATION (WPH) PER A.M.S DLL SHALL BE DEVELOPED BY THE FABRICATION/RECTOR AND APPROVED BY THE ENGINEER OF RECORD OR HIS DESIGNEE. THE VPM. SHALL INCLUDE THE VELDING PARAMETERS RECOMMENDED BY THE ELECTRODIC MANUFACTURER,

VELD STRUCTURAL STEEL. IN COMPLIANCE WITH ANS DILI-ID. VELDERS SMALL BE CERTIFIED AS REQUIRED BY THE GOVERNING CODE AUTHORITY. VELDING SHALL BE DONE BY THE FLECTEIC ARCH PROCESS USING APPROVED COLATED RIDGS, VELDING MAYER PERTURNED USING THE SUBMERCED ARC PROCESS VITH AUTHORITY VELDING GAMAUN. U.S.E. POWER LITH VITHORGER LECTEDIDES FOR VELDING OF REINFURCING STEEL. PERFORM SHOP VELDING BY AN APPROVED

UNLESS A LARGER SIZE FILLET WELD IS INDICATED, PROVIDE MINIMUM SIZE OF VELD PER AISC. VELD LEMGIHS INDICATED ARE THE NET EFFECTIVE LEMGIH REQUIRED.

SPLICING OF STRUCTURAL STEEL HEMBERS WHERE MIT DETAILED IS PROHIBITED WITHOUT PRICE APPROVAL. IF APPROVED, THE CONTRACTOR SHALL HAVE THE CONFECTION TESTED BY ULTRASONIC TESTING METHOD BY AN INDEPENDENT TESTING LAB.

AS REQUIRED APPLY SPRAYED FIREPRODFING OVER STRUCTURAL STEEL WITH MEMORITE MG6/EBF OR MM/ED AS MANUFACTURED BY W.R. GRACE AND COMPANY AS APPROVED BY ICE EVALUATION REPORT NO 4607. IDEATN APPROVAL FOR SUBSTITUTE PRODUCTS AS INDICATED IN GENERAL SECTION. HOURLY FIRE RESISTIVE REQUIREMENTS SHALL BE DETERMINED USING TABLE TAY OF THE

BLEMISHES. REPOVE SUCH BLEMISHES BY GRINDING OR VELDING AND GRINDING PRIOR TO CLEANING AND APPLICATION OF FINISHES.

SHOP PRIME ALL STRUCTURAL STEEL, EXCEPT AT CONNECTION LITERTIONS, AND STEEL WHICH REQUIRES FIREPROOFING.

BOLT HOLES IN STEEL, SHALL BE 1/16 INCH LARGER IN DIAMETER THAN THE NORMAL SIZE OF THE BOLT USED EXCEPT AS NOTED. FABRICATOR SHALL REVIEW THE WELDING PROCESS AND MATERIALS TO ENSURE CONFORMANCE WITH THE LATEST SAC/FEMA GUIDELINES AND RECOMMENDATIONS.

STRUCTURAL STEEL CONTRACTOR IS RESPONSIBLE FOR VERIFYING AND CORREDINATING ALL DIMENSIONS AND ELEVATIONS SHOWN ON STRUCTURAL DRAWINGS WITH MECHANIC ALFLECTRICAL DRAWINGS IN CASE OF CONFLICTS THE EMBINER OF RECORD IS TO BE NOTIFIED.

CONTINUOUS INSPECTION REQUIRED FOR ALL FIELD WELDING BY APPROVED SPECIAL INSPECTOR.

STRUCTURAL DBSFRVATION

STRUCTURAL DBSERVATION IS REQUIRED IN ACCORDANCE V/ SECTION 1704.6 UT THE 2016 CALIFORNIA BUILDING CODE. STRUCTURAL DBSERVATION SHALL BE SEQUIRED IN FOUNDATIONS PRIOR TO PEUR BY A CALIFORNIA LICENSED CIVIL AND/OR STRUCTURAL ENGINEER.

STATEMENT OF SPECIAL INSPECTIONS

1					
Ş	IN ADDITION TO THE REGULAR INSPECTIONS, THE FOLLOWING CHECKED ITEMS WILL ALSO REQUIRE SPECIAL IN-SPECTION IN ACCORDANCE WITH SEC, 1709 OF THE INTERNATIONAL BUILDING CODE & SEC 1704 & 1705 OF THE CBC				
(ITEM	REQUIRED?	REMARKS		
{	SOILS COMPLIANCE PRIOR TO FOUNDATION INSPECTION	YES	SEE SDILS REPORT		
	STRUCTURAL CONCRETE OVER 2,500 PSI	YES	4000 PSI		
	FIELD WELDING	YES.			
	SEE SHEET S-1.1 FOR ADDITIONAL INFORM	ATI⊡N			

TESTS AND INSPECTIONS

- PROVIDE ALL STRUCTURAL MATER IAL FROM TESTED STOCK, FURNISH COPIES OF TEST REPORTS TO ARCHITECT & GOVERNING CODE AUTHORITY UPON REDUEST.
- SEE SPECIAL INSPECTION TABLECS) ON SHEET S-14 FOR CONCRETE, SIGNLS AND STEEL.
- THE USE OF ROLLED STEEL SECTIONS, BOLIS, & DR REBAR HANDFACTURED DUTSIDE THE UNITED STATES WILL REQUIRE VERIFICATION THAT THE PRODUCTS CORPLY VITH APPLICA BLE ASTN STANDARD, FOREIGN STEEL VILL REQUIRE MILL CERTIFICATE S, & REPRESENTATIVE TESTING BY AGENCIES APPROVED BY THE GOVERNING CODE AUTHORITY TO DEPONSTRATE COMPLIANCE. BLL FEREION BOLIS & CONNECTIONS SHALL BE APPROVED BY THE GOVERNING CLDE AUTHORITY.
- A TESTING LABORATORY SHALL PROVIDE CONTINUOUS INSPECTION, COMPLYING WITH CHAPTER 17 UP THE 2016 CBC FOR THE FOLLOWING:

A. FIELD VELDING

B. CDICRETE & REINFORCING STEEL, WHEN SPECIFIED COMPRESSIVE STRENGTH EXCEEDS 2500 PSI
C. BELTS INSTALLED IN CONCRETE

5. SEE SHEET S-1.1 FOR ADDITIONAL INFORMATION

DESIGN DATA

1. EARTHQUAKE DESIGN DATA:

SEISMIC METHOD = ANALYTICAL
SEISMIC HEPRTANICE FACTOR I = 100
LOCUPANCY CATEGORY = II
Sx = 0.524
Sx = 0.416
SX

~~~~<u>\(\lambda\)</u>

WIND DESIGN DATA

WIND DESIGN RETHOD 2
BASIC VIND SPEED = 110 rph
WIND INPERIANCE FACTOR I = 1.00
DCCCPANCY CATEGORY = 11
ENDISINEE CLASSIFICATION = DPEN STRUCTURE
WINTERNAL PRESSURE COEFFICIENT 6Cpl = N/A
WINT DESIGNAL HADA = 180 asf WIND DESIGN LOAD = 18.0 psf COMPONENTS AND CLADDING DESIGN LOAD = N/A

- 3. FLOGD DESIGN DATA: NOT REQUIRED
- 4. SPECIAL LUADS: NUT APPLICABLE
- SYSTEMS AND COMPONENTS REQUIRING SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE: SEE TABLE(S) DN SHEET S-11.

NOTE: NAY USE OF PRUSE OF DESIGNAL OPE ALECCES SENCITIBAL DRAWINGS BY DAMER, ABOUTS BY DAMER, OR THERE PROVIDES ATTEMUT THE REPUBLY AND WAITEN ARRANGE. OF THE STRUCTIBAL CHRISTERING, INC. SHALL BE A Y THE SILE BISK OF THE DAMER. FURTHERPUBLE, THE DAMER AGREES TO DEFEND, RECHONGE OF AND THE SILE BISK OF THE DAMER. FURTHERPUBLE, THE DAMER AGREES TO DEFEND, RECHONGE OF AND THE SILE BISK OF THE STRUCTURE. THE FROM ALL CLAMS, INJURIES, DAMERS, LICISATS, EMPENEES, AND ATTEMPS'S FOES ARTSHIS ONT OF THE PRODUCTION OF THE STRUCTURE SERVICES.

NOTE: THE ENGINEER SHAWLES ESSENDER FOR THE CONSTRUCTION MEANS, WE THOSE WHEREAS TECHNOLOGY. SOUTHOUS OF PROCEDURES OF PRESCRIPTION PROCEDURES OF THE SHEET PRECAUTIONS A PROCEDURE TO THE CONTRACT OF THE ANALY ELECTRIC PROCEDURES OF THE CONTRACT DECEMBER. BUSINESS AND THE CONTRACT DECEMBER. BUSINESS OF THE CONTRACT OF FINAL ANALY ELECTRIC PROMISSION OF THE CONTRACT OF THE CONTRACT

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lan review approval of docum a does not authorize construction t

state, nor local regulation, whether

Talmage (STRICURAL) BYNA has been informed that French Good & Compliance (STRICURAL) BYNA has been informed that French Good & Boy Territory (THES PER ANS):
Date: 02/10/25/38 11:46:03-07:00

Digitally signed by Dennis Hurritz
DN: cn=Dennis Hurritz, o=Desert Engineers,
our=Desert Engineers,
imn3=Dennits@desertergheers.com, c=U5
ensis=Dennits@desertergheers.com, c=U5
attraction=1 at utthor of this document
Date: 2017.05,11 11:3612-07007

REMARKS DATE PC #1 (SC) 4-4-17 PC #2 (SC)

B.G. STRUCTU ENGINEERING LIC. NO. C33047 BRIAN GOTTI CIVIL. ENGINE 568-553 M.L. CAGEDSTRUCHT 568-5681 FAX M.L. CAGEDSTRUCHT 568-561 FAX

(760) : EMAH 75-1751 SUITE PALIM No. Costary

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ELECTRICAL, PEUMBII NTED DESERT DRIVE 760 / 568 / 1 لنا  $\hat{\Box}$ 

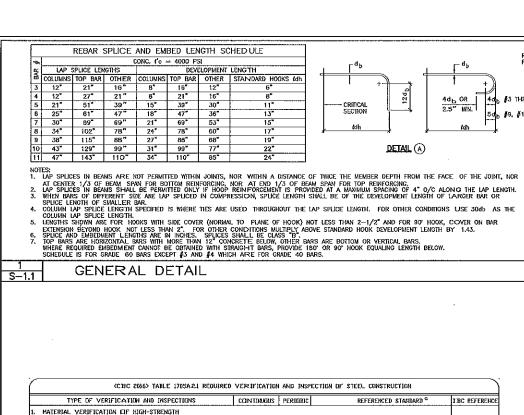
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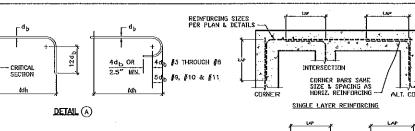
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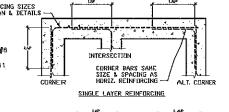
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DRAWN BY: SB 3/16/17 SCALE N.T.S. JOB NO. 800.0617

SHEET



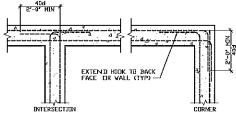




INTERSECTION

DOUBLE LAYER REINFORCING ALT. CORNER

REINFORCING LAYOUT



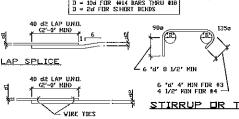
TYP REINFORCING AT INTERSECTION

NOTE:
1. WHERE SINGLE LAYER COF REINF OCCURS,
BEND REINF AS SHOWN FOR DUTSIDE BARS.
2. DETAIL APPLIES TO FOLITINGS, BEAMS AND
CONCRETE WALLS
3. d = BAR DIAMETER

STANDARD HOOKS AND BENDS

S-1.1

D = 6d FOR #2 BARS THRU #7
D = 8d FOR #8 BARS THRU #11
D = 10d FOR #14 BARS THRU #16
D = 2d FOR SHORT BENDS



(P)

1V" + 2"

TYPE OF VERIFICATION AND INSPEC TIONS

VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL

I. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL

5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VETRIFY THAT SITE HAS BEEN PREPARED PROPERLY

3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS

1 REVISED

STAXES NOT PERMITTED WITHIN FOOTING SECTION.

UNFORMED

, 4'a' (2 L/2' KEO

( D)

STIRRUP DR TIE

- CURB FORHVORK

FOUNDATION CONCRETE MAY BE PLACED DIRECTLY INTO NEAT EXCAVATIONS, PROVIDED THE FOUNDATION TRENCH WALLS ARE STABLE AS DETERMINED BY THE STRUCTURAL ENGINEER & APPROVED BY D.S.A. FERNWORK NOT PERMITTED BELOW GRADE UNLESS FOOTING AND WALL ARE FULLY FORMED.

GENERAL DETAIL

(CBC 2016) TABLE 1705.6 REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS

CONDITION 8 EXIT

2×6 MIN CONT PLANK EA SIDE

TIKA

OFFSETS AND SPLICES

GENERAL DETAIL - 3 1/2" MINACCESS (EITHER LOCATION) CLEAN & ROUGHEN SURFACE EXPOSING COARSE AGGREGATE

FORMED

CONTINUOUS

SPECIAL NSPECTIONS

FORMS

- OPTIONAL CONST JOINT

MAX

11/2

DTHERMIZE NOTED TEN CIS' HIN



(760) (760) EMAN 75-17;

NO.# REMARKS DATE

A PC #1 (SC) 04/17

PC #2 (SC)

ECHANICAL ELECTRICAL PLUMBING AND STRUCTURAL DESIGN 75401 PAINTED PEEKT DRIVE INDAN WELLS, CA. 9220 760 / 589 / 9600 ENGINEES STATES DESERT

' EQUIPMENT COVERED PARKING GENESIS SOLAR SGN-7209 11995 Wiley's Well Road Blythe, CA. 92225 ΙД જ S NOTE

DRAWN BY: SR SCALE N.T.S. JOB NO. 800.0617

SHE ETS

 $\frac{15}{S-1.1}$  SPECIAL INSPECTION TABLE (SOILS) ENE NOTE: ANY USE OR REUSE OF ORIGINAL OR ALTERED STRUCTURAL NUTE: ANY USE OF REUSE OF THISTORY OF ALTERED STRUCTURAL DEAVINGS BY DANER, AGENTS OF EVWER, OR OTHER PARTIES VITHOUT THE REVIEW AND WRITTEN APPROVAL OF BG. STRUCTURAL ENGINEERING, INC. SHALL BE AT THE SQLE RISK OF THE DWNER, FURTHERMORE, THE DWNER AGREES TO DEFEND, INDEMNIFY AND HOLD BG. STRUCTURAL ENGINEERING, INC. HARMLESS FROM ALL CLAIMS, INJURIES, DAMAGES, LOSSES, EXPENSES, AND ATTURNEY'S FEES ARISING DUT OF THE MODIFICATION OR REUSE OF THESE DRAWINGS. (1) HEAVY

PERIODIC SPECIAL INSPECTION:

x

NOTE: THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, MATERIALS, TECHNIQUES, SEQUENCES OF PRICEDURES, OF FOR SAFETY FRE CAUTIONS & PROGRAMS IN CONNECTION WITH THE WORK. THE ENDINEER DUES NOT QUARANTEE THE CONTRACT DOCUMENTS SHALL RELIEVE THE CONTRACTOR FROM ANY LIABILITY DUE TO NEGLIGENCE, INCOMPETENCE, OF ERRORS OF DMISSION OF CONMISSION OF THE CONTRACTOR.

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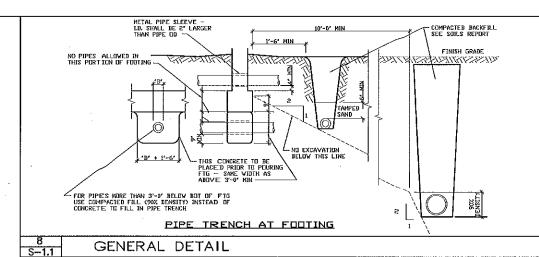
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|    | TYPE OF VERIFICATION AND INSPECTIONS                                                                                                                                                       | CONTINUOUS | PERTOBIC | REFERENCED STANDARD <sup>Q</sup>                                | I BC REFERENCE |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------|-----------------------------------------------------------------|----------------|
| ,  | MATERIAL VERIFICATION OF HIGH-STRENGTH<br>BOLTS, NUTS AND VASHERS:                                                                                                                         | I          |          |                                                                 |                |
|    | o. IDENTIFICATION MARKINGS TO CONFORM TO<br>ASTM STANDARDS SPECIFIED IN THE APPROVED<br>CONSTRUCTION DOCUMENTS                                                                             | -          | х        | AISC 360, SECTION A3.3 AND APPLICABLE ASTH MATERIAL STANDARDS   | -''            |
|    | b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED                                                                                                                                       | -          | х        |                                                                 | -              |
|    | INSPECTION OF HIGH-STREINGTH BOLLTING                                                                                                                                                      | ·          |          |                                                                 |                |
| _  | a, SNUG TIGHT JOINTS                                                                                                                                                                       | -          | х        |                                                                 | -              |
|    | b. Pretensioned and Slif-Critical Joints Using<br>Turn-Of-Nut With Matchharking, Twist-Off Bolt or<br>Direct Tension Indicator Methods of Installation                                     | -          | х        | AISC 360, SECTION M2.5                                          | -              |
|    | C. PRETENSIONED AND SLIP-CRITICAL JOINTS USING<br>TURN-OF-NUT WITHOUT MATCHMARKING OR CALIBRATED<br>WRENCH METHODS OF INSTALLATION                                                         | x          | -        |                                                                 | -              |
| 3, | MATERIAL VERIFICATION CIF STRUCTURAL STEEL<br>AND COLD-FORMED STEEL DECK                                                                                                                   |            |          |                                                                 |                |
|    | <ul> <li>FDR STRUCTURAL STEEL, IDENTIFICATION MARKINGS TO<br/>CONFORM TO AISC 360</li> </ul>                                                                                               | -          | ×        | AISC 360, SECTION A3.1                                          | 2203A.1        |
|    | <ul> <li>FOR OTHER STEEL, IDENTIFICATION MARKINGS TO<br/>CONFORM TO ASTM STANDARDS SPECIFIED IN THE<br/>APPROVED CONSTRUCTION DOCUMENTS</li> </ul>                                         | -          | x        | APPLICABLE ASTH MATERIAL STANDARDS                              | -              |
|    | C MANUFACTURER'S CERTIFIED TEST REPORTS                                                                                                                                                    | -          | х        | -                                                               | -              |
| ı, | MATERIAL VERIFICATION OF VELD FILLER MATERIALS                                                                                                                                             |            |          |                                                                 |                |
|    | o. IDENTIFICATION MARKINGS TO CONFORM TO AVS<br>SPECIFICATION IN THE APPROVED CONSTRUCTION<br>DOCUMENTS                                                                                    | =          | ×        | AISC 360, SECTION A3.5 AND APPLICABLE AVS AS DOCUMENTS          | -              |
|    | b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED                                                                                                                                       | -          | ×        | -                                                               |                |
| ī. | INSPECTION OF WELDING:                                                                                                                                                                     |            |          |                                                                 |                |
|    | a. STRUCTURAL STEEL AND COLD-FORKED STEEL DECKI                                                                                                                                            |            |          |                                                                 |                |
|    | 1. COMPLETE AND PARTIAL JOINT PENETRATION GROOVE WELDS                                                                                                                                     | x          | 7        |                                                                 |                |
|    | 2. HULTIPASS FILLET WELDS                                                                                                                                                                  | х          | ]        | AVS DIA                                                         | -              |
|    | 3. SINGLE-PASS FILLET WELDS > 5/16'                                                                                                                                                        | х          | 1        | AVS DI.B                                                        | 1705A.2.1      |
|    | 4. PLUG AND SLOT VEL.DS                                                                                                                                                                    | Х          | _        |                                                                 |                |
|    | 5. SINGLE-PASS FILLET WELDS < 5/16"                                                                                                                                                        | -          | x        |                                                                 |                |
|    | 6, FLOOR AND ROOF DECK VELDS                                                                                                                                                               | -          | ×        | AVS D1.3                                                        | <u> </u>       |
|    | b. REINFORCING STEEL:                                                                                                                                                                      |            |          |                                                                 |                |
| _  | <ol> <li>VERIFICATION OF VELDABILITY OF REINFORCING STEEL<br/>OTHER THAN ASTM A 706</li> </ol>                                                                                             | -          | х        |                                                                 | -              |
|    | 2. REINFIRCING STEEL RESISTING FLEXURA. AND AXIAL FERCES IN INTERNEDIATE AND SPECIAL MEMENT FRANCS, AND BOUNDARY ELEMENTS OF SPECIAL STRUCTURAL WALLS OF CONCRETE AND SHEAR REINFORCEMENT. | x          | -        | AVS D1.4,<br>ACI 3180<br>SECTIONS 26.6.4.1,<br>18.2.8, 25.5.7.4 | -              |
|    | 3, SHEAR REINFORCEMENT                                                                                                                                                                     | Х          | -        |                                                                 | -              |
| _  | 4. DTHER REINFORCING STEEL                                                                                                                                                                 | -          | x        |                                                                 | _              |

FOR SU 1 Mpch = 25.4 mm a. WHERE APPLICABLE, SEE ALSO SECTION 1705A12, SPECIAL INSPECTION FOR SEISMIC RESISTANCE.



| TYPE OF VERIFICATION AND INSPECTIONS                                                                                                                             | CONTINUOUS | PERIODIC | REFERENCED STANDARD <sup>Q</sup>                | IBC REFERENCE                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------|-------------------------------------------------|-----------------------------------|
| . INSPECT REINFORCEMENT, INCLUDING PRESTRESSING<br>TENDONS, AND VERIFY PLACEMENT                                                                                 | -          | ×        | ACI 318: Ch. 20, 252<br>25,3, 26,5,1-26,5,3     | 1908.4                            |
| , INSPECT ANCHORS CAST IN CONCRETE                                                                                                                               | -          | х        | ACI 318: 17.8.2                                 | -                                 |
| S. VERIFYING USE OF REQUIRED DESIGN MIX                                                                                                                          | -          | х        | ACI 318: Ch. 19, 26.4.3, 26.4.4                 | 1904.1, 1904.2,<br>1908.2, 1908.3 |
| S. PRIDE TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR<br>STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS,<br>AND DETERMINE THE TEMPERATURE OF THE CONCRETE | x          | -        | ASTH C172<br>ASTH C31<br>ACI 3181 26.4.5, 26.12 | 1909.10                           |
| , INSPECTION DE CONCRETE<br>PLACEMENT FOR PROPER APPLICATION TECHNIQUES                                                                                          | x          | -        | ACI 318: 26,4.5                                 | 1908.6, 1908.7,<br>1908.0         |
| N VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES                                                                                              | -          | х        | ACI 318/ 26.4.7-26.4.9                          | 1908.9                            |
| 2. INSPECT FOR MYDEK FOR SHAPE, LUCATION AND<br>DIMENSIONS LIF THE CONCRETE MEMBER BEING FOR MED                                                                 | -          | х        | ACI 318: 26.10.1(b)                             | -                                 |

FOR SD 1 inch = 254 nm a. WHERE APPLICABLE, SEE ALSO SECTION 170512 SPECIAL INSPECTION FOR SEISHIC RESISTANCE.

6. SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTIONS SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SURROE IN ACCORDANCE WITH 17.82 IN ACT 318, OR DIHER CHALIFICATION PROCEDURES, WHERE SPECIFIC RE-CUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS SHALL BE SPECIFIC BY THE REGISTERED DESIGN PROFESSIONAL AND SHALL BE APPROVED BY THE BUILDING DEFICIAL PRICE TO THE CONNENCEMENT OF THE VIORK.

Dennis

ADDED & REVISED

SPECIAL INSPECTION TABLE (CONCRETE)

1 REVISED

SPECIAL INSPECTION TABLE (STEEL)

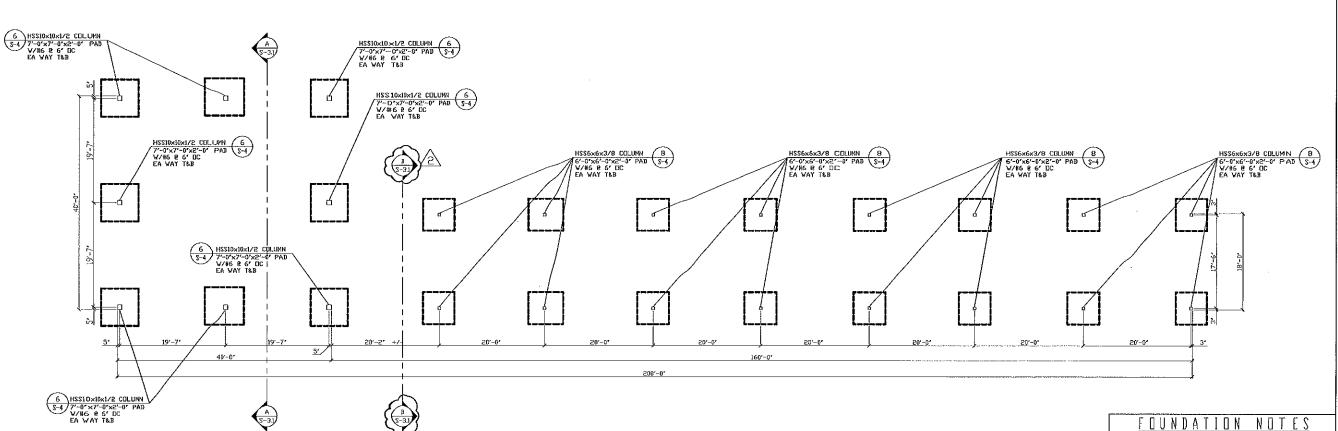
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20 S-1.1

BG DISCLAIMER

SHEET



HEAVY EQUIPMENT COVERED PARKING - FOUNDATION PLAN

SCALE: 1/8' = 1'-0'

Bureau Veritas North America Plan review approval of document does not authorize construction to proceed in violation of any federal state, nor local regulation, whethe shown or not.

# Doug Talmage

Digitally signed by Doug Talmage
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Utilities,
email-doughtalmage@us.bureuveritas.com,
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Resson Reviewed for Code Compliance
STRIKCTURAL). BWNA has been informed that
Brian Gottleth is "THE PREPARER OF THESE
PLANS".
Date: 2017.05.1 8 1150.52-07.00

Dennis Hurvitz Digitally signed by Dennis Hurvitz DN: cn=Dennis Hurvitz, o=Deseat Engineers, ou=Desert Engineers, Reason: I am the author of this

"SUILS COMPACTION TEST AND APPROVAL REQUIRED BY SUILS ENGINEER AFTER FOUNDATION EXCAPTION AND CERTIFICATE OF ACCEPTANCE SHALL BE READY AT TIME FOUNDATION HOSPICATION INSPECTION. THIS IS TO BE PROVIDED FOR ANY FOUNDATION WORK AT THE PROVIDED FOR ANY FOUNDATION WORK AT THE PROVIDED FOR ANY FOUNDATION WORK AT THE REQUEST OF THE INSPECTOR!

# SEE SHEET S-1 AND S-11 FOR GENERAL NOTES AND TYPICAL DETAILS.

- DIMENSIDAS ARE TO CENTER LINE OR FACE OF FOUTDAGS, SEE OTHER PLANS FOR LOCATIONS OF POSIS, VALLS AND SIG. CONTRACTOR SHALL VERIETY ALL DIMENSIONS VITH THE UNIVER MOD ARCHITECT PRIOR TO CORPORECHENT OF VORCE.
- YERFY LICATIONS OF ALL INDERGROUND CONDUCTS WITH THE ELECTRICAL, HECHANGEN, AND PLUMBER DRAVINGS.
- VRITTEN VERIFICATION FROM SOILS ENGINEER THAT HE HAS REVIEWED FUNDATION PLANS AND JETAILS FOR CONFURDANCE WITH SOILS REPORT SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT.
- SDLS ENGINEER SHALL BE RETARNED TO DISSERVE ALL GRADING, EXCAVATION, CUPACTION AND FUNDATION CONSTRUCTION PROCEDURES.
- PAU PREFARATION AND SUIL COMPACTION OF ANY REQUIRED SHALL. BE DONE PER THE SUILS REPORT RECOMMENDATIONS.
- VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO COMENCEMENT OF VORK,
- SOILS ENGINEER TO REVIEW AND APPROVE ALL FOUNDATIONS AND FOLDER FOLD SOILS REPORT PRIOR TO ISSUANCE OF PERHIT.
- PRIOR TO THE CONTRACTOR REDESTING A BOILDING SEPARTMENT FOUNDATION INSTICTION, THE SOULS DOUBLES SHALL ADVISE THE MULDING OFFICIAL, IN WRITING, THAN PROPERTY OF A SEPARATE OF ACCORDANCE VITH THE SILIL SEPORT OF THE MULTITY TERRORS HAVE SHED PROPERTY MAKETILED AND COMPACTED, AND ONE FUNDATION COMPACTED, AND ONE FUNDATION COMPACTION OF MULTIPLE PROPERTY THE SILIL SEPARATE.
- 13. ADDITIONAL TESTS AS PROOF OF COMPLIANCE MAY BE REQUIRED BY THE BURLDING DEFICIAL TO BE MADE AT NO EXPENSE TO THE JURISDICTION (CBC 19429)

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NOTE: THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONSTRUCTION HEARS, HERIODS, MATERIALS, TECHNIQUES, SEQUENCES OR PRICEARCH, OR THE SAFETY PRECADITIONS & PROGRAMS IN CORRECTION WITH THE VIONE. THE ENGINEER DOES NOT GRAMMERIE THE CONTRACT DICIDIANTS SHALL RELIEVE THE CONFRACTOR FROM NIT LUBRITY DUE TO RECLIENCE, DECOMPETINGE, CIR LORDING OF DISSURIN DECOMPOSISTING THE QUARTHER OF THE PROPERTY OF THE CONTRACTOR.

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| $\Lambda$ | PC #t (SC)<br>4-4-17  | 04/17 |
| æ         | PC #2 (SC)<br>4-27-17 | 04/17 |
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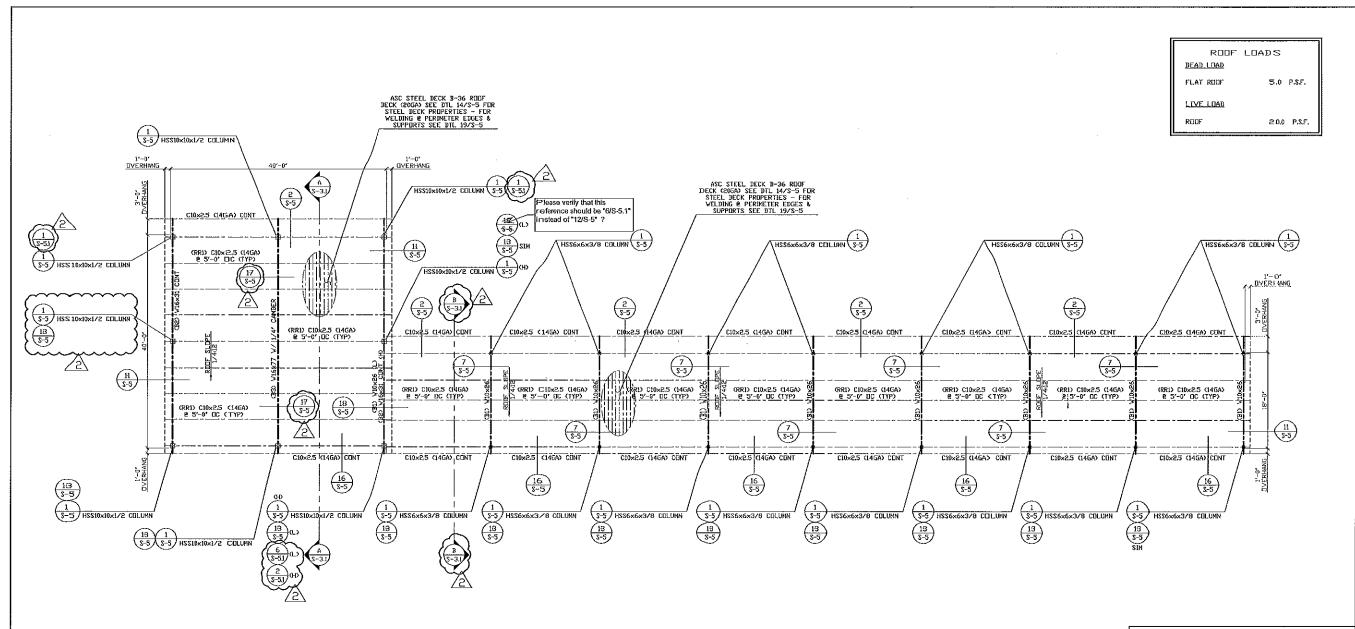
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' EQUIPMENT COVERED PARKING GENESIS SOLAR SGN-7209 11995 Wiley's Well Road Blythe, CA. 92225 HEAVY I

FOUNDATION PLAN

DRAWN BY: SB DATE 3/16/17 SCALE AS NOT ED JOB NO. 800,0617

SHEET



HEAVY EQUIPMENT COVERED PARKING - FRAMING PLAN

SCALE: 1/8" = 1'-0"

# FRAMING NOTES

Doug

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| <u> </u>    | PC #2 (SC)<br>4-27-17 | 04/17 |
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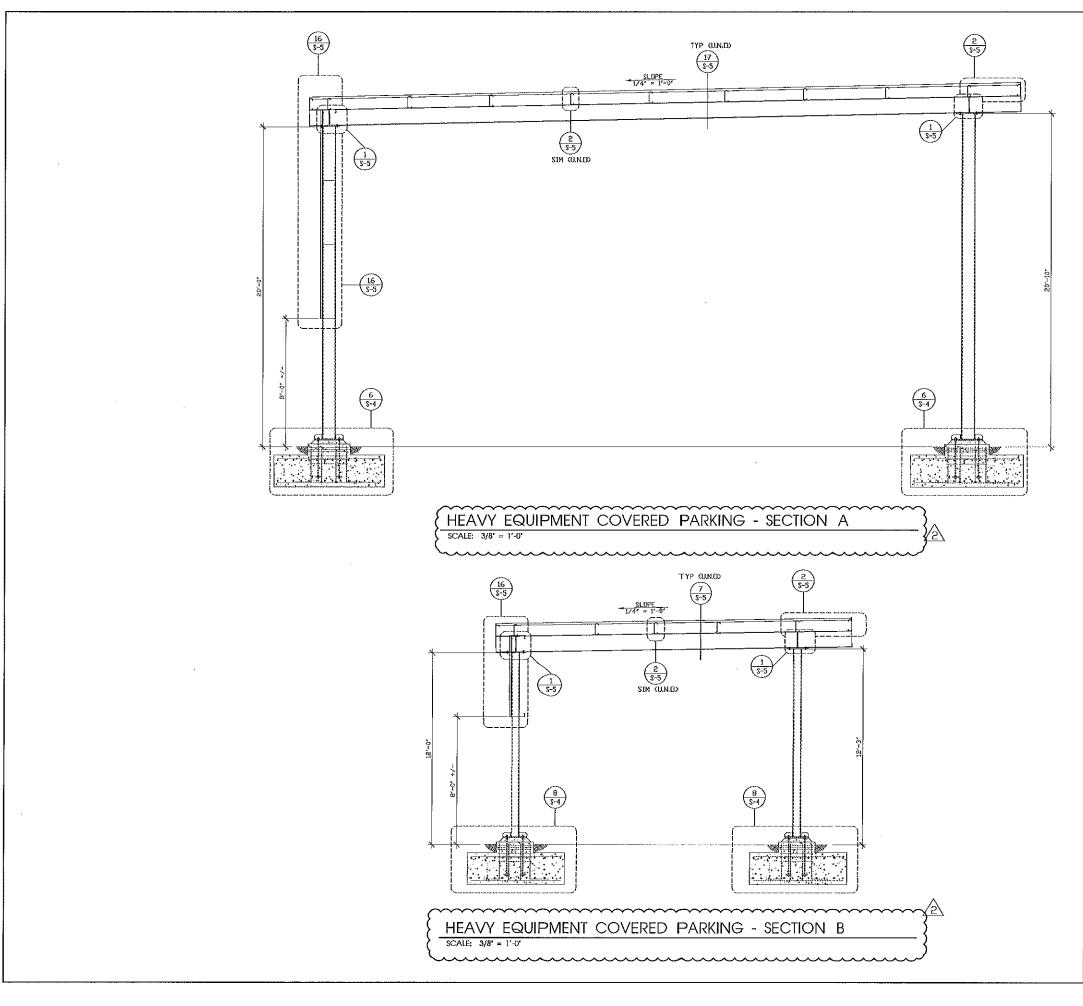
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PLAN

FRAMING

DRAWN BY: SB DATE 3/16/17 SCALE AS NOTED JOB NO. 800.0617 SHEET



PC #2 (SC) 04/1

REMARKS DATE PC #1 (SC) 04/1



DESERT ENGINEERS iechanical, electrical, plumbing and structural desi 75401 painted desent drive. Indian Wells, Ca. 92210 760 / 588 / 8600

HEAVY EQUIPMENT COVERED PARKING GENESIS SOLAR SGN-7209 11995 Wiley's Well Road Blythe, CA. 92225

SECTIONS

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Bureau Veritas North America

Doug

**Dennis** 

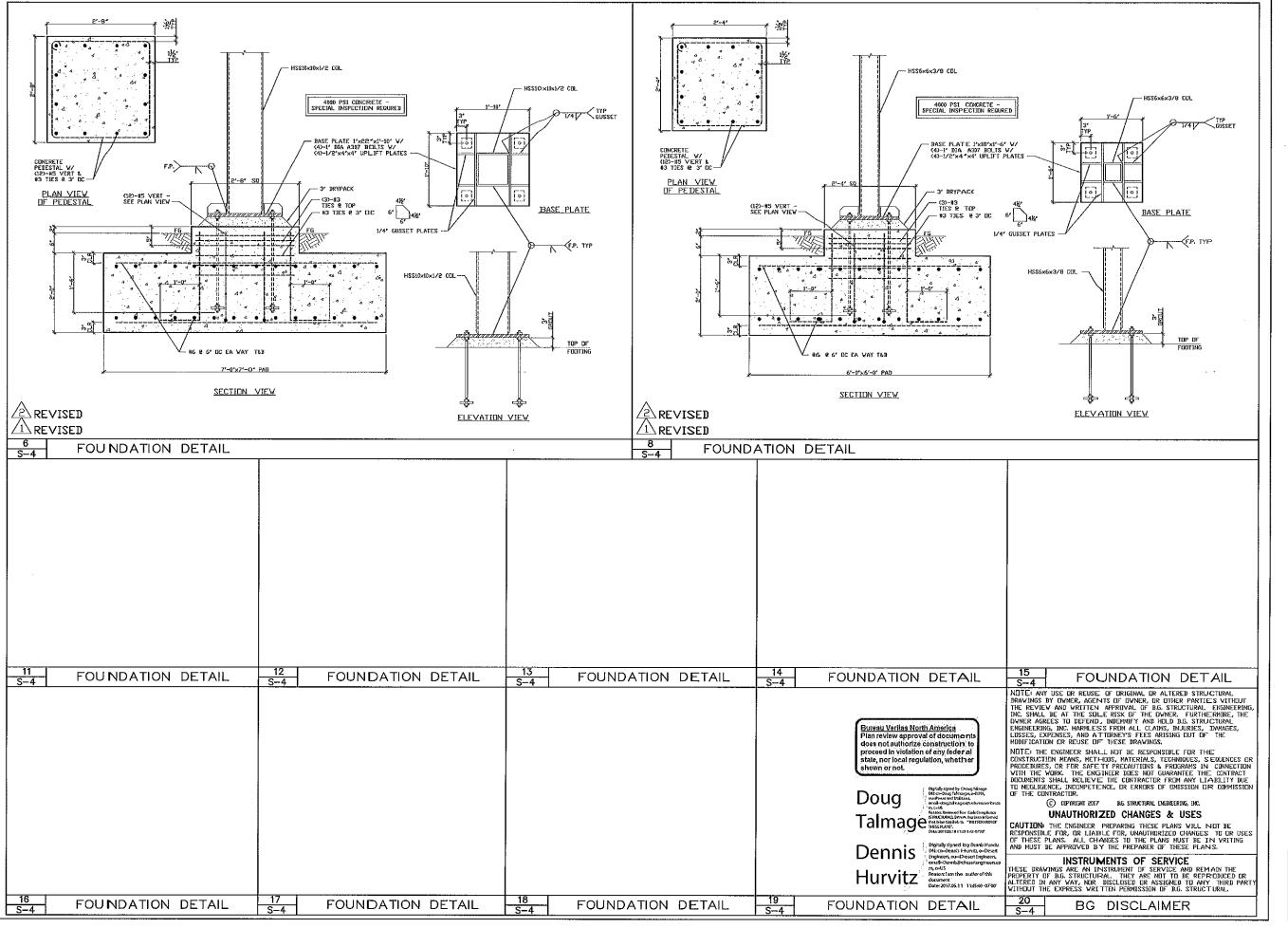
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NO.# REMARKS DATE

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↑ PC #2 (SC) 04/17

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BUGINEERING, INC LIC. NO. C33047 BRIAN GOTTLIEB -CIVIL ENGINEER 9) 568-353 0) 568-353



DESERT ENGINEERS
ONSULING ENGINEERS
WECHANICAL ELECTROL EUMBING AND STRUCTURAL DESIGN
75401 PAINTED RESENDING. INDAN WELLS, CA. 92290
75401 PAINTED RESENDING.

FOUNDATION DETAILS

/Y EQUIPMENT COVERED PARKING
GENESIS SOLAR SGN-7209
11995 Wiley's Well Road
Blythe, CA. 92225

DRAWN BY: SB

DATE 3/16/17

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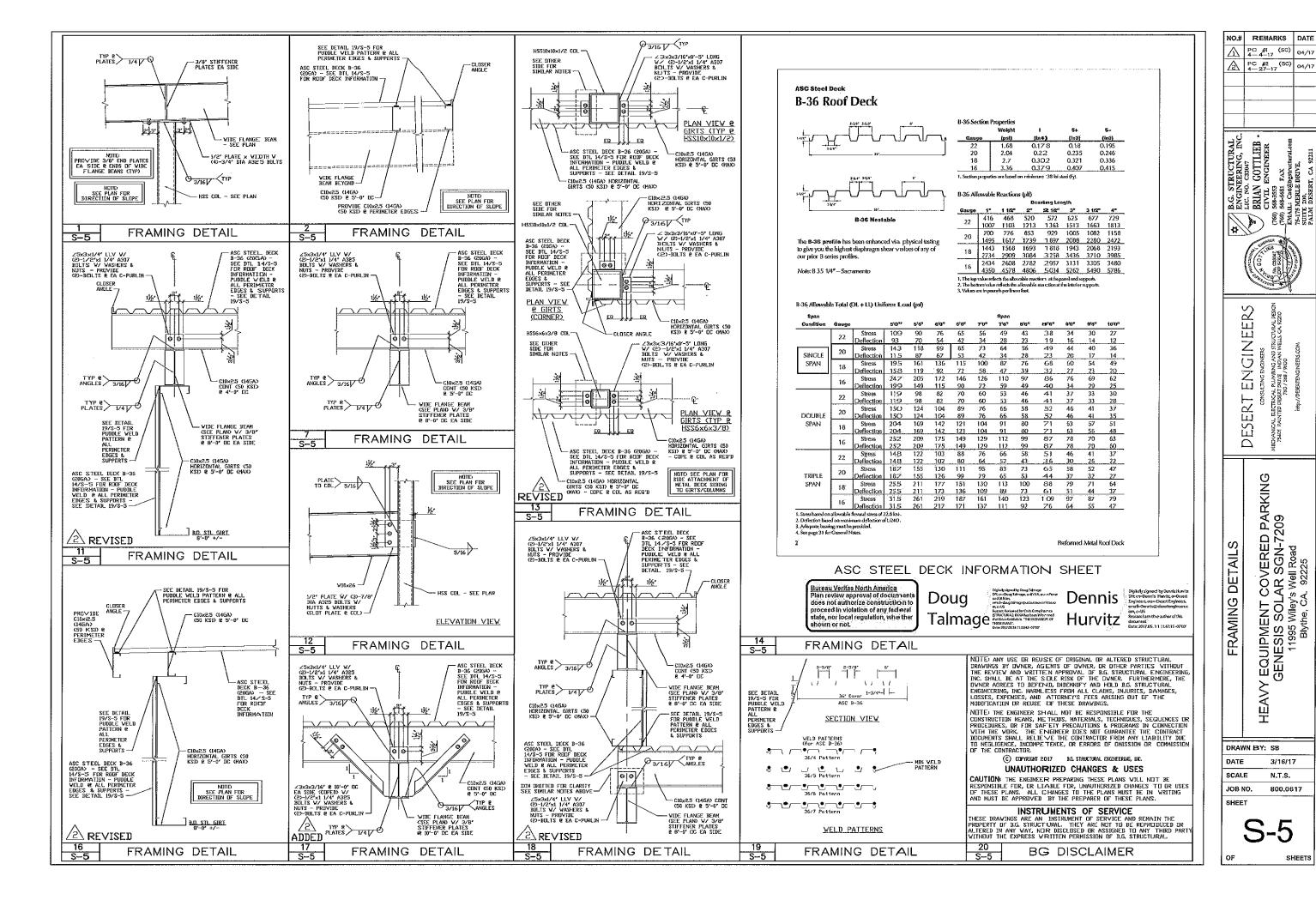
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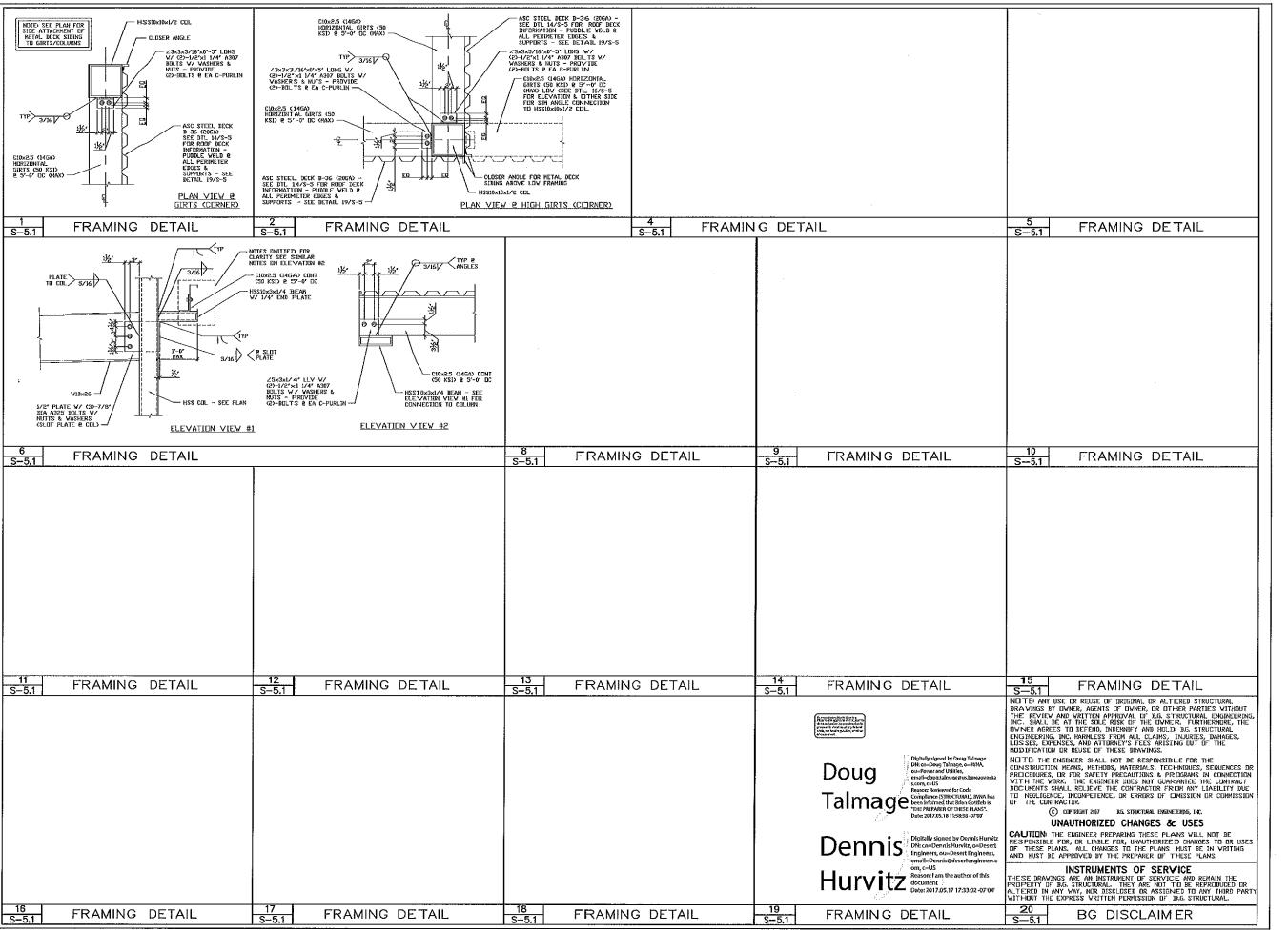
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SHEETS

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NO.# REMARKS DATE

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ENGINEERING, INC.
LIC. NO. G33047
LIC. NO. G33047
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(760) 568-5553
(760) 568-5631 FAX
EMAIL: Cad@bgstructaralcom
75-175 MERLE B.06.
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COOL STORY OF THE STORY OF THE

DESERT ENGINEERS

GONSULING BEGINEERS

RECHANICAL ELECTRICAL BURNENG AND STRUCTURAL DESIGN

FAUTO PAINTED DESERTABLICE INDIAN WELLS, CA. 92210

FEOLIA SERVICE NO. 1886 / 1880

HEAVY EQUIPMENT COVERED PARKING
GENESIS SOLAR SGN-7209
11995 Will Road
Blythe, CA. 92225

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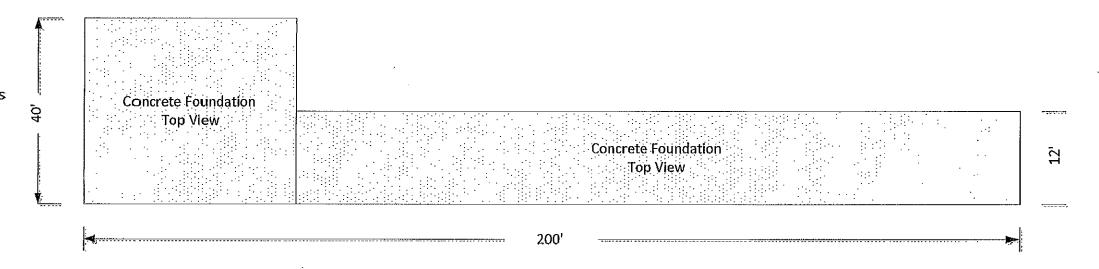
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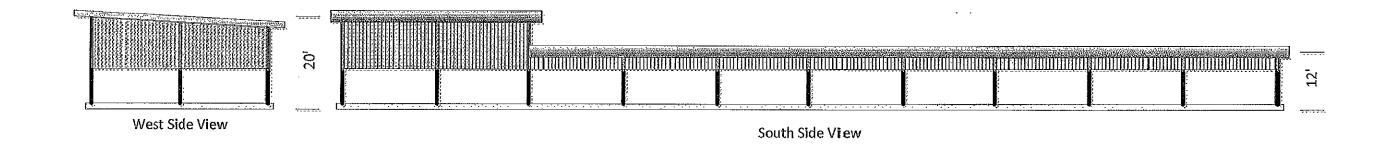
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JOB NO. 800.0617

SHEET

- 1. Roof Cover to Extend Past Vertical Supports by 3'.
- 2. Footing of Vertical Supports 6" above ground with square footing and Anchor Bolts for Structure Connection.
- 3. Slope Foundation to the South/ Back Side and Install Sumps every 40' with Drain Valves for Rain Water.
- 4. Foundation to have Metal Plates at surface for Welding Structures Vertical Supports to.





# B.G. STRUCTURAL ENGINEERING **BRIAN GOTTLIEB - CIVIL ENGINEER - Lic. No. C33047** 75-175 Merle Drive, Suite 200 Palm Desert, CA 92211 (760) 568-3553 (760) 568-5681 Fax

# Genesis Solar Energy Center -**Heavy Equipment Covered Parking**

# **Desert Engineers**

75401 Painted Desert Drive Indian Wells, CA 92210

Job Number: 800.0617

March 16, 2017

# Doug

Digitally signed by Doug Talmage
DN: cn=Doug Talmage, o=BVNA, ou=Power

Hurvitz
Reason: I am the author of this document
Date: 2017;03.16 13:29:22 - 07:00'

Dennis Digitally signed by Dennis Hurvitz DN: cn=Dennis Hurvitz, o=Desert Engineers, ou=Desert Engineers, email=Dennis@desertengineers.



# Heavy Equipment Covered Parking - Sheet Index

| Loads                                                                                                               | 1        |
|---------------------------------------------------------------------------------------------------------------------|----------|
| Steel Roof Decking                                                                                                  | 2 – 4    |
| Heavy Equipment Covered Parking Rafters / Girts / Beams                                                             | 5 – 31   |
| Heavy Equipment Covered Parking Lateral Analysis including (Design Spreadsheets, Columns, Base Plates and Footings) | 32 – 108 |

# Genesis Solar - Heavy Equipment Covered Parking 800.0617

# Loads ·

# **Dead Load - Steel Decking**

Steel Decking Misc

<u>Total</u> 5.0 P.S.F.

3.0 <u>2.0</u>

<u>f</u>

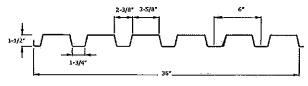
# Live Load

Roof 20.0 P.S.F.

# **ASC Steel Deck**

# **B-36 Roof Deck**





**B-36 Nestable** 

The B-36 profile has been enhanced via physical testing to give you the highest diaphragm shear values of any of our prior B-series profiles.

Note: B 35 1/4" - Sacramento

# **B-36 Section Properties**

|       | Weigint | ı     | S+    | S-    |
|-------|---------|-------|-------|-------|
| Gauge | (psf)   | (in4) | (In3) | (In3) |
| 22    | 1.68    | 0.178 | 0.18  | 0.195 |
| 20    | 2.04    | 0.22  | 0.235 | 0.246 |
| 18    | 2.7     | 0.302 | 0.321 | 0.336 |
| 16    | 3.36    | 0.379 | 0.407 | 0.415 |

1. Section properties are based on minimum 38 ksi steel (Fy).

# B-36 Allowable Reactions (plf)

|       |      |        | Res  | arıng Ler    | igta |        |              |
|-------|------|--------|------|--------------|------|--------|--------------|
| Gauge | 1"   | 1 1/2" | 2"   | 2 1/2"       | 3"   | 3 1/2" | 4"           |
| 22    | 416  | 468    | 520  | 5 <i>7</i> 2 | 625  | 677    | 729          |
|       | 1007 | 1103   | 1213 | 1363         | 1513 | 1663   | 181.3        |
| 20    | 700  | 776    | 853  | 929          | 1005 | 1082   | 1158         |
| 20    | 1495 | 1617   | 1739 | 1897         | 2088 | 2280   | 247.2        |
| 18    | 1443 | 1568   | 1693 | 1818         | 1943 | 2068   | 2193         |
| 10    | 2734 | 2909   | 3084 | 3258         | 3436 | 3710   | 3985         |
| 10    | 2434 | 2608   | 2782 | 2957         | 3131 | 3305   | 348 <b>O</b> |
| 16    | 4350 | 4578   | 4806 | 5034         | 5262 | 5490   | 5786         |

- The top value reflects the allowable reaction at the panel end supports,
   The bottom value reflects the allowable reaction at the interior supports.
- 3. Values are in pounds per linear foot.

# B-36 Allowable Total (DL + LL) Uniform Load (psf)

| Span      |             | ,                    | 1          | ~~         | ~           |            |            | Span       |           |           |          |          |          |
|-----------|-------------|----------------------|------------|------------|-------------|------------|------------|------------|-----------|-----------|----------|----------|----------|
| Condition | Gauge       |                      | 5'0"       | 5'6"       | 6'0")       | 6'6"       | 7'0"       | 7'6"       | 8,0,,     | 8'6"      | 9'0"     | 9'6"     | 10'0"    |
|           | - 22        | Stress<br>Deflection | 109<br>93  | 90<br>70   | 76<br>54 .  | 65<br>42   | 56<br>34   | 49<br>28   | 43<br>23  | 38<br>19  | 34<br>16 | 30<br>14 | 27<br>12 |
| SINGLE    | <b>≥</b> 20 | Stress<br>Deflection | 143<br>115 | 118<br>87  | 99<br>67    | 85<br>53   | 73<br>42   | 64<br>34   | 56<br>28  | 49<br>23  | 44<br>20 | 40<br>17 | 36<br>14 |
| SPAN      | 18          | Stress<br>Deflection | 195<br>158 | 161<br>119 | 136<br>92   | 115<br>72  | 100<br>58  | 87<br>47   | 76<br>39  | 68<br>32  | 60<br>27 | 54<br>23 | 49<br>20 |
| •         | 16          | Stress<br>Deflection | 247<br>199 | 205<br>149 | 172<br>115  | 146<br>90  | 126<br>72  | 110<br>59  | 97<br>49  | 86<br>40  | 76<br>34 | 69<br>29 | 62<br>25 |
| ,         | 22          | Stress<br>Deflection | 119<br>119 | 98<br>98   | 82<br>82    | 70<br>70   | 60<br>60   | 53<br>53   | 46<br>46  | 41<br>41  | 37<br>37 | 33<br>33 | 30<br>28 |
| DOUBLE    | 20          | Stress<br>Deflection | 150<br>150 | 124<br>124 | 104<br>104  | 89<br>89   | 76<br>76   | 66<br>66   | 58<br>58  | 52<br>52  | 46<br>46 | 41<br>41 | 37<br>35 |
| SPAN      | 18          | Stress<br>Deflection | 204<br>204 | 169<br>169 | 142<br>142  | 121<br>121 | 104<br>104 | 91<br>91   | 80<br>80  | 71<br>71  | 63<br>63 | 57<br>56 | 51<br>48 |
|           | 16          | Stress<br>Deflection | 252<br>252 | 209<br>209 | 175<br>175  | 149<br>149 | 129<br>129 | 112<br>112 | 99<br>99  | 87<br>87  | 78<br>78 | 70<br>70 | 63<br>60 |
| •         | 22          | Stress<br>Deflection | 148<br>148 | 122<br>122 | 103<br>1.02 | 88<br>80   | 76<br>64   | 66<br>52   | 58<br>43  | 51<br>36  | 46<br>30 | 41<br>26 | 37<br>22 |
| TRIPLE    | 20          | Stress<br>Deflection | 187<br>187 | 155<br>155 | 130<br>126  | 111<br>99  | 95<br>79   | 83<br>65   | 73<br>53  | 65<br>44  | 58<br>37 | 52<br>32 | 47<br>27 |
| SPAN      | 18          | Stress<br>Deflection | 255<br>255 | 211<br>211 | 177<br>173  | 151<br>136 | 130<br>109 | 113<br>89  | 100<br>73 | 88<br>61  | 79<br>51 | 71<br>44 | 64<br>37 |
|           | 16          | Stress<br>Deflection | 315<br>315 | 261<br>261 | 219<br>217  | 187<br>171 | 161<br>137 | 140<br>111 | 123<br>92 | 109<br>76 | 97<br>64 | 87<br>55 | 79<br>47 |

- 1. Stress based on allowable flexural stress of 22.8 ksi.
- 2. Deflection based on maximum deflection of L/240.
- 3. Adequate bearing must be provided.
- 4. See page 31 for General Notes.

# **ASC Steel Deck**

# **B-36 Roof Deck**



B-36 Allowable Diaphragm Shear (q) and Flexibility Factor (F)

| Seam<br>Gauge Attachment |             | No       | No. Puddle |                                                  |             |                    | Sr                | an                |                   |                   |
|--------------------------|-------------|----------|------------|--------------------------------------------------|-------------|--------------------|-------------------|-------------------|-------------------|-------------------|
| Gauge                    | Attachment  | `        | Wel        | is                                               | 5'0"        | 6,0,,              | 7'0'              | 8'0"              | 9'0"              | 10'0"             |
|                          |             |          |            | q                                                | 320         | 3 20               | 320               | 320               | 310               | 280               |
|                          | Button      | 12" O.C. | 4          | F                                                | 14.5 + 222R |                    |                   | i i               | 1                 | 15.4 + 111R       |
|                          | Punch       | 0.11.0.0 |            | q                                                | 260         | 2.60               | 260               | 250               | 250               | 220               |
|                          |             | 24" O.C. | 4          | F                                                | 17.4 + 222R | 17.6 -+ 185R       |                   |                   |                   |                   |
|                          | Ton         | 1011 0 6 | 1.         | q                                                | 360         | 3 60               | 360               | 360               | 360               | 360               |
|                          | Тор         | 12" O.C. | 4          | F                                                | 6.9 + 222R  | 6.1 + 185R         | 5.7 + 159R        | 5.4 + 139R        | 5.1 + 123R        |                   |
|                          | Seam        | 24" O.C. | 1          | q                                                | 280         | 2 80               | 270               | 270               | 270               | 270               |
|                          | Weld        | 24" U.C. | 4          | F                                                | 8.1 + 222R  | 7.2 + 185R         | 6.6 + 159R        | 6.2 + 139R        | 5.8 + 123R        | 5.6 + 111R        |
|                          | Side        | 12″ O.C. | 4          | q                                                | 519         | 4 92               | 473               | 458               | 447               | 438               |
|                          | Seam        | 12 0.0.  | 4          | F                                                | 7.1 + 222R  | 6.6 + 185R         | 6.2 + 159R        | 5.9 + 139R        | 5.7 + 123R        | 5.5 +111R         |
|                          | Weld        | 24" O.C. | 4          | q                                                | 337         | 3 09               | 290               | 276               | 264               | 256               |
| 22                       | weid        | 24 0.0.  |            | F                                                | 9.5 + 222R  | 8.9 + 185R         | 8.4 + 159R        | 8.0 + 139R        | 7.7 + 123R        | 7.4 + 111R        |
| 44                       |             | 12" O.C. | 7          | q                                                | 570         | 5 <i>7</i> 0       | 560               | 500               | 450               | 410               |
|                          | Button      | 12 0.0,  | <u> </u>   | F                                                | 13.8 + 56R  | 14.1 -+ 46R        | 14.3 + 39R        | 14.6 + 34R        | 14.8 + 31R        | 15.1 + 28R        |
|                          | Punch       | 24" O.C. | 7          | q                                                | 510         | 5 <b>0</b> 0       | 500               | 450               | 400               | 360               |
|                          | <del></del> | 21 0.0.  | Ľ          | F                                                | 15.2 + 56R  | 15.5 + 46R         | 15.8 + 39R        | 16.2 + 34R        | 16.5 + 31R        | 16.8 + 28R        |
|                          | Тор         | 12" O.C. | 7          | q                                                | 700         | . 700              | 690               | 690               | 620               | 560               |
|                          | Seam        |          | Ľ          | F                                                | 12.5 + 56R  | 11.1 + 46R         | 10.0 + 39R        | 9.2 + 34R         | 8.6+31R           | 8.2 + 28R         |
|                          | Weld        | 24" O.C. | 7          | q                                                | 610         | 610                | 600               | 600               | 540               | 490               |
|                          |             |          | Ľ          | F                                                | 13.9 + 56R  | 12.3 + 46R         | 11.1 + 39R        | 10.2 + 34R        | 9.5 + 31R         | 9.0 + 28R         |
|                          | Side        | 12" O.C. | 7          | q                                                | 596         | 555                | 525               | 504               | 487               | 473               |
|                          | Seam        |          | Ė          | F                                                | 6.9 + 56R   | 6.5 + 46R          | 6.2 + 39R         | 6.0 + 34R         | 5.7 + 31R         | 5.6 + 28R         |
|                          | Weld        | 24" O.C. | 7          | q                                                | 414         | 372                | 343               | 321               | 304               | 291               |
|                          |             |          | <u> </u>   | F                                                | 8.8 + 56R   | 8.4 + 46R          | 8.1 + 39R         | 7.8 + 34R         | 7.5 + 31R         | 7.3 + 28R         |
|                          | Duthan      | 12" O.C. | 4          | q                                                | 420         | 420                | 410               | 410               | 380               | 350               |
|                          | Button      |          |            | F                                                | 21 1 2 2    | 11.2 + 107R        | 11.3 + 92R        | 11.5 + 80R        | 11.7 + 71R        | 11.8 +64R         |
|                          | Punch       | 24" O.C. | 4          | q  <br>  F                                       | 340         | 340<br>13.2 + 107R | 340               | 330               | 310               | 280               |
|                          |             | ,        | <u> </u>   | <del>                                     </del> | 450         | 450                | 13.4 + 92R<br>450 | 13.6 + 80R<br>440 | 13.8 + 71R<br>440 | 14.1 + 64R<br>440 |
|                          | Top         | 12" O.C. | 4          | q<br>F                                           | 5.4 + 129R  | 5.0 + 107R         | 4.6 + 92R         | 4.4 + 80R         | 4.1 + 71R         |                   |
|                          | Seam        |          | <b></b> -  |                                                  | 340         | 340                | 340               | 340               | 340               | 4.0 + 64R<br>340  |
|                          | Weld        | 24" O.C. | 4          | q  <br>  F                                       | 6.4 + 129R  | $5.8 \pm 107R$     | 5.3 + 92R         | 5.0 + 80R         | 4.7 + 71R         | 4.5 + 64R         |
|                          |             |          |            | q                                                | 805         | 756                | 721               | 694               | 674               | 658               |
|                          | Side        | 12" O.C. | 4          | F                                                | 5.9 + 129R  | 5.5 + 107R         | 5.3 + 92R         | 5.0 + 80R         | 4.8 + 71R         | 4.6 + 64R         |
|                          | Seam        |          |            | q                                                | 543         | 494                | 458               | 432               | 412               | 395               |
|                          | Weld        | 24" O.C. | 4          | F                                                | 7.7 + 129R  | 7.3 + 107R         | 6.9 + 92R         | 6.6 + 80R         | 6.4 + 71R         | 6.2 + 64R         |
| 20                       |             | 40000    |            | q                                                | 740         | 740                | 710               | 630               | 560               | 500               |
|                          | Button      | 12" O.C. | 7          | Ė                                                | 10.4 + 32R  | 10.6 + 27R         | 10.8 + 23R        | 11.0 + 20R        | 11.3 + 18R        | 11.5 + 16R        |
| j                        | Punch       | 647.6.6  | ļ          | q                                                | 670         | 660                | 640               | 560               | 500               | 450               |
|                          |             | 24" O.C. | 7          | F                                                | 11.3 + 32R  | 11.6 + 27R         | 11.8 + 23R        | 12.1 + 20R        | 12.4 + 18R        | 12.6 + 16R        |
|                          | Ton         | 10" C C  | 7          | q                                                | 900         | 890                | 880               | 840               | 750               | 680               |
| Ī                        | Top<br>Seam | 12" O.C. | 7          | F                                                | 9.6 + 32R   | 8.5 +- 27R         | 7.8 + 23R         | 7.2 + 20R         | 6.7 + 18R         | 6.4 + 16R         |
|                          | Weld        | 24" O.C. | 7          | q                                                | 790         | 780                | 770               | 740               | 660               | 600               |
| ļ                        | vveid       | 24 U.C.  |            | F                                                | 10.6 + 32R  | 9.4 + 27R          | 8.5 + 23R         | 7.9 + 20R         | 7.4 + 18R         | 7.0 + 16R         |
|                          | Side        | 12" O.C. | 7          | q                                                | 939         | 865                | 812               | <i>77</i> 3       | 742               | 718               |
|                          | Seam        | 12 0.0.  |            | F                                                | 5.7 + 32R   | 5.4 + 27R          | 5.2 + 23R         | 5.0 + 20R         | 4.8 + 18R         | 4.7 + 16R         |
| ļ                        | Weld        | 24" O.C. | 7          | q                                                | 677         | 602                | 549               | 510               | 479               | 455               |
|                          | vvciu       |          |            | F                                                | 7.0 + 32R   | 6.8 + 27R          | 6.6 + 23R         | 6.4 + 20R         | 6.2 + 18R         | 6.0 + 16R         |

The allowable diaphragm shears "q" are listed in pounds per linear foot (plf).
 See page 31 for General Notes.

# **ASC Steel Deck**

# **B-36 Roof Deck**

B-36 Allowable Diaphragm Shear (q) and Flexibility (F)

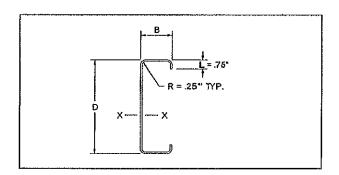
| Seam No. Puddle  Gauge Attachment Welds 5'0' |            |                     |          |              |                   | Śį               | an                |                  |                 |                 |
|----------------------------------------------|------------|---------------------|----------|--------------|-------------------|------------------|-------------------|------------------|-----------------|-----------------|
| Gauge                                        | Attachment |                     | Weld     | ls           | 5'0"              | 6,0,,            | 7'0''             | 8'0"             | 9'0"            | 10'0"           |
|                                              |            | 12" O.C.            | 4        | q            | 806               | 697              | 619               | 562              | 517             | 482             |
|                                              | Button     | 12 0.0.             | 4        | F            | 5.9 + 54R         | 6.7 +45R         | 7.5 + 39R         | 8.2 + 34R        | 9.0 + 30R       | 9.7 + 27R       |
| •                                            | Punch      | 24" O.C.            | 4        | q            | 736               | 626              | 548               | 489              | 444             | 408             |
|                                              |            | 24 0.0.             |          | F            | 6.3 + 54R         | 7.2 + 45R        | 8.2 + 39R         | 9.2 + 34R        | 10.2 + 30R      | 11.2 + 27R      |
|                                              | Тор        | 12" O.C.            | 4        | q            | 1215              | 1112             | 1032              | 968              | 917             | 878             |
|                                              | Seam       | 12 0.0.             | <u> </u> | F            | 5.0 + 54R         | 4.8 + 45R        | 4.7 + 39R         | 4.5 + 34R        | 4.4 + 30R       | 4.2 + 27R       |
|                                              | Weld       | 24" O.C.            | 4        | q            | 940               | 834              | 752               | 688              | 638             | 598             |
|                                              |            | 210 0.0.            | ļ.,      | F            | 6.0 + 54R         | 5.9 + 45R        | 5,7 + 39R         | 5.6 + 34R        | 5.5 + 30R       | 5,4 + 27R       |
|                                              | Side       | 12" O.C.            | 4        | q            | 1580              | 1482             | 1406              | 1341             | 1291            | 1251            |
|                                              | Seam       | 12 010              | <u> </u> | F            | 4.3 + 54R         | 4.1 + 45R        | 3.9 + 39R         | 3.7 + 34R        | 3.6 + 30R       | 3.5 + 27R       |
|                                              | Weld       | 24" O.C.            | 4        | q            | 1123              | 1018             | 940               | 875              | 826             | 785             |
| 18                                           |            |                     | Ŀ        | F            | 5.3 + 54R         | 5.1 + 45R        | 5.0 + 39R         | 4.8 + 34R        | 4.7 + 30R       | 4.5 + 27R       |
|                                              |            | 12" O.C.            | 7        | q            | 1176              | 1008             | 889               | 800              | 731             | 677             |
|                                              | Button     |                     | ļ ·      | F            | 5.0 + 14R         | 5.7 + 11R        | 6.4 + 10R         | 7.1 + 9R         | 7.9 + 8R        | 8.6 + 7R        |
|                                              | Punch      | 24" O.C.            | 7        | q            | 1102              | 932              | 811               | 721              | 651             | 596             |
|                                              |            |                     |          | F            | 5.2 + 14R         | 6.0 + 11R        | 6.9 + 10R         | 7.7 + 9R         | 8.6 + 8R        | 9.5 + 7R        |
|                                              | Тор        | 12" O.C.            | 7        | q            | 1538              | 1359             | 1232              | 1138             | 1064            | 1007            |
|                                              | Seam       |                     | <u> </u> | F            | 4.6 + 14R         | 4.5 + 11R        | 4.4 + 10R         | 4.3 + 9R         | 4.2 + 8R        | 4.1 + 7R        |
|                                              | Weld       | 24" O.C.            | 7        | q            | 1258              | 1079             | 952               | 858              | 785             | 727             |
|                                              |            |                     |          | F            | 5.2 + 14R         | 5.2 + 11R        | 5.2 + 10R         | 5.1 + 9R         | 5.1 + 8R        | 5.1 + 7R        |
|                                              | Side       | 12" O.C.            | 7        | q<br>F       | 1911              | 1732             | 1606              | 1511             | 1438            | 1380            |
|                                              | Seam       |                     |          |              | 4.0 + 14R<br>1445 | 3.9 + 11R        | 3.8 + 10R         | 3.7 + 9R         | 3.6 + 8R<br>971 | 3.5 + 7R<br>913 |
|                                              | Weld       | 24" O.C.            | 7        | q<br>F       | 1445<br>4.8 + 14R | 1266             | 1139<br>4.6 + 10R | 1044<br>4.5 + 9R | 4.5 + 8R        | 913<br>4.4 + 7R |
|                                              |            |                     |          | <del>-</del> | 1155              | 4.7 + 11R<br>991 | 874               | 788              | 721             | 668             |
|                                              | Button     | 12" O.C.            | 4        | q<br>F       | 4.3 + 28R         | 991<br>4.9 + 23R | 5.5 + 20R         | 6.1 + 17R        | 6.7 + 15R       | 7.3 + 14R       |
|                                              | Punch      |                     |          | <u> </u>     | 1077:             | 912              | 794               | 706              | 639             | 584             |
|                                              | Tunen      | 24" O.C.            | 4        | q<br>F       | 4.5 + 28R         | 5.2 ± 23R        | 5.9 + 20R         | 6.6 + 17R        | 7.4 + 15R       | 8.1 + 14R       |
|                                              |            |                     |          | q            | 1683              | 1529             | 1421              | 1344             | 1286            | 1242            |
|                                              | · Тор      | 12" O.C.            | 4        | F            | 3.8 + 28R         | 3.6 + 23R        | 3.5 + 20R         | 3.4 + 17R        | 3.4 + 15R       | 3.3 + 14R       |
|                                              | Seam       |                     |          | q            | 1341              | 1181             | 1068              | 984              | 920             | 871             |
|                                              | Weld       | 24" O.C.            | 4        | F            | 4.4 + 28R         | 4.3 + 23R        | 4.3 + 20R         | 4,2 + 17R        | 4.1 + 15R       | 4.1 + 14R       |
|                                              | G1.1       |                     |          | q            | 2138              | 1992             | 1893              | 1823             | 1773            | 1736            |
|                                              | Side       | 12" O.C.            | 4        | F            | 3.3 + 28R         | 3.1 + 23R        | 3.0 + 20R         | 2.9 + 17R        | 2.8 + 15R       | 2.7 + 14R       |
|                                              | Seam       |                     |          | q            | 1570              | 1412             | 1303              | 1224             | 1164            | 1118            |
|                                              | Weld       | 24" O.C.            | 4        | F            | 3.9 + 28R         | 3.8 + 23R        | 3.7 + 20R         | 3.7 + 17R        | 3.6 + 15R       | 3.5 + 14R       |
| 16                                           |            | 30"00               | _        | q            | 1652              | 1408             | 1234              | 1105             | 1005            | 927             |
|                                              | Button     | 12" O.C.            | 7        | F            | 3.7 + 6.9R        | 4.2 + 5.8R       | 4.7 + 5R          | 5.3 + 4.3R       | 5.8 + 3.9R      | 6.4 + 3.5R      |
|                                              | Punch      | 247 0 6             | 7        | q            | 1570              | 1323             | 1150              | 1018             | 916             | 835             |
|                                              | -          | 24" O.C.            | 7        | F            | 3.8 + 6.9R        | 4.4 + 5.8R       | 5.0 + 5R          | 5.6 + 4.3R       | 6.3 + 3.9R      | 6.9 + 3.5R      |
|                                              | Ton        | 12" O.C.            | 7        | q            | 2212              | 1982             | 1821              | 1705             | 1617            | 1550            |
|                                              | Top        | 12" 0,0.            | 7        | F            | 3.4 + 6.9R        | 3.4 + 5.8R       | 3.3 + 5R          | 3.3 + 4.3R       | 3.2 + 3.9R      | 3.2 + 3.5R      |
|                                              | Seam       | 24" O.C.            | 7        | q            | 1850              | 1610             | 1442              | 1317             | 1221            | 1147            |
|                                              | Weld       | 24 U.C.             | 1        | F            | 3.8 + 6.9R        | 3.8 ± 5.8R       | 3.8 + 5R          | 3.8 + 4.3R       | 3.8 + 3.9R      | $3.8 \pm 3.5R$  |
| ***************************************      | Side       | 12" O.C.            | 7        | q            | 2696              | 2476             | 2326              | 2221             | 2144            | 1895            |
|                                              | Seam       | 12 0.0.             |          | F            | 3.1 + 6.9R        | 3.0 ± 5.8R       | 2.9 + 5R          | 2.8 + 4.3R       | 2.8 + 3.9R      | 2.7 + 3.5R      |
| ***************************************      | Weld       | 24" O.C.            | 7        | q            | 2091              | 1858             | 1694              | 1575             | 1485            | 1415            |
|                                              | yveiu      | Z <del>4</del> U.C. | ′        | F            | 3.5 + 6.9R        | 3.5 + 5.8R       | 3. <u>5</u> + 5R  | 3.4 + 4.3R       | 3.4 + 3.9R      | 3.4 + 3.5R      |

The allowable diaphragm shears "q" are listed in pounds per linear foot (plf).
 See page 31 for General Notes.

4

| Genesis Solar – He<br>Equipment Covered<br>ITEM Roof Rafters | d Parking <b>B</b>     | G. STRUC      | TURAL<br>GINEERIN | lG          | JOB NO. 800.0  DATE Mair. 20  ENGINEER BG |            |
|--------------------------------------------------------------|------------------------|---------------|-------------------|-------------|-------------------------------------------|------------|
| Roof RA                                                      | PIERS/611              | <u>et6</u>    |                   |             |                                           |            |
| PRI<br>W=25(5)<br>V= 132(2)                                  |                        | m/            |                   |             |                                           |            |
| Mc 132(2                                                     |                        | ~~e+          |                   | 20          |                                           |            |
| 5 pure 6.6                                                   | ?                      | 4123<br>27,23 | 13                |             | /32                                       | <b>5</b> * |
| he 610                                                       | ×2.5×                  | 14GA,         | e5'0              | <u>40, </u> |                                           |            |
| GUET, WI                                                     | 46 Loaso               | estimate of   |                   |             |                                           |            |
| $V = 18(5)$ $V = \frac{97(20)}{2}$                           | +7 = 97#/FT<br>-= 970* |               |                   |             |                                           |            |
| $M = \frac{97(20)^2}{8}$                                     | -= 4,850°              | - 1           |                   |             |                                           |            |
| 6 = 4.860<br>HEQ 30                                          | 2 (3,                  | 27143         | :                 | 10#         | 97                                        | <b>3</b> * |
| MECIOX:                                                      | 25×144                 | a. e 5'-c     | 200               |             |                                           |            |
|                                                              |                        |               |                   |             |                                           | •          |
|                                                              |                        |               |                   |             |                                           | 4          |

# FLEXOSPAN C PURLIN AND GIRT SECTION PROPERTIES



# **SECTION ALLOWABLES (CEES)**

| SECTION    |          |                 |                 |                  | AXIS X-X         |                   |                 | AXIS Y-Y         |                |
|------------|----------|-----------------|-----------------|------------------|------------------|-------------------|-----------------|------------------|----------------|
|            |          | WEIGHT          | AREA            | lx               | Sx               | Rx                | ly              | Sy               | Ry             |
| DXB        | GA       | LB/LF           | IN <sup>2</sup> | IN <sup>4</sup>  | IN <sup>3</sup>  | IN                | IN <sup>4</sup> | IN <sup>3</sup>  | IN             |
| 6 X 2.5 C  | 16       | 2.3952          | 0.70446         | 3.9487           | 1.3162           | 2.3676            | 0.6032          | 0,3515           | 0.925          |
|            | 14       | 2.9736          | 0.87458         | 4.8704           | 1.6235           | 2.3599            | 0.7374          | 0.4297           | 0.918          |
|            | 12       | 4.1121          | 1.2094          | 6.647            | 2.2157           | 2,3444            | 0.988           | 0.5759           | 0.904          |
| 8 X 2.5 C  | 16       | 2.8018          | 0.82406         | 7.758            | 1.9395           | 3.0683            | 0.661           | 0.3623           | 0.896          |
|            | 14       | 3.4815          | 1.024           | 9.587            | 2.3966           | 3.0597            | 0.809           | 0.433            |                |
|            | 12       | 4.8234          | 1.4186          | 13.132           | 3.2831           | 3.0425            | 1.084           | 0.5942           | 0.874          |
| 0.70.0     | 44       | 2 0005          | 1 1724          | 44.022           | 2 0924           | 3 400             | 4 0 47          | 0.7544           | 4.065          |
| 8 X 3.5 C  | 14       | 3.9895          | 1.1734          | 11.933<br>16.393 | 2.9831           | 3.189             | 1.847           | 0.7511           | 1.255          |
|            | 12       | 5.5347          | 1.6278          | 16,393           | 4.0982           | 3.1734            | 2.502           | 1.0173           | 1.24           |
| 10 X 2.5 C | 14       | 3.9895          | 1.1734          | 16.351           | 3.2701           | 3.7329            | 0.862           | 0.452            | 0.857          |
|            | 12       | 5.5347          | 1.6278          | 22.455           | 4.491            | 3.714             | 1.155           | 0.6066           | 0.842          |
| 10 X 3,5 C | 14       | 4,4974          | 1.3228          | 20.03            | 4.006            | 3.8913            | 1.98            | 0.7699           | 1.224          |
| 10 × 0.0 0 | 12       | 6.246           | 1.837           | 27.576           | 5.5152           | 3.8744            | 2.683           | 1.0433           | 1.209          |
| 40 2 5 5 0 |          | 1 4074          | 4 2000          | 05 404           | 4 0400           | 4.0070            | 0.000           | 0.4505           | 0.000          |
| 12 X 2,5 C | 14<br>12 | 4,4974<br>6,246 | 1.3228<br>1.837 | 25,461<br>35,033 | 4.2436<br>5.8388 | 4.3873<br>4.3669  | 0.903           | 0.4585<br>0.6154 | 0.826<br>0.812 |
|            |          |                 |                 |                  | ,                |                   |                 |                  |                |
| 12 X 3.5 C | 14       | 5,0054          | 1.4722          | 30.773           | 5.1289           | 4.572             | 2.087           | 0.7838           | 1.191          |
|            | 12       | 6.9572          | 2.0462          | 42.434           | 7.0723           | 4.5538            | 2.827           | 1.0624           | 1.176          |
|            |          |                 |                 |                  |                  |                   |                 |                  |                |
|            |          | Flexospan -     | 253 Railroa     | ad St. Sand      | v Lake. PA       | <br>  16145 - 1-8 | 00-245-039      | 16               |                |

| PROJECT Genesis Solar – He | eavy            | CTDUCTI          | IDAI            | and the state of t | SHEET NO.                               |   |
|----------------------------|-----------------|------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|---|
| Equipment Covere           | d Parking D. G. | STRUCTU<br>ENGII | iral<br>Veerini | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | JOB NO. 800.06  DATE Mar. 201  ENGINEER |   |
| BEAMS                      |                 |                  |                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | BG BG                                   |   |
| W225 (20                   | o) = 500 Hr     |                  |                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                         |   |
|                            |                 |                  | 1,6             | 77.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | j' 3,4                                  |   |
| Use V10                    | 2×24            |                  | 93              | <b>21</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 6619"                                   |   |
| BZ<br>W= 25(1              | 1,9) = Z88 1v   |                  |                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                         |   |
|                            |                 |                  | 1,9             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 19.6 3,5                                |   |
| the 1                      | 6x31 Con        | <b>J</b> T       | 31404           | 772                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 3850                                    |   |
| 33                         | ### T           |                  |                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                         |   |
|                            |                 | į.               | ·               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3,5                                     |   |
| LIGE \ 16                  | 9×17 m/4        | CAMPSON          |                 | 121064                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1339                                    | 7 |

Project Title: Engineer: Project Descr: Genesis Solar Heavy Equipment Covered Parking BG Project ID: 800.0617

Printed: 3MAR 2017, 10:39AM

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Steel Beam Lic.#: KW-06003989 Licensee BG STRUCTURAL ENGINEERING

Description: Beam B1

# CODE REFERENCES

Calculations per AISC 360-10, IBC 2015, ASCE 7-10

Load Combination Set: IBC 2015

# Material Properties

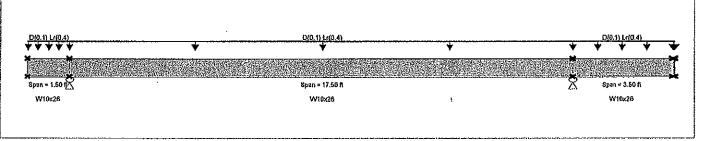
Analysis Method: Allowable Strength Design Completely Unbraced Beam Bracing:

Major Axis Bending Bending Axis:

Fy: Steel Yield:

50.0 ksi

29,000.0 ksi E: Modulus :



# Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading

Load for Span Number 1

Uniform Load: D = 0.10, Lr = 0.40 k/ft, Tributary Width = 1.0 ft

Load for Span Number 2

Uniform Load: D = 0.10, Lr = 0.40 k/ft, Tributary Width = 1.0 ft

Load for Span Number 3

Uniform Load: D = 0.10, Lr = 0.40 k/ft, Tributary Width = 1.0 ft

| DESIGN SUMMARY                                                                                                                                 | <b>可能的对象</b>                                                           |                                                                               | Design OK                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------|-----------------------------------------------------|
| Maximum Bending Stress Ratio =                                                                                                                 | 0.439:1                                                                | Maximum Shear Stress Ratio =                                                  | 0.089 : 1                                           |
| Section used for this span                                                                                                                     | W10x26                                                                 | Section used for this span                                                    | W10x26                                              |
| Ma : Applied                                                                                                                                   | 19.680 k-ft                                                            | Va : Applied                                                                  | 4.779 k                                             |
| Mn / Omega : Allowable                                                                                                                         | 44.838 k-ft                                                            | Vn/Onnega : Allowable                                                         | 53.560 k                                            |
| Load Combination +D+Lr+H,<br>Location of maximum on span<br>Span # where maximum occurs                                                        | LL Comb Run (*L*)<br>8.633ft<br>Span # 2                               | Load Combination<br>Location of maximum on span<br>'Span#where maximum occurs | +D+Lr+H, LL Comb Run (*LL)<br>17,500 ft<br>Span # 2 |
| Maximum Deflection Max Downward Transient Deflection Max Upward Transient Deflection Max Downward Total Deflection Max Upward Total Deflection | 0,204 in Ratio<br>-0.055 in Ratio<br>0,261 in Ratio<br>-0.071 in Ratio | = 649 >= 360<br>= 804 >= 180                                                  |                                                     |

Maximum Forces & Stresses for Load Combinations

| Load Combination          |       | Max Stress | Ratios      |             | 9      | ummary of M | loment Valu | les       |      |      | Summary of Shear Values |       |               |  |
|---------------------------|-------|------------|-------------|-------------|--------|-------------|-------------|-----------|------|------|-------------------------|-------|---------------|--|
| Segment Length            | Span# | M          | ٧           | Mmax +      | Mmax - | Ma Max      | Mnx         | Mnx/Omega | Cb   | Rm   | Va Max                  | Vnx   | Vnx/Omega     |  |
| +D+H                      |       |            | <del></del> | <del></del> |        | <del></del> |             |           |      |      |                         |       |               |  |
| Dsgn, L = 1,50 ft         | 1     | 0.002      | 0.020       |             | -0.14  | 0.14        | 130.42      | 78.09     | 1.00 | 1.00 | 1.07                    | 80.34 | 5-3.56        |  |
| Dsgn. L = 17.50 ft        | 2     | 0.096      | 0.021       | 4.37        | -0.77  | 4.37        | 75.86       | 45.43     | 1.16 | 1.00 | 1.14                    | 80.34 | 5.3.58        |  |
| Dsgn, L = 3.50 ft         | 3     | 0.010      | 0.008       |             | -0.77  | 0.77        | 130.42      | 78.09     | 1.00 | 1.00 | 0.44                    | 80.34 | 5-3.58        |  |
| +D+L+H, LL Comb Run (**L) |       |            |             |             | ****   |             |             |           |      |      |                         |       |               |  |
| Dsgn. L = 1.50 ft         | 1     | 0.002      | 0.020       |             | -0.14  | 0.14        | 130.42      | 78.09     | 1.00 | 1.00 | 1.07                    | 80.34 | 53.56         |  |
| Dsgn. L = 17,50 ft        | 2     | 0.096      | 0.021       | 4.37        | -0.77  | 4.37        | 75.86       | 45.43     | 1,16 | 1.00 | 1.14                    | 80.34 | 53.56         |  |
| Dsgn, L = 3.50 ft         | 3     | 0.010      | 0.008       |             | -0.77  | 0.77        | 130.42      | 78.09     | 1.00 |      | 0.44                    | 80,34 |               |  |
| +D+L+H, LL Comb Run ("L") |       |            |             |             |        |             |             | , , , , , |      |      |                         |       |               |  |
| Dsgn. L = 1.50 ft         | 1     | 0.002      | 0.020       |             | -0.14  | 0.14        | 130.42      | 78.09     | 1.00 | 1.00 | 1.07                    | 80.34 | <b>53</b> .56 |  |
| Dsgn, L = 17.50 ft        | 2     | 0.096      | 0.021       | 4.37        | -0.77  | 4.37        | 75.86       | 45.43     | 1.16 | 1.00 | 1.14                    | 80.34 | 53.56         |  |
| Dsgn. L = 3.50 ft         | 3     | 0.010      | 0.008       |             | -0.77  | 0.77        | 130.42      | 78.09     | 1.00 | 1.00 | 0.44                    | 80.34 | 53,56         |  |
| +D+L+H, LL Comb Run (*LL  | )     |            |             |             |        |             |             |           |      |      |                         |       |               |  |
| Dsgn. L = 1.50 ft         | . 1   | 0.002      | 0.020       |             | -0.14  | 0.14        | 130.42      | 78.09     | 1.00 | 1.00 | 1.07                    | 80.34 | 53.56         |  |
| Dsgn. L = 17.50 ft        | 2     | 0.096      | 0.021       | 4.37        | -0.77  | 4.37        | 75.86       | 45.43     | 1.16 | 1.00 | 1.14                    | 80.34 | 53.56         |  |
| Dsgn. L = 3,50 ft         | 3     | 0.010      | 0.008       |             | -0.77  | 0.77        | 130.42      | 78,09     | 1.00 | 1.00 | 0.44                    | 80,34 | 53,56         |  |
| +D+L+H, LL Comb Run (L**) | · -   |            |             |             |        |             |             |           |      | .,   |                         |       |               |  |
| Dsgn. L = 1.50 ft         | 1     | 0.002      | 0.020       |             | -0.14  | 0.14        | 130,42      | 78.09     | 1.00 | 1.00 | 1.07                    | 80.34 | 53,56         |  |
| Dsgn. L = 17.50 ft        | 2     | 0,096      | 0.021       | 4.37        | -0.77  | 4.37        | 75.86       | 45.43     | 1.16 |      | 1.14                    | 80.34 |               |  |
| Dsgn. L = 3.50 ft         | 3     | 0.010      | 0.008       |             | -0.77  | 0.77        | 130.42      | 78.09     | 1.00 |      | 0.44                    | 80.34 | 53.56         |  |



Project Tille: Engineer: Project Descr:

Genesis Solar Heavy Equipment Covered Parking BG Project ID: 800.0617

Steel Beam

| Description:                             | Beam B1                |                  |                |                                         |                |               |                 |                |              |      |              |                |                                         |
|------------------------------------------|------------------------|------------------|----------------|-----------------------------------------|----------------|---------------|-----------------|----------------|--------------|------|--------------|----------------|-----------------------------------------|
| Load Combination                         |                        | Max Stress       | Ratios         |                                         | 5              | Summary of M  | oment Valu      | ies            |              |      | Summa        | ry of Sh       | ear Values                              |
| Segment Length                           | Span#                  | M                | ٧              | Mmax +                                  | Mmax -         | Ma Max        | Mnx             | Mnx/Omega      | Cb           | Rm   | Va Max       |                | Vnx/Omega                               |
| +D+L+H, LL Comb Ru                       | ın (L*L)               |                  |                | *************************************** |                |               |                 | <u>_</u> _     |              |      |              |                | *** *********************************** |
| Dsgn. L = 1.50 ft                        |                        | 0.002            | 0.020          |                                         | -0.14          | 0.14          | 130.42          | 78,09          |              | 1.00 | 1.07         | 80.34          |                                         |
| Dsgn. L = 17.50 ft                       |                        | 0.096            | 0.021          | 4.37                                    | -0.77          | 4.37.         | 75.86           | 45,43          |              | 1.00 | 1.14         | 80.34          |                                         |
| Dsgn. L = 3.50 ft<br>+D+L+H, LL Comb Ru  |                        | 0.010            | 800,0          |                                         | -0.77          | 0.77          | 130,42          | 78.09          | 1.00         | 1.00 | 0.44         | 80.34          | 53.56                                   |
| Dsgn. L = 1,50 ft                        | 1                      | 0,002            | 0.020          |                                         | -0.14          | 0.14          | 130.42          | 78,09          | 1,00         | 1.00 | 1.07         | 80.34          | 53.56                                   |
| Dsgn. L = 17.50 ft                       |                        | 0.096            | 0.021          | 4.37                                    | -0.77          | 4.37          | 75.86           | 45.43          | 1.16         |      | 1.14         | 80.34          | 53.56                                   |
| Dsgn. L = 3.50 ft                        | 3                      | 0.010            | 0.008          |                                         | -0.77          | 0.77          | 130,42          | 78.09          |              | 1.00 | 0.44         | 80.34          | 53.56                                   |
| +D+L+H, EL Comb Ru                       |                        |                  |                |                                         |                |               |                 |                |              |      |              |                |                                         |
| Dsgn. L = 1.50 ft                        | 1                      | 0.002            | 0,020          |                                         | -0.14          | 0.14          | 130,42          | 78.09          | 1.00         |      | 1.07         | 80.34          | 53.56                                   |
| Dsgn. L = 17.50 ft<br>Dsgn. L = 3.50 ft  | 2<br>3                 | 0.096<br>0.010   | 0.021<br>0.00B | 4.37                                    | -0.77<br>-0.77 | 4.37          | 75,86           | 45,43          | 1.16<br>1.00 |      | 1.14         | 80.34          | 53.56                                   |
| +D+Lr+H, LL Comb Ri                      |                        | 0.010            | 0.000          |                                         | -0.11          | 0.77          | 130.42          | 78.09          | 1.00         | 1.00 | 0.44         | 80.34          | 53.56                                   |
| Dsgn. L = 1.50 ft                        | 1                      | 0.002            | 0.017          |                                         | -0.14          | 0.14          | 130,42          | 78.09          | 1.00         | 1.00 | 0.93         | 80.34          | 53.56                                   |
| Dsgn. L = 17.50 ft                       |                        | 0.066            | 0.034          | 3,26                                    | -3.22          | 3.26          | 83.06           | 49.74          | 1.27         | 1.00 | 1.84         | 80.34          | 53.56                                   |
| Dsgn. L = 3.50 ft                        | 3                      | 0.041            | 0.034          |                                         | -3.22          | 3.22          | 130.42          | 78.09          | 1.00         | 1.00 | 1.84         | 80.34          | 53.56                                   |
| +D+Lr+H, LL Comb Ri                      |                        | 0.000            | 0.000          |                                         | 0.44           | 0.44          | 400.40          | 70.00          | 4.00         | 4.00 |              | 00.04          | FO 00                                   |
| Dsgn. L = 1,50 ft<br>Dsgn. L = 17,50 ft  | 1<br>2                 | 0.002 .<br>0.439 | 0.085<br>0.087 | 19.68                                   | -0.14<br>-0.77 | 0.14<br>19.68 | 130.42<br>74.88 |                | 1.00         |      | 4.57         | 80.34<br>80.34 | 53.56                                   |
| Dsgn, L= 17.50 R                         | 3                      | 0.010            | 800.0          | 19.00                                   | -0.77          | 0.77          | 130.42          |                | 1.00         |      | 4.64<br>0.44 | 80.34          | 53.56<br>53.56                          |
| +D+Lr+H, LL Comb Re                      |                        | 0.010            | 0.000          |                                         | -0.11          | 0.77          | 100.72          | 10.00          | 1,00         | 1,00 | 0.77         | 00.54          | 33.50                                   |
| Dsgn. L = 1.50 ft                        | ` 1                    | 0.002            | 0.083          |                                         | -0.14          | 0.14          | 130.42          | 78.09          | 1.00         | 1.00 | 4.43         | 80.34          | 53,56                                   |
| Dsgn. L= 17.50 ft                        |                        | 0.408            | 0.089          | 18.48                                   | -3.22          | 18.48         | 75.73           |                | 1.16         |      | 4.78         | 80,34          | 53,56                                   |
| Dsgn. L = 3.50 ft                        | 3                      | 0.041            | 0.034          |                                         | -3.22          | 3.22          | 130.42          | 78.09          | 1.00         | 1.00 | 1.84         | 80,34          | 53.56                                   |
| +D+Lr+H, LL Comb Rt<br>Dsgn, L = 1.50 ft | ມາ (ເ.™)<br>1          | 0.008            | 0.020          |                                         | -0.59          | 0.59          | 130.42          | 78.09          | 1.00         | 1.00 | 1.09         | DO 34          | 53.56                                   |
| Dsgn. L = 17.50 ft                       |                        | 0.090            | 0.020          | 4.14                                    | -0.59<br>-0.77 | 4.14          | 76.45           |                | 1,17         |      | 1.11         | 80,34<br>80,34 | 53.56                                   |
| Dsgn. L = 3.50 ft                        | 3                      | 0,010            | 0.008          | ****                                    | -0.77          | 0.77          | 130.42          |                | 1.00         |      | 0.44         | 80,34          | 53,56                                   |
| +D+Lr+H, LL Comb Ru                      |                        |                  |                |                                         |                |               |                 |                |              |      |              |                |                                         |
| Dsgn. L = 1.50 ft                        | 1                      | 0.008            | 0.018          |                                         | -0.59          | 0.59          | 130.42          |                | 1.00         |      | 0.95         | 80.34          | 53.56                                   |
| Dsgn, L = 17.50 ft                       |                        | 0.061            | 0.034          | 3.01                                    | -3.22          | 3.22          | 88.49           |                | 1.35         |      | 1.84         | 80.34          | 53.56                                   |
| Dsgn, L ≃ 3,50 ft<br>+D+Lr+H, LL Comb Rt | 3<br>10 / (1.4)        | 0.041            | 0.034          |                                         | -3.22          | 3.22          | 130.42          | 78.09          | 1.00         | 1.00 | 1.84         | 80.34          | 53.56                                   |
| Dsgn, L = 1.50 ft                        | 1                      | 0.008            | 0.086          |                                         | -0.59          | 0.59          | 130.42          | 78.09          | 1.00         | 1.00 | 4.59         | 80,34          | 53.56                                   |
| Dsgn. L = 17.50 ft                       | 2                      | 0.433            | 0.086          | 19.45                                   | -0.77          | 19.45         | 75.01           |                | 1.15         |      | 4.61         | 80.34          | 53.56                                   |
| Dsgn, L = 3.50 ft                        | 3                      | 0.010            | 0.008          |                                         | -0.77          | 0.77          | 130.42          | 78.09          | 1.00         | 1.00 | 0.44         | 80.34          | 53.56                                   |
| +D+Lr+H, LL Comb Rt                      |                        | 2 200            | 0.000          |                                         |                |               |                 |                |              |      |              |                |                                         |
| Dsgn. L = 1.50 ft<br>Dsgn. L = 17.50 ft  | 1<br>2                 | 0.008<br>0.402   | 0.083<br>0.089 | 18.25                                   | -0.59<br>-3.22 | 0.59<br>18.25 | 130.42<br>75.86 |                | 1.00<br>1.16 |      | 4.45         | 80.34          | 53.56                                   |
| Dsgn. L = 3.50 ft                        | 3                      | 0.402            | 0.034          | 10.20                                   | -3.22<br>-3.22 | 3.22          | 130.42          |                | 1.00         |      | 4.75<br>1.84 | 80.34<br>80.34 | 53.56<br>53.56                          |
| +D+S+H                                   | •                      | 0.0.1            | 0.007          |                                         | 0.22           | J.EE          | 100.12          | 7 0.00         |              | 1.00 | 1.04         | 00.04          | 00.00                                   |
| Dsgn. L = 1.50 ft                        | 1                      | 0.002            | 0.020          |                                         | -0.14          | 0.14          | 130.42          |                | 1.00         |      | 1.07         | 80.34          | 53,56                                   |
| Dsgn, L = 17.50 ft                       |                        | 0.096            | 0.021          | 4.37                                    | -0.77          | 4,37          | 75.86           |                | 1.16         |      | 1.14         | 80.34          | 53,56                                   |
| Dsgn, L = 3.50 ft<br>+D+0.750Lr+0.750L+F | 3                      | 0,010            | 0.008          |                                         | -0.77          | 0.77          | 130.42          | 78.09          | 1.00         | 1.00 | 0.44         | 80.34          | 53,56                                   |
| Dsgn, L= 1.50 ft                         | ı, er como kon (<br>1  | 0,002            | 0.018          |                                         | -0.14          | 0,14          | 130,42          | 78.09          | 1.00         | 4 ለበ | 0.96         | 80,34          | 53.56                                   |
| Dsgn, L = 17.50 ft                       |                        | 0.073            | 0.028          | 3,53                                    | -2.61          | 3.53          | 80.44           |                | 1.23         |      | 1.49         | 80,34          | 53.56                                   |
| Dsgn. L = 3.50 ft                        | 3                      | 0,033            | 0.028          | ****                                    | -2.61          | 2.61          | 130.42          | 78.09          | 1,00         | 1.00 | 1.49         | 80,34          | 53.56                                   |
| +D+0.750Lr+0.750L+H                      | l, LL Comb Run ('      |                  |                |                                         |                |               |                 |                |              |      |              |                |                                         |
| Dsgn. L = 1.50 ft<br>Dsgn. L = 17.50 ft  | 1                      | 0.002            | 0.069          | 45.05                                   | -0.14          | 0.14          | 130.42          |                | 1.00         |      | 3.69         | 80.34          | 53.56                                   |
| Dsgn, L = 17.50 ft                       | 2<br>3                 | 0,353<br>0.010   | 0.070<br>0.008 | 15.85                                   | -0.77<br>-0.77 | 15,85<br>0.77 | 74.94<br>130.42 | 44.88<br>78.09 | 1.15<br>1.00 | 1.00 | 3.76         | 80,34          | 53.56<br>53.56                          |
| +D+0,750Lr+0,750L+H                      |                        | 0.010            | 0.000          |                                         | *0.77          | 0.11          | 130.42          | 70.03          | 1,00         | 1.00 | 0.44         | 80.34          | 53.56                                   |
| Dsgn. L = 1.50 ft                        | 1                      | 0.002            | 0.067          |                                         | -0.14          | 0.14          | 130.42          | 78.09          | 1.00         | 1.00 | 3.59         | 80.34          | 53,56                                   |
| Dsgn, L = 17.50 ft                       | 2                      | 0.330            | 0.072          | 14.96                                   | -2.61          | 14.96         | 75.73           |                | 1.16         |      | 3.87         | 80.34          | 53,56                                   |
| Dsgn. L = 3,50 ft                        | 3                      | 0.033            | 0.028          |                                         | -2.61          | 2.61          | 130.42          | 78.09          | 1.00         | 1.00 | 1.49         | 80.34          | 53,56                                   |
| +D+0.750Lr+0,750L+F<br>Dsgn. L = 1.50 ft |                        | L<br>800,0       | ń nan          |                                         | 0.40           | 0.40          | 400.40          | 70.00          | d no         | 4.00 | 4.00         | 00.07          | FO 40                                   |
| Dsgn. L = 17.50 ft                       | 1 2                    | 0,006            | 0.020<br>0.021 | 4.20                                    | -0.48<br>-0.77 | 0,48<br>4,20  | 130,42          |                | 1,00<br>4 47 |      | 1.09         | 80.34          | 53.56                                   |
| Dsgn. L = 3,50 ft                        | .2                     | 0.010            | 0.021          | V2.5°                                   | -0.77<br>-0.77 | 4.20<br>0.77  | 76,25<br>130,42 |                | 1.17<br>1.00 |      | 1.12<br>0.44 | 80.34<br>80.34 | 53.56<br>53.56                          |
| +D+0.750Lr+0.750L+H                      |                        | -                | -,             |                                         | ·              | A-14 [        | ,50,12          | , 0,00         | .,           |      | V-17         | VV.U7          | 50,00                                   |
| Dsgn. L = 1.50 ft                        | 1                      | 0.006            | 0.018          |                                         | -0.48          | 0.48          | 130.42          |                | 1.00         |      | 0.98         | 80.34          | 53.56                                   |
| Dsgn. L = 17.50 ft                       |                        | 0.069            | 0.028          | 3.34                                    | -2.61          | 3.34          | 81.03           | 48.52          | 1.24         | 1.00 | 1.49         | 80.34          | 53.56                                   |
| Dsgn. L = 3.50 ft<br>+D+0.750Lr+0.750L+H | 3<br>LLLComb Bun #     | 0.033            | 0.028          |                                         | -2.61          | 2.61          | 130.42          | 78.09          | 1.00         | 1.00 | 1.49         | 80.34          | 53.56                                   |
| Dsgn. L = 1.50 ft                        | ı, LL GOMD KUN (L<br>1 | 0.006            | 0.069          |                                         | -0.48          | 0.48          | 130.42          | 78.09          | 1.00         | 4 00 | 2 74         | 00.04          | en ee                                   |
| Dsgn. L = 17.50 ft                       | 2                      | 0.349            | 0.009          | 15,68                                   | -0.46<br>-0.77 | 15.68         | 75.08           |                | 1.15         |      | 3.71<br>3.74 | 80.34<br>80.34 | 53.56<br>53.56                          |
| Dsgn. L = 3.50 ft                        | 3                      | 0,010            | 0.008          | 10100                                   | -0.77          | 0.77          | 130.42          |                | 1.00         |      | 0.44         | 80.34          | 53.56                                   |
| +D+0.750Lr+0.760L+H                      | l, LL Comb Run (L      |                  |                |                                         |                | **            |                 |                | •            |      |              |                | -71.07                                  |
|                                          |                        |                  |                |                                         |                |               |                 |                |              |      |              |                |                                         |

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Steel Beam

ENERCALG/INC 1993-2017, Birlide 17.2 28, Ver.6.17.2 28

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Description: Ream B1

| Description:                           | Beam B1            |                            |                |        |                |               |                 |                |                           |      | •            |                |                            |
|----------------------------------------|--------------------|----------------------------|----------------|--------|----------------|---------------|-----------------|----------------|---------------------------|------|--------------|----------------|----------------------------|
| Load Combination                       |                    | Max Stress                 | Ratios         |        | 5              | Summary of Mo | oment Valu      | ies            |                           |      | Summa        | ry of Sh       | ear Values                 |
| Segment Lengt                          | h Span#            | M                          | ٧              | Mmax + | Mmax -         | Ма Мах        | Mnx             | Mnx/Omega      | Cb                        | Rm   | Va Max       | Vnx            | Vnx/Omega                  |
| Dsgn. L = 1.50 f                       |                    | 0.006                      | 0.067          |        | -0.48          | 0.48          | 130.42          | 78.09          | 1.00                      |      | 3.61         | 80,34          | 53,56                      |
| Dsgn. L ≈ 17.50<br>Dsgn. L ≈ 3.501     |                    | 0.32 <del>5</del><br>0.033 | 0.072<br>0.028 | 14.78  | -2.61<br>-2.61 | 14.78<br>2.61 | 75.86<br>130.42 | 45.43<br>78.09 | 1 16<br>1 00              |      | 3.85<br>1.49 | 80,34<br>80,34 | 53,56<br>53,56             |
| +D+0.750L+0.750S+                      |                    | 0.000                      | 0,020          |        | -2.01          | 2.01          | 130.42          | 10.03          | ¥ 100                     | 1.00 | פרו          | 70,04          | φινο                       |
| Dsgn. L = 1,50 f                       | t 1                | 0.002                      | 0.020          |        | -0.14          | 0.14          | 130.42          | 78.09          | 1.00                      | 1.00 | 1.07         | 80,34          | 53.56                      |
| Dsgn, L = 17.50                        |                    | 0.096                      | 0.021          | 4.37   | -0.77          | 4.37          | 75.86           | 45.43          | 1.16                      |      | 1.14         | 80,34          | 53.56                      |
| Dsgn. L = 3.50 f<br>+D+0.750L+0.750S+  |                    | 0.010                      | 0.008          |        | -0.77          | 0.77          | 130.42          | 78.09          | 1.00                      | 1.00 | 0.44         | 80.34          | 53.56                      |
| Dsgn. L = 1.50 f                       |                    | 0.002                      | 0,020          |        | -0.14          | 0.14          | 130.42          | 78.09          | 1.00                      | 1.00 | 1.07         | 80,34          | 53.56                      |
| Dsgn. L = 17.50                        | ít 2               | 0.096                      | 0.021          | 4.37   | -0.77          | 4.37          | 75.86           | 45.43          | <b>1</b> .16              |      | 1.14         | 80,34          | 53.56                      |
| Dsgn. L = 3.50 f                       |                    | 0.010                      | 800.0          |        | -0.77          | 0.77          | 130.42          | 78.09          | 1.00                      | 1.00 | 0.44         | 80,34          | 53,56                      |
| +D+0.750L+0.750S+<br>Dsgn, L = 1,50 f  |                    | 0.002                      | 0.020          |        | -0.14          | 0.14          | 130.42          | 78.09          | ≇.00                      | 1.00 | 1.07         | 80.34          | 53.56                      |
| Dsgn. L = 17.50                        |                    | 0.096                      | 0.021          | 4.37   | -0.77          | 4.37          | 75.86           | 45.43          | 1.16                      |      | 1.14         | 80.34          | 53.56                      |
| Dsgn. L = 3,50 f                       |                    | 0.010                      | 800.0          |        | -0.77          | 0.77          | 130.42          | 78.09          | 1.00                      | 1.00 | 0.44         | 80.34          | 53.56                      |
| +D+0.750L+0.750S+<br>Dsgn, L = 1.50 f  |                    | 0.002                      | 0.020          |        | -0.14          | 0.14          | 130.42          | 78.09          | 1.00                      | 1 00 | 1.07         | 80.34          | 53.56                      |
| Dsgn. L = 17.50                        |                    | 0.002                      | 0.025          | 4.37   | -0.14          | 4,37          | 75.86           | 45,43          | 1.16                      |      | 1.14         | 80.34          |                            |
| Dsgn, L = 3.50 f                       |                    | 0.010                      | 0.008          |        | -0.77          | 0.77          | 130.42          | 78.09          | 1.00                      | 1.00 | 0.44         | 80.34          | 53.56                      |
| +D+0.750L+0.750S+                      |                    | 0.000                      | 0.000          |        | 0.44           | 0.44          | 400.40          | 70.00          | 4 00                      | 4.00 | 4.07         | 00.24          | 53,56                      |
| Dsgn, L = 1.50 f<br>Dsgn, L = 17.50    | 1                  | 0.002<br>0.096             | 0.020<br>0.021 | 4.37   | -0.14<br>-0.77 | 0.14<br>4.37  | 130.42<br>75.86 | 78.09<br>45.43 | <b>1</b> 00 <b>1</b> 16   | 1.00 | 1.07<br>1.14 | 80.34<br>80.34 | 53,56                      |
| Dsgn, L= 3,501                         |                    | 0.010                      | 0.008          | 4,07   | -0.77          | 0.77          | 130.42          | 78.09          | 1 00                      |      | 0.44         | 80.34          | 53.56                      |
| +D+0.750L+0.750S+                      | H, LL Comb Run (Ll |                            |                |        |                |               |                 |                |                           |      |              |                |                            |
| Dsgn. L = 1.501                        |                    | 0.002                      | 0.020<br>0.021 | 4.37   | -0.14          | 0.14<br>4.37  | 130.42<br>75.86 | 78.09<br>45.43 | <b>1</b> .00 <b>1</b> .16 |      | 1.07<br>1.14 | 80.34<br>80.34 | 53.5 <del>6</del><br>53.56 |
| Osgn. l. ≈ 17.50<br>Osgn. l. ≈ 3.50 f  |                    | 0.096<br>0.010             | 0.021          | 4.07   | -0.77<br>-0.77 | 4.37<br>0.77  | 130.42          | 45.45<br>78.09 | 1 00                      |      | 0.44         | 80.34          | 53.56                      |
| +D+0.750L+0.750S+                      |                    |                            |                |        |                |               |                 |                |                           |      |              |                |                            |
| Dsgn. L = 1.501                        |                    | 0.002                      | 0.020          |        | -0.14          | 0.14          | 130.42          | 78.09          | 1.00                      |      | 1.07         | 80.34          | 53.56                      |
| Dsgn. L = 17.50<br>Dsgn. L = 3.501     |                    | 0.096<br>0,010             | 0.021<br>0.008 | 4.37   | -0.77<br>-0.77 | 4.37<br>0.77  | 75.86<br>130.42 | 45,43<br>78,09 | <b>1</b> .16              |      | 1,14<br>0,44 | 80.34<br>80.34 | 53.56<br>53.56             |
| +D+0.60W+H                             | . 3                | 0,010                      | 0.000          |        | -0.11          | 0.71          | 100,72          | 10.00          | ₹.00                      | 1.00 | . 0.73       | 00.01          | 00.00                      |
| Dsgn. L = 1.50 f                       |                    | 0.002                      | 0.020          |        | -0.14          | 0.14          | 130.42          | 78.09          | 1.00                      |      | 1.07         | 80.34          |                            |
| Dsgn. L = 17.50                        |                    | 0.096                      | 0.021          | 4.37   | -0.77          | 4.37          | 75.86           | 45,43<br>78.09 | <b>1</b> .16 <b>1</b> .00 |      | 1.14<br>0.44 | 80.34<br>80.34 |                            |
| Dsgn. L = 3.50 f<br>+D+0.70E+H         | t 3                | 0.010                      | 0.008          |        | -0.77          | 0.77          | 130.42          | 70.08          | 1.00                      | 1.00 | 0.44         | 00.34          | 99,00                      |
| Dsgn. L = 1.501                        | t 1                | 0.002                      | 0.020          |        | -0.14          | 0.14          | 130.42          | 78.09          | 1.00                      | 1.00 | 1.07         | 80.34          |                            |
| Dsgn. L = 17.50                        |                    | 0,096                      | 0.021          | 4.37   | -0.77          | 4.37          | 75.86           | 45,43          | 1.16                      |      | 1.14         | 80.34          |                            |
| Dsgn. L = 3.50 f<br>+D+0.750Lr+0.750L  |                    | 0,010                      | 800.0          |        | -0.77          | 0.77          | 130.42          | 78.09          | 1.00                      | 1.00 | 0.44         | 80.34          | 53.56                      |
| Dsgn. L = 1.501                        |                    | 0.002                      | 0.018          |        | -0.14          | 0.14          | 130.42          | 78.09          | 1.00                      | 1.00 | 0,96         | 80.34          | 53.56                      |
| Dsgn. L = 17.50                        | ft , 2             | 0.073                      | 0.028          | 3.53   | -2,61          | 3.53          | 80.44           | 48.17          | 1.23                      |      | 1.49         | 80.34          |                            |
| Dsgn, L = 3.501                        |                    | 0.033                      | 0.028          |        | -2,61          | 2.61          | 130.42          | 78.09          | <b>1</b> .00              | 1.00 | 1.49         | 80.34          | 53.56                      |
| +D+0.750Lr+0.750L-<br>Dsgn, L = 1.501  |                    | 0.002                      | 0.069          |        | -0.14          | 0,14          | 130.42          | 78.09          | 1.00                      | 1.00 | 3,69         | 80,34          | 53.56                      |
| Dsgn. L = 17.50                        |                    | 0.353                      | 0.070          | 15.85  | -0,77          | 15.85         | 74.94           | 44.88          | 1.15                      |      | 3.76         | 80.34          | 53.56                      |
| Dsgn. L = 3.501                        |                    | 0.010                      | 0.008          |        | -0,77          | 0.77          | 130.42          | 78.09          | 1.00                      | 1.00 | 0.44         | 80,34          | 53.56                      |
| +D+0.750Lr+0.750L-<br>Dsqn, L = 1.50 i | •                  | 0.002                      | 0.067          |        | -0.14          | 0,14          | - 130.42        | 78.09          | 1.00                      | 1.00 | 3,59         | 80.34          | 53.56                      |
| Dsgn. L = 17.50                        |                    | 0.330                      | 0.072          | 14.96  | -2.61          | 14.96         | 75.73           | 45.35          | 1 16                      |      | 3.87         | 80,34          |                            |
| Dsgn. L = 3.50 (                       |                    | 0.033                      | 0.028          |        | -2.61          | 2.61          | 130.42          | 78.09          | 1.00                      | 1.00 | 1.49         | 80,34          | 53.56                      |
| +D+0.750Lr+0.750L                      |                    | 0.006                      | 0,020          |        | -0.48          | 0,48          | 130,42          | 78.09          | 1.00                      | 1 00 | 1.09         | 80.34          | 53.56                      |
| Dsgn. L = 1.50 i<br>Dsgn. L = 17.50    |                    | 0.008                      | 0.020          | 4.20   | -0.48<br>-0.77 | 4,20          | 76.25           | 45.66          | 1.17                      |      | 1.12         | 80.34          |                            |
| Dsgn. L = 3.50 i                       | t 3                | 0.010                      | 0.008          |        | -0.77          | 0.77          | 130.42          | 78.09          | 1.00                      |      | 0.44         | 80.34          |                            |
| +D+0.750Lr+0.750L                      |                    | 0.000                      | 0.040          |        | 0.40           | 0.40          | ፈታስ ፈሳ          | 70.00          | 4 00                      | 1.00 | 0.00         | 00.24          | 53.56                      |
| Dsgn, L = 1.501<br>Dsgn, L = 17.50     |                    | 0.006<br>0.069             | 0,018<br>0,028 | 3.34   | -0.48<br>-2,61 | 0.48<br>3.34  | 130.42<br>81.03 | 78.09<br>48.52 | 1.00<br>1.24              |      | 0,98<br>1,49 | 80,34<br>80.34 |                            |
| Dsgn. L = 3.501                        |                    | 0.033                      | 0.028          | 0.0    | -2.61          | 2.61          | 130.42          | 78.09          | 1.00                      |      | 1.49         | 80,34          |                            |
| +D+0.750Lr+0.750L                      |                    |                            |                |        |                | A 4A          |                 | 70.00          | 4 ^^                      | 4 ^^ | 6-1          | 00.01          | e0 e4                      |
| Dsgn, L = 1.501<br>Dsgn, L = 17.50     |                    | 0.006<br>0.349             | 0.069<br>0.070 | 15.68  | -0.48<br>-0.77 | 0.48<br>15.68 | 130.42<br>75.08 | 78.09<br>44.96 | 1.00<br>1.15              |      | 3.71<br>3.74 | 80,34<br>80.34 |                            |
| Dsgn, L = 17.50                        |                    | 0.049                      | 0.070          | 10.00  | -0.77          | 0.77          | 130.42          | 78.09          | 1 00                      |      | 0.44         | 80.34          |                            |
| +D+0.750Lr+0.750L                      | +0.450W+H, LL Com  |                            |                |        |                |               |                 |                |                           |      |              |                |                            |
| Dsgn, L= 1.501                         |                    | 0.006                      | 0.067          | 44 70  | -0.48          | 0.48          | 130.42<br>75.86 | 78.09          | 1.00                      |      | 3.61<br>3.85 | 80.34<br>80.34 |                            |
| Dsgn. L = 17,50<br>Dsgn. L = 3,50      |                    | 0.325<br>0.033             | 0.072<br>0.028 | 14.78  | -2,61<br>-2,61 | 14.78<br>2.61 | 130.42          | 45.43<br>78.09 | 1.16<br>1.00              |      | 3.65<br>1.49 | 80.34          |                            |
| +D+0.750L+0.750S+                      | 0.450W+H, LL Com   |                            |                |        | ,              |               |                 |                |                           |      |              |                |                            |
| Dsgn, L = 1.50 f                       | R 1                | 0.002                      | 0.020          |        | -0.14          | 0.14          | 130.42          | 78.09          | <b>1</b> .00              | 1.00 | 1.07         | 80.34          | 53.56                      |
| •                                      |                    |                            |                |        |                |               |                 |                |                           |      |              |                |                            |

Project Title: Englineer: Project Descr:

Printed: 3 MAR 2017, 10:39A3M

Steel Beam

ENERCALC, INC. 1983-2017, Build:6.17.2.28, Ver.6.17.2.28

ENERCALC STRUCTURAL ENGINEERING Description: Beam B1

| Land Combination                              | Max Stress Ratios                         |                | Summary of Moment Values |           |                |                |                 |                |      | Summary of Shear Values |                   |                |                |
|-----------------------------------------------|-------------------------------------------|----------------|--------------------------|-----------|----------------|----------------|-----------------|----------------|------|-------------------------|-------------------|----------------|----------------|
| Load Combination<br>Segment Length            | Span#                                     | M              | V                        | Mmax +    | Mmax -         | Ma Max         | Mox             | Mnx/Omega      | Cb   | Rm                      | Va Max            |                | Vnx/Ormega     |
| Dsgn. L = 17,50 ft                            | 2                                         | 0.096          | 0.021                    | 4,37      | -0.77          | 4.37           | 75.86           | 45.43          |      | 1.00                    | 1.14              | 80.34          | 53.56          |
| Dsgn. L = 3.50 ft                             | 3                                         | 0.010          | 0.008                    | 7,01      | -0.77          | 0.77           | 130.42          | 78.09          |      | 1.00                    | 0.44              | 80.34          | 5 3.56         |
| +D+0.750L+0.750S+0.450V                       | N+H, LL Com                               |                |                          |           | •              | -              |                 |                |      |                         |                   |                |                |
| Dsgn. L = 1.50 ft                             | 1                                         | 0.002          | 0.020                    |           | -0.14          | 0.14           | 130.42          | 78.09          |      | 1,00                    | 1.07              | 80.34          | 53.56          |
| Dsgn. L = 17.50 ft                            | 2                                         | 0.096          | 0.021                    | 4.37      | -0.77          | 4.37           | 75.86           | 45.43          |      | 1.00                    | 1.14              | 80.34          | 5-3.56         |
| Dsgn, L ≃ 3.50 ft                             | 3<br>************************************ | 0.010          | 800.0                    |           | -0.77          | 0.77           | 130.42          | 78.09          | 1.00 | 1.00                    | 0.44              | 80.34          | 53.56          |
| +D+0.750L+0.750S+0.450V<br>Dsgn, L = 1.50 ft  | 14+13, EL GOIN                            | 0.002          | 0.020                    |           | -0.14          | 0.14           | 130.42          | 78.09          | 1.00 | 1.00                    | 1.07              | 80.34          | 53.56          |
| Dsgn. L = 17.50 ft                            | 2                                         | 0.096          | 0.020                    | 4,37      | -0.77          | 4.37           | 75.86           | 45.43          |      | 1.00                    | 1.14              | 80.34          | 53.56          |
| Dsgn. L = 3.50 ft                             | ์ 3                                       | 0.010          | 0.008                    | ,,_,      | -0.77          | 0.77           | 130.42          | 78.09          |      | 1.00                    | 0.44              | 80.34          | 53.56          |
| +D+0.750L+0.750S+0.450V                       | N+H, LL Com                               |                |                          |           |                |                |                 |                |      |                         |                   |                |                |
| Dsgn. L = 1.50 ft                             | 1                                         | 0.002          | 0.020                    |           | -0.14          | 0.14           | 130.42          | 78.09          |      | 1.00                    | 1.07              | 80.34          | <b>53</b> ,56  |
| Dsgn. L.≈ 17.50 ft                            | 2                                         | 0.096          | 0.021                    | 4.37      | ·0.77          | 4.37           | 75.86           | 45,43          |      | 1.00                    | 1,14              | 80.34          | 53.56          |
| Dsgn. l. # 3.50 ft                            | 3                                         | 0.010          | 0.008                    |           | -0.77          | 0.77           | 130.42          | 78.09          | 1.00 | 1.00                    | 0.44              | 80.34          | <b>53</b> .56  |
| +D+0.750L+0.750S+0.450V                       | w+n, LL Com<br>1                          | 0,002          | 0.020                    |           | -0.14          | 0.14           | 130.42          | 78.09          | 4 00 | 1.00                    | 1.07              | 80.34          | 53.56          |
| Dsgn, l. = 1,50 ft<br>Dsgn, l. = 17,50 ft     | 2                                         | 0,002          | 0.020                    | 4.37      | -0.14          | 4.37           | 75.86           | 45,43          |      | 1.00                    | 1.14              | 80.34          | 53.56          |
| Dsgn. L = 3.50 ft                             | 3                                         | 0.010          | 0.008                    | 1201      | -0.77          | 0.77           | 130,42          | 78.09          |      | 1.00                    | 0.44              | 80.34          | 5 3.56         |
| +D+0,750L+0.750S+0,450V                       | _                                         |                | ****                     |           | ****           |                |                 |                |      |                         |                   |                |                |
| Dsgn. L = 1,50 ft                             | 1                                         | 0.002          | 0.020                    |           | -0.14          | 0.14           | 130,42          | 78.09          |      | 1.00                    | 1.07              | 80.34          | 53.56          |
| Dsgn. L = 17,50 ft                            | 2                                         | 0.098          | 0.021                    | 4.37      | -0.77          | 4.37           | 75,86           | 45.43          |      | 1.00                    | 1,14              | 80.34          | 5 3.56         |
| Dsgn. L = 3.50 ft                             | 3                                         | 0.010          | 0,008                    |           | -0.77          | 0.77           | 130.42          | 78,09          | 1.00 | 1.00                    | 0.44              | 80.34          | 53.56          |
| +D+0.750L+0.750S+0.450V                       |                                           | 0.000          | 4.000                    |           | 0.44           | 0.44           | 400.40          | 70.00          | 4.00 | 4.00                    | 4.07              | 00.24          | care           |
| Dsgn. L = 1.50 ft                             | 1<br>2                                    | 0.002<br>0.096 | 0,020<br>0,021           | 4.37      | -0.14<br>-0.77 | 0.14<br>4.37   | 130.42<br>75.86 | 78,09<br>45,43 |      | 1.00<br>1.00            | 1.07<br>1.14      | 80.34<br>80.34 | 53.56<br>53.56 |
| Dsgn. L = 17.50 ft<br>Dsgn. L = 3.50 ft       | 3                                         | 0.010          | 0.021                    | 4.07      | -0.77          | 0.77           | 130.42          | 78,09          |      | 1.00                    | 0.44              | 80.34          | 5 3.56         |
| +D+0.750L+0.750S+0.5250                       | •                                         | 0.010          | 0.000                    |           | Vii i          | 0              | 100714          | 10,00          | 1100 | 1100                    | 0                 | 00101          | 40.00          |
| Dsgn. L = 1.50 ft                             | 1                                         | 0.002          | 0.020                    |           | -0.14          | 0.14           | 130,42          | 78.09          | 1,00 | 1.00                    | 1.07              | 80.34          | 5 3.56         |
| Dsgn. L = 17.50 ft                            | 2                                         | 0.096          | 0.021                    | 4,37      | -0.77          | 4.37           | 75.86           | 45.43          |      | 1.00                    | 1.14              | 80,34          | 53.56          |
| Dsgn. L = 3.50 ft                             | 3                                         | 0.010          | 0.008                    |           | -0.77          | 0.77           | 130.42          | 78.09          | 1.00 | 1.00                    | 0.44              | 80.34          | 53.56          |
| +D+0.750L+0.750S+0.5250                       |                                           |                |                          |           |                |                | 400.40          | 70.00          | 4.00 | 4 65                    | 4 55              | 00.01          | - 0 -0         |
| Dsgn. L ≈ 1.50 ft                             | 1                                         | 0.002          | 0.020                    | 4.07      | -0.14          | 0.14           | 130.42          | 78.09          |      | 1.00                    | 1.07              | 80.34          | 5·3,56         |
| Dsgn, L, = 17,50 ft                           | 2<br>3                                    | 0.096<br>0.010 | 0.021<br>0.008           | 4.37      | -0.77<br>-0.77 | 4.37<br>0.77   | 75.86<br>130.42 | 45.43<br>78.09 |      | 1.00<br>1.00            | 1.14<br>0.44      | 80,34<br>80,34 | 53,56<br>53,56 |
| Dsgn. i. = 3,50 ft<br>+D+0.750L+0,750S+0.5250 | -                                         | 0.010          | 0.000                    |           | -0.77          | 0.77           | 130,42          | 70.05          | 1.00 | 1.00                    | 0.44              | 00.54          | 33,00          |
| Dsgn. L = 1.50 ft                             | 1                                         | 0.002          | 0.020                    |           | -0.14          | 0.14           | 130,42          | 78.09          | 1.00 | 1.00                    | 1.07              | 80,34          | 5-3.56         |
| Dsgn. L = 17.50 ft                            | 2                                         | 0,096          | 0.021                    | 4.37      | -0.77          | 4.37           | 75.86           | 45.43          |      | 1.00                    | 1.14              | 80.34          | 53.56          |
| Dsgn. L = 3,50 ft                             | 3                                         | 0.010          | 0.008                    |           | -0.77          | 0.77           | 130,42          | 78.09          | 1.00 | 1.00                    | 0.44              | 80.34          | 53.56          |
| +D+0.750L+0.750S+0.5250                       |                                           |                |                          |           |                |                |                 |                |      |                         |                   |                |                |
| Dsgn. L = 1.50 ft                             | 1                                         | 0.002          | 0.020                    | LOH       | -0.14          | 0.14           | 130.42          | 78.09          |      | 1.00                    | 1.07              | 80.34          | 5 3.56         |
| Dsgn. L = 17.50 ft                            | 2                                         | 0.096          | 0.021                    | 4.37      | -0.77<br>-0.77 | 4.37           | 75,86<br>130,42 | 45.43<br>78,09 |      | 1.00<br>1.00            | 1.14<br>0.44      | 80.34<br>80.34 | 53.56<br>53.56 |
| Dsgn. L = 3.50 ft<br>+D+0,750L+0.750S+0.5250  | 3<br>NE⊒HII Con                           | 0.010          | 0.008                    |           | -0.17          | 0.77           | 130,42          | 70,03          | 1.00 | 1.00                    | 0.99              | 00.04          | 30.00          |
| Dsgn. L = 1.50 ft                             | 1                                         | 0.002          | 0.020                    |           | -0.14          | 0.14           | 130.42          | 78.09          | 1.00 | 1.00                    | 1.07              | 80.34          | 5-3.56         |
| Dsgn. L = 17.50 ft                            | ż                                         | 0.096          | 0.021                    | 4.37      | -0,77          | 4.37           | 75.86           | 45.43          |      | 1.00                    | 1.14              | 80.34          | 5 3.56         |
| Dsgn. L = 3.50 ft                             | 3                                         | 0.010          | 0.008                    |           | -0.77          | 0.77           | 130.42          | 78.09          | 1.00 | 1.00                    | 0.44              | 80.34          | 5 3.56         |
| +D+0.750L+0.750S+0.5250                       | E+H, LL Con                               |                |                          |           |                |                |                 |                |      |                         |                   | -4             |                |
| Dsgn. L = 1.50 ft                             | 1                                         | 0.002          | 0.020                    | 4.07      | -0.14          | 0.14           | 130.42          | 78.09          |      | 1.00                    | 1.07              | 80.34          | 5.3.56         |
| Dsgn. L = 17.50 ft                            | 2<br>3                                    | 0.096<br>0.010 | 0.021                    | 4,37      | -0,77<br>-0,77 | 4_37<br>0.77   | 75.86<br>130.42 | 45.43<br>78.09 |      | 1.00<br>1.00            | 1.14<br>0.44      | 80.34<br>80.34 | 53.56<br>53.56 |
| Dsgn. L = 3,50 ft<br>+D+0,750L+0,750S+0,5250  |                                           | 0.010          | 0.008                    |           | *0.77          | 0.77           | 100,44          | 70.05          | 1,00 | 1.00                    | V.44              | 00,04          | O-5.00         |
| Dsgn. L = 1.50 ft                             | 1                                         | 0.002          | 0,020                    |           | -0.14          | 0.14           | 130.42          | 78,09          | 1.00 | 1.00                    | 1.07              | 80,34          | 5 3.56         |
| Dsgn. L = 17.50 ft                            | 2                                         | 0.096          | 0.021                    | 4.37      | -0.77          | 4.37           | 75.86           | 45.43          |      | 1.00                    | 1.14              | 80,34          | 53.56          |
| Dsgn. L = 3.50 ft                             | 3                                         | 0.010          | 0.008                    |           | -0.77          | 0.77           | 130.42          | 78.09          |      | 1.00                    | 0.44              | 80.34          | 5 3.56         |
| +0.60D+0.60W+0.60H                            |                                           |                |                          |           |                |                |                 |                |      |                         |                   |                |                |
| Dsgn, L = 1.50 ft                             | 1                                         | 0.001          | 0.012                    |           | -0.09          | 0.09           | 130.42          | 78.09          |      | 1.00                    | 0.64              | 80.34          | 5 3.56         |
| Dsgn. L = 17.50 ft                            | 2                                         | 0.058          | 0.013                    | 2,62      | -0.46          | 2.62           | 75.86           | 45.43          |      | 1.00                    | 0.68              | 80.34          | 53.56          |
| Dsgn, L = 3.50 ft                             | 3                                         | 0.006          | 0.005                    |           | -0.46          | 0.46           | 130.42          | 78.09          | 1,00 | 1,00                    | 0.26              | 80.34          | <b>53</b> .56  |
| +0.60D+0.70E+0.60H<br>Dsgn. L = 1.50 ft       | 1                                         | 0.001          | 0.012                    |           | -0.09          | 0_09           | 130.42          | 78.09          | 1.00 | 1,00                    | 0.64              | 80.34          | 5-3.56         |
| Dsgn. L = 17.50 ft                            | 2                                         | 0.058          | 0.012                    | 2.62      | -0.46          | 2.62           | 75.86           | 45.43          |      | 1,00                    | 0.68              | 80.34          | 53.56          |
| Dsgn. L ≈ 3.50 ft                             | 3                                         | 0.006          | 0.005                    |           | -0.46          | 0.46           | 130.42          | 78.09          |      | 1.00                    | 0.26              | 80.34          | 5 3,56         |
| Overall Maximu                                |                                           |                |                          | e proglet |                | -              |                 |                |      |                         | •                 |                | -              |
|                                               | in Penece                                 |                | Max, "-" Defl            |           |                | المميا الم     | hinatian        |                |      |                         | , Parther         | pastic-        | in Span        |
| Load Combination                              |                                           | Span           |                          | LOCATIO   | n in Span      | Load Com       |                 |                |      |                         | k. "+" Defl       |                | in Span        |
| יוויי ניינו                                   |                                           | 1              | 0.0000                   |           |                | +D+L+H         |                 |                |      |                         | -0.0710<br>0.0000 | 0.000<br>0.000 |                |
| +D+Lr+H                                       |                                           | 2<br>3         | 0,2613<br>0,0000         |           | 8.750<br>8.750 | +rJ+Cl+        | 4               |                |      |                         | -0.1620           |                | 3,500          |
|                                               |                                           | J              | 0.0000                   |           | 0.100          | *  LF *  L   * | •               |                |      |                         | AT LATA           |                | V/VVV          |

B.G. Structural Engineering, Inc. 75-175 Merle Drive Palm Desert, CA. 92211 Phone: 1-760-568-3553 Fax: 1-760-568-5681

Project Title: Englneer: Project Descr:

Genesis Solar Heavy Equipment Covered Parking 12 BG Project ID: 800.0617

Description: Beam B1

| Load Combination                                               | Support 1 | Support 2 | Support 3 | Support notation ; Far left is #1 Support 4 |   |
|----------------------------------------------------------------|-----------|-----------|-----------|---------------------------------------------|---|
| Overall MAXimum                                                |           | 5.381     | 6.619     | gF ·                                        |   |
| Overali MiNimum                                                |           | -0.140    | -0.026    |                                             |   |
| +D+H                                                           |           | 1.256     | 1.580     |                                             |   |
| +D+L+H, LL Comb Run (**L)                                      |           | 1.256     | 1.580     |                                             |   |
| +D+L+H, LL Comb Run (*L*)                                      |           | 1.256     | 1.560     |                                             |   |
|                                                                |           |           |           |                                             |   |
| +D+L+H, LL Comb Run (*LL)<br>+D+L+H, LL Comb Run (L**)         |           | 1.256     | 1.580     |                                             |   |
|                                                                |           | 1.256     | 1.580     |                                             |   |
| +D+L+H, LL Comb Run (L*L)<br>+D+L+H, LL Comb Run (LL*)         |           | 1.256     | 1.580     |                                             |   |
| +D+L+H, LL Comb Run (LLL)                                      |           | 1.256     | 1.580     |                                             |   |
|                                                                |           | 1.256     | 1.580     |                                             |   |
| +D+Lr+H, LL Comb Run (**L)<br>+D+Lr+H, LL Comb Run (*L*)       |           | 1.116     | 3.120     |                                             |   |
|                                                                |           | 4.756     | 5.079     |                                             |   |
| +D+Lr+H, LL Comb Run (*LL)                                     |           | 4.616     | 6.619     |                                             |   |
| +D+Lr+H, LL Comb Run (L**)                                     |           | 1.881     | 1.554     |                                             |   |
| +D+Lr+H, LL Comb Run (L*L)                                     |           | 1.741     | 3.094     |                                             |   |
| +D+Lr+H, LL Comb Run (LL*)                                     |           | 5.381     | 5.054     |                                             |   |
| +D+Lr+H, LL Comb Run (LLL)                                     |           | 5.241     | 6.594     |                                             |   |
| +D+S+H                                                         |           | 1.256     | 1.580     |                                             |   |
| +D+0.750Lr+0.750L+H, LL Comb                                   |           | 1.151     | 2,735     |                                             |   |
| +D+0.750Lr+0.750L+H, LL Comb                                   |           | 3.881     | 4.204     |                                             |   |
| +D+0.750Lr+0.750L+H, LL Comb                                   |           | 3.776     | 5.359     |                                             |   |
| +D+0.750Lr+0.750L+H, LL Comb                                   | Run (L    | 1.725     | 1.560     |                                             |   |
| +D+0.750Lr+0.750L+H, LL Comb                                   | Run (L    | 1.620     | 2.715     |                                             |   |
| +D+0.750Lr+0.750L+H, LL Comb                                   | Run (L    | 4.350     | 4.185     |                                             |   |
| +D+0.750Lr+0.750L+H, LL Comb                                   |           | 4.245     | 5.340     |                                             |   |
| +D+0.750L+0.750S+H, LL Comb I                                  | Run(**    | 1.256     | 1.580     |                                             |   |
| +D+0.750L+0.750S+H, LL Comb I                                  | Run (*t   | 1.256     | 1.580     |                                             |   |
| +D+0.750L+0.750S+H, LL Comb I                                  | Run (*L   | 1.256     | 1,580     | -                                           |   |
| +D+0.750L+0.750S+H, LL Comb I                                  | Run (L'   | 1.256     | 1.580     |                                             |   |
| +D+0.750L+0.750S+H, LL Comb I                                  | Run (L'   | 1.256     | 1.580     |                                             |   |
| +D+0.750L+0.750S+H, LL Comb I                                  | Run(U     | 1,256     | 1,580     |                                             |   |
| +D+0.750L+0.750S+H, LL Comb I                                  | Run (LI   | 1.256     | 1.580     |                                             |   |
| +D+0.60W+H                                                     | <b>,</b>  | 1,256     | 1.580     |                                             |   |
| +D+0.70E+H                                                     |           | 1,256     | 1,580     |                                             |   |
| +D+0.750Lr+0.750L+0.450W+H, L                                  | L. Corr   | 1,151     | 2,735     |                                             |   |
| +D+0.750Lr+0.760L+0.450W+H, L                                  |           | 3.881     | 4.204     |                                             |   |
| +D+0.750Lr+0.750L+0.450W+H, L                                  |           | 3,776     | 5.359     |                                             |   |
| +D+0.750Lr+0.750L+0.450W+H, L                                  |           | 1.725     | 1.560     |                                             |   |
| +D+0.750Lr+0.750L+0.450W+H, L                                  |           | 1.620     | 2,715     |                                             |   |
| +D+0.750Lr+0.750L+0.450W+H, L                                  |           | 4.350     | 4.185     |                                             |   |
| +D+0.750Lr+0.750L+0.450W+H, L                                  |           | 4.245     | 5.340     |                                             |   |
| +D+0.750L+0.750S+0.450W+H, L                                   |           | 1.256     | 1.580     |                                             |   |
| +D+0.750L+0.750S+0.450W+H, L                                   |           | 1.256     | 1.580     |                                             |   |
| +D+0.750L+0.750S+0.450W+H, L                                   |           | 1.256     | 1,580     |                                             |   |
| +D+0.750L+0.750S+0.450W+H, L                                   |           | 1,256     | 1.580     |                                             |   |
| +D+0.750L+0.750S+0.450W+H, L                                   |           | 1,256     | 1.580     |                                             |   |
| +D+0.750L+0.750S+0.450W+H. L                                   |           | 1,256     | 1.580     |                                             |   |
| +D+0.750L+0.750S+0.450W+H, L                                   |           | 1.256     | 1.580     |                                             |   |
| +D+0.750L+0.750S+0.5250E+H, I                                  |           | 1.256     | 1.580     |                                             |   |
|                                                                |           |           |           |                                             |   |
| +D+0.750L+0.750S+0.5250E+H, I                                  |           | 1.256     | 1,580     |                                             |   |
| +D+0.750L+0.750S+0.5250E+H, I<br>+D+0.750L+0.750S+0.5250E+H, I |           | 1.256     | 1.580     |                                             |   |
|                                                                |           | 1.256     | 1.580     |                                             |   |
| +D+0.750L+0.750S+0.5250E+H, I                                  |           | 1.256     | 1,580     |                                             |   |
| +D+0.750L+0.750S+0.5250E+H, L                                  |           | 1.256     | 1.580     |                                             |   |
| +D+0.750L+0.750S+0.5250E+H, I                                  | LL COR    | 1.256     | 1.580     |                                             | • |
| +0.60D+0.60W+0.60H                                             |           | 0.753     | 0.948     |                                             |   |
| +0.60D+0.70E+0.60H                                             |           | 0.753     | 0.948     |                                             |   |
| D Only                                                         |           | 1.256     | 1.580     |                                             |   |
| Lr Only, LL Comb Run ("L)                                      |           | -0.140    | 1.540     |                                             |   |
| Lr Only, LL Comb Run ("L")                                     |           | 3.500     | 3.500     |                                             |   |
| Lr Only, LL Comb Run (*LL)                                     |           | 3,360     | 5.040     |                                             |   |
| Lr Only, LL Comb Run (L**)                                     |           | 0.626     | -0.026    |                                             |   |
| Lr Only, LL Comb Run (L*L)                                     |           | 0.486     | 1.514     |                                             |   |
| Lr Only, LL Comb Run (LL*)                                     |           | 4.126     | 3.474     |                                             |   |



B.G. Structural Engineering, Inc. 75-175 Merle Drive Palm Desert, CA. 92211 Phone: 1-760-568-3553 Fax: 1-760-568-5681

Lic # : KW-06003989

Project Title: Engineer: Project Descr:

Genesis Solar He avy Equipment Covered Parking 13 BG Project ID: 800.0617

Steel Beam

Description:

Beam B1

| Vertical Reactions         |           |           | Ķ <b>S</b> | Support notation : Far left is #1 | Values in KIPS |  |
|----------------------------|-----------|-----------|------------|-----------------------------------|----------------|--|
| oad Combination            | Support 1 | Support 2 | Support 3  | Support 4                         |                |  |
| Lr Only, LL Comb Run (LLL) |           | 3.986     | 5.014      |                                   |                |  |
| L Only, LL Comb Run (**L)  |           |           |            |                                   |                |  |
| L Only, LL Comb Run (*L*)  |           |           |            |                                   |                |  |
| L Only, LL Comb Run (*LL)  |           |           |            |                                   |                |  |
| L Only, LL Comb Run (L**)  |           |           |            |                                   |                |  |
| L Only, LL Comb Run (L*L)  |           |           |            |                                   |                |  |
| L Only, LL Comb Run (LL*)  |           |           |            |                                   |                |  |
| Only, LL Comb Run (LLL)    |           |           |            |                                   |                |  |
| S Only                     |           |           |            |                                   |                |  |
| W Only                     |           |           |            |                                   |                |  |
| E Only                     |           |           |            |                                   |                |  |
| H Only                     |           |           |            |                                   |                |  |

Genesis Solar Heavy Equipment Covered Parking 14 BG Project ID: 800.0617

Printed: 3 MAR 2017, 10:59AJJ

Steel Beam

File = s:\E0AEZR-G\86YX5A--F.EC6 ENERCALC, INC. 1983-2017, Build:6.17.2.28, Ver.6. 17.2.28

LICENSEE JEG STRUCTURAL ENGINEERING

Description:

Lic.# KW-06003989

Beam B2

CODE REFERENCES

Calculations per AISC 360-10, IBC 2015, ASCE 7-10

Load Combination Set: IBC 2015

Material Properties

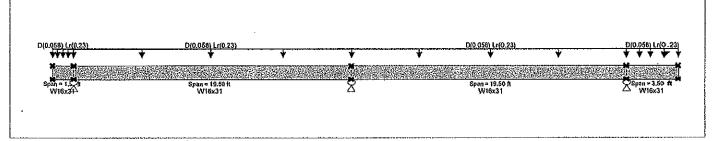
Analysis Method: Allowable Strength Design

Beam Bracing: Bending Axis:

Completely Unbraced Major Axis Bending Fy: Steel Yield: E: Modulus :

50.0 ksi

29,000.0 ksi



#### Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading

Load for Span Number 1

Uniform Load: D = 0.0580, Lr = 0.230 k/ft, Tributary Width = 1.0 ft

Load for Span Number 2

Uniform Load: D = 0.0580, Lr = 0.230 k/ft, Tribulary Width = 1.0 ft

Load for Span Number 3

Uniform Load: D = 0.0580, Lr = 0.230 k/ft, Tributary Width = 1.0 ft

Load for Span Number 4

Uniform Load: D = 0.0580,  $L_T = 0.230$  k/ft, Tributary Width = 1.0 ft

|   |   |   |    |    |   |   |   |      |    |    |    | ٠, |
|---|---|---|----|----|---|---|---|------|----|----|----|----|
| ٠ | n | E | SI | G, | N | S | Ш | // A | H. | ٩R | Ý. | :  |

| DESIGN SUMMARY                                                                                                                                 |                                                                                |                                                                                | Design OK                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------------------------------|
| Maximum Bending Stress Ratio =                                                                                                                 | 0.229:1 M                                                                      | aximum Shear Stress Ratio =                                                    | 0.044 : 1                                            |
| <ul> <li>Section used for this span</li> </ul>                                                                                                 | W16x31                                                                         | Section used for this span                                                     | W16x31                                               |
| Ma : Applied                                                                                                                                   | 10.861 k-ft                                                                    | Va : Applied                                                                   | 3.874 k                                              |
| Mn / Omega : Allowable                                                                                                                         | 47.456 k-ft                                                                    | Vn/Ome.ga : Allowable                                                          | 87,450 k                                             |
| Load Combination +D+Lr-<br>Location of maximum on span<br>Span # where maximum occurs                                                          | -H, LL COmb Run (*L*L)<br>8.320fl<br>Span # 2                                  | Load Combination<br>Location of maximum on span<br>Span # where maximum occurs | +D+Lr+H, Lt. Comb Run (*Lt.*)<br>19.500 ft<br>Span#2 |
| Maximum Deflection Max Downward Transient Deflection Max Upward Transient Deflection Max Downward Total Deflection Max Upward Total Deflection | 0.050 in Ratio =<br>-0.013 in Ratio =<br>0.061 in Ratio =<br>-0.016 in Ratio = | 2,774 >=360<br>3806 >=180                                                      |                                                      |

Maximum Forces & Stresses for Load Combinations

|        | Max Stress                                                        | Ratios                                                                                                                                                |                                                                                                                                                                                                              | 8        | lummary of M                | loment Væ1ι                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ear Values                                                                                                                                                                                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| Span#  | M                                                                 | ٧                                                                                                                                                     | Mmax +                                                                                                                                                                                                       | Mmax -   | Ma Max                      | Mnx                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Cb       | Rm                                                            | Va Max   | Vnx                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Vnx/0mega                                                                                                                                                                                 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|        |                                                                   |                                                                                                                                                       | ····                                                                                                                                                                                                         |          |                             | ,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                                                                           | 134.73                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.00     | 1.00                                                          | 0.66     | 131.18                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 87.45                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| ,      |                                                                   |                                                                                                                                                       | 2.38                                                                                                                                                                                                         |          |                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|        | Span #  1 2 3 4 L) 1 2 3 4 4 L) 1 2 3 4 L) 1 2 2 3 4 L) 1 2 2 3 4 | Span # M  1 0.001 2 0.053 3 0.049 4 0.004  L) 1 0.001 2 0.053 3 0.049 4 0.004  *) 1 0.001 2 0.053 3 0.049 4 0.004  4) 1 0.001 2 0.053 3 0.049 4 0.004 | 1 0.001 0.008 2 0.053 0.012 3 0.049 0.012 4 0.004 0.004 L) 1 0.001 0.008 2 0.053 0.012 3 0.049 0.012 4 0.004 0.004 *) 1 0.001 0.008 2 0.053 0.012 3 0.049 0.012 4 0.004 0.004 *) 1 0.001 0.008 1 0.004 0.004 | Span # M | Span # M V   Mrnax + Mmax - | Span #         M         V         Mrmax +         Mmax -         Ma Max           1         0.001         0.008         -0.10         0.10           2         0.053         0.012         2.38         -4.07         4.07           3         0.049         0.012         2.11         -4.07         4.07           4         0.004         0.004         -0.55         0.55           L}         1         0.001         0.008         -0.10         0.10           2         0.053         0.012         2.38         -4.07         4.07           3         0.049         0.012         2.11         -4.07         4.07           4         0.004         0.004         -0.55         0.55           *)         1         0.001         0.008         -0.10         0.10           2         0.053         0.012         2.38         -4.07         4.07           4         0.004         0.012         2.11         -4.07         4.07           3         0.049         0.012         2.11         -4.07         4.07           4         0.004         0.004         -0.55         0.55 <t< td=""><td>Span#         M         V         Mmax +         Mmax -         Ma Max         Mnx           1         0.001         0.008         -0.10         0.10         225.00           2         0.053         0.012         2.38         -4.07         4.07         128.90           3         0.049         0.012         2.11         -4.07         4.07         139.40           4         0.004         0.004         -0.55         0.55         225.00           L)         1         0.001         0.008         -0.10         0.10         225.00           2         0.053         0.012         2.38         -4.07         4.07         128.90           3         0.049         0.012         2.11         -4.07         4.07         139.40           4         0.004         0.004         -0.55         0.55         225.00           *)         1         0.001         0.008         -0.10         0.10         225.00           *)         1         0.001         0.008         -0.10         0.10         225.00           *)         1         0.004         0.004         -0.55         0.55         225.00           <td< td=""><td>  Span # M</td><td>  Span # M V   Mrnax + Mmax - Ma Max   Mnx   Mnx/Omega Cb     1</td><td>  Span # M</td><td>Span#         M         V         Mmax +         Mimax -         Ma Max         Mnx         Mnx/Omega Cb         Rm         Va Max           1         0.001         0.008         -0.10         0.10         225.00         134.73         1.00         1.00         0.66           2         0.053         0.012         2.38         -4.07         4.07         128.90         77.19         2.03         1.00         1.07           3         0.049         0.012         2.11         -4.07         4.07         139.40         83.48         2.19         1.00         1.05           4         0.004         0.004         -0.55         0.55         225.00         134.73         1.00         1.00         0.31           L)         1         0.001         0.008         -0.10         0.10         225.00         134.73         1.00         1.00         0.66           2         0.053         0.012         2.38         -4.07         4.07         128.90         77.19         2.03         1.00         1.07           3         0.049         0.012         2.11         -4.07         4.07         139.40         83.48         2.19         1.00         1.05</td><td>Span#         M         V         Mmax +         Mmax -         Ma Max         Mnx         Mnx/Omega         Cb         Rm         Va Max         Vnx           1         0.001         0.008         -0.10         0.10         225.00         134.73         1.00         1.00         0.66         131.18           2         0.053         0.012         2.38         -4.07         4.07         128.90         77.19         2.03         1.00         1.07         131.18           3         0.049         0.012         2.11         -4.07         4.07         139.40         83.48         2.19         1.00         1.05         131.18           4         0.004         0.004         -0.55         0.55         225.00         134.73         1.00         1.00         0.31         131.18           L)         1         0.001         0.008         -0.10         0.10         225.00         134.73         1.00         1.00         0.66         131.18           2         0.053         0.012         2.38         -4.07         4.07         128.90         77.19         2.03         1.00         1.05         131.18           3         0.049         0.012</td></td<></td></t<> | Span#         M         V         Mmax +         Mmax -         Ma Max         Mnx           1         0.001         0.008         -0.10         0.10         225.00           2         0.053         0.012         2.38         -4.07         4.07         128.90           3         0.049         0.012         2.11         -4.07         4.07         139.40           4         0.004         0.004         -0.55         0.55         225.00           L)         1         0.001         0.008         -0.10         0.10         225.00           2         0.053         0.012         2.38         -4.07         4.07         128.90           3         0.049         0.012         2.11         -4.07         4.07         139.40           4         0.004         0.004         -0.55         0.55         225.00           *)         1         0.001         0.008         -0.10         0.10         225.00           *)         1         0.001         0.008         -0.10         0.10         225.00           *)         1         0.004         0.004         -0.55         0.55         225.00 <td< td=""><td>  Span # M</td><td>  Span # M V   Mrnax + Mmax - Ma Max   Mnx   Mnx/Omega Cb     1</td><td>  Span # M</td><td>Span#         M         V         Mmax +         Mimax -         Ma Max         Mnx         Mnx/Omega Cb         Rm         Va Max           1         0.001         0.008         -0.10         0.10         225.00         134.73         1.00         1.00         0.66           2         0.053         0.012         2.38         -4.07         4.07         128.90         77.19         2.03         1.00         1.07           3         0.049         0.012         2.11         -4.07         4.07         139.40         83.48         2.19         1.00         1.05           4         0.004         0.004         -0.55         0.55         225.00         134.73         1.00         1.00         0.31           L)         1         0.001         0.008         -0.10         0.10         225.00         134.73         1.00         1.00         0.66           2         0.053         0.012         2.38         -4.07         4.07         128.90         77.19         2.03         1.00         1.07           3         0.049         0.012         2.11         -4.07         4.07         139.40         83.48         2.19         1.00         1.05</td><td>Span#         M         V         Mmax +         Mmax -         Ma Max         Mnx         Mnx/Omega         Cb         Rm         Va Max         Vnx           1         0.001         0.008         -0.10         0.10         225.00         134.73         1.00         1.00         0.66         131.18           2         0.053         0.012         2.38         -4.07         4.07         128.90         77.19         2.03         1.00         1.07         131.18           3         0.049         0.012         2.11         -4.07         4.07         139.40         83.48         2.19         1.00         1.05         131.18           4         0.004         0.004         -0.55         0.55         225.00         134.73         1.00         1.00         0.31         131.18           L)         1         0.001         0.008         -0.10         0.10         225.00         134.73         1.00         1.00         0.66         131.18           2         0.053         0.012         2.38         -4.07         4.07         128.90         77.19         2.03         1.00         1.05         131.18           3         0.049         0.012</td></td<> | Span # M | Span # M V   Mrnax + Mmax - Ma Max   Mnx   Mnx/Omega Cb     1 | Span # M | Span#         M         V         Mmax +         Mimax -         Ma Max         Mnx         Mnx/Omega Cb         Rm         Va Max           1         0.001         0.008         -0.10         0.10         225.00         134.73         1.00         1.00         0.66           2         0.053         0.012         2.38         -4.07         4.07         128.90         77.19         2.03         1.00         1.07           3         0.049         0.012         2.11         -4.07         4.07         139.40         83.48         2.19         1.00         1.05           4         0.004         0.004         -0.55         0.55         225.00         134.73         1.00         1.00         0.31           L)         1         0.001         0.008         -0.10         0.10         225.00         134.73         1.00         1.00         0.66           2         0.053         0.012         2.38         -4.07         4.07         128.90         77.19         2.03         1.00         1.07           3         0.049         0.012         2.11         -4.07         4.07         139.40         83.48         2.19         1.00         1.05 | Span#         M         V         Mmax +         Mmax -         Ma Max         Mnx         Mnx/Omega         Cb         Rm         Va Max         Vnx           1         0.001         0.008         -0.10         0.10         225.00         134.73         1.00         1.00         0.66         131.18           2         0.053         0.012         2.38         -4.07         4.07         128.90         77.19         2.03         1.00         1.07         131.18           3         0.049         0.012         2.11         -4.07         4.07         139.40         83.48         2.19         1.00         1.05         131.18           4         0.004         0.004         -0.55         0.55         225.00         134.73         1.00         1.00         0.31         131.18           L)         1         0.001         0.008         -0.10         0.10         225.00         134.73         1.00         1.00         0.66         131.18           2         0.053         0.012         2.38         -4.07         4.07         128.90         77.19         2.03         1.00         1.05         131.18           3         0.049         0.012 |



Genesis Solar Heavy Equipment Covered Parking 15 BG Project ID: 800.0617

Steel Beam

Printed: 3.MAR 2017, 10:59Ah File = s:\E-0AEZR-GI86YX5A-F.EC6 ENERCALC, INC. 1983-2017, Builds. 17:2.28, Ver6.17.2.28 ENERCALC, INC. 1983-2017, Builds. 17:2.28, Ver6.17.2.28

| Load Combination                                         |                | Max Stress     | Ralios         |        |                | Summary of M | loment Valu      |                  |      |              |              |                  | ear Values         |
|----------------------------------------------------------|----------------|----------------|----------------|--------|----------------|--------------|------------------|------------------|------|--------------|--------------|------------------|--------------------|
| Segment Length                                           | Span#          | M              | ٧              | Mmax + | Mmax -         | Ма Мах       | Mnx              | Mnx/Omega        |      | Rm           | Va Max       |                  | Vnx/Omega          |
| Dsgn. I. = 19.50 ft                                      | 3              | 0.049          | 0.012          | 2.11   | -4.07          | 4.07         | 139.40           |                  |      | 1.00         | 1.05         | 131.18           | 87.45              |
| Dsgn, L = 3.50 ft<br>+D+L+H, LL Comb Run (*L**)          | 4              | 0.004          | 0.004          |        | -0.55          | 0.55         | 225.00           | 134.73           | 1.00 | 1.00         | 0.31         | 131.18           | 87.45              |
| Dsgn, L = 1.50 ft                                        | 1              | 0.001          | 0.008          |        | -0.10          | 0.10         | 225.00           | 134,73           | 1.00 | 1.00         | 0.66         | 131.18           | 87.45              |
| Dsgn. L ≈ 19.50 ft                                       | 2              | 0.053          | 0.012          | 2,38   | -4.07          | 4.07         | 128.90           | 77.19            |      | 1.00         | 1.07         | 131.18           | 87.45              |
| Dsgn. L = 19.50 ft                                       | 3              | 0.049          | 0.012          | 2.11   | -4.07          | 4.07         | 139,40           | 83.48            |      | 1.00         | 1.05         | 131.18           | 87.45              |
| Dsgn. L = 3.50 ft<br>+D+L+H, LL Comb Run (*L*L           | ٠ 4            | 0.004          | 0.004          |        | -0.55          | 0.55         | 225.00           | 134.73           | 1.00 | 1.00         | 0.31         | 131.18           | 87.45              |
| Dsgn. L = 1.50 ft                                        | 1              | 0.001          | 0.008          |        | -0.10          | 0.10         | 225.00           | 134.73           | 1.00 | 1.00         | 0.66         | 131.18           | 87.45              |
| Dsgn. L = 19.50 ft                                       | 2              | 0.053          | 0.012          | 2.38   | -4.07          | 4,07         | 128.90           | 77.19            |      | 1.00         | 1.07         | 131.18           | 87.45              |
| Dsgn. L = 19.50 ft                                       | 3              | 0.049          | 0.012          | 2.11   | -4.07          | 4,07         | 139.40           | 83,48            |      | 1.00         | 1.05         | 131.18           | 87.45<br>87.45     |
| Dsgn. L = 3.50 ft<br>+D+L+H, LL Comb Run (*LL*           | 4              | 0.004          | 0.004          |        | -0.55          | 0.55         | 225.00           | 134.73           | 1.00 | 1.00         | O.31         | 131.18           | 07.43              |
| Dsgn. L = 1.50 ft                                        | 1              | 0.001          | 0.008          |        | -0.10          | 0.10         | 225.00           | 134.73           | 1,00 | 1.00         | O.66         | 131.18           | 87.45              |
| Dsgn. L = 19.50 ft                                       | 2              | 0.053          | 0.012          | 2.38   | -4.07          | 4.07         | 128.90           | 77.19            |      | 1.00         | 1.07         | 131.18           | 87.45              |
| Dsgn. L = 19.50 ft                                       | 3              | 0.049          | 0.012          | 2,11   | -4.07          | 4.07         | 139,40           | 83.48            |      | 1.00         | 1.05         | 131.18           | 87.45              |
| Dsgn. L = 3.50 ft<br>+D+L+H, LL Comb Run (*LLL           | ٠ 4            | 0.004          | 0.004          | •      | -0.55          | 0.55         | 225.00           | 134.73           | 1.00 | 1.00         | 0.31         | 131.18           | 87.45              |
| Dsgn, L = 1.50 ft                                        | <sup>7</sup> 1 | 0.001          | 0.008          |        | -0.10          | 0.10         | 225.00           | 134.73           | 1.00 | 1.00         | D.66         | 131.18           | 87.45              |
| Dsgn, L = 19.50 ft                                       | 2              | 0.053          | 0.012          | 2.38   | -4.07          | 4.07         | 128.90           | 77.19            |      | 1.00         | 1.07         | 131.18           | 87.45              |
| Dsgn, L = 19.50 ft                                       | 3              | .0.049         | 0.012          | 2.11   | -4.07          | 4.07         | 139.40           | 83.48<br>134.73  |      | 1.00         | 1.05         | 131.18<br>131.18 | 87.45<br>87.45     |
| Dsgn. L = 3.50 ft<br>+D+L+H, LL Comb Run (L***)          | 4              | 0.004          | 0.004          |        | -0.55          | 0.55         | 225.00           | 134./3           | 1,00 | 1.00         | 0.31         | 101.10           | 07.40              |
| Dsan. L = 1.50 ft                                        | 1              | 0.001          | 0.008          |        | -0.10          | 0.10         | 225.00           | 134.73           | 1.00 | 1.00         | 0,66         | 131.18           | 87.45              |
| Dsgn, L = 19.50 ft                                       | 2              | 0.053          | 0.012          | 2.38   | -4.07          | 4.07         | 128.90           | 77.19            |      | 1.00         | 1.07         | 131.18           | 87.45              |
| Dsgn, L = 19.50 ft                                       | 3              | 0.049          | 0.012          | 2.11   | -4.07          | 4.07         | 139.40           | 83.48            |      | 1.00         | 1.05         | 131,18           | 87.45<br>87.45     |
| Dsgn. L = 3.50 ft<br>+D+L+H, LL Comb Run (L**L           | 4              | 0.004          | 0.004          |        | -0.55          | 0.55         | 225,00           | 134.73           | 1.00 | 1.00         | 0.31         | 131.18           | 6 <del>7.1</del> 0 |
| Dsgn. L = 1.50 ft                                        | ′ 1            | 0.001          | 0.008          |        | -0.10          | 0.10         | 225,00           | 134.73           | 1.00 | 1.00         | 0.66         | 131.18           | 87.45              |
| Dsgn. L = 19,50 ft                                       | 2              | 0.053          | 0.012          | 2.38   | -4.07          | 4.07         | 128.90           | 77.19            |      | 1.00         | 1.07         | 131.18           | 87.45              |
| Dsgn, L = 19.50 ft                                       | 3              | 0.049          | 0.012          | 2.11   | -4.07          | 4.07         | 139.40           | 83.48<br>134.73  |      | 1.00         | 1.05<br>O.31 | 131.18<br>131.18 | 87.45<br>87.45     |
| Dsgn. L = 3,50 ft<br>+D+L+H, LL Comb Run (L*L*           | ٠ 4            | 0.004          | 0.004          |        | -0.55          | 0.55         | 225.00           | 134,73           | 1,00 | 1.00         | 0.31         | 101,10           | 01.40              |
| Dsgn. L = 1.50 ft                                        | 1              | 0.001          | 0.008          |        | -0.10          | ó.10         | 225.00           | 134.73           | 1.00 | 1,00         | 0.66         | 131.18           | 87.45              |
| Dsgn. L = 19.50 ft                                       | 2              | 0.053          | 0.012          | 2.38   | -4.07          | 4.07         | 128.90           | 77.19            |      | 1.00         | 1.07         | 131.18           | 87.45              |
| Dsgn. L = 19.50 ft                                       | 3<br>4         | 0.049          | 0.012          | 2.11   | -4.07          | 4.07         | 139.40           | 83.48            |      | 1.00<br>1.00 | 1.05<br>O.31 | 131.18<br>131.18 | 87.45<br>87.45     |
| Dsgn. L = 3.50 ft<br>+D+L+H, LL Comb Run (L*LL           | 1 4            | 0.004          | 0.004          |        | -0.55          | 0.55         | 225.00           | 134.73           | 1,00 | 1.00         | 0.31         | 191.10           | CP.10              |
| Dsgn. L = 1.50 ft                                        | 1              | 0.001          | 0.008          |        | -0.10          | 0.10         | 225.00           | 134.73           | 1.00 | 1,00         | 0.66         | 131.18           | 87.45              |
| Dsgn. L = 19.50 ft                                       | 2              | 0.053          | 0.012          | 2.38   | -4.07          | 4.07         | 128.90           | 77.19            |      | 1,00         | 1.07         | 131.18           | 87.45              |
| Dsgn. L = 19.50 ft                                       | 3<br>4         | 0.049<br>0.004 | 0.012<br>0.004 | 2.11   | -4.07<br>0.55  | 4.07<br>0.55 | 139.40<br>225.00 | 83,48<br>134,73  |      | 1.00<br>1.00 | 1.05<br>O.31 | 131,18<br>131,18 | 87.45<br>87.45     |
| Dsgn. L = $3.50 \text{ ft}$<br>+D+L+H, LL Comb Run (LL** |                | 0,004          | 0.004          |        | -0.55          | 0.00         | 223.00           | 19440            | 1,00 | 1.00         | 0.01         | 101,10           | 07.10              |
| Dsgn. L = 1.50 ft                                        | 1              | 0.001          | 0.008          |        | -0.10          | 0.10         | 225.00           | 134.73           | 1.00 | 1.00         | 0.66         | 131.18           | 87.45              |
| Dsgn, L = 19.50 ft                                       | 2              | 0.053          | 0.012          | 2.38   | -4.07          | 4.07         | 128.90           | 77.19            |      | 1.00         | 1.07         | 131.18           | 87.45              |
| Dsgn. L = 19.50 ft                                       | 3<br>4         | 0.049<br>0.004 | 0.012<br>0.004 | 2.11   | -4,07<br>-0.55 | 4.07<br>0.55 | 139.40<br>225.00 | 83.48<br>134.73  |      | 1,00<br>1.00 | 1.05<br>O.31 | 131.18<br>131.18 | 87.45<br>87.45     |
| Dsgn, $L = 3.50$ ft<br>+D+L+H, LL Comb Run (LL*)         |                | 0.004          | V.VV4          |        | -0.03          | 0,00         | 223,00           | 107.10           | 1.00 | 1.00         | 0.01         | 101.10           | טרגוט              |
| Dsgn, L = 1.50 ft                                        | ັ 1            | 0.001          | 0.008          |        | -0.10          | 0.10         | 225.00           | 134.73           |      | 1.00         | 0.66         | 131.18           | 87.45              |
| Dsgn, L = 19.50 ft                                       | 2              | 0.053          | 0.012          | 2.38   | -4.07          | 4.07         | 128,90           | 77.19            |      | 1.00         | 1.07         | 131.18           | 87.45              |
| Dsgn, L ≈ 19,50 ft<br>Dsgn, L ≈ 3,50 ft                  | 3<br>4         | 0.049<br>0.004 | 0,012<br>0.004 | 2.11   | -4.07<br>-0.55 | 4.07<br>0.55 | 139.40<br>225.00 | 83.48<br>134.73  | 2.19 | 1.00<br>1.00 | 1,05<br>O.31 | 131.18<br>131.18 | 87.45<br>87.45     |
| +D+L+H, LL Comb Run (LLL                                 |                | 0.004          | Q.004          |        | -0.55          | V.J.J        | 220.00           | 104110           | 1.00 | 1.00         | 75.01        | 151.10           | 41.14              |
| Dsgn. L = 1.50 ft                                        | <b>'</b> 1     | 0.001          | 0.008          |        | -0.10          | 0.10         | 225.00           | 134.73           |      | 1.00         | 0.66         | 131.18           | 87.45              |
| Dsgn. L = 19.50 ft                                       | 2              | 0.053          | 0.012          | 2.38   | -4.07          | 4.07         | 128.90           | 77.19            |      | 1.00         | 1.07         | 131.18           | 87.45              |
| Dsgn. L = 19.50 ft<br>Dsgn. L = 3.50 ft                  | 3<br>4         | 0.049<br>0.004 | 0.012<br>0.004 | 2.11   | -4.07<br>-0.55 | 4,07<br>0.55 | 139.40<br>225.00 | 83.48<br>134.73  |      | 1.00<br>1.00 | 1,05<br>O,31 | 131.18<br>131.18 | 87.45<br>87.45     |
| +D+L+H, LL Comb Run (LLL)                                |                | 0.004          | 0.004          |        | -0.00          | 0.00         | 220.00           | 101.10           | 1.00 | 1,00         | 0,01         | ,00              | D1110              |
| Dsgn. I. = 1.50 ft                                       | 1              | 0.001          | 0.008          |        | -0.10          | 0.10         | 225,00           | 134.73           |      | 1.00         | 0.66         | 131.18           | 87.45              |
| Dsgn. L = 19.50 ft                                       | 2              | 0.053          | 0.012          | 2.38   | -4.07          | 4.07         | 128,90           | 77.19            |      | 1.00         | <b>1</b> .07 | 131.18           | 87.45              |
| Dsgn. L = 19.50 ft<br>Dsgn. L = 3.50 ft                  | 3<br>4         | 0.049<br>0.004 | 0.012<br>0.004 | 2.11   | -4.07<br>-0.55 | 4.07<br>0.55 | 139,40<br>225.00 | 83.48<br>134.73  |      | 1.00<br>1.00 | 1.05<br>O.31 | 131.18<br>131.18 | 87.45<br>87.45     |
| +D+Lr+H, LL Comb Run (***\                               |                | 0.004          | 0.004          |        | -0.00          | 0.00         | ********         | 104.70           | .,00 | 1.00         | 10.01        | 101110           | VF. IV             |
| Dsgn. L = 1.50 ft                                        | 1              | 0.001          | 0.008          |        | -0.10          | 0.10         | 225.00           | 134.73           |      | 1.00         | O.68         | 131.18           | 87.45              |
| Dsgn. L = 19.50 ft                                       | 2              | 0.055          | 0.012          | 2.52   | -3.72          | 3.72         | 113.75           | 68.11            |      | 1.00         | 1.05         | 131.18           | 87.45              |
| Dsgn. L = 19,50 ft<br>Dsgn. L = 3,50 ft                  | 3<br>4         | 0.037<br>0.015 | 0.013<br>0.013 | 1.44   | -3.72<br>-1.95 | 3.72<br>1.95 | 168.50<br>225.00 | 100.90<br>134.73 |      | 1.00<br>1.00 | 1.12<br>1.12 | 131.18<br>131.18 | 87.45<br>87.45     |
| Daysi L - Jan n                                          |                | 0,010          | 0.010          |        | -1.00          | 1.00         | 220.00           | 1049.0           | .00  | 1,00         | 1.16         | 101.10           | UF, 10             |
| +D+Lr+H, LL Comb Run (**L*                               | *)             |                |                |        |                |              |                  |                  |      |              |              |                  |                    |



+D+S+D+

Project Title: Engineer: Project Descr: Genesis Solar Heavy Equipment Covered Parking 16 Project ID: 800,0617

Printed: 3 MAR 2017, 10:59AM

File = s:\EOAEZR-G\86YX5A-F.EC6 Steel Beam ENERCALC, INC. 1983-2017, Build 6.17.2.28, Ver.8.17.2.28

Lic # KW:06003989 Licensee BG'STRUCTURALENGINEERING Beam 82 Description: Max Stress Ratios Summary of Moment Values Summary of Shear Values Load Combination V Seament Length Span# М Mmax + Mmax -Ma Max Mnx Mnx/Omega Cb Rm Va Max Vnx Vnx/Omega Dsgn. L = 19,50 ft 2 0.085 0.041 0.73 -9.54 9.54 112.10 2.94 1.00 3.57 131.18 87.45 187.21 Dsgn. L = 19.50 ft 3 0.218 0.041 10,46 -9.54 10.46 80.01 47.91 1.26 1.00 3.57 131,18 87.45 Dsgn. L = 3.50 ft 0.004 0.004 -0.55 0.55 225,00 134.73 1.00 1.00 0.31 131.18 87.45 +D+Lr+H, LL Comb Run (\*\*LL) 0.001 Dsgn. L = 1,50 ft 0.005 -0,10 225.00 0.10 134.73 1.00 1.00 0.40 131.18 87.45 Dsgn. L = 19.50 ft 2 0.081 0.040 0.81 -9,18 113.93 2,99 3,48 9,18 190.27 1.00 131.18 87.45 Dsgn. L = 19.50 ft 3 0.204 0.040 9.81 -9.18 9,81 80.40 48.14 1.26 1,00 3,48 131.18 87.45 Dsgn. L = 3.50 ft 0.013 4 0.015 225,00 131.18 -1.951.95 134.73 1.00 1.00 1.12 87,45 +D+Lr+H, LL Comb Run (\*L\*\*) Dsgn. L = 1,50 ft 0.001 0.030 -0.10 0,10 225,00 134.73 1.00 1.00 2.63 131.18 87.45 Dsan, L = 19.50 ft 2 0.224 0.041 10.71 -9.54 10.71 79.76 47.76 1.25 1.00 3.59 131.18 87.45 Dsgn. L = 19.50 ft 0.086 0.015 -9.54 0.38 9.54 186.19 111.49 2.93 1.00 1.33 131,18 87.45 Dsgn. L = 3.50 ft 0,004 0.004 -0.55 225,00 134.73 1.00 131.18 0.551.00 0.31 87.45 +D+Lr+H, LL Comb Run (\*L\*L) Dsgn. L = 1.50 ft 0.001 0.030 1 -0.10 0.10 225.00 134.73 1.00 1.00 2.64 131.18 87 45 Dsgn. L = 19.50 ft 0.041 10.86 2 0,229 -9.18 10.86 79.25 47.46 1.25 1.00 3,58 131.18 87.45 Dsgn. L = 19.50 ft 0,090 0.014 -0.00 -9.189.18 170,53 102.12 2.68 1.00 1.24 131,18 87.45 Dsgn. L = 3.50 ft 0.015 0.013 -1.95 1.95 225.00 134.73 1.00 1.00 1.12 131.18 87.45 +D+Lr+H, LL Comb Run (\*LL\*) 0.001 Dsgn. L = 1,50 ft 0.027 -0.10 0.10 225.00 134.73 1.00 1.00 2.35 131.18 87.45 Dsgn. L = 19.50 ft 0.190 0.044 8.53 78.90 2 -15.00 15.00 131,77 2.07 1.00 3.87 131.18 87.45 Dsgn. L = 19.50 ft 0.044 3 0.187 -15.00 134,06 131.18 87.45 8.25 15 00 80.27 2.11 1.00 3.85 Dsgn. L = 3.50 ft 4 0.004 0.004 -0.55 0.55 225,00 134.73 1,00 1,00 0.31 131.18 87.45 +D+Lr+H, LL Comb Run (\*LLL) Dsgn. L = 1.50 ft 0.001 0.027 -0.10 0.10 225.00 134.73 1.00 1.00 2.36 131.18 87.45 Dsgn. L = 19.50 ft 0.191 0.044 8.66 87.45 2 -14,65 14,65 127.88 76.58 2.01 1.00 3.86 131.18 Dsgn. L = 19.50 ft 3 0.175 0.043 7.53 -14.65 14.65 139.85 83.74 2.20 1.00 3.76 131.18 87,45 Dsgn. L = 3.50 ft 4 0.015 0.013 -1.951.95 225.00 134.73 1.00 1.00 131.18 1.12 87.45 +D+Lr+H, LL Comb Run (L\*\*\*) Dsgn.  $L = 1.50 \, ft$ 0.003 0.008 -0.360.36 225.00 134.73 1.00 1.00 0.68 131.18 87.45 Dsgn. L = 19.50 ft 2 0.050 0.012 2.25 -4.00 4.00 132.85 79.55 2.09 1.05 1.00 131.18 87,45 Dsgn. L = 19.50 ft 3 0.048 0.012 2.13 -4.00 4.00 138.00 82.64 2.17 1.00 1.05 131,18 87.45 Dsgn. L = 3.50 ft 4 0.0040.004 -0,55 0.55225,00 134.73 1.00 1.00 0.31 131.18 87.45 +D+Lr+H, LL Comb Run (L\*\*L) Dsgn. L = 1.50 ft 0.003 0:008 -0.36 225.00 134.73 0.70 0.36 1.00 1.00 131.18 87.45 Dsgn. L = 19.50 ft 0.052 0.012 2.38 2 -3.65 3.65 116.87 69.98 1.84 1.00 1.04 131.18 87.45 99.90 Dsgn. L = 19.50 ft 3 0.037 0.013 1.47 -3.65 3.65 166.84 2.62 1.00 1.12 131.18 87,45 Dsgn. L = 3.50 ft 4 0.015 0.013 -1.95 225.00 134.73 1.00 1.00 1.95 1.12 131.18 87.45 +D+Lr+H, LL Comb Run (L\*L\*) Dsgn. L = 1.50 ft 1 0.003 0.005 -0.36 0.36 225.00 134.73 1.00 1.00 0.48 131,18 87.45 Dsgn. L = 19.50 ft 2 0.085 0.041 0.54 -9.47 9.47 187.15 112.06 2.94 1.00 3.57 131,18 87.45 Dsgn. L = 19.50 ft 3 0.219 0.041 10.48 -9.47 10.48 79.89 47.84 1.26 1.00 3.57 131.18 87.45 Dsgn. L = 3.50 ft 4 0.004 0.004 -0.550.55 225.00 134.73 1.00 1.00 0.31 131.18 87.45 +D+Lr+H, LL Comb Run (L\*LL) 0.003 Dsgn. L = 1.50 ft 0.005 -0.36 0.36 225.00 134.73 1.00 1.00 0.48 131,18 87.45 Osgn. L = 19.50 ft 2 0.080 0.040 0.63 -9.129.12 190.20 113.89 2.99 1.00 3.48 131.18 87.45 Dsgn. L = 19.50 ft 3 0.040 -9.12 0.205 87.45 9.84 9.84 48.07 1.26 1.00 3.48 131.18 80.27 Dsgn. L = 3.50 ft 4 0.015 0.013 -1.95 1.95 225.00 134.73 1.00 1.00 1.12 131.18 87.45 +D+Lr+H, LL Comb Run (LL\*\*) Dsgn. L = 1.50 ft 0.003 0.030 -0,36 0.36 225.00 134,73 1.00 1.00 2.64 131.18 87.45 Dsgn. L = 19.50 ft 2 0.222 0.041 10.59 -9,47 10.59 47.80 3.58 79.82 1.25 1.00 131.18 87.45 Dsgn, L = 19.50 ft 3 0.085 0.015 0.40 -9.47 9.47 186.76 111.83 2.93 1.00 1.33 131.18 87.45 Dsgn. L = 3.50 ft 0.004 0.004 -0.55 0.55 225.00 134.73 1.00 1.00 0.31 131.18 87,45 +D+Lr+H, LL Comb Run (LL\*L) Dsgn. L = 1.50 ft 0.003 0.030 0.36 225.00 134.73 -0.361.00 1.00 2.66 131.18 87,45 Dsgn. L = 19.50 ft 2 0.226 0.041 10.74 -9.12 10.74 79.31 47.49 1.25 1.00 3.56 131,18 87.45 Dsgn. L = 19.50 ft 0.014 3 0.089 -0.00 -9.12 9.12 171.23 102.53 2.69 1.00 1.24 131.18 87,45 Dsgn. L = 3.50 ft 0.015 0.013 -1.951.95 225.00 134.73 1.00 1.00 1.12 131.18 87.45 +D+Lr+H, LL Comb Run (LLL\*) Dsgn. L = 1.50 ft 0.003 0.027 -0.36 0.36 225.00 134.73 1.00 1.00 2.36 131,18 87.45 Dsgn. L = 19.50 ft 2 0.188 0.044 8.39 -14,94 14.94 79.47 2.09 1.00 3.86 132.72 131.18 87,45 Dsgn, L = 19.50 ft 0.044 3 0.187 8.28 -14.94 14.94 133.68 80.05 2.10 1.00 3.85 131.18 87.45 Dsgn. L = 3.50 ft 0.004 0.004 -0.550.55 225,00 134.73 1.00 1.00 0.31 131.18 87.45 +D+Lr+H, LL Comb Run (LLLL) Dsgn. L = 1.50 ft 0.003 0.027 -0.36 134.73 131.18 1 0.36 225.00 1.00 1.00 2.38 87.45 Dsgn. L = 19.50 ft 8.52 2 0.189 0.044 -14,58 14,58 128,90 77.19 2.03 1.00 3.84 131.18 87.45 Dsgn. L = 19.50 ft 0.175 0.043 83,48 2.19 1.00 7.55 -14.58 14.58 139.40 3.76 131.18 87.45 Dsgn. L = 3.50 ft 0.015 0.013 1.95 225.00 134.73 -1.95 1.00 1.00 1.12 131.18 87.45

Genesis Solar Heavy Equipment Covered Parking 17 BG Project ID: 800.0617

Printed: 3 MAR 2017, 10:59AM

| Steel Bear   | File = s.IEOAEZR-GI66YX5A - F.EC6 ENERCALC, INC. 1983-2017, Build.6.17.2.28, Ver.6. 17.2.28 |
|--------------|---------------------------------------------------------------------------------------------|
| Llc.#1KW-060 | 989 Licensee : BG STRUCTURAL ENGINEERING                                                    |
| Description: | eam 82                                                                                      |

| Description:                             | Beam B2           |                |                |              |                  |                |                  |             |                  |            |                |                  |                |
|------------------------------------------|-------------------|----------------|----------------|--------------|------------------|----------------|------------------|-------------|------------------|------------|----------------|------------------|----------------|
| Load Combination                         |                   | Max Stress     | Ratios         |              | 8                | Summary of M   | oment Valu       | es          |                  |            | Summ           | ary of Sh        | eair Values    |
| Segment Lengt                            | h Span#           | . M            | V              | Mmax +       | Mmax -           | Ma Max         | Mnx              | Mnx/Omega ( | Cb I             | <br>Rm     | Va Max         |                  | Vinx/Omega     |
| Dsgn. L = 1.50 ft                        |                   | 0.001          | 800.0          |              | -0.10            | 0.10           | 225.00           |             | .00 1            |            | 0.66           | 131,18           | 87.45          |
| Dsgn. L = 19.50 f                        |                   | 0.053          | 0.012          | 2.38         | -4.07            | 4.07           | 128.90           |             | .03 1            |            | 1.07           | 131,18           | 87.45          |
| Dsgn. L = 19.50 (                        |                   | 0.049          | 0.012          | 2.11         | -4.07            | 4.07           | 139.40           |             | .19 1.           |            | 1.05           | 131.18           | 87,45          |
| Dsgn. L = 3.50 ft                        |                   | 0.004          | 0.004          |              | -0.55            | 0.65           | 225.00           | 134,73 1    | .00 1            | .00        | 0.31           | 131.18           | 87.45          |
| +D+0.750Lr+0.750L+                       |                   | 0.001          | 0.008          |              | 0.40             | 0.40           | ባባና ሰሰ           | 49479 4     | 00 4             | 00         | 0.00           | 124 40           | 07 45          |
| Dsgn. L = 1.50 ft<br>Dsgn. L = 19.50 f   |                   | 0.054          | 0.012          | 2.48         | -0.10<br>-3.80   | 0.10<br>3.80   | 225.00<br>117,44 |             | .00 1<br>.85 1   |            | 0.68<br>1.06   | 131.18<br>131.18 | 87.45<br>87.45 |
| Dsgn. L = 19.50 f                        |                   | 0.040          | 0.012          | 1.60         | -3.80            | 3.80           | 159.58           |             | .51 1            |            | 0.98           | 131.18           | 87,45          |
| Dsgn. L = 3.50 ft                        |                   | 0.012          | 0.010          |              | -1.60            | 1.60           | 225.00           |             | .00 1            |            | 0.92           | 131.18           | 87.45          |
| +D+0.750Lr+0.750L+                       |                   |                |                |              |                  |                |                  |             |                  |            |                |                  |                |
| Dsgn. L ≃ 1.50 ft                        |                   | 0.001          | 0.005          |              | -0.10            | 0.10           | 225.00           |             | .00 1.           |            | 0.45           | 131.18           | 87.45          |
| Dsgn. L = 19.50 f<br>Dsgn. L = 19.50 f   |                   | 0.071<br>0.173 | 0.034<br>0.034 | 1.06         | -8.17            | 8.17           | 190,97<br>80,65  |             | .00 1.           |            | 2.94           | 131.18           | 87.45          |
| Dsgn. L = 3.50 ft                        |                   | 0.173          | 0.034          | 8.36         | -8.17<br>-0.55   | 8.36<br>0.55   | 225.00           |             | .27 1.<br>.00 1. |            | 2,94<br>0,31   | 131.18<br>131.18 | 87.45<br>87.45 |
| +D+0.750Lr+0.750L+                       |                   | 0.004          | 0.004          |              | 70.00            | 0.05           | 220.00           | 104.70 1    | .00 1.           | VŲ         | 9,51           | 101.10           | 07.43          |
| Dsgn. L = 1.50 ft                        |                   | 0,001          | 0.005          |              | -0.10            | 0.10           | 225,00           | 134.73 1    | .00 1.           | 00         | 0.47           | 131.18           | 87.45          |
| Dsgn. L = 19,50 f                        | t 2               | 0.069          | 0.033          | 1.13         | -7.90            | 7.90           | 190.97           | 114,35 3    | ,00 1.           | 00         | 2.87           | 131.18           | 87.45          |
| Dsgn. L = 19,50 f                        |                   | 0.162          | 0.033          | 7,88         | -7.90            | 7.90           | <b>B1.29</b>     |             | .28 1.           |            | 2.87           | 131.18           | 87.45          |
| Dsgn. L = 3.50 ft                        |                   | 0.012          | 0.010          |              | -1,60            | 1.60           | 225.00           | 134.73 1    | .00 1.           | 00         | 0.92           | 131.18           | 87.45          |
| +D+0.750Lr+0.750L+                       |                   | 0.001          | 0.024          |              | 0.40             | 0.40           | ກາະ ເຄ           | 42472 4     | 00.4             | ΔĐ         | 0.44           | 404 40           | 07 40          |
| Dsgn, L = 1,50 ft<br>Dsgn, L = 19,50 f   |                   | 0.179          | 0.024          | 8.62         | -0.10<br>-8.17   | 0.10<br>8.62   | 225.00<br>80.40  |             | .00 1.<br>.26 1. | (10)<br>00 | 2.14<br>2.96   | 131.18<br>131.18 | 87.45<br>87.45 |
| Dsgn. L = 19.50 f                        |                   | 0.071          | 0.014          | 0.73         | -8.17            | 8.17           | 190.97           |             | .00 1.           |            | 1.26           | 131.18           | 87,45          |
| Dsgn. I. = 3.50 ft                       |                   | 0.004          | 0.004          | 0,,0         | -0.55            | 0.55           | 225.00           |             | .00 1.           |            | 0.31           | 131.18           | 87.45          |
| +D+0.750Lr+0.750L+                       | H, LL Comb Run (* |                |                |              |                  |                |                  |             |                  |            |                |                  |                |
| Dsgn, L = 1.50 ft                        |                   | 0.001          | 0.025          |              | -0.10            | 0.10           | 225.00           |             | .00 1.           |            | 2.15           | 131.18           | 87.45          |
| Dsgn. L = 19.50 f                        |                   | 0.183          | 0.034          | 8.73         | -7.90            | 8.73           | 79.89            |             | .26 1.           |            | 2.95           | 131.18           | 87.45          |
| Dsgn. L = 19.50 f                        | 1                 | 0.069          | 0.014          | 0.06         | -7.90            | 7.90           | 190.97           |             | .00 1.           |            | 1,19           | 131.18           | 87.45          |
| Dsgn. L = 3.50 ft<br>+D+0.750Lr+0.750L+  |                   | 0.012          | 0.010          |              | -1,60            | 1.60           | 225.00           | 134.73 1    | .00 1,           | UU         | 0,92           | 131.18           | 87.45          |
| Dsgn, L = 1.50 ft                        |                   | 0.001          | 0.022          |              | -0.10            | 0,10           | 225.00           | 134,73 1    | .00 1.           | on.        | 1,93           | 131.18           | 87,45          |
| Dsgn. L = 19,50 f                        |                   | 0,156          | 0.036          | 6.99         | -12.27           | 12.27          | 131,64           |             | .07 1.           |            | 3.17           | 131.18           | 87.45          |
| Dsgn, L ≈ 19.50 f                        | t 3               | 0.152          | 0.036          | 6.71         | -12.27           | 12,27          | 134.50           |             | .11 1.           |            | 3.15           | 131.18           | 87.45          |
| Dsgn. L = 3,50 ft                        |                   | 0.004          | 0.004          |              | -0.55            | 0.55           | 225,00           | 134,73 1    | .00 1.           | 00         | 0.31           | 131.18           | 87.45          |
| +D+0.750Lr+0.750L+                       |                   | 0.004          | 0.000          |              | 0.46             | A 40           | 005.00           | 40470 4     | 00.4             | 06         | 401            | 404.40           | 07.40          |
| Dsgn. L = 1,50 ft                        |                   | 0.001<br>0.157 | 0.022<br>0.036 | 7.00         | -0.10            | 0.10           | 225.00           |             | .00 1.           |            | 1.94<br>3.16   | 131.18<br>131.18 | 87.45<br>87.45 |
| Dsgn. l. = 19.50 f<br>Dsgn. l. = 19.50 f |                   | 0.137          | 0.035          | 7.09<br>6.17 | -12.00<br>-12.00 | 12.00<br>12.00 | 127.95<br>139.79 |             | .01 1.<br>.20 1. |            | 3.08           | 131.18           | 87.45          |
| Dsgn. L = 3.50 ft                        |                   | 0.012          | 0.010          | V.11         | -1.60            | 1.60           | 225.00           |             | .00 1.           |            | 0.92           | 131.18           | 87.45          |
| +D+0.750Lr+0.750L+                       |                   |                |                |              |                  |                |                  |             |                  |            |                |                  |                |
| Dsgn. L = 1.50 ft                        |                   | 0.002          | 800.0          |              | -0.29            | 0.29           | 225.00           |             | .00 1.           |            | 0.68           | 131.18           | 87.45          |
| Dsgn. L = 19.50 f                        |                   | 0,051          | 0.012          | 2.28         | -4.02            | 4.02           | 131.83           |             | .07 1.           |            | 1.06           | 131.18           | 87.45          |
| Dsgn. L = 19.50 f                        |                   | 0.049<br>0.004 | 0.012          | 2.13         | <b>-4.02</b>     | 4.02           | 138.32           |             | .17 1.           |            | 1.05           | 131.18           | 87.45          |
| Dsgn, L = 3.50 ft<br>++D+0.750Lr+0.750L+ |                   | 0.004          | 0.004          |              | -0.55            | 0.55           | 225.00           | 134.73 1    | .00 1.           | VU         | 0.31           | 131.18           | 87.45          |
| Dsgn. L = 1.50 ft                        |                   | 0.002          | 800.0          |              | -0.29            | 0.29           | 225.00           | 134,73 1.   | .00 1.           | OO         | 0.69           | 131.18           | 87.45          |
| Dsgn. L = 19.50 f                        |                   | 0.052          | 0.012          | 2.38         | -3.76            | 3.76           | 119.93           |             | .88 1.           |            | 1.05           | 131.18           | 87.45          |
| Dsgn. L = 19.50 f                        |                   | 0.040          | 0.011          | 1.62         | -3.76            | 3.76           | 158.37           |             | .49 1.           |            | 0.98           | 131.18           | 87.45          |
| Dsgn, L = 3.50 ft                        | 4                 | 0.012          | 0.010          |              | -1.60            | 1.60           | 225.00           | 134.73 1.   | .00 1.           | 00         | 0.92           | 131.18           | 87.45          |
| +D+0.750Lr+0.750L+                       |                   | 0.000          | 0.005          |              | 0.00             | 0.00           | 225 00           | 12172 1     | 00 đ             | nn         | 0.47           | 494.46           | 07.45          |
| Dsgn. L = 1.50 ft<br>Dsgn. L = 19.50 f   |                   | 0.002<br>0.071 | 0.005          | 0.93         | -0.29<br>-8.12   | 0.29<br>8.12   | 225.00<br>190.97 |             | .00 1.<br>.00 1. |            | 0,47<br>- 2,94 | 131.18<br>131.18 | 87.45<br>87.45 |
| Dsgn. L = 19.50 f                        |                   | 0.174          | 0.034          | 8.38         | -8.12            | 8.38           | 80.59            |             | .27 1.           |            | 2.94           | 131.18           | 87.45          |
| Dsgn. L = 3.50 ft                        | 4                 | 0.004          | 0.004          | 0.00         | -0.55            | 0.55           | 225.00           |             | .00 1.           |            | 0.31           | 131.18           | 87,45          |
| +D+0.750Lr+0.750L+                       |                   |                |                |              |                  |                |                  |             |                  |            |                |                  |                |
| Dsgn. L = 1.50 ft                        |                   | 0.002          | 0.005          |              | -0.29            | 0.29           | 225.00           |             | .00 1.           |            | 0.48           | 131.18           | 87.45          |
| Dsgn. L = 19.50 f                        |                   | 0.069          | 0.033          | 1.00         | -7.86            | 7.86           | 190.97           |             | .00 1.           |            | 2.87           | 131.18           | 87.45          |
| Dsgn. L = 19.50 f<br>Dsgn. L = 3,60 ft   |                   | 0.163<br>0.012 | 0.033<br>0.010 | 7.90         | -7.86<br>-1.60   | 7,90<br>1.60   | 80.97<br>225.00  |             | .27 1.<br>.00 1. |            | 2.87<br>0.92   | 131.18<br>131.18 | 87.45<br>87.45 |
| +D+0.750Lr+0.750L+                       |                   | 0.012          | VIVIO          |              | - 1.00           | 1,00           | エムシ、ひひ           | 104/10 1.   | ,,,,, i,         | •••        | 0.32           | 191.10           | 01.40          |
| Dsgn, L = 1.50 ft                        |                   | 0.002          | 0.025          |              | -0.29            | 0.29           | 225.00           | 134.73 1.   | .00 1.           | 00         | 2.15           | 131,18           | 87.45          |
| Dsgn. L = 19.50 f                        |                   | 0.177          | 0.034          | 8.53         | -8,12            | 8.53           | 80.40            | 48.14 1.    | .26 1.           |            | 2.95           | 131.18           | 87.45          |
| Dsgn. L = 19.50 f                        |                   | 0.071          | 0.014          | 0.75         | -8.12            | 8,12           | 190.97           | 114.35 3.   | .00 1.           |            | 1.26           | 131.18           | 87.45          |
| Dsgn, L ≈ 3,50 ft                        |                   | 0,004          | 0.004          |              | -0,55            | 0,55           | 225.00           | 134.73 1.   | .00 1.           | DÐ         | 0.31           | 131.18           | 87.45          |
| +D+0.750Lr+0.750L+ <br>Dsgn. L = 1.50 ft |                   | 0.002          | 0,025          |              | -0,29            | 0,29           | 225.00           | 134.73 1.   | .00 1.           | na         | 2.16           | 131.18           | 87.45          |
| Dsgn. L = 1.50 ft<br>Dsgn. L = 19.50 f   |                   | 0.002<br>0.181 | 0.034          | 8.64         | -7.86            | 0.29<br>8.64   | 79.95            |             | .00 1.<br>.26 1. |            | 2.10<br>2.94   | 131.18           | 67.45<br>87.45 |
| Dsgn. L = 19.50 f                        |                   | 0.069          | 0.014          | 0.08         | -7.86            | 7.86           | 190.97           |             | .00 1.           |            | 1.19           | 131.18           | 87.45          |
| Dsgn. L = 3.50 ft                        |                   | 0.012          | 0.010          |              | -1.60            | 1.60           | 225.00           |             | .00 1.           |            | 0.92           | 131.18           | 87.45          |
|                                          |                   |                |                |              |                  |                |                  |             |                  |            |                |                  |                |

Printed: 3 MAR 2017, 10:59AM

B.G. Structural Engineering, Inc.

75-175 Merle Drive Palm Desert, CA. 92211 Phone: 1-760-568-3553 Fax: 1-760-568-5681

Steel Beam

ENERCALC, INC. 1983-2017, Buildo 6.17.2.28, Ver.6.17.2.28

LIGHT KWA050081989 Description: Beam B2

| Segment Length D+0.750Lr+0.750L+H, LL Cor Dsgn. L = 1.50 ft Dsgn. L = 19.50 ft Dsgn. L = 19.50 ft Dsgn. L = 3.50 ft D+0.750Lr+0.750L+H, LL Cor Dsgn. L = 1.50 ft | 1                 | М              | ٧              | Mmax +       | Mmax -          | Ma Max        | Mnx              | Mnx/Omega       | Çb           | Rm   | Va Max       | Vnx              | Vnx/Omega      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------------|----------------|--------------|-----------------|---------------|------------------|-----------------|--------------|------|--------------|------------------|----------------|
| Dsgn. L = 1.50 ft<br>Dsgn. L = 19.50 ft<br>Dsgn. L = 19.50 ft<br>Dsgn. L = 3.50 ft<br>D+0.750Lr+0.750L+H, LL Cou                                                 | 1                 |                |                |              |                 |               |                  | •               |              |      |              |                  | viin Onlogo    |
| Dsgn, L ≃ 19.50 ft<br>Dsgn. L = 19.50 ft<br>Dsgn. L = 3.50 ft<br>D+0.750Lr+0.750L+H, LL Coi                                                                      |                   |                |                |              |                 |               |                  |                 |              |      |              |                  |                |
| Dsgn. L =   19.50 ft<br>  Dsgn. L =   3.50 ft<br> D+0.750Lr+0.750Lr+H, LL Col                                                                                    |                   | 0.002          | 0.022          | 0.00         | -0.29           | 0,29          | 225.00           | 134.73          |              | 1.00 | 1.94         | 131.18           | 87.45          |
| Dsgn, L = 3.50 ft<br>D+0.750Lr+0.750L+H, LL Coi                                                                                                                  | 2                 | 0.154          | 0.036          | 6.89         | -12.22          | 12,22         | 132.53           | 79.36           | 2.08         |      | 3.16         | 131.18           | 87.45          |
| D+0.750Lr+0.750L+H, LL Coi                                                                                                                                       | 3<br>4            | 0.152<br>0.004 | 0.036<br>0.004 | 6.73         | -12,22<br>-0,55 | 12.22<br>0.55 | 134.12<br>225.00 | 80.31<br>134.73 | 2.11         |      | 3.15<br>0.31 | 131.18<br>131.18 | 87.45<br>87.45 |
|                                                                                                                                                                  |                   | 0.004          | 6,004          |              | -0,00           | 0.33          | 223.00           | 104.10          | 1.00         | 1.00 | 0.01         | 101.10           | 07.10          |
|                                                                                                                                                                  | 1                 | 0.002          | 0.022          |              | -0.29           | 0.29          | 225.00           | 134.73          | 1.00         | 1.00 | 1.95         | 131.18           | 87.45          |
| Dsgn. L ≈ 19.50 ft                                                                                                                                               | 2                 | 0.155          | 0.036          | 6.99         | -11,96          | 11,96         | 128.90           |                 | 2.03         |      | 3.15         | 131.18           | 87.45          |
| Dsgn. L = 19.50 ft                                                                                                                                               | 3                 | 0.143          | 0.035          | 6.19         | -11,96          | 11.96         | 139.40           | 83.48           | 2.19         |      | 3.08         | 131,18           | 87.45          |
| Dsgn. L = 3.50 ft                                                                                                                                                | 4                 | 0.012          | 0.010          |              | -1.60           | 1.60          | 225.00           | 134.73          | 1.00         | 1.00 | 0.92         | 131.18           | 87.45          |
| D+0.750L+0.750S+H, LL Con                                                                                                                                        |                   |                |                |              |                 |               |                  |                 |              |      |              |                  |                |
| Dsgn. L = 1.50 (t                                                                                                                                                | 1                 | 0.001          | 0.008          | 0.00         | -0.10           | 0.10          | 225.00           | 134.73          | 1.00         |      | 0.66         | 131.18           | 87.45          |
| Dsgn. l. = 19,50 ft<br>Dsgn. L = 19,50 ft                                                                                                                        | 2                 | 0.053<br>0.049 | 0.012<br>0.012 | 2.38<br>2.11 | -4.07           | 4.07          | 128.90           | 77.19<br>83.48  | 2.03         |      | 1.07<br>1.05 | 131.18<br>131.18 | 87.45<br>87.45 |
| Dsgn, L = 3.50 ft                                                                                                                                                | 3<br>4            | 0.045          | 0.012          | 2.11         | -4.07<br>-0.55  | 4.07<br>0.55  | 139.40<br>225.00 | 134.73          | 1.00         |      | 0.31         | 131.18           | 87.45          |
| D+0.750L+0.750S+H, LL Con                                                                                                                                        | -                 | 0.004          | 0.004          |              | -0,00           | 0.00          | 220.00           | 107.70          | 1.00         | 1.00 | 0.51         | 101.10           | 01.40          |
| Dsgn. L = 1,50 fl                                                                                                                                                | 1                 | 0.001          | 800.0          |              | -0.10           | 0.10          | 225.00           | 134.73          | 1.00         | 1.00 | 0.66         | 131.18           | 87.45          |
| Dsgn. L. = 19.50 ft                                                                                                                                              | ż                 | 0.053          | 0.012          | 2.38         | -4.07           | 4,07          | 128.90           | 77.19           | 2.03         |      | 1.07         | 131.18           | 87.45          |
| Dsgn. l. = 19.50 ft                                                                                                                                              | 3                 | 0.049          | 0.012          | 2.11         | -4.07           | 4.07          | 139.40           | 83.48           | 2.19         |      | 1.05         | 131.18           | 87.45          |
| Dsgn. L. ≈ 3.50 ft                                                                                                                                               | 4                 | 0.004          | 0.004          |              | -0.55           | 0.55          | 225.00           | 134.73          | 1.00         | 1.00 | 0.31         | 131.18           | 87.45          |
| 0+0.750L+0.750S+H, LL Con                                                                                                                                        | nb Run (**        |                |                |              |                 |               |                  |                 |              |      |              |                  |                |
| Dsgn. L = 1.50 ft                                                                                                                                                | 1                 | 0.001          | 800.0          |              | -0.10           | 0,10          | 225.00           | 134.73          | 1.00         |      | 0.66         | 131.18           | 87.45          |
| Dsgn. L = 19.50 ft                                                                                                                                               | 2                 | 0.053          | 0.012          | 2.38         | -4.07           | 4.07          | 128.90           |                 | 2.03         |      | 1.07         | 131.18           | 87.45          |
| Dsgn. L = 19.50 ft                                                                                                                                               | 3                 | 0,049          | 0.012          | 2.11         | -4.07           | 4.07          | 139.40           | 83.48           | 2.19         |      | 1.05         | 131.18           | 87.45          |
| Dsgn. L = 3.50 ft                                                                                                                                                | 4<br>-1- Dun (1)  | 0.004          | 0.004          |              | -0.55           | 0.55          | 225.00           | 134.73          | 1.00         | 1.00 | 0.31         | 131.18           | 87.45          |
| )+0.750L+0.750S+H, Lt. Con                                                                                                                                       |                   | 0.004          | 0.000          |              | 0.40            | 0.40          | 225.00           | 10170           | 4 00         | 4.00 | 0.66         | 193 40           | 87.45          |
| Dsgn. L = 1.50 ft<br>Dsgn. L = 19.50 ft                                                                                                                          | 1 2               | 0.001<br>0.053 | 0,008<br>0,012 | 2.38         | -0.10<br>-4.07  | 0.10<br>4.07  | 225.00<br>128.90 | 134.73<br>77.19 | 1.00<br>2.03 | - 1  | 0.66<br>1.07 | 131,18<br>131,18 | 87.45          |
| Dsgn. L = 19.50 ft                                                                                                                                               | 3                 | 0.033          | 0.012          | 2.33         | -4.07           | 4.07          | 139.40           |                 | 2.19         |      | 1.05         | 131.18           | 87.45          |
| Dsgn. L = 3.50 ft                                                                                                                                                | 4                 | 0.004          | 0.004          | 2,11         | -0.55           | 0.55          | 225.00           | 134.73          | 1.00         |      | 0.31         | 131.18           | 87.45          |
| 0+0.750L+0.750S+H, Lt. Con                                                                                                                                       |                   | 0,001          | 0.001          |              | -0.00           | 0100          | ELUIUU           | 151110          | 11174        | 1100 | 0,5,         | 101110           | *****          |
| Dsgn, L = 1.50 ft                                                                                                                                                | 1                 | 0.001          | 0,008          |              | -0.10           | 0.10          | 225.00           | 134.73          | 1.00         | 1.00 | 0.66         | 131.18           | 87.45          |
| Dsgn, L = 19.50 ft                                                                                                                                               | 2                 | 0.053          | 0.012          | 2,38         | -4.07           | 4.07          | 128.90           | 77.19           | 2.03         |      | 1.07         | 131.18           | 87.45          |
| Dsgn. L = 19.50 ft                                                                                                                                               | 3                 | 0.049          | 0.012          | 2.11         | -4.07           | 4.07          | 139.40           | 83.48           | 2.19         |      | 1.05         | 131.18           | 87.45          |
| Dsgn. L = 3.50 ft                                                                                                                                                | 4                 | 0.004          | 0.004          |              | -0.55           | 0:55          | 225.00           | 134,73          | 1.00         | 1.00 | 0.31         | 131.18           | 87.45          |
| 0+0.750L+0.750S+H, LL Con                                                                                                                                        |                   |                |                |              |                 |               |                  |                 |              |      |              |                  |                |
| Dsgn, L = 1.50 ft                                                                                                                                                | 1                 | 0.001          | 0.008          |              | -0.10           | 0.10          | 225.00           | 134.73          | 1.00         |      | 0.66         | 131.18           | 87.45          |
| Dsgn. L = 19.50 ft                                                                                                                                               | 2                 | 0.053          | 0.012          | 2.38         | -4.07           | 4.07          | 128.90           | 77.19           | 2.03         |      | 1.07         | 131.18           | 87.45          |
| Dagn. L = 19.50 ft                                                                                                                                               | 3                 | 0.049          | 0.012          | 2.11         | -4.07           | 4.07          | 139.40           | 83.48<br>134.73 | 2.19<br>1.00 |      | 1.05         | 131.18           | 87.45          |
| Dsgn, L =   3.50 ft<br>D+0.750L+0.750S+H, LL Con                                                                                                                 | - 4<br>ab Dun /⁴I | 0.004          | 0.004          |              | -0,55           | 0.55          | 225.00           | 134.73          | 1.00         | 1.00 | 0.31         | 131.18           | 87.45          |
| Dsgn, L = 1.50 ft                                                                                                                                                | 1                 | 0.001          | 0.008          |              | -0.10           | 0.10          | 225.00           | 134.73          | 1.00         | 1.00 | 0.66         | 131.18           | 87,45          |
| Dagn, L = 19.50 ft                                                                                                                                               | ż                 | 0.053          | 0.012          | 2.38         | -4.07           | 4.07          | 128.90           | 77.19           | 2.03         |      | 1.07         | 131.18           | 87.45          |
| Dsgn, L = 19.50 ft                                                                                                                                               | 3                 | 0.049          | 0.012          | 2.11         | -4.07           | 4.07          | 139.40           | 83.48           | 2.19         |      | 1.05         | 131.18           | 87,45          |
| Dsgn. L = 3.50 ft                                                                                                                                                | 4                 | 0.004          | 0.004          |              | -0.55           | 0.55          | 225.00           | 134.73          | 1.00         |      | 0.31         | 131.18           | 87.45          |
| D+0.750L+0.750S+H, LL Con                                                                                                                                        | nb Run (L'        |                |                |              |                 |               |                  |                 |              |      |              |                  |                |
| Dsgn. L = 1.50 ft                                                                                                                                                | 1                 | 0.001          | 0.008          |              | -0.10           | 0.10          | 225.00           | 134.73          | 1.00         |      | 0.66         | 131.18           | 87.45          |
| Dsgn. L = 19.50 ft                                                                                                                                               | 2                 | 0.053          | 0.012          | 2.38         | -4.07           | 4.07          | 128.90           | 77.19           | 2.03         |      | 1.07         | 131.18           | 87.45          |
| Dsgn. L = 19.50 ft                                                                                                                                               | 3                 | 0.049          | 0.012          | 2.11         | -4.07           | 4,07          | 139.40           |                 | 2.19         |      | 1.05         | 131.18           | 87.45          |
| Dsgn. L = 3,50 ft                                                                                                                                                | 4                 | 0.004          | 0.004          |              | -0,55           | 0.55          | 225.00           | 134.73          | 1.00         | 7.00 | 0.31         | 131.18           | 87.45          |
| D+0.750L+0.750S+H, LL Con                                                                                                                                        |                   | 0.004          | 0.000          |              | 0.40            | 0.40          | 005.00           | 494.79          | 1.00         | 4 00 | 0.00         | 124 10           | 07 AE          |
| Dsgn. L = 1.50 ft<br>Dsgn. L = 19.50 ft                                                                                                                          | 1<br>2            | 0.001<br>0.053 | 0.008<br>0.012 | 2.38         | -0.10<br>-4.07  | 0.10<br>4.07  | 225.00<br>128.90 |                 | 1.00<br>2.03 |      | 0.66<br>1,07 | 131.18<br>131.18 | 87.45<br>87.45 |
| Dsgn. L = 19.50 ft                                                                                                                                               | 3                 | 0.033          | 0.012          | 2.11         | -4.07           | 4.07          | 139.40           |                 | 2.19         |      | 1.05         | 131.18           | 87.45          |
| Dsgn. L = 3.50 ft                                                                                                                                                | 4                 | 0.004          | 0.004          | 2.11         | -0.65           | 0.55          | 225.00           |                 | 1.00         |      | 0.31         | 131.18           | 87.45          |
| D+0.750L+0.750S+H, LL Con                                                                                                                                        |                   | 0.00           | 0,001          |              | 0,00            | \$100         | LLUIJO           | 7010            | ,,,,,        |      | 0,51         | 14 11.15         | 41110          |
| Dsgn. L = 1.50 ft                                                                                                                                                | 1                 | 0.001          | 800.0          |              | -0.10           | 0.10          | 225.00           | 134.73          | 1.00         | 1.00 | 0.66         | 131.18           | 87.45          |
| Dsgn. L = 19.50 ft                                                                                                                                               | 2                 | 0.053          | 0.012          | 2.38         | -4.07           | 4.07          | 128.90           |                 | 2.03         | 1.00 | 1.07         | 131,18           | 87.45          |
| Dsgn. L = 19,50 ft                                                                                                                                               | 3                 | 0.049          | 0.012          | 2.11         | -4.07           | 4.07          | 139.40           |                 | 2,19         | 1.00 | 1.05         | 131.18           | 87.45          |
| Dsgn. L = 3,50 ft                                                                                                                                                | 4                 | 0.004          | 0.004          |              | -0.55           | 0.55          | 225.00           | 134.73          | 1.00         | 1.00 | 0.31         | 131.18           | 87.45          |
| )+0.750L+0.750S+H, LL Con                                                                                                                                        | nb Run (L'        |                |                |              | - ·             | 4             | A4               |                 |              |      |              | 45               | ·              |
| Dsgn. L = 1,50 ft                                                                                                                                                | 1                 | 0.001          | 0.008          |              | -0.10           | 0,10          | 225,00           |                 | 1.00         |      | 0.66         | 131.18           | 87.45          |
| Dsgn. L = 19.50 ft                                                                                                                                               | 2                 | 0.053          | 0.012          | 2.38         | -4.07           | 4.07          | 128.90           |                 | 2.03         |      | 1.07         | 131.18           | 87.45          |
| Dsgn. L = 19.50 ft                                                                                                                                               | 3                 | 0.049          | 0.012          | 2.11         | -4.07<br>0.55   | 4.07          | 139.40           |                 | 2.19         |      | 1.05         | 131.18           | 87.45          |
| Dsgn. L = 3.50 ft                                                                                                                                                | 4<br>ab Dun (11   | 0.004          | 0.004          |              | -0.55           | 0.55          | 225,00           | 134.73          | 1.00         | 1.00 | 0.31         | 131.18           | 87.45          |
| D+0.750L+0.750S+H, LL Con                                                                                                                                        | no Run (Li<br>1   | 0.001          | 800.0          |              | -0.10           | 0.10          | 225.00           | 134.73          | 1.00         | 1.00 | 0.66         | 131.18           | 87.45          |
|                                                                                                                                                                  | 2                 | 0.053          | 0.012          | 2.38         | -0.10<br>-4.07  | 4.07          | 128.90           |                 | 2.03         |      | 1.07         | 131.18           | 87.45          |
| Dsgn. L = 1.50 ft<br>Dsgn. L = 19.50 ft                                                                                                                          |                   | นเผงน          | U.U 12         |              | -7.07           | 7.01          | 14,0,00          | 17,10           | ک ت ہیں      | 4.00 |              |                  |                |

B.G. Structural Engineering, Inc. 75-175 Merle Drive Palm Desert, CA. 92211 Phone: 1-760-568-3553

Project Title: Engineer: Project Descr:

Genesis Solar Heavy Equipment Covered Parking 19 BG Project ID: 800.0617

Steel Beam Lic. # KW-06003989 Description:

| Load Combination                               |              | Max Stres      | s Ratios       |              |                  | Summary of f   | Moment Valu      | ies       |              |      | Sumn         | nary of Sh       | ear Values              |
|------------------------------------------------|--------------|----------------|----------------|--------------|------------------|----------------|------------------|-----------|--------------|------|--------------|------------------|-------------------------|
| Segment Length                                 | Span#        | M              | ٧              | Mmax +       | Mmax -           | Ma Max         | Mnx              | Mnx/Omega | a Cb         | Rm   | Va Max       |                  | Vnx/Omega               |
| Dsgn. L = 3.50 ft                              | 4            | 0.004          | 0,004          |              | -0.55            | 0.55           | 225.00           | 134.73    |              | 1.00 | 0.31         | 131.18           | 87.48                   |
| +D+0.750L+0.750S+H, LL                         |              | 0.004          |                |              |                  |                |                  |           |              |      |              |                  |                         |
| Dsgn, L = 1.50 ft<br>Dsgn, L = 19.50 ft        | 1            | 0.001          | 0.008          | 0.00         | -0.10            | 0.10           | 225.00           | 134.73    |              | 1.00 | 0.56         | 131.18           | 87.48                   |
| Dsgn. L = 19,50 ft                             | 2<br>3       | 0.053<br>0.049 | 0.012<br>0.012 | 2.38         | -4.07            | 4.07           | 128.90           | 77.19     |              | 1.00 | 1.07         | 131.18           | 87.4                    |
| Dsgn. L = 3.50 ft                              | 4            | 0.004          | 0.0012         | 2.11         | -4.07            | 4.07           | 139.40           | 83.48     |              | 1.00 | 1.05         | 131.18           | 87.48                   |
| +D+0.750L+0.750S+H, LL (                       |              | 0.004          | 0,004          |              | -0.55            | 0.55           | 225.00           | 134.73    | 1.00         | 1.00 | 0.31         | 131.18           | 87.45                   |
| Dsgn. L = 1.50 ft                              | 1            | 0.001          | 800,0          |              | -0.10            | 0.10           | 225.00           | 134.73    | 1 00         | 1.00 | 0.66         | 131,18           | 87.48                   |
| Dsgn. L = 19.50 ft                             | 2            | 0.053          | 0.012          | 2.38         | -4.07            | 4,07           | 128.90           | 77.19     |              | 1.00 | 1.07         | 131.18           | 87.48                   |
| Dsgn. L = 19.50 ft                             | 3            | 0.049          | 0.012          | 2.11         | -4.07            | 4.07           | 139,40           | 83.48     |              | 1.00 | 1.05         | 131.18           | 87.45                   |
| Dsgn. L = 3,50 ft                              | . 4          | 0.004          | 0.004          |              | -0.55            | 0.55           | 225,00           | 134.73    |              | 1.00 | 0.31         | 131.18           | 87.45                   |
| +D+0.750L+0.750S+H, LL (                       |              | 0.004          |                |              |                  |                |                  |           |              |      |              |                  | • •                     |
| Dsgn. L = 1,50 ft<br>Dsgn. L = 19,50 ft        | 1            | 0.001          | 800.0          | 0.05         | -0.10            | 0.10           | 225,00           | 134.73    |              | 1.00 | 0.66         | 131.18           | 87.45                   |
| Dsgn. L = 19.50 ft                             | 2<br>3       | 0.053          | 0.012          | 2.38         | -4.07            | 4.07           | 128.90           | 77.19     |              | 1.00 | 1.07         | 131.18           | 87.45                   |
| Dsgn. L = 19.50 ft                             | 3<br>4       | 0.049<br>0.004 | 0.012<br>0.004 | 2.11         | -4.07            | 4.07           | 139.40           | 83.48     |              | 1.00 | 1.05         | 131.18           | 87.45                   |
| +D+0.60W+H                                     | 7            | 0.004          | 0,004          |              | -0.55            | 0.55           | 225.00           | 134.73    | 1.00         | 1.00 | 0.31         | 131.18           | 87.45                   |
| Dsgn. L = 1,50 ft                              | 1            | 0.001          | 0.008          |              | -0.10            | 0.10           | 225.00           | 134.73    | 4 00         | 1.00 | 0.66         | 494 40           | 07 AC                   |
| Dsgn. L = 19,50 ft                             | 2            | 0.053          | 0.012          | 2.38         | -4.07            | 4.07           | 128.90           | 77.19     |              | 1.00 | 1.07         | 131.18<br>131.18 | 87.45<br>87.45          |
| Dsgn. L = 19.50 ft                             | 3            | 0.049          | 0.012          | 2.11         | -4,07            | 4.07           | 139.40           | B3.48     |              | 1.00 | 1.05         | 131.18           | 87.45                   |
| Dsgn. L = 3,50 ft                              | 4            | 0.004          | 0.004          |              | -0.55            | 0.55           | 225.00           | 134.73    | 1.00         | 1.00 | 0.31         | 131.18           | 87.45                   |
| +D+0.70E+H                                     |              |                |                |              |                  |                |                  |           |              |      |              |                  | 01.10                   |
| Dsgn, L = 1.50 ft                              | 1            | 0.001          | 800.0          |              | -0.10            | 0.10           | 225.00           | 134.73    |              | 1.00 | 0.66         | 131.18           | 87.45                   |
| Dsgn. L = 19.50 ft<br>Dsgn. L = 19.50 ft       | 2<br>3       | 0.053          | 0.012          | 2.38         | -4.07            | 4.07           | 128.90           | 77.19     | 2.03         |      | 1.07         | 131.18           | 87.45                   |
| Dsgn. L = 3.50 ft                              | 3<br>4       | 0.049<br>0.004 | 0.012          | 2.11         | -4.07            | 4.07           | 139.40           | 83.48     | 2.19         |      | 1.05         | 131.18           | 87. <b>4</b> 5          |
| +D+0.750Lr+0.750L+0.450V                       |              | ሁለሁም           | 0.004          |              | -0.55            | 0.55           | 225.00           | 134.73    | 1.00         | 1.00 | 0.31         | 131.18           | 87.45                   |
| Dsgn. L = 1,50 ft                              | 1            | 0.001          | 0.008          |              | -0.10            | 0,10           | 225.00           | 134.73    | 1.00         | 4.00 | 0.00         | 404.40           | 07 45                   |
| Dsgn. L = 19.50 ft                             | 2            | 0.054          | 0.012          | 2,48         | -3.80            | 3.80           | 117.44           | 70.33     | 1.85         |      | 0.68<br>1.06 | 131.18<br>131.18 | 87.45<br>87.45          |
| Dsgn. L = 19.50 ft                             | 3            | 0.040          | 0.011          | 1.60         | -3.80            | 3.80           | 159,58           | 95.56     | 2.51         |      | 0.98         |                  | 87.45                   |
| Dsgn. L = 3,50 ft                              | 4            | 0.012          | 0.010          |              | -1,60            | 1.60           | 225.00           | 134.73    | 1.00         |      | 0.92         | 131.18           | 87.45                   |
| +D+0.750Lr+0.750L+0.450V                       | V+H, LL Corr |                |                |              |                  |                |                  |           |              |      | 0,00         | 101110           | 91.10                   |
| Dsgn. L ≈ 1.50 ft                              | 1            | 0.001          | 0.005          |              | -0.10            | 0.10           | 225.00           | 134.73    | 1.00         | 1.00 | 0.45         | 131.18           | 87.45                   |
| Dsgn. L = 19.50 ft                             | 2            | 0.071          | 0.034          | 1.06         | -8.17            | 8.17           | 190.97           | 114.35    | 3.00         |      | 2.94         | 131,18           | 87.45                   |
| Dsgn, L = 19.50 ft<br>Osgn, L = 3.50 ft        | 3            | 0.173          | 0.034          | 8.36         | -8.17            | 8.36           | 80.65            | 48.29     | 1.27         |      | 2.94         | 131.18           | 87 <b>.4</b> 5          |
| +D+0.750Lr+0.750L+0.450V                       | V-HII Com    | 0.004          | 0.004          |              | -0.55            | 0.55           | 225.00           | 134.73    | 1.00         | 1.00 | 0.31         | 131.18           | 87.45                   |
| Dsgn, L = 1.50 ft                              | 1            | 0.001          | 0.005          |              | -0.10            | 0.10           | 225.00           | 134.73    | 4.00         | 4 0n | 0.47         | 101.10           | 67.40                   |
| Dsgn, L = 19.50 ft                             | 2            | 0.069          | 0.033          | 1.13         | -7.90            | 7.90           | 190.97           | 114.35    | 1.00<br>3.00 |      | 0.47<br>2.87 | 131.18<br>131.18 | 87.45                   |
| Dsgn. L = 19.50 ft                             | 3            | 0.162          | 0.033          | 7.88         | -7.90            | 7.90           | 81.29            | 48.68     | 1.28         |      | 2.87         | 131.18           | 87.45<br>87.45          |
| Dsgn, L = 3.50 ft                              | 4            | 0.012          | 0.010          |              | -1,60            | 1.60           | 225.00           | 134,73    | 1.00         |      | 0.92         | 131.18           | 87.45                   |
| +D+0.750Lr+0.750L+0.450W                       |              |                |                |              |                  |                |                  | , , , , , |              | -,** | 0.02         | 101110           | 07.40                   |
| Dsgn. L = 1.50 ft                              | 1            | 0.001          | 0.024          |              | -0.10            | 0.10           | 225.00           | 134.73    | 1.00         | 1.00 | 2.14         | 131.18           | 87.45                   |
| Dsgn. L = 19.50 ft                             | 2            | 0.179          | 0.034          | 8.62         | -8,17            | 8.62           | 80.40            | 48.14     | 1.26         | 1,00 | 2.96         | 131.18           | 87.45                   |
| Dsgn. L = 19.50 ft<br>Dsgn. L = 3.50 ft        | 3<br>4       | 0.071          | 0.014          | 0.73         | -8.17            | 8.17           | 190.97           |           | 3.00         |      | 1.26         | 131.18           | 87,45                   |
| +D+0.750Lr+0.750L+0.450W                       |              | 0.004          | 0.004          |              | -0.55            | 0.55           | 225.00           | 134.73    | 1.00         | 1.00 | 0.31         | 131.18           | 87.45                   |
| Dsgn. L = 1,50 ft                              | 1            | 0.001          | 0.025          |              | -0.10            | 0.10           | 225.00           | 12270     | 4 00         | 4.00 | 0.45         | 101.10           | A- 4                    |
| Dsgn. L = 19.50 ft                             | ż            | 0.183          | 0.023          | 8.73         | -7.90            | 8.73           | 79.89            |           | 1.00<br>1.26 |      | 2.15         | 131.18           | 87.45                   |
| Dsgn. L = 19.50 ft                             | 3            | 0.069          | 0.014          | 0.06         | -7.90            | 7.90           | 190.97           |           | 3,00         |      | 2.95<br>1.19 | 131.18<br>131.18 | 87.45                   |
| Dsgn. L = 3.50 ft                              | 4            | 0.012          | 0.010          |              | -1.60            | 1.60           | 225.00           |           | 1,00         |      | 0.92         | 131.18           | 87. <b>4</b> 5<br>87.45 |
| +D+0.750Lr+0.750L+0.450W                       | /+H, LL Corr |                |                |              |                  | ****           |                  | 101110    | . 140        | 1.00 | 0.02         | 10 1, 10         | 01.45                   |
| Dsgn. L = 1.50 ft                              | 1            | 0.001          | 0.022          |              | -0.10            | 0.10           | 225.00           | 134.73    | 1.00         | 1.00 | 1,93         | 131.18           | 87.45                   |
| Dsgn. L = 19.50 ft                             | 2            | 0.156          | 0.036          | 6.99         | -12.27           | 12.27          | 131.64           |           | 2.07         |      | 3.17         | 131.18           | 87.45                   |
| Dsgn. L = 19.50 ft                             | 3            | 0.152          | 0.036          | 6.71         | -12.27           | 12.27          | 134.50           |           | 2.11         |      | 3.15         | 131.18           | 87.45                   |
| Dsgn. l. = 3,50 ft<br>+D+0,750Lr+0,750L+0,450W | 4            | 0.004          | 0.004          |              | <b>-</b> 0.55    | 0.55           | 225.00           | 134.73    | 1.00         | 1.00 | 0.31         | 131.18           | 87.45                   |
| Dsgn. L = 1,50 ft                              | 1 1 TE CON   | 0.001          | 0.022          |              | 0.40             | 0.45           | 000.00           | 40.0      |              |      |              |                  |                         |
| Dsgn. L = 19,50 ft                             | 2            | 0.001          | 0.022          | 7.09         | -0.10            | 0.10           | 225.00           |           | 1.00         |      | 1.94         | 131,18           | 87.45                   |
| Dsgn. L = 19,50 ft                             | 3            | 0.143          | 0.035          | 7.09<br>6.17 | -12.00<br>-12.00 | 12.00<br>12.00 | 127.95<br>139.79 |           | 2.01         |      | 3.16         | 131.18           | 87,45                   |
| Dsgn. L = 3,50 ft                              | 4            | 0.012          | 0.010          | Q. 17        | -1.60            | 1.60           | 225.00           |           | 2.20<br>1.00 |      | 3.08         | 131.18           | 87.45                   |
| :D+0.750Lr+0.750L+0.450W                       |              |                |                |              | 1100             | 1100           |                  | 107.10    | ··VU         | 1.00 | 0.92         | 131.18           | 87.45                   |
| Dsgn. L = 1.50 ft                              | 1            | 0.002          | 0.008          |              | -0.29            | 0.29           | 225.00           | 134.73    | 1.00         | 1.00 | 0.68         | 131.18           | 87.4 <del>5</del>       |
| Dsgn. L = 19.50 ft                             | 2            | 0.051          | 0.012          | 2.28         | -4.02            | 4.02           | 131.83           |           | 2.07         |      | 1.06         | 131.18           | 87.45                   |
| Dsgn. L = 19.50 ft                             | 3            | 0.049          | 0.012          | 2,13         | -4.02            | 4.02           | 138.32           |           | 2.17         |      | 1.05         | 131.18           | 87.45                   |
| Dsgn. L = 3.50 ft                              | 4            | 0.004          | 0.004          |              | -0,55            | 0.55           | 225.00           |           | 1.00         |      |              | 131.18           | 87.45                   |
| D+0.750\r+0.750L+0.450W                        |              | A 000          | 0.000          |              |                  |                |                  |           |              |      | ,            |                  |                         |
| Dsgn, l. = 1.50 ft<br>Dsgn, l. = 19.50 ft      | 1<br>2       | 0.002          | 0.008          | 0.00         | -0,29            | 0:29           | 225.00           |           | 1.00         |      |              | 131.18           | 87.45                   |
| ~ogm = ro.ou it                                | 4            | 0.052          | 0.012          | 2.38         | -3.76            | 3.76           | 119,93           | 71.81     | 1.88         | 1.00 | 1.05         | 131.18           | 87.45                   |
|                                                |              |                |                |              |                  |                |                  |           |              |      |              |                  |                         |

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Steel Beam Lic:#::KW-06003989 Beam B2 Description:

| oad Combination                              |                                          | Max Stress                       | Ratios            |                | 8                | Summary of M   | oment Valu       |                         |              |              |              | •                | ear Values     |
|----------------------------------------------|------------------------------------------|----------------------------------|-------------------|----------------|------------------|----------------|------------------|-------------------------|--------------|--------------|--------------|------------------|----------------|
| Segment Length                               | Span#                                    | M                                | ٧                 | Mmax +         | Mmax -           | Ma Max         | Mnx              | Mnx/Omega               |              | Rm           | Va Max       |                  | Vnx/Omega      |
| Dsgn. I. = 19,50 ft                          | 3                                        | 0.040                            | 0.011             | 1.62           | -3.76            | 3.76           | 158.37<br>225.00 |                         | 2.49<br>1.00 |              | 0,98<br>0,92 | 131.18<br>131.18 | 87.49<br>87.49 |
| Dsgn. L = 3.50 ft<br>D+0.750Lr+0.750L+0.450  | 4<br>N+H 11 Com                          | 0.012                            | 0.010             |                | -1.60            | 1.60           | 225.90           | 194.19                  | 1.00         | 1.00         | V.3Z         | 131,10           | .10            |
| Dsgn. L = 1,50 ft                            | 1                                        | 0.002                            | 0.005             |                | -0.29            | 0.29           | 225.00           | 134.73                  | 1.00         | 1.00         | 0.47         | 131.18           | 87.4           |
| Dsgn, L = 19.50 ft                           | 2                                        | 0.071                            | 0.034             | 0.93           | -8.12            | 8.12           | 190.97           | 114.35                  | 3,00         |              | 2,94         | 131.18           | 87.4           |
| Dsgn. L = 19.50 ft                           | 3                                        | 0.174                            | 0.034             | 8.38           | -8.12            | 8.38           | 80.59            |                         | 1.27         |              | 2.94         | 131.18           | 87.4           |
| Dsgn. L = 3,50 ft                            | 4                                        | 0.004                            | 0.004             |                | -0.55            | 0.55           | 225.00           | 134.73                  | 1.00         | 1.00         | 0.31         | 131.18           | 87.4           |
| D+0.750Lr+0.750L+0.450                       |                                          | 0.000                            | 0.006             |                | -0.29            | 0.29           | 225.00           | 134.73                  | 1.00         | 1.00         | 0.48         | 131.18           | 87.4           |
| Dsgn. l. = 1,50 ft<br>Dsgn. l. = 19,50 ft    | 1<br>2                                   | 0.002<br>0.069                   | 0.005<br>0.033    | 1.00           | -0.25<br>-7.86   | 7.86           | 190.97           | 114.35                  | 3.00         |              | 2.87         | 131.18           | 87,4           |
| Dsgn. L = 19.50 ft                           | 3                                        | 0.163                            | 0.033             | 7.90           | -7.86            | 7.90           | 80.97            |                         | 1.27         |              | 2.87         | 131.18           |                |
| Dsgn. l. = 3.50 ft                           | 4                                        | 0.012                            | 0.010             | ,,,,,          | -1.60            | 1.60           | 225.00           | 134.73                  | 1.00         |              | 0.92         | 131.18           | 87.4           |
| D+0.750Lr+0.750L+0.450                       | N+H, LL Cor                              |                                  |                   |                |                  |                |                  |                         |              |              |              |                  | A- 1           |
| Dsgn. l. = 1.50 ft                           | 1                                        | 0.002                            | 0.025             |                | -0.29            | 0.29           | 225.00           | 134,73                  |              | 1.00         | 2.15         | 131.18           | 87.4           |
| Dsgn. l. = 19,50 ft                          | 2                                        | 0.177                            | 0.034             | 8.53           | -8.12            | 8.53           | 80.40            | 48.14                   | 1.26         |              | 2.95         | 131.18           | 87.4           |
| Dsgn. l. = 19.50 ft                          | 3                                        | 0.071                            | 0.014             | 0.75           | -8.12            | 8.12           | 190.97           | 114.35                  | 3.00<br>1.00 |              | 1.26<br>0,31 | 131.18<br>131.18 | 87.45<br>87.45 |
| Dsgn, L = 3,50 ft<br>D+0,750Lr+0,750L+0.450' | 4<br>Nati II Com                         | 0.004                            | 0.004             |                | -0.55            | 0.55           | 225,00           | 134.73                  | 1,00         | 1.00         | ו פוע        | 101.10           | 01.44          |
| Dsan, L = 1.50 ft                            | 1                                        | 0.002                            | 0.025             |                | -0.29            | 0.29           | 225,00           | 134.73                  | 1.00         | 1.00         | 2.16         | 131.18           | 87.4           |
| Dsgn. L = 19.50 ft                           | ż                                        | 0.181                            | 0.034             | 8.64           | -7.86            | 8.64           | 79,95            | 47.87                   | 1.26         |              | 2.94         | 131.18           | 87.4           |
| Dsgn. L = 19.50 ft                           | 3                                        | 0.069                            | 0.014             | 0.08           | -7.86            | 7.86           | 190,97           | 114.35                  | 3.00         | 1.00         | 1.19         | 131.18           |                |
| Dsgn. L = 3.50 ft                            | 4                                        | 0.012                            | 0.010             |                | -1.60            | 1.60           | 225.00           | 134.73                  | 1.00         | 1.00         | 0.92         | 131.18           | 87.4           |
| D+0.750Lr+0.750L+0.450                       |                                          |                                  |                   |                |                  |                |                  | 40470                   | 4.00         | 4.00         |              | 404.40           | 07.4           |
| Dsgn. L = 1.50 ft                            | 1                                        | 0.002                            | 0.022             | C 00           | -0.29            | 0.29           | 225.00           | 134.73                  |              | 1.00         | 1,94         | 131.18<br>131.18 | 87.4<br>87.4   |
| Dsgn. L = 19.50 ft                           | 2                                        | 0.154                            | 0.036<br>0.036    | 6.89<br>6.73   | -12,22<br>-12,22 | 12.22<br>12.22 | 132.53<br>134.12 | 79.36<br>80.31          | 2.11         | 1.00         | 3.16<br>3.15 | 131,18           | 87.4           |
| Dsgn. L = 19.50 ft<br>Dsgn. L = 3.50 ft      | 3<br>4                                   | 0.152<br>0.004                   | 0.004             | 0.13           | -12.22           | 0.55           | 225.00           | 134.73                  | 1.00         |              | 0.13         | 131.18           |                |
| D+0,750Lr+0.750L+0.450                       |                                          | 0.00-7                           | 0.001             |                | 0.00             | 4,55           | LLUIU            | 101110                  | ,,,,,        | ,,,,,        |              |                  |                |
| Dsgn. L = 1.50 ft                            | 1                                        | 0.002                            | 0.022             |                | -0.29            | 0.29           | 225.00           | 134.73                  | 1.00         | 1.00         | 1.95         | 131.18           |                |
| Dsgn. L = 19.50 ft                           | 2                                        | 0.155                            | 0.036             | 6.99           | -11.96           | 11.96          | 128.90           | 77.19                   |              | 1.00         | 3.15         | 131.18           |                |
| Dsgn. L = 19.50 ft                           | 3                                        | 0.143                            | 0.035             | 6.19           | -11.96           | 11.96          | 139.40           | 83.48                   |              | 1.00         | 3.08         | 131.18           |                |
| Dsgn. L = 3.50 ft                            | 4                                        | 0.012                            | 0.010             |                | -1.60            | 1.60           | 225,00           | 134.73                  | 1,00         | 1.00         | . 0.92       | 131.18           | 87.4           |
| D+0.750L+0.750S+0.450V                       |                                          | 0.001                            | 0.008             |                | -0.10            | 0.10           | 225.00           | 134.73                  | 1.00         | 1,00         | 0.66         | 131.18           | 87.4           |
| Dsgn, L ≈ 1.50 ft<br>Dsgn, L ≈ 19.50 ft      | 1<br>2                                   | 0.053                            | 0.000             | 2.38           | -0.10<br>-4,07   | 4.07           | 128,90           | 77.19                   |              | 1.00         | 1.07         | 131.18           |                |
| Dsgn. L = 19.50 ft                           | ž                                        | 0.049                            | 0.012             | 2.11           | -4,07            | 4.07           | 139.40           | 83.48                   |              | 1.00         | 1.05         | 131.18           |                |
| Dsgn. L = 3.50 ft                            | å                                        | 0.004                            | 0.004             | <b>M</b> 1 ( ) | -0.55            | 0.55           | 225.00           | 134.73                  | 1.00         |              | 0.31         | 131,18           |                |
| D+0.750L+0.750S+0.450\                       | V+H, LL Com                              |                                  |                   |                |                  |                |                  |                         |              |              |              |                  |                |
| Dsgn. l. = 1.50 ft                           | 1                                        | 0.001                            | 0.008             |                | -0.10            | 0.10           | 225,00           | 134.73                  |              | 1.00         | 0.66         | 131,18           |                |
| Dsgn. L = 19.50 ft                           | 2                                        | 0.053                            | 0.012             | 2,38           | -4.07            | 4.07           | 128.90           | 77.19                   |              | 1.00         | 1.07         | 131.18           |                |
| Dsgn. L= 19.50 ft                            | 3                                        | 0.0 <b>4</b> 9<br>0.0 <b>0</b> 4 | 0.012<br>0.004    | 2,11           | -4.07<br>-0.55   | 4.07<br>0.55   | 139,40<br>225.00 | 83.48<br><b>1</b> 34.73 | 1,00         | 1.00         | 1.05<br>0.31 | 131,18<br>131,18 |                |
| Dsgn. L = 3,50 ft<br>+D+0.750L+0,750S+0,450\ | 4<br>M⊒HII Com                           | 0.004                            | V.00 <del>4</del> |                | -0.00            | 0.00           | 22.0.00          | 194.10                  | 1,00         | 3100         | 0.01         | 101.10           | 41.11          |
| Dsgn. L = 1.50 ft                            | 1                                        | 0.001                            | 0.008             |                | -0.10            | 0.10           | 225,00           | 134.73                  | 1.00         | 1.00         | 0.66         | 131.18           | 87.4           |
| Dsgn. L = 19.50 ft                           | ż                                        | 0.053                            | 0.012             | 2,38           | -4.07            | 4.07           | 128.90           | 77.19                   | 2.03         | 1.00         | 1.07         | 131.18           | 87.4           |
| Dsgn. L= 19.50 ft                            | 3                                        | 0.049                            | 0.012             | 2.11           | -4.07            | 4.07           | 139.40           | 83.48                   |              | 1.00         | 1.05         | 131.18           |                |
| Dsgn. L= 3.50 ft                             | 4                                        | 0.004                            | 0.004             |                | -0.55            | 0,55           | 225.00           | 134.73                  | 1.00         | 1.00         | 0,31         | 131.18           | 87.4           |
| HD+0.750L+0.750S+0.450                       |                                          | 0.004                            | 0.000             |                | -0.10            | 0.10           | 225.00           | 134.73                  | 4 00         | 1.00         | 0.66         | 131.18           | 87,4           |
| Dsgn. L = 1,50 ft<br>Dsgn. L = 19,50 ft      | 1<br>2                                   | 0.0 <b>0</b> 1<br>0.0 <b>5</b> 3 | 0.008<br>0.012    | 2,38           | -0.10<br>-4.07   | 4.07           | 128,90           | 77,19                   |              | 1.00         | 1.07         | 131.18           |                |
| Dsgn. L = 19.50 ft                           | 3                                        | 0.049                            | 0.012             | 2.11           | -4.07            | 4.07           | 139.40           | 83.48                   |              | 1,00         | 1.05         | 131,18           |                |
| Dsgn. L = 3.50 ft                            | ď                                        | 0.004                            | 0.004             |                | -0.55            | 0.55           | 225,00           | 134.73                  |              | 1.00         | 0.31         | 131.18           |                |
| D+0.7501.+0.750S+0.450                       | W+H, LL Com                              |                                  |                   |                |                  |                |                  |                         |              |              |              |                  |                |
| Dsgn, l. = 1,50 ft                           | 1                                        | 0.001                            | 800.0             |                | -0.10            | 0.10           | 225.00           | 134.73                  |              | 1.00         | 0.66         | 131.18           |                |
| Dsgn. L = 19.50 ft                           | 2                                        | 0.053                            | 0.012             | 2.38           | -4.07            | 4.07           | 128.90           | 77.19                   |              | 1.00         | 1.07         | 131.18           |                |
| Dsgn, L = 19.50 ft                           | 3                                        | 0.049                            | 0.012             | 2.11           | -4.07            | 4.07           | 139.40<br>225.00 | 83.48<br>134.73         |              | 1.00<br>1.00 | 1.05<br>0.31 | 131,18<br>131,18 |                |
| Dsgn. L = 3.50 ft<br>+D+0.750L+0.750S+0.4501 | 4<br>Naik II Com                         | 0.004                            | 0.004             |                | -0.55            | 0.55           | 223.00           | 134.13                  | 1,00         | 1,00         | 0.51         | (31.10           | 107.4          |
| Dsan. L= 1.50 ft                             | 1                                        | 0.001                            | 0.008             |                | -0.10            | 0.10           | 225.00           | 134.73                  | 1.00         | 1.00         | 0,66         | 131.18           | 87.4           |
| Dsgn. I. = 19.50 ft                          | 2                                        | 0.053                            | 0.012             | 2,38           | -4.07            | 4.07           | 128,90           | 77.19                   |              | 1.00         | 1.07         | 131.18           |                |
| Dsgn. L= 19.50 ft                            | 3                                        | 0.049                            | 0.012             | 2.11           | -4.07            | 4.07           | 139.40           | 83.48                   | 2.19         | 1.00         | 1.05         | 131.18           | 87.4           |
| Osgn. L = 3.50 ft                            | 4                                        | 0.004                            | 0.004             |                | -0.55            | 0.55           | 225,00           | 134.73                  | 1.00         | 1.00         | 0,31         | 131.18           | 87.4           |
| +D+0.750L+0.750S+0.450                       | N+H, LL Com                              |                                  |                   |                |                  |                |                  | 40.00                   |              | 4.00         |              | 40.4-            |                |
| Dsgn. L= 1.50 ft                             | 1                                        | 0.001                            | 800.0             |                | -0.10            | 0.10           | 225.00           | 134.73                  |              | 1.00         | 0,66         | 131.18           |                |
| Dsgn. L = 19.50 ft                           | 2                                        | 0.053                            | 0.012             | 2.38           | -4.07            | 4.07           | 128.90           | 77.19                   |              | 1.00         | 1.07         | 131.18           |                |
| Dsgn. L= 19.50 ft                            | 3                                        | 0,049                            | 0.012             | 2.11           | -4,07<br>-0.55   | 4.07<br>0.55   | 139.40           | 83.48<br>134.73         |              | 1.00<br>1.00 | 1.05<br>0.31 | 131.18<br>131.18 |                |
| Dsgn. L = 3.50 ft                            | 4                                        | 0.004                            | 0.004             |                | -0.55            | 0.55           | 225.00           | 19471 9                 | 1.00         | 1.00         | 0.01         | 101.10           | VI JH          |
| +D+0.750L+0.750\$+0.450                      | W. H H 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |                                  |                   |                |                  |                |                  |                         |              |              |              |                  |                |

Genesis Solar Heavy Equipment Covered Parking  $\begin{array}{cc} 21 \\ \text{BG} \end{array}$ 

Printed: 3 MAR 2017, 10:59AAI

Steel Beam

ENERCALC, INC. 1983-2017, Build:6.17.2.28; Ver.6.17.2.28

EIG-## KWW-050038980

| Load Combination                              |                    | Max Stress     |                | *************************************** |                | Sum mary of M |                  |                 |      |              |              |                    | ear Values     |
|-----------------------------------------------|--------------------|----------------|----------------|-----------------------------------------|----------------|---------------|------------------|-----------------|------|--------------|--------------|--------------------|----------------|
| Segment Length                                | Span#              | M              | ٧              | Mmax +                                  | Mmax -         | Ma Max        |                  | Mnx/Omega       |      | Rm           | Va Max       |                    | Vnx/Ornega     |
| Dsgn. L = 19,50 ft                            | 2<br>3             | 0.053<br>0.049 | 0.012          | 2.38                                    | -4,07<br>4,07  | 4.07<br>4.07  | 128.90<br>139.40 | 77.19<br>83.48  |      | 1.00<br>1.00 | 1.07<br>1.05 | 131.18<br>131.18   |                |
| Dsgn. L = 19,50 ft<br>Dsgn. L = 3,50 ft       | 3<br>4             | 0.049          | 0.012<br>0.004 | 2.11                                    | -4.07<br>-0.55 | 4.07<br>0.55  | 225.00           |                 |      | 1.00         | 0.31         | 131.18             |                |
| -D+0.750L+0.750S+0.450V                       |                    | 0.001          | 0.004          |                                         | 0,00           | 0,00          | 223.00           | 107.70          | 1100 | 1.00         | 0.01         | 101110             | OT FIG         |
| Dsgn, L = 1.50 ft                             | 1                  | 0.001          | 0.008          |                                         | -0.10          | 0.10          | 225.00           | 134.73          | 1.00 | 1.00         | 0.66         | 131.18             |                |
| Dsgn. L # 19.50 ft                            | 2                  | 0.053          | 0.012          | 2.38                                    | -4.07          | 4.07          | 128.90           | 77.19           |      | 1.00         | 1.07         | 131.18             |                |
| Dsgn. L = 19.50 ft                            | 3                  | 0.049          | 0.012          | 2.11                                    | -4.07          | 4.07          | 139.40           |                 |      | 1.00         | 1.05         | 131.18             |                |
| Dsgn. l. = 3.50 ft<br>+D+0.750L+0.750S+0.450V | 4<br>1144   11 Com | 0_004          | 0.004          |                                         | -0,55          | 0,55          | 225,00           | 134.73          | 1.00 | 1.00         | 0.31         | 131.18             | 87,45          |
| Dsgn, L = 1.50 ft                             | 1                  | 0.001          | 0.008          |                                         | -0,10          | 0.10          | 225,00           | 134.73          | 1.00 | 1.00         | 0.66         | 131.18             | 87.45          |
| Dsgn. I. = 19.50 ft                           | ż                  | 0.053          | 0.012          | 2.38                                    | -4.07          | 4.07          | 128.90           | 77.19           |      | 1.00         | 1,07         | 131.18             | 87.45          |
| Dsgn. L = 19.50 ft                            | 3                  | 0.049          | 0.012          | 2.11                                    | -4.07          | 4.07          | 139.40           | 83.48           |      | 1.00         | 1.05         | 131.18             |                |
| Dsgn, L = 3.50 ft                             | 4                  | 0.004          | 0.004          |                                         | -0.55          | 0.55          | 225.00           | 134.73          | 1.00 | 1.00         | 0.31         | 131.18             | 87,45          |
| D+0.750L+0.750S+0.450V                        | V+H, LL Gom        | 0.001          | 0.008          |                                         | -0.10          | 0.10          | 225.00           | 134.73          | 1 00 | 1.00         | 0.66         | 131.18             | 87.45          |
| Dsgn, L = 1.50 ft<br>Dsgn, L = 19,50 ft       | 2                  | 0.053          | 0.012          | 2.38                                    | -0.10<br>-4.07 | 4.07          | 128.90           |                 |      | 1.00         | 1.07         | 131.18             |                |
| Dsgn, L = 19.50 ft                            | 3                  | 0.049          | 0.012          | 2.11                                    | -4.07          | 4.07          | 139,40           | 83.48           |      | 1.00         | 1.05         | 131.18             |                |
| Dsgn. L = 3,50 ft                             | 4                  | 0.004          | 0.004          |                                         | -0.55          | 0.55          | 225,00           | 134.73          |      | 1.00         | 0.31         | 131.18             |                |
| :D+0.750L+0.750S+0.450V                       | V+H, LL Com        |                |                |                                         |                |               |                  |                 |      |              |              |                    |                |
| Dsgn. L = 1.50 ft                             | 1                  | 0.001          | 0.008          | 0.00                                    | -0.10          | 0.10          | 225.00           | 134.73          |      | 1.00         | 0.66         | 131.18             | 87,45          |
| Dsgn. L = 19.50 ft                            | 2<br>3             | 0.053<br>0.049 | 0.012<br>0.012 | 2,38<br>2,11                            | -4.07<br>-4.07 | 4.07<br>4.07  | 128.90<br>139.40 | 77.19<br>83.48  |      | 1.00<br>1.00 | 1.07<br>1.05 | 131.18<br>131.18   | 87,45<br>87,45 |
| Dsgn, L = 19.50 ft<br>Dsgn, L = 3.50 ft       | 4                  | 0.049          | 0.012          | 2.11                                    | -4.07<br>-0.55 | 4.07<br>0.55  | 225.00           | 134.73          |      | 1,00         | 0.31         | 131.18             | 87,45          |
| -D+0.750L+0.750S+0.450V                       |                    | 0.001          | 0.007          |                                         | 0.00           | 0.00          | 220100           | 10-111-0        | 1100 | ,,,,,        | 0.07         | 101.10             | 01.10          |
| Dsgn. L = 1.50 ft                             | 1                  | 0.001          | 0.008          |                                         | -0.10          | 0.10          | 225.00           | 134.73          |      | 1.00         | 0.66         | 131.18             |                |
| Dsgn. L = 19.50 ft                            | 2                  | 0.053          | 0.012          | 2.38                                    | -4.07          | 4.07          | 128.90           | 77.19           |      | 1.00         | 1.07         | 131.18             |                |
| Dsgn, Ľ = 19.50 ft                            | 3                  | 0.049          | 0.012          | 2.11                                    | -4,07          | 4.07          | 139.40           |                 |      | 1.00         | 1.05         | 131.18             |                |
| Dsgn, L ≃ 3.50 ft<br>D+0.750L+0.750S+0.450V   | 4<br>Vali I Com    | 0.004          | 0.004          |                                         | -0.55          | 0,55          | 225.00           | 134.73          | 1.00 | 1.00         | 0.31         | 131.18             | 87.45          |
| Dsgn. L = 1.50 ft                             | , 1                | 0.001          | 0.008          |                                         | -0.10          | 0.10          | 225.00           | 134.73          | 1.00 | 1.00         | 0.66         | 131.18             | 87.45          |
| Dsgn. L = 19.50 ft                            | ż                  | 0.053          | 0.012          | 2.38                                    | -4.07          | 4.07          | 128.90           | 77.19           |      | 1.00         | 1.07         | 131.18             |                |
| Dsgn. L = 19.50 ft                            | 3                  | 0.049          | 0.012          | 2.11                                    | -4.07          | 4.07          | 139.40           | 83,48           | 2.19 | 1.00         | 1.05         | 131.18             |                |
| Dsgn. L = 3.50 ft                             | 4                  | 0.004          | 0.004          |                                         | -0,55          | 0.55          | 225,00           | 134.73          | 1.00 | 1.00         | 0.31         | 131.18             | 87.45          |
| D+0.750L+0.750S+0.450V                        |                    | 0.004          | 0.060          |                                         | 0.40           | 0.40          | 225.00           | 494 70          | 4 00 | 1.00         | 0.66         | 424 40             | 87.45          |
| Dsgn. L = 1.50 ft<br>Dsgn. L = 19.50 ft       | 1<br>2             | Q.001<br>Q.053 | 0.008<br>0.012 | 2.38                                    | -0.10<br>-4.07 | 0.10<br>4.07  | 225,00<br>128,90 | 134.73<br>77.19 |      | 1.00<br>1.00 | 1.07         | : 131.18<br>131.18 |                |
| Dsgn. L = 19.50 ft                            | 3                  | 0.049          | 0.012          | 2.11                                    | -4.07          | 4.07          | 139.40           | 83.48           |      | 1.00         | 1.05         | 131.18             |                |
| Dsgn. L = 3.50 ft                             | 4                  | 0.004          | 0.004          |                                         | -0.55          | 0.55          | 225.00           | 134.73          |      | 1.00         | 0.31         | 131.18             |                |
| D+0.750L+0.750S+0.5250                        | E+H, LL Con        |                |                |                                         |                |               |                  |                 |      |              |              |                    |                |
| Dsgn. L = 1.50 ft                             | 1                  | 0.001          | 800,0          |                                         | -0.10          | 0.10          | 225.00           | 134.73          |      | 1.00         | 0.66         | 131.18             |                |
| Dsgn. L = 19.50 ft                            | 2<br>3             | 0.063<br>0.049 | 0.012<br>0.012 | 2.38<br>2.11                            | -4.07<br>-4.07 | 4.07<br>4.07  | 128.90<br>139.40 | 77.19<br>83.48  |      | 1.00<br>1.00 | 1.07<br>1.05 | 131.18<br>131.18   |                |
| Dsgn, L = 19.50 ft<br>Dsgn, L = 3.50 ft       | 4                  | 0.004          | 0.004          | 2.11                                    | -0.55          | 0.55          | 225.00           |                 |      | 1.08         | 0.31         | 131.18             |                |
| D+0.750L+0.750S+0.5250                        |                    | 0.004          | 0.007          |                                         | 0.00           | 0.00          | 220,00           | 10.111.0        | 1,00 |              | 0.07         | 101110             | 0,             |
| Dsgn, L = 1.50 ft                             | 1                  | 0.001          | 0.008          |                                         | -0.10          | 0.10          | 225.00           | 134.73          | 1.00 | 1.00         | 0,66         | 131.18             | 87.45          |
| Dsgn. L = 19,50 ft                            | 2                  | 0.053          | 0.012          | 2.38                                    | -4.07          | 4.07          | 128.90           | 77.19           |      | 1.00         | 1.07         | 131,18             |                |
| Dsgn. L = 19.50 ft                            | 3                  | 0.049          | 0.012          | 2.11                                    | -4.07          | 4.07          | 139.40           | 83.48           | 2.19 | 1.00         | 1.05         | 131.18             |                |
| Dsgn. L = 3,50 ft<br>D+0,750L+0,750S+0,5250   | 4<br>EuU H. Con    | 0.004          | 0.004          |                                         | -0,55          | 0.55          | 225.00           | 134.73          | 1.00 | 1.00         | 0,31         | 131.18             | 87.45          |
| Dsgn, L = 1.50 ft                             | 1                  | 0.001          | 800.0          |                                         | -0,10          | 0.10          | 225.00           | 134.73          | 1.00 | 1.00         | 0.66         | 131.18             | 87,45          |
| Dsgn. L = 19.50 ft                            | ż                  | 0.053          | 0.012          | 2,38                                    | -4,07          | 4.07          | 128.90           | 77.19           |      | 1.00         | 1.07         | 131.18             |                |
| Dsgn, L = 19.50 ft                            | 3                  | 0.049          | 0.012          | 2.11                                    | -4.07          | 4.07          | 139.40           | 83.48           | 2.19 | 1.00         | 1.05         | 131.18             |                |
| Dsgn. L = 3.50 ft                             | 4                  | 0.004          | 0.004          |                                         | -0.55          | 0.55          | 225.00           | 134.73          | 1.00 | 1.00         | 0.31         | 131.18             | 87,45          |
| D+0.750L+0.750S+0.5250                        |                    | 0.004          | 0.000          |                                         | 0.40           | 0.40          | 005.00           | 404 70          | 4.00 | 400          | 0.00         | 104.40             | 07.15          |
| Dsgn. L = 1.50 ft<br>Dsgn. L = 19.50 ft       | 1<br>2             | 0.001<br>0.053 | 0.008<br>0.012 | 2,38                                    | -0.10<br>-4.07 | 0.10<br>4.07  | 225.00<br>128.90 | 134.73<br>77.19 |      | 1.00<br>1.00 | 0.66<br>1.07 | 131.18<br>131.18   | 87,45<br>87,45 |
| Dsgn. L = 19.50 ft                            | 3                  | 0.049          | 0.012          | 2.11                                    | -4.07<br>-4.07 | 4.07          | 139.40           |                 |      | 1.00         | 1.05         | 131.18             | 87.45          |
| Dsgn, L = 3.50 ft                             | 4                  | 0.004          | 0.004          | _,,,                                    | -0,55          | 0.55          | 225.00           |                 |      | 1.00         | 0.31         | 131.18             | 87.45          |
| D+0.750L+0.750S+0.5250                        | E+H, LL Con        |                |                |                                         |                |               |                  |                 |      |              |              |                    |                |
| Dsgn. L = 1.50 ft                             | 1                  | 0.001          | 0.008          |                                         | -0.10          | 0.10          | 225.00           | 134.73          |      | 1.00         | 0,66         | 131.18             | 87.45          |
| Dsgn. L = 19.50 ft                            | 2                  | 0.053          | 0.012          | 2.38                                    | -4.07          | 4,07          | 128.90           | 77.19           |      | 1.00         | 1.07         | 131.18             | 87.45          |
| Dsgn, L = 19.50 ft<br>Dsgn, L = 3.50 ft       | 3<br>4             | 0.049<br>0.004 | 0.012<br>0.004 | 2,11                                    | -4.07<br>-0.55 | 4.07<br>0.55  | 139.40<br>225.00 |                 |      | 1.00<br>1.00 | 1.05<br>0.31 | 131.18<br>131.18   |                |
| D+0.750L+0.750\$+0.5250                       |                    | U.UU4          | 0.004          |                                         | -0.00          | 0.00          | 250,00           | 104.10          | 1.00 | 1.00         | 0.31         | 101.10             | OF 140         |
| Dsgn. L = 1.50 ft                             | 1                  | 0.001          | 0.008          |                                         | -0.10          | 0.10          | 225,00           | 134.73          | 1.00 | 1.00         | 0.66         | 131.18             | 87.45          |
| Dsgn. L = 19.50 ft                            | ż                  | 0.053          | 0.012          | 2.38                                    | -4.07          | 4.07          | 128.90           | 77.19           | 2.03 | 1.00         | 1.07         | 131.18             | 87.45          |
| Dsgn. L = 19.50 ft                            | 3                  | 0.049          | 0.012          | 2.11                                    | -4.07          | 4.07          | 139.40           |                 |      | 1.00         | 1.05         | 131.18             | 87.45          |
| Dsgn. L = 3.50 ft                             | 4                  | 0.004          | 0.004          |                                         | -0.55          | 0.55          | 225.00           | 134.73          | 1.00 | 1.00         | 0.31         | 131.18             | 87.45          |
| D+0.750L+0.750S+0.5250                        | c+n, ll Con        |                |                |                                         |                |               |                  |                 |      |              |              |                    |                |

+D+H

+D+L+H, LL Comb Run (\*\*\*L)

| Phone: 1-760-                                 |                                          | 3                          |                  |              |                                  |                                             |                  |                                                             |              |              |                                             |                             |                       |
|-----------------------------------------------|------------------------------------------|----------------------------|------------------|--------------|----------------------------------|---------------------------------------------|------------------|-------------------------------------------------------------|--------------|--------------|---------------------------------------------|-----------------------------|-----------------------|
| Steel Beam                                    |                                          |                            |                  |              |                                  | i de la |                  | 77.77.52<br>3.30.42.03.03.03.03.03.03.03.03.03.03.03.03.03. |              |              | Print<br>File = s:\E0AE<br>83-2017, Build 6 | ed: 3 MAR 201<br>ZR~G\86YX5 | 7, 10:59AM<br>A~F,EC6 |
| Description: Beam I                           | this last the factor of the sales of the |                            |                  |              |                                  |                                             |                  | ENE<br>LICEN                                                | RCALC;       | BGS          | 183-2017; B01036<br>TRUCTUR/                | .17,2:28, Ver:<br>VPENGIN   | EERING                |
| Load Combination                              |                                          | Max Stre                   |                  |              |                                  | Summary of M                                | Ioment Valu      | ies                                                         |              |              | Sumn                                        | nary of She                 | ar Values             |
| Segment Length                                | Span #                                   | М                          | V                | Mmax +       | Mmax.                            | Ma Max                                      | Mnx              | Mnx/Omeg                                                    |              | Rm           | Va Max                                      |                             | Vnx/Omega             |
| Dsgn. L = 1,50 ft<br>Dsgn. L = 19,50 ft       | 1<br>2                                   | 0.001<br>0.053             | 0.008<br>0.012   | 2.38         | -0.10<br>-4.07                   | 0.10<br>4.07                                | 225,00<br>128,90 | 134.73<br>77.19                                             | 1.00         | 1.00<br>1.00 | 0,66<br>1.07                                | 131.18<br>131.18            | 87.45<br>87.45        |
| Dsgn. L = 19.50 ft                            | 3                                        | 0.049                      | 0.012            | 2.11         | -4. <b>0</b> 7                   | 4.07                                        | 139,40           | 83,48                                                       |              | 1.00         | 1.05                                        | 131.18                      | 87.45                 |
| Dsgn. L = 3.50 ft                             | 4                                        | 0.004                      | 0.004            |              | -0. <del>5</del> 5               | 0.55                                        | 225.00           | 134.73                                                      |              | 1,00         | 0.31                                        | 131.18                      | 87.45                 |
| +D+0.750L+0.750S+0.5250E<br>Dsgn. L = 1.50 ft | +H, EL CON                               | 0.001                      | 0.008            |              | -0.10                            | 0.10                                        | 225.00           | 134.73                                                      | 1.00         | 1.00         | 0.66                                        | 131.18                      | 87.45                 |
| Dsgn. L = 19.50 ft                            | 2                                        | 0.053                      | 0.012            | 2.38         | -4.07                            | 4.07                                        | 128.90           | 77.19                                                       | 2,03         | 1.00         | 1.07                                        | 131.18                      | 87.45                 |
| Dsgn. L = 19.50 ft<br>Dsgn. L = 3.50 ft       | 3<br>4                                   | 0.049<br>0.004             | 0.012<br>0.004   | 2.11         | -4. <b>0</b> 7                   | 4.07                                        | 139.40           | 83.48                                                       |              | 1.00         | 1.05                                        | 131,18<br>131,18            | 87.45<br>97.46        |
| +D+0.750L+0.750S+0.5250E                      |                                          | 0.004                      | 0.004            |              | -0.55                            | 0.55                                        | 225.00           | 134.73                                                      | 1.00         | 1.00         | 0.31                                        | (31,10                      | 87.45                 |
| Dsgn. L = 1.50 ft                             | 1                                        | 0.001                      | 0.008            |              | -0.10                            | 0.10                                        | 225.00           | 134.73                                                      |              | 1.00         | 0.66                                        | 131,18                      | 87,45                 |
| Dsgn. L = 19.50 ft<br>Dsgn. L = 19.50 ft      | 2<br>3                                   | 0.053<br>0.049             | 0.012<br>0.012   | 2.38<br>2.11 | -4. <b>0</b> 7<br>-4. <b>0</b> 7 | 4.07<br>4.07                                | 128.90<br>139.40 | 77.19<br>83.48                                              |              | 1.00<br>1.00 | 1.07<br>1.05                                | 131.18<br>131.18            | 87.45<br>87.45        |
| Dsgn. L = 3.50 ft                             | 4                                        | 0.004                      | 0.004            | 4,11         | -0.55                            | 0.55                                        | 225.00           | 134.73                                                      |              | 1.00         | 0.31                                        | 131.18                      | 87.45                 |
| +D+0.750L+0.750S+0.5250E                      | +H, LL Con                               | 0.004                      | A 424            |              | 0.40                             | n 4n                                        | anr an           | 10 ( #0                                                     | 4.00         | 4.00         | 0.00                                        | 40440                       |                       |
| Dsgn. L = 1.50 ft<br>Dsgn. L = 19.50 ft       | 2                                        | 0.001<br>0.053             | 0.008<br>0.012   | 2.38         | -0. <b>1</b> 0<br>-4. <b>0</b> 7 | 0.10<br>4.07                                | 225.00<br>128.90 | 134.73<br>77.19                                             |              | 1.00<br>1.00 | 0.66<br>1.07                                | 131.18<br>131.18            | 87.45<br>87.45        |
| Dsgn, L = 19.50 ft                            | 3                                        | 0.049                      | 0.012            | 2.11         | -4.07                            | 4.07                                        | 139.40           | 83.48                                                       |              | 1.00         | 1.05                                        | 131.18                      | 87.45                 |
| Dsgn, L = 3.50 ft                             | 4                                        | 0.004                      | 0.004            |              | -0.55                            | 0.55                                        | 225.00           | 134.73                                                      | 1.00         | 1.00         | 0.31                                        | 131.18                      | 87.45                 |
| +D+0,750L+0,750S+0,5250E<br>Dsgn, L = 1.50 ft | 4H, CL COII                              | 0.001                      | 0.008            |              | -0.10                            | 0.10                                        | 225.00           | 134.73                                                      | 1.00         | 1.00         | 0.66                                        | 131.18                      | 87,45                 |
| Dsgn, L = 19.50 ft                            | 2                                        | 0.053                      | 0.012            | 2.38         | -4.07                            | 4.07                                        | 128.90           | 77.19                                                       |              | 1.00         | 1.07                                        | 131.18                      | 87.45                 |
| Dsgn. L = 19.50 ft                            | 3                                        | 0.049                      | 0.012            | 2.11         | -4. <b>0</b> 7                   | 4.07                                        | 139,40           | 83.48                                                       |              | 1.00         | 1.05                                        | 131.18                      | 87.45                 |
| Dsgn. L = 3.50 ft<br>+D+0.750L+0.750S+0.5250E | 4<br>4H. U. Con                          | 0.004                      | 0.004            |              | -0.55                            | 0.55                                        | 225.00           | 134.73                                                      | 1.00         | 1.00         | 0.31                                        | 131.18                      | 87.45                 |
| Dsgn. L = 1.50 ft                             | 1                                        | 0.001                      | 0.008            |              | -0.10                            | 0.10                                        | 225.00           | 134.73                                                      |              | 1.00         | 0.66                                        | 131.18                      | 87.45                 |
| Dsgn. L = 19.50 ft                            | 2                                        | 0.053                      | 0.012            | 2.38         | -4.07<br>4.07                    | 4.07                                        | 128.90           | 77.19                                                       |              | 1.00         | 1.07                                        | 131.18                      | 87.45                 |
| Dsgn. L = 19.50 ft<br>Dsgn. L = 3.50 ft       | 3<br>4                                   | 0.049<br>0.004             | 0.012<br>0.004   | 2.11         | -4.07<br>-0.55                   | 4,07<br>0.55                                | 139,40<br>225.00 | 83.48<br>134.73                                             |              | 1.00<br>1.00 | 1.05<br>0.31                                | 131.18<br>131.18            | 87.45<br>87.45        |
| +D+0.750L+0.750S+0.5250E                      | +H, LL Corr                              |                            |                  |              |                                  |                                             |                  |                                                             |              |              |                                             |                             |                       |
| Dsgn. L = 1.50 ft<br>Dsgn. L = 19.50 ft       | 1 2                                      | 0.001<br>0.053             | 0.008<br>0.012   | 2 20         | -0. <b>1</b> 0                   | 0.10                                        | 225.00           | 134.73                                                      |              | 1.00         | 0.66                                        | 131.18                      | 87.45<br>87.45        |
| Dsgn. L = 19.50 ft                            | 3                                        | 0.055                      | 0.012            | 2.38<br>2.11 | -4,07<br>-4.07                   | 4.07<br>4.07                                | 128.90<br>139,40 | 77.19<br>83.48                                              |              | 1.00<br>1.00 | 1.07<br>1.05                                | 131.18<br>131.18            | 87.45                 |
| Dsgn. L = 3.50 ft                             | 4                                        | 0.004                      | 0.004            |              | -0.55                            | 0.55                                        | 225.00           | 134.73                                                      |              | 1.00         | 0.31                                        | 131.18                      | 87.45                 |
| +D+0.750L+0.750S+0.5250E<br>Dsgn. L = 1.50 ft | +H, LL Con<br>1                          | 0.001                      | 0.008            |              | -0.10                            | 0.10                                        | 225,00           | 134.73                                                      | 1.00         | 1.00         | 0.66                                        | 131.18                      | 87.45                 |
| Dsgn. L = 19.50 ft                            | 2                                        | 0.053                      | 0.008            | 2.38         | -0.10<br>-4. <b>0</b> 7          | 4.07                                        | 128.90           | 77.19                                                       |              | 1.00         | 1.07                                        | 131.18                      | 87.45                 |
| Dsgn. L = 19.50 ft                            | 3                                        | 0.049                      | 0.012            | 2.11         | -4.07                            | 4.07                                        | 139.40           | 83.48                                                       |              | 1.00         | 1.05                                        | 131.18                      | 87.45                 |
| Dsgn. L = 3.50 ft<br>+D+0.750L+0.750S+0.5250E | 4<br>44 11 Com                           | 0.004                      | 0.004            |              | -0.55                            | 0.55                                        | 225.00           | 134.73                                                      | 1.00         | 1.00         | 0.31                                        | 131.18                      | 87.45                 |
| Dsgn, L = 1.50 ft                             | 1                                        | 0.001                      | 0.008            |              | -0.10                            | 0.10                                        | 225.00           | 134.73                                                      | 1.00         | 1.00         | 0.66                                        | 131.18                      | 87.45                 |
| Dsgn. L = 19.50 it                            | 2 `                                      | 0.053                      | 0.012            | 2.38         | -4.07                            | 4.07                                        | 128.90           | 77.19                                                       | 2.03         | 1.00         | 1.07                                        | 131:18                      | 87.45                 |
| Dsgn. L = 19.50 ft<br>Dsgn. L = 3.50 ft       | 3<br>4                                   | 0.04 <del>9</del><br>0.004 | 0.012<br>0.004   | 2.11         | -4. <b>0</b> 7<br>-0.55          | 4.07<br>0.55                                | 139.40<br>225.00 | 83.48<br>134.73                                             | 2.19<br>1.00 |              | 1.05<br>0.31                                | 131.18<br>131.18            | 87.45<br>87.45        |
| +0.60D+0.60W+0.60H                            | 7                                        | 0.004                      | 0.007            |              | -0.00                            | 0.00                                        | 220.00           | 104.10                                                      | 1.00         | 1.00         | 0.01                                        | 101.10                      | 01.40                 |
| Dsgn. L = 1.50 ft                             | 1                                        | 0.000                      | 0.005            | 4.40         | -0.06                            | 0.06                                        | 225.00           | 134.73                                                      | 1.00         |              | 0.40                                        | 131.18                      | 87.45                 |
| Dsgn. L = 19,50 ft<br>Dsgn. L = 19,50 ft      | 2<br>3                                   | 0.032<br>0.029             | , 0.807<br>0.007 | 1.43<br>1.26 | -2.44<br>-2,44                   | 2.44<br>2.44                                | 128,90<br>139,40 | 77.19<br>83.48                                              | 2.03<br>2.19 |              | 0.64<br>0.63                                | 131,18<br>· 131,18          | 87.45<br>87.45        |
| Dsgn. L = 3.50 ft                             | 4                                        | 0.002                      | 0.002            | 1.20         | -0.33                            | 0.33                                        | 225.00           | 134.73                                                      |              | 1.00         | 0.19                                        | 131.18                      | 87.45                 |
| +0.60D+0.70E+0.60H                            |                                          | 0.000                      | 0.000            |              | 0.00                             | 0.00                                        | 005.00           | 40.4 70                                                     | 4.00         | 4 00         | 0.40                                        | 40440                       | 07 45                 |
| Dsgn. L = 1.50 ft<br>Dsgn. L = 19.50 ft       | 2                                        | 0.000<br>0.032             | 0.005<br>0.007   | 1.43         | -0.06<br>-2.44                   | 0.06<br>2.44                                | 225.00<br>128.90 | 134.73<br>77.19                                             | 2.03         | 1.00<br>1.00 | 0.40<br>0.64                                | 131.18<br>131.18            | 87.45<br>87.45        |
| Dsgn. L = 19.50 ft                            | 3                                        | 0.029                      | 0.007            | 1.26         | -2.44                            | 2.44                                        | 139.40           | 83.48                                                       | 2.19         |              | 0.63                                        | 131.18                      | 87.45                 |
| Dsgn. L = 3.50 ft                             | 4                                        | 0.002                      | 0.002            |              | -0.33                            | 0.33                                        | 225.00           | 134.73                                                      | 1.00         | 1.00         | 0.19                                        | 131.18                      | 87.45                 |
| Overall Maximum                               | Deflect                                  | ions                       | <b>《美族多</b> 》    |              |                                  |                                             |                  |                                                             |              |              | ·                                           |                             |                       |
| Load Combination                              |                                          | Span                       | Max. "-" Defl    | Location     | i in Span                        | Load Com                                    | bination         |                                                             |              | M            | ax. '+' Defi                                | Location                    | in Span               |
| Diteill                                       |                                          | 1                          | 0.0000           |              | 0.000                            | +D+l,r+l                                    | 1                |                                                             |              |              | -0.0162                                     |                             | 0000                  |
| +D+Lr+H<br>+D+Lr+H                            |                                          | 2<br>3                     | 0.0615<br>0.0584 |              | 9,100<br>0.530                   | +D+Lr+1                                     | 4                |                                                             |              |              | 0.0000<br>-0.0023                           |                             | ).000<br>).390        |
| <del></del>                                   |                                          | 4                          | 0.0000           |              | 0.530                            | +D+Lr+                                      |                  |                                                             |              |              | -0.0355                                     |                             | .500                  |
| Vertical Reaction                             | 8                                        | · *                        |                  | . : <u></u>  | Support                          | notation : Far                              | feft is #1       |                                                             |              | Values       | s in KIPS                                   |                             |                       |
| Load Combination                              |                                          | Support 1                  | Support 2        | Suppor       |                                  |                                             | upport 5         |                                                             |              |              |                                             |                             |                       |
| Overall MAXimum                               |                                          |                            | 3.140            | 7.7          | 26                               | 3.859                                       | *************    |                                                             |              |              | ······································      | <del></del>                 | <del></del>           |
| Overall MiNimum                               |                                          |                            | 0.018            | -0.0         |                                  | 0.003                                       |                  |                                                             |              |              |                                             |                             |                       |
| +D+H                                          |                                          |                            | 0.798            | 2.1          | ZÜ                               | 0.999                                       |                  |                                                             |              |              |                                             |                             |                       |

0.798

0,798

2,120

2,120

0.999

0.999

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Steel Beam

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Description: Beam B2

| ertical Reactions                             | Support 1 | Support 2      | Support 3 | upport notation<br>Support 4 | Support 5 | Values in KIPS |  |
|-----------------------------------------------|-----------|----------------|-----------|------------------------------|-----------|----------------|--|
|                                               | oghbou i  |                |           |                              | Supporto  |                |  |
| D+L+H, LL Comb Run (**L*)                     |           | 0.798          | 2.120     | 0.999                        |           |                |  |
| D+L+H, LL Comb Run (**LL)                     |           | 0.798          | 2.120     | 0.999                        |           |                |  |
| D+L+H, LL Comb Run (*L**)                     |           | 0.798          | 2,120     | 0.999                        |           |                |  |
| D+L+H, LL Comb Run (*L*L)                     |           | 0.798          | 2.120     | 0.999                        |           |                |  |
| D+L+H, LL Comb Run (*LL*)                     |           | 0.798          | 2,120     | 0.999                        |           |                |  |
| D+L+H, LL Comb Run (*LLL)                     |           | 0.798          | 2.120     | 0.999                        |           |                |  |
| D+L+H, LL Comb Run (L***)                     |           | 0.798          | 2.120     | 0.999                        |           |                |  |
| D+L+H, LL Comb Run (L**L)                     |           | 0.798          | 2.120     | 0,999                        |           |                |  |
| D+L+H, LL Comb Run (L*L*)                     |           | 0.798          | 2.120     | 0,999                        |           |                |  |
| D+L+H, LL Comb Run (L*LL)                     |           | 0.798          | 2,120     | 0,999                        |           |                |  |
| D+L+H, LL Comb Run (LL**)                     |           | 0.798          | 2.120     | 0,999                        |           |                |  |
| D+L+H, LL Comb Run (LL*L)                     | •         | 0.798          | 2.120     | 0.999                        |           |                |  |
| D+L+H, LL Comb Run (LLL*)                     |           | 0.798          | 2.120     | 0.999                        |           |                |  |
| D+L+H, LL Comb Run (LLLL)                     |           | 0.798          | 2.120     | 0,999                        |           |                |  |
| D+Lr+H, LL Comb Run (***L)                    |           | 0.816          | 2.011     | 1.894                        |           |                |  |
| D+Lr+H, LL Comb Run (**L*)                    |           | 0.517          | 4.923     | 2.961                        |           |                |  |
| D+Lr+H, LL Comb Run (**LL)                    |           | 0.535          | 4.814     | 3.856                        |           |                |  |
| D+Lr+H, LL Comb Run ("L*")                    |           | 2.760          | 4.923     | 0,718                        |           |                |  |
| D+Lr+H, LL Comb Run (*L*L)                    |           | 2.778          | 4.814     | 1.614                        |           |                |  |
| D+Lr+H, LL Comb Run (*LL*)                    |           | 2.480          | 7.726     | 2,680                        |           |                |  |
| D+Lr+H, LL Comb Run (*LLL)                    |           | 2.498          | 7.618     | 3.576                        |           |                |  |
| D+Lr+H, LL Comb Run (L***)                    |           | 1.159          | 2.100     | 1.002                        |           |                |  |
| D+Lr+H, LL Comb Run (L**L)                    |           | 1,177          | 1,991     | 1.897                        |           |                |  |
| D+Lr+H, LL Comb Run (L*L*)                    |           | 0.879          | 4.903     | 2.964                        |           |                |  |
| D+Lr+H, LL Comb Run (L*LL)                    |           | 0,897          | 4.795     | 3.859                        |           |                |  |
| D+Lr+H, LL Comb Run (LL**)                    |           | 3,121          | 4.903     | 0.722                        |           |                |  |
| D+Lr+H, LL Comb Run (LL*L)                    |           | 3.140          | 4.795     | 1.617                        |           |                |  |
| D+Lr+H, LL Comb Run (LLL*)                    |           | 2.841          | 7,706     | 2.684                        |           | •              |  |
| D+Lr+H, LL Comb Run (LLLL)                    |           | 2.859          | 7.598     | 3.579                        |           |                |  |
| D+\$+H                                        |           | 0.798          | 2.120     | 0,999                        |           |                |  |
| D+0.750Lr+0.750L+H, LL Comb R                 | lun (*    | 0.811          | 2.038     | 1.670                        |           |                |  |
| D+0.750Lr+0.750L+H, LL Comb R                 | lun (*    | 0.587          | 4,222     | 2.470                        |           | . A            |  |
| 0+0.750Lr+0.750L+H, LL Comb R                 | lun (*    | 0.601          | 4,141     | 3.142                        |           |                |  |
| D+0.750Lr+0,750L+H, LL Comb R                 | lun (*    | 2.269          | 4,222     | 0.788                        |           |                |  |
| D+0.750Lr+0.750L+H, LL Comb R                 | tun (*    | 2.283          | 4.141     | 1.460                        |           |                |  |
| D+0.750Lr+0.750L+H, LL Comb R                 | tun (*    | 2.059          | 6.324     | 2.260                        |           |                |  |
| D+0.750Lr+0.750L+H, LL Comb R                 | lun (*    | 2.073          | 6.243     | 2.931                        |           |                |  |
| D+0.750Lr+0.750L+H, LL Comb R                 | tun (L    | 1.069          | 2.105     | 1.001                        |           |                |  |
| D+0.750Lr+0.750L+H, LL Comb R                 | tun (L    | 1.082          | 2.024     | 1.673                        |           |                |  |
| Ð+0.750Lr+0.750L+H, LL Comb R                 | tun (L    | 0.859          | 4.207     | 2.473                        |           |                |  |
| :D+0.7501.(+0.7501.+H, LL Comb R              | lun (L    | 0.872          | 4.126     | 3.144                        |           |                |  |
| D+0.750Lr+0.750L+H, LL Comb R                 | lun (L    | 2,541          | 4.207     | 0.791                        |           |                |  |
| D+0.750Lr+0.750L+H, LL Comb F                 | lun (L    | 2.554          | 4.126     | 1.462                        |           |                |  |
| D+0,750Lr+0.750L+H, LL Comb R                 | lun (L    | 2.330          | 6.309     | 2,262                        |           |                |  |
| D+0.750Lr+0.750L+H, LL Comb F                 | lun (L    | 2.344          | 6.228     | 2,934                        |           |                |  |
| D+0.750L+0.750S+H, LL Comb R                  | មn (**    | 0.798          | 2.120     | 0.999                        |           |                |  |
| D+0.750L+0.750S+H, LL Comb R                  | un (**    | 0.798          | 2.120     | 0.999                        |           |                |  |
| D+0.750L+0.750S+H, LL Comb R                  | un (**    | 0.798          | 2.120     | 0.999                        |           |                |  |
| D+0.750L+0.750S+H, LL Comb R                  | un (*L    | 0.798          | 2,120     | 0.999                        |           |                |  |
| D+0.750L+0.750S+H, LL Comb R                  | un (*L    | 0.798          | 2.120     | 0.999                        |           |                |  |
| D+0.750L+0.750S+H, LL Comb R                  | un (*L    | 0.798          | 2.120     | 0.999                        |           |                |  |
| D+0.750L+0.750S+H, LL Comb R                  | un (*L    | 0.798          | 2.120     | 0.999                        |           |                |  |
| D+0.750L+0.750S+H, LL Comb R                  | ขก (L'    | 0.798          | 2.120     | 0.999                        |           |                |  |
| D+0.750L+0.750S+H, LL Comb R                  |           | 0.798          | 2.120     | 0.999                        |           |                |  |
| D+0.750L+0.750S+H, LL Comb R                  |           | 0.798          | 2.120     | 0.999                        |           |                |  |
| D+0.750L+0.750S+H, LL Comb R                  |           | 0.798          | 2.120     | 0.999                        |           |                |  |
| D+0.750L+0.750S+H, LL Comb R                  |           | 0.798          | 2.120     | 0.999                        |           |                |  |
| D+0.750L+0.750S+H, LL Comb R                  |           | 0.798          | 2.120     | 0.999                        |           |                |  |
| D+0.750L+0.750S+H, LL Comb R                  | •         | 0.798          | 2.120     | 0.999                        |           |                |  |
| D+0.750L+0.750S+H, LL Comb R                  |           | 0.798          | 2.120     | 0.999                        |           |                |  |
| :D+0.60W+H                                    | mit /Ft   | 0.798          | 2.120     | 0.999                        |           |                |  |
| 10+0.70E+H                                    |           | 0,798          | 2.120     | 0.999                        |           |                |  |
| +D+0.70E+11<br>+D+0.750Lr+0.750L+0.450W+H, LI | Cor       | 0.786<br>0.811 | 2.120     | 0.999<br>1.670               |           |                |  |
| r.cm.r.cou.cm.r.cour.+6.45UVV+11. El          | , cui     | 0.011          | 2.030     | 1.070                        |           |                |  |

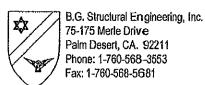
Genesis Solar Heavy Equipment Covered Parking 24 Project ID: 800.0617

Printed: 3 MAR 2017, 10:59AN File ± \$\DAEZR-G\B6YX5A-F.EC6 ENERCALC, INC. 1983-2017; Build:6,17-2,28, \end{a} \rightarrow \text{ENERCALC, INC. 1983-2017; Build:6,17-2,28, \end{a} \ri

Lic.# KW-06003989 Beam B2 Description:

Steel Beam

| Vertical Reactions                                                        |           |                |           | Support notation : |          | Values in KIPS |  |
|---------------------------------------------------------------------------|-----------|----------------|-----------|--------------------|----------|----------------|--|
| oad Combination                                                           | Support 1 | Support 2      | Support 3 | Support 4          | Ѕиррол 5 |                |  |
| +D+0.750Lr+0.750L+0.450W+H,                                               |           | 0.601          | 4.141     | 3,142              |          | •              |  |
| +D+0.760L1+0.760L+0.450W+H,                                               |           | 2.269          | 4.222     | 0.788              |          |                |  |
| +D+0.750Lr+0.750L+0.450W+H,                                               |           | 2.283          | 4.141     | 1.460              |          |                |  |
| +D+0.750Lr+0.750L+0.450W+H,                                               |           | 2.059          | 6.324     | 2.260              |          |                |  |
| +D+0.750Lr+0.750L+0.450W+H,                                               |           | 2.073          | 6.243     | 2.931              |          |                |  |
| +D+0.750Lr+0.750L+0.450W+H,                                               |           | 1.069          | 2.105     | 1.001              |          |                |  |
| +D+0.750Lr+0.750L+0.450W+H,                                               |           | 1,082          | 2.024     | 1.673              |          |                |  |
| +D+0.750Lr+0.750L+0.450W+H,                                               |           | 0,859          | 4.207     | 2.473              |          |                |  |
| +D+0.750Lr+0.750L+0.450W+H,                                               |           | 0,872          | 4.126     | 3.144              |          |                |  |
| +D+0.750Lr+0.750L+0.450W+H,                                               |           | 2.541          | 4.207     | 0.791              | •        |                |  |
| +D+0.750Lr+0.750L+0.450W+H,                                               |           | 2.554          | 4.126     | 1.462              |          |                |  |
| +D+0.750Lr+0.750L+0.450W+H,                                               |           | 2.330          | 6.309     | 2.262              |          |                |  |
| +D+0.750Lr+0.750L+0.450W+H,                                               |           | 2.344          | 6.228     | 2.934              |          |                |  |
| +D+0.750L+0.750S+0.450W+H,                                                |           | 0.798          | 2.120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.450W+H,                                                |           | 0.798          | 2.120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.450W+H,                                                |           | 0.798          | 2,120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.450W+H,                                                |           | 0.798          | 2,120     | 0,999              |          |                |  |
| +D+0.750L+0.750S+0.450W+H,                                                |           | 0.798          | 2.120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.450W+H,                                                |           | 0.798          | 2,120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.450W+H,                                                |           | 0.798          | 2.120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.450W+H,                                                |           | 0.798          | 2,120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.450W+H,                                                |           | 0.798          | 2.120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.450W+H,                                                |           | 0.798          | 2.120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.450W+H,                                                |           | 0.798          | 2,120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.450W+H,                                                |           | 0.798          | 2.120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.450W+H,                                                |           | 0.798          | 2.120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.450W+H,                                                |           | 0.798          | 2.120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.450W+H,                                                |           | 0,798          | 2.120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.5250E+H,                                               | LL Con    | 0,798          | 2.120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.5250E+H,                                               |           | 0.798          | 2.120     | 0.999              | •        |                |  |
| +D+0.750L+0.750S+0.5250E+H,                                               |           | 0.798          | 2.120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.5250E+H,                                               | LL Con    | 0.798          | 2.120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.5250E+H,                                               | LL Con    | 0.798          | 2.120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.5250E+H,                                               | LL Con    | 0.798          | 2.120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.5250E+H,                                               |           | 0.798          | 2,120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.5250E+H,                                               | LL Con    | 0.798          | 2,120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.5250E+H,                                               | LL Con    | 0.798          | 2.120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.5250E+H,                                               | LL Con    | 0.798          | 2.120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.5250E+H,                                               | LL Con    | 0.798          | 2.120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.5250E+H,                                               | LL Con    | 0.798          | 2.120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.5250E+H,                                               | LL Con    | 0.798          | 2.120     | 0.999              |          |                |  |
| +D+0.750L+0.750S+0.5250E+H,                                               | LL Con    | 0.798          | 2.120     | D.999              | •        |                |  |
| +D+0.750L+0.750S+0.5250E+H,                                               | LL Con    | 0.798          | 2,120     | 0.999              |          |                |  |
| +0.60D+0.60W+0.60H                                                        |           | 0.479          | 1,272     | 0.599              |          |                |  |
| +0.60D+0.70E+0.60H                                                        |           | 0,479          | 1,272     | 0.599              |          |                |  |
| D Only                                                                    |           | 0.798          | 2.120     | 0.999              | •        |                |  |
| Lr Only, LL Comb Ren (***L)                                               |           | 0.018          | -0.108    | 0.895              |          |                |  |
| Lr Only, LL Comb Run (**L*)                                               | •         | -0.280         | 2.803     | 1.962              |          |                |  |
| Lr Only, LL Comb Run (**LL)                                               |           | -0.262         | 2.695     | 2.857              |          |                |  |
| Lr Only, LL Comb Run (*L**)                                               |           | 1.962          | 2.803     | -0.280             |          |                |  |
| Lr Only, LL Comb Run (*L*L)                                               |           | 1.980          | 2.695     | 0.615              |          |                |  |
| Lr Only, LL Comb Run ("LL")                                               |           | 1.682          | 5.606     | 1.682              |          |                |  |
| Lr Only, LL Comb Run (*LLL)                                               |           | 1,700          | 5.498     | 2.577              |          |                |  |
| Lr Only, Ll. Comb Run (L***)                                              |           | 0.362          | -0.020    | 0.003              |          |                |  |
| Lr Only, LL Comb Run (L**L)                                               |           | 0.380          | -0.128    | 0.899              |          |                |  |
| Lr Only, LL Comb Run (L*L*)                                               |           | 0.081          | 2.783     | 1.966              |          |                |  |
| Lr Only, LL Comb Run (L*LL)                                               | •         | 0.099          | 2.675     | 2.861              |          |                |  |
| Lr Only, LL Comb Run (LL**)                                               |           | 2,324          | 2,783     | -0.277             |          |                |  |
| Lr Only, LL Comb Run (LL*L)                                               |           | 2,324<br>2.342 | 2,703     | 0.618              | •        |                |  |
| Lr Only, LL Comb Run (LLL*)                                               |           | 2.342          | 5.586     | 1.685              |          |                |  |
| Er Only, LL Comb Run (LLLL)                                               |           | 2.043          |           | 2,580              |          |                |  |
| L Only, LL Comb Run (***L)                                                |           | 2.002          | 5.478     | 4,000              |          |                |  |
| E Only, LL Comb Run (**L*)                                                |           |                |           |                    |          |                |  |
| L Only, LL Comb Run (**LL)                                                |           |                |           |                    |          |                |  |
| * * ******   * * *******   ****   * * * * * * * * * * * * * * * * * * * * |           |                |           |                    |          |                |  |



Genesis Solar Heavy Equipment Covered Parking 25 BG Project ID: 800.0617

Printed: 3 MAR 2017, 10:59AM

Steel Beam

File = s:COAEZR-GJ86YXSA-F.EC6
ENERCALC, INC. 1983:2017, Build:6.17.2.28, Vér.6.17.2.28 (
LICENTO DE STRUCTURAL EN GINEER ING LIC: # : KW-06003989

Description:

Beam B2

| Vertical Reactions         |           |           | 'ં, ક     | Support notation | : Far left is #1 | Values in KIPS |
|----------------------------|-----------|-----------|-----------|------------------|------------------|----------------|
| Load Combination           | Support 1 | Support 2 | Support 3 | Support 4        | Support 5        |                |
| L Only, LL Comb Run ("L**) |           |           |           |                  |                  |                |

L Only, LL Comb Run ("L\*")
L Only, LL Comb Run ("L\*L)
L Only, LL Comb Run ("LL\*)
L Only, LL Comb Run ("LLL)
L Only, LL Comb Run (L\*")
L Only, LL Comb Run (L\*")
L Only, LL Comb Run (L\*")
L Only, LL Comb Run (L\*L\*)
L Only, LL Comb Run (L\*L\*)
L Only, LL Comb Run (LL\*)

L Only, LL Comb Run (LL\*L) L Only, LL Comb Run (LLL\*)

L Only, LL Comb Run (LLLL)

S Only

W Only E Only H Only

Gernesis Solar Heavy Equipment Covered Parking 26 BG Project ID: 800.0817

Printed: 3 MAR 2017, 10:51AM

Fig = s1EOAEZR-G186YX5A-F.EC6

ENERCALC, INC. 1983-2017, Build:6.17.2.28, Ver.6.17.2.28 LICENSEE SECSTRUCTURAL ENGINEERING

Lic # KW-06003989 Beam B3 Description:

Steel Beam

CODE REFERENCES

Calculations per AISC 360-10, IBC 2015, ASCE 7-10

Load Combination Set: IBC 2015

Material Properties

Analysis Method: Allowable Strength Design

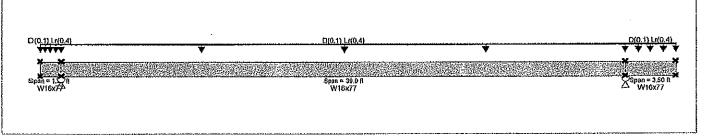
Beam Bracing: Bending Axis:

Completely Unbraced Major Axis Bending Fy: Steel Yield:

50.0 ksi

E: Modulus :

29,000.0 ksi



# Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading

Load for Span Number 1

Uniform Load: D = 0.10, Lr = 0.40 k/ft, Tributary Width = 1.0 ft

Load for Span Number 2

Uniform Load: D = 0.10, Lr = 0.40 k/ft, Tributary Width = 1.0 ft

Load for Span Number 3

Uniform Load: D = 0.10, Lr = 0.40 k/ft, Tributary Width = 1.0 ft

|   |   |   |    |       | <br> | <br>**** |    |    |
|---|---|---|----|-------|------|----------|----|----|
| ì | n | _ | 11 | ^ A ! |      | <br>2.4  | DV | ∴. |

| •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | DESIGN SUMMARY                                                                                                                                                             |                                                                        |                                                                                | Design OK                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------|
| I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Maximum Bending Stress Ratio =                                                                                                                                             | O.631:1 M                                                              | aximum Shear Stress Ratio =                                                    | 0.076 : 1                                           |
| Ì                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Section used for this span                                                                                                                                                 | W1 6x77                                                                | Section used for this span                                                     | W16x77                                              |
| -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Ma : Applied                                                                                                                                                               | 109.061 k-ft                                                           | Va : Applie∙d                                                                  | 11.337 k                                            |
| -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Mn / Omega : Allowable                                                                                                                                                     | 172.965k-ft                                                            | Vn/Omega: Allowable                                                            | 150.150 k ;                                         |
| der temperature descriptions and the last                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Load Combination +D+Lr+H,<br>Location of maximum on span<br>Span # where maximum occurs                                                                                    | LL Comb Run (*L*)<br>19.500ft<br>Span # 2                              | Load Combination<br>Location of meximum on span<br>Span # where max1mum occurs | +D+Lr+H, LL Comb Run (*LL)<br>39.000 ft<br>Span # 2 |
| to dies design with service services of the service | Maximum Deflection Max Downward Transient Deflection Max Upward Transient Deflection Max Downward Total Deflection Max Upward Total Deflection Max Upward Total Deflection | O.654 in Ratio = -O.080 in Ratio = -O.936 in Ratio = -O.114 in Ratio = | 452 >=360<br>500 >=180                                                         |                                                     |

Maximum Forces & Stresses for Load Combinations

| Load Combination         |                | Max Stress | Ratios |        |        | Summary of M | loment Valu | les       |      |      | Summ   | ary of Sh | ear Values |
|--------------------------|----------------|------------|--------|--------|--------|--------------|-------------|-----------|------|------|--------|-----------|------------|
| Segment Length           | Span#          | M          | ٧      | Mmax + | Mmax - | Ma Max       | Mnx         | Mnx/Omega | Cb   | Rm   | Va Max | Vnx       | Vnx/Omega  |
| +D+H                     |                |            |        |        |        |              |             |           |      |      |        |           |            |
| Dsgn. L = 1,50 ft        | 1              | 0.001      | 0.023  |        | -0,20  | 0,20         | 625.00      | 374,25    | 1.00 | 1.00 | 3.43   | 225.23    | 150.18     |
| Dsgn, L = 39.00 ft       | 2              | 0.190      | 0.023  | 33.01  | -1.08  | 33.01        | 289.61      | 173.42    | 1.14 | 1.00 | 3.47   | 225.23    | 150.19     |
| Dsgn. L = 3.50 ft        | 3              | 0.003      | 0.004  |        | -1.08  | 1,08         | 625.00      | 374,25    | 1.00 | 1.00 | 0.62   | 225.23    | 150.18     |
| +D+L+H, LL Comb Run (*1) | L)             |            |        |        |        |              |             |           |      |      |        |           |            |
| Dsgn. L = 1,50 ft        | <sup>'</sup> 1 | 0.001      | 0.023  |        | -0.20  | 0.20         | 625.00      | 374.25    | 1.00 | 1.00 | 3.43   | 225.23    | 150.18     |
| Dsgn. L = 39.00 ft       | 2              | 0.190      | 0.023  | 33.01  | -1.08  | 33.01        | 289.61      | 173.42    | 1,14 | 1.00 | 3.47   | 225.23    | 150.1      |
| Dsgn. L = 3.50 ft        | 3              | 0.003      | 0.004  |        | -1.08  | 1.08         | 625,00      | 374.25    | 1.00 | 1.00 | 0.62   | 225.23    | 150.15     |
| +D+L+H, LL Comb Run (*L  | *)             |            |        |        |        |              |             |           |      |      |        |           |            |
| Dsgn. L = 1.50 ft        | 1              | 0.001      | 0.023  |        | -0.20  | 0.20         | 625.00      | 374.25    | 1.00 | 1.00 | 3.43   | 225.23    | 150.15     |
| Dsgn. L = 39.00 ft       | 2              | 0.190      | 0.023  | 33.01  | -1.08  | 33.01        | 289.61      | 173.42    | 1.14 | 1.00 | 3.47   | 225.23    | 150.19     |
| Dsgn. L = 3.50 ft        | 3              | 0.003      | 0.004  |        | -1.08  | 1,08         | 625.00      | 374.25    | 1.00 | 1.00 | 0.62   | 225,23    | 150.19     |
| +D+L+H, LL Comb Run ("L  | L)             |            |        |        |        |              |             | -         |      |      |        |           |            |
| Dsgn. L = 1.50 ft        | 1              | 0.001      | 0.023  |        | -0,20  | 0,20         | 625.00      | 374.25    | 1.00 | 1.00 | 3.43   | 225,23    | 150.15     |
| Dsgn. L = 39.00 ft       | 2              | 0.190      | 0.023  | 33.01  | -1.08  | 33,01        | 289.61      | 173.42    | 1.14 | 1.00 | 3.47   | 225,23    | 150.18     |
| Dsgn. L = 3,50 ft        | 3              | 0,003      | 0.004  |        | -1.08  | 1.08         | 625.00      | 374.25    | 1.00 | 1.00 | 0.62   | 225.23    | 150.18     |
| +D+L+H, LL Comb Run (L*  | *)             |            |        |        |        |              |             |           |      |      |        |           |            |
| Dsgn, L ≃ 1.50 ft        | 1              | 0.001      | 0.023  |        | -0.20  | 0.20         | 625.00      | 374.25    | 1.00 | 1.00 | 3.43   | 225.23    | 150.18     |
| Dsgn, L = 39.00 ft       | 2              | 0.190      | 0.023  | 33.01  | -1.08  | 33.01        | 289.61      | 173.42    | 1.14 | 1.00 | 3.47   | 225.23    | 150.18     |
| Dsgn. L = 3.50 ft        | 3              | 0.003      | 0,004  |        | -1.08  | 1.08         | 625.00      | 374.25    | 1.00 | 1.00 | 0.62   | 225.23    | 150.16     |

Printe d: 3 MAR 2017, 10:51AM

Steel Beam

ENERCALC, INC. 1983-2017, Builds. 172.28, Vers. 172.28

Description: Beam B3

Load Combination
Segment Length Span # M V Mmax + Mmax - Ma Max Mnx Mnx/Omega Cb Rm Va Max Vnx Vnx/Omega

| Load Combination                                        | _                | Max Stress | : Raline |          | 5              | Summary of M | loment Valu | 201            |      |              | Sumon   | any of Sh | ear Valués  |
|---------------------------------------------------------|------------------|------------|----------|----------|----------------|--------------|-------------|----------------|------|--------------|---------|-----------|-------------|
| Load Combination                                        | Span#            | M          | V        | Mmax +   | Mmax -         | Ma Max       | Max         | Mnx/Omega      | Ch   | Rm           | Va Max  |           | Vnx/Omega   |
| Segment Length                                          | opan#            | tvi        | ¥        | 1VIIII T | IVITRIGA -     | IVIO IVIOA   | 19814       | Willia/Olifeya | OD   |              | Ya Wak  | Alty      | VIINOIIIege |
| +D+L+H, LL Comb Run (L*L)<br>Dsgn. L = 1.50 ft          | 1                | 0.001      | 0.023    |          | -0.20          | 0.20         | 625,00      | 374.25         | 1.00 | 1.00         | 3.43    | 225.23    | 150,15      |
| Dsgn. L = 1.50 ft                                       | 2                | 0.190      | 0.023    | 33.01    | -1.08          | 33.01        | 289,61      |                |      | 1.00         | 3.47    | 225.23    | 150.15      |
| Dsgn. L ≈ 3.50 ft                                       | 3                | 0.003      | 0.023    | 00.01    | -1.08          | 1.08         | 625,00      |                |      | 1.00         | 0.62    | 225.23    | 150.15      |
| +D+L+H, LL Comb Run (LL*)                               | v                | 0.000      | 0,001    |          | 1.00           | 1.00         | 020,00      | 01 1.20        | 1,00 | *****        | 0102    | 220,20    | 100110      |
| Dsgn. L = 1.50 ft                                       | 1                | 0.001      | 0.023    |          | -0.20          | 0.20         | 625,00      | 374,25         | 1.00 | 1.00         | 3.43    | 225.23    | 150.15      |
| Dsgn. L = 39,00 ft                                      | 2                | 0.190      | 0.023    | 33.01    | -1.08          | 33,01        | 289,61      | 173.42         | 1.14 | 1.00         | 3.47    | 225,23    | 150.15      |
| Dsgn. L = 3.50 ft                                       | 3                | 0.003      | 0.004    |          | -1.08          | 1.08         | 525,00      | 374.25         | 1.00 | 1.00         | 0.62    | 225.23    | 150.15      |
| +D+L+H, LL Comb Run (LLL)                               | _                |            |          |          |                |              |             |                |      |              |         |           |             |
| Dsgn. L ≈ 1.50 ft                                       | 1                | 0.001      | 0.023    | 00.04    | -0.20          | 0.20         | 625.00      |                |      | 1.00         | 3.43    | 225.23    | 150.15      |
| Dsgn. L = 39.00 ft                                      | 2                | 0.190      | 0.023    | 33.01    | -1.08          | 33.01        | 289.61      |                |      | 1.00         | 3.47    | 225.23    | 150.15      |
| Dsgn. L $\approx$ 3.50 ft<br>+D+Lr+H, LL Comb Run (**L) | 3                | 0.003      | 0.004    |          | -1.08          | 1.08         | 625.00      | 374.25         | 1.00 | 1.00         | 0.62    | 225.23    | 150.15      |
| Dsgn, L = 1,50 ft                                       | 1                | 0.001      | 0.022    |          | -0.20          | 0.20         | 625.00      | 374.25         | 1 00 | 1.00         | 3.37    | 225.23    | 150.15      |
| Dsgn. L = 39,00 ft                                      | ż                | 0,182      | 0.024    | 31.81    | -3,53          | 31,81        | 291.38      |                |      | 1.00         | 3.54    | 225.23    | 150.15      |
| Dsgn. L = 3.50 ft                                       | 3                | 0.009      | 0.013    | 0        | -3.53          | 3.53         | 625.00      |                |      | 1.00         | 2.02    | 225.23    | 150.15      |
| +D+Lr+H, LL Comb Run (*L*)                              | _                |            | *****    |          |                |              |             |                |      |              |         |           |             |
| Dsgn. L = 1,50 ft                                       | 1                | 0.001      | 0.075    |          | -0.20          | 0.20         | 625.00      | 374.25         | 1.00 | 1.00         | 11,23   | 225.23    | 150,15      |
| Dsgn. l. = 39.00 ft                                     | 2                | 0.631      | 0.075    | 109.06   | -1.08          | 109.06       | 288.85      |                |      | 1.00         | 11.27   | 225.23    | 150,15      |
| Dsgn. L = 3.50 ft                                       | 3                | 0.003      | 0.004    |          | -1.08          | 1.08         | 625.00      | 374.25         | 1.00 | 1.00         | 0.62    | 225.23    | 150.15      |
| +D+Lr+H, LL Comb Run (*LL)                              |                  |            | *        |          |                |              |             |                |      | 4.00         | 1 ( In  | ***       | 455.45      |
| Dsgn. L = 1.50 ft                                       | 1                | 0.001      | 0.074    | 407.04   | -0.20          | 0.20         | 625.00      | 374.25         |      | 1.00         | 11.17   | 225.23    | 150.15      |
| Dsgn. L = 39.00 ft                                      | 2                | 0.622      | 0.076    | 107.84   | -3,53          | 107.84       | 289.36      |                |      | 1.00         | 11.34   | 225.23    | 150,15      |
| Dsgn, L = 3.50 ft                                       | 3                | 0.009      | 0.013    |          | -3,53          | 3.53         | 625.00      | 374.25         | 1.00 | 1.00         | 2.02    | 225.23    | 150.15      |
| +D+Lr+H, LL Comb Run (L**) Dsan, U = 1,50 ft            | 1                | 0.002      | 0.023    |          | -0,65          | 0.65         | 625.00      | 374.25         | 1 00 | 1.00         | 3.44    | 225.23    | 150.15      |
| Dsgn, L = 1.50 ft<br>Dsgn, L = 39.00 ft                 | 2                | 0.002      | 0.023    | 32.79    | -1,08          | 32,79        | 289.86      |                |      | 1.00         | 3.46    | 225.23    | 150.15      |
| Dsgn, L = 3.50 ft                                       | 3                | 0.003      | 0.004    | OLII O   | -1.08          | 1.08         | 625.00      |                | 1.00 |              | 0.62    | 225.23    | 150.15      |
| +D+Lr+H, LL Comb Run (L*L)                              | -                |            | 2.007    |          | ,,,,,          |              |             |                |      |              | • • • • |           |             |
| Dsgn. L = 1.50 ft                                       | 1                | 0.002      | 0.022    |          | -0.65          | 0.65         | 625.00      | 374.25         | 1.00 | 1.00         | 3.38    | 225.23    | 150.15      |
| Dsgn. L = 39.00 ft                                      | 2                | 0.181      | 0.023    | 31.58    | -3.53          | 31.58        | 291.64      | 174.63         | 1.15 | 1.00         | 3.53    | 225.23    | 150.15      |
| Dsgn. L = 3.50 ft                                       | 3                | 0.009      | 0.013    |          | -3.53          | 3.53         | 625.00      | 374.25         | 1.00 | 1.00         | 2.02    | 225.23    | 150,15      |
| +D+Lr+H, LL Comb Run (LL*)                              |                  |            |          |          |                |              |             |                |      |              |         |           |             |
| Dsgn. L = 1.50 ft                                       | 1                | 0.002      | 0.075    |          | -0.65          | 0.65         | 625.00      |                |      | 1.00         | 11.24   | 225.23    | 150,15      |
| Dsgn. L = 39.00 ft                                      | 2                | 0,629      | 0.075    | 108.84   | -1.08          | 108.84       | 289.11      |                | 1.14 |              | 11.26   | 225.23    | 150.15      |
| Dsgn, L = 3,50 ft                                       | 3                | 0,003      | 0.004    |          | -1.08          | 1.08         | 625.00      | 374.25         | 1.00 | 1.00         | 0.62    | 225.23    | 150.15      |
| +D+Lr+H, LL Comb Run (LLL)  Dsgn. L = 1.50 ft           | 1                | 0.002      | 0.074    |          | <b>-0.65</b>   | 0.65         | 625.00      | 374.25         | t nn | 1.00         | 11.18   | 225,23    | 150.15      |
| Dsgn. L = 39.00 ft                                      | 2                | 0.621      | 0.074    | 107.61   | -3,53          | 107.61       | 289.61      |                | 1.14 |              | 11.33   | 225.23    | 150.15      |
| Dsgn. L = 3.50 ft                                       | 3                | 0.021      | 0.013    | 107.01   | -3,53          | 3.53         | 625.00      | 374.25         |      | 1.00         | 2.02    | 225.23    | 150.15      |
| +D+S+H                                                  | ·                | 0.000      | 01010    |          | 0,00           | 0.00         | 010.00      | 01 1120        |      | 1100         | *****   | 440.40    |             |
| Dsgn, L = 1.50 ft                                       | 1                | 0.001      | 0.023    |          | -0,20          | 0.20         | 625.00      | 374.25         | 1.00 | 1.00         | 3.43    | 225.23    | 150.15      |
| Dsgn. L = 39.00 ft                                      | 2                | 0.190      | 0.023    | 33.01    | -1.08          | 33,01        | 289.61      | 173.42         | 1.14 | 1.00         | 3.47    | 225.23    | 150.15      |
| Dsgn. L = 3.50 ft                                       | 3                | 0.003      | 0.004    |          | -1.08          | 1.08         | 625.00      | 374.25         | 1.00 | 1.00         | 0.62    | 225.23    | 150.15      |
| +D+0.750Lr+0.750L+H, LL Co                              | mb Run (*        |            |          |          |                |              |             |                |      |              |         |           |             |
| Dsgn. L ≃ 1.50 ft                                       | 1                | 0.001      | 0.023    | 00.40    | -0.20          | 0.20         | 625.00      | 374.25         |      | 1.00         | 3,38    | 225.23    | 150.15      |
| Dsgn. L = 39.00 ft                                      | 2                | 0.184      | 0.023    | 32.10    | -2.92          | 32,10        | 290.88      |                |      | 1.00<br>1.00 | 3.52    | 225.23    | 150.15      |
| Dsgn. L = 3.50 ft<br>+D+0.750Lr+0.750L+H, LL Co         | 3<br>mh Pun /*   | 0.008      | 0.011    |          | -2.92          | 2.92         | 625.00      | 374.25         | 1.00 | 1.00         | 1.67    | 225.23    | 150.15      |
| Dsgn, L = 1.50 ft                                       | ) נוטא שוני<br>1 | 0.001      | 0.062    |          | -0,20          | 0.20         | 625.00      | 374.25         | 1 00 | 1.00         | 9,28    | 225.23    | . 150.15    |
| Dsgn. L = 39.00 ft                                      | ż                | 0.520      | 0.062    | 90,05    | -1,08          | 90.05        | 289.11      |                |      | 1.00         | 9.32    | 225.23    | 150.15      |
| Dsgn. L = 3.50 ft                                       | 3                | 0.003      | 0.004    | 00,00    | -1.08          | 1.08         | 625.00      |                |      | 1.00         | 0.62    | 225.23    | 150.15      |
| +D+0.750Lr+0.750L+H, LL Co                              |                  | *****      |          |          | ,,,            |              |             |                |      |              |         |           |             |
| Dsgn. L = 1.50 ft                                       | 1 `              | 0.001      | 0.061    |          | -0.20          | 0.20         | 625.00      | 374.25         | 1.00 | 1.00         | 9,23    | 225.23    | 150.15      |
| Dsgn. L = 39.00 ft                                      | 2                | 0.514      | 0.062    | 89.13    | -2.92          | 89.13        | 289.36      |                | 1.14 |              | 9.37    | 225.23    | 150.15      |
| Dsgn. L = 3.50 ft                                       | 3                | 0.008      | 0.011    |          | -2.92          | 2.92         | 625.00      | 374.25         | 1.00 | 1.00         | 1.67    | 225.23    | 150.15      |
| +D+0.750Lr+0.750L+H, LL Co                              | mb Run (L        |            |          |          | A = *          |              | ***         |                |      | 4.05         | ,       | 50        | 400.00      |
| Dsgn. L = 1.50 ft                                       | 1                | 0.001      | 0.023    | 00.01    | -0.54          | 0.54         | 625.00      |                |      | 1.00         | 3.44    | 225.23    | 150.15      |
| Dsgn, L = 39.00 ft                                      | 2                | 0.189      | 0.023    | 32,84    | -1.08          | 32,84        | 289.86      |                |      | 1.00         | 3.47    | 225.23    | 150.15      |
| Dsgn, L = 3.50 ft                                       | 3<br>on b Dun #  | 0.003      | 0.004    |          | -1.08          | 1,08         | 625.00      | 374.25         | 1.00 | 1.00         | 0.62    | 225.23    | 150.15      |
| +D+0.750Lr+0.750L+H, LL Co<br>Dsgn. L = 1,50 ft         | mu run (L<br>1   | 0.001      | 0.023    |          | -0.54          | 0.54         | 625.00      | 374.25         | 1 00 | 1.00         | 3.39    | 225.23    | 150.15      |
| Dsgn. L = 1,50 ft<br>Dsgn. L = 39,00 ft                 | 2                | 0.183      | 0.023    | 31.93    | -0.54<br>-2.92 | 31,93        | 291.13      |                | 1.15 |              | 3.51    | 225.23    | 150.15      |
| Dsgn. L = 3.50 ft                                       | 3                | 0.103      | 0.023    | 01.00    | -2.92<br>-2.92 | 2.92         | 625.00      |                | 1.00 |              | 1.67    | 225.23    | 150.15      |
| +D+0.750Lr+0.750L+H, LL Co                              |                  | 0.000      | 3.011    |          | -WL            | ring for     | ~~~         | J, 1.60        |      |              | 1.01    | 2110160   | 100.10      |
| Dsgn. L = 1.50 ft                                       | 1                | 0.001      | 0.062    |          | -0.54          | 0.54         | 625,00      | 374.25         | 1.00 | 1.00         | 9.29    | 225.23    | 150.15      |
| Dsgn. L = 39.00 ft                                      | ż                | 0.519      | 0.062    | 89,88    | -1.08          | 89.88        | 289,11      |                |      | 1.00         | 9.32    | 225.23    | 150.15      |
| Dsgn. L = 3.50 ft                                       | 3                | 0.003      | 0.004    |          | -1.08          | 1.08         | 625.00      |                | 1.00 |              | 0.62    | 225.23    | 150,15      |
| +D+0.750Lr+0.750L+H, LL Co                              | mb Run (L        |            |          |          |                |              |             |                |      |              |         |           |             |
|                                                         |                  |            |          |          |                |              |             |                |      |              |         |           |             |

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Steel Beam

| .cad Combination Segment Length Dsgn. L = 1.50 ft Dsgn. L = 3.9.00 ft Dsgn. L = 3.50 ft D+0.7501.+0.750S+H, LL Coi Dsgn. L = 3.50 ft D+0.750L.+0.750S+H, LL Coi Dsgn. L = 3.50 ft D+0.750L.+0.750S+H, LL Coi Dsgn. L = 3.50 ft D+0.750L+0.750S+H, LL Coi Dsgn. L = 3.50 ft D+0.750L+0.750S+H, LL Coi Dsgn. L = 3.9.00 ft Dsgn. L = 3.9.00 ft Dsgn. L = 3.50 ft D+0.750L+0.750S+H, LL Coi Dsgn. L = 3.50 ft D+0.750L+0.750S+H, LL Coi Dsgn. L = 3.50 ft D+0.750L+0.750S+H, LL Coi Dsgn. L = 3.50 ft | 1 2 3 mb Run ("L 1 2 3 3 mb Run ("L 2 3 3 mb Run ("L 1 2 3 3 3 3 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 | Max Stress M 0.001 0.513 0.008 0.001 0.190 0.003 0.001 0.190 0.003 0.001 | V<br>0.062<br>0.062<br>0.011<br>0.023<br>0.023<br>0.004<br>0.023<br>0.023<br>0.004 | 88.96<br>33.01 | Mmax0.54 -2.92 -2.92 -0.20 -1.08 -1.08    | UFFINITERY OF M<br>Ma Max<br>0.54<br>88.96<br>2.92<br>0.20<br>33.01<br>1.08 | Mnx<br>625.00<br>289.61<br>625.00 | Mnx/Omega<br>374.25<br>173.42<br>374.25 | 1 00<br>1 14<br>1 00 | 1.00 | Va Max<br>9-24<br>9-36<br>1-67 | Vnx \ 225.23 225.23 225.23 | 150,15                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------|-------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------|-----------------------------------------|----------------------|------|--------------------------------|----------------------------|----------------------------|
| Dsgn. L = 39,00 ft Dsgn. L = 3.50 ft D+0.750L+0.750S+H, LL Goi Dsgn. L = 1.50 ft Dsgn. L = 39.00 ft Dsgn. L = 3.50 ft D+0.750L+0.750S+H, LL Coi Dsgn. L = 39.00 ft Dsgn. L = 39.00 ft Dsgn. L = 39.00 ft Dsgn. L = 3.50 ft D+0.750L+0.750S+H, LL Coi Dsgn. L = 3.50 ft D+0.750L+0.750S+H, LL Coi Dsgn. L = 39.00 ft Dsgn. L = 3.50 ft D+0.750L+0.750S+H, LL Coi Dsgn. L = 39.00 ft Dsgn. L = 3.50 ft D+0.750L+0.750S+H, LL Coi Dsgn. L = 1.50 ft Dsgn. L = 39.00 ft                                | 2<br>3<br>mb Run (**<br>1<br>2<br>3<br>mb Run (*L<br>1<br>2<br>3<br>mb Run (*L<br>1<br>2<br>3  | 0.513<br>0.008<br>0.001<br>0.190<br>0.003<br>0.001<br>0.190<br>0.003     | 0.062<br>0.011<br>0.023<br>0.023<br>0.004<br>0.023<br>0.023                        | 33,01          | -2.92<br>-2.92<br>-0.20<br>-1.08<br>-1.08 | 88,96<br>2.92<br>0.20<br>33.01                                              | 289.61<br>625.00<br>625.00        | 173.42<br>374.25                        | 1.14<br>1.00         | 1.00 | 9.36                           | 225.23                     | 150.15<br>150,15<br>150,15 |
| Dsgn. L = 3.50 ft D+0.750L+0.750S+H, LL Coi Dsgn. L = 1.50 ft Dsgn. L = 3.9.00 ft Dsgn. L = 3.50 ft D+0.750L+0.750S+H, LL Coi Dsgn. L = 1.50 ft Dsgn. L = 39.00 ft Dsgn. L = 3.50 ft D+0.750L+0.750S+H, LL Coi Dsgn. L = 3.50 ft D+0.750L+0.750S+H, LL Coi Dsgn. L = 3.9.00 ft Dsgn. L = 3.50 ft D+0.750L+0.750S+H, LL Coi Dsgn. L = 3.50 ft D+0.750L+0.750S+H, LL Coi Dsgn. L = 3.50 ft Dsgn. L = 3.50 ft                                                                                         | 3<br>mb Run (**<br>1<br>2<br>3<br>mb Run (*L<br>1<br>2<br>3<br>mb Run (*L<br>1<br>2<br>3       | 0.008<br>0.001<br>0.190<br>0.003<br>0.001<br>0.190<br>0.003              | 0.011<br>0.023<br>0.023<br>0.004<br>0.023<br>0.023                                 | 33,01          | -2.92<br>-0.20<br>-1.08<br>-1.08          | 2.92<br>0.20<br>33.01                                                       | 625.00<br>625.00                  | 374.25                                  | 1.00                 |      |                                |                            |                            |
| D+0.750L+0.750S+H, LL Cor<br>Dsgn. L = 1.50 ft<br>Dsgn. L = 39.00 ft<br>Dsgn. L = 350 ft<br>D+0.750L+0.750S+H, LL Cor<br>Dsgn. L = 1.50 ft<br>Dsgn. L = 39.00 ft<br>D+0.750L+0.750S+H, LL Cor<br>Dsgn. L = 3.50 ft<br>D+0.750L+0.750S+H, LL Cor<br>Dsgn. L = 1.50 ft<br>Dsgn. L = 39.00 ft                                                   | mb Run (** 1 2 3 mb Run (*L 1 2 3 mb Run (*L 1 2 3 mb Run (*L 1 2 3                            | 0.001<br>0.190<br>0.003<br>0.001<br>0.190<br>0.003                       | 0.023<br>0.023<br>0.004<br>0.023<br>0.023                                          |                | -0.20<br>-1.08<br>-1.08                   | 0.20<br>33.01                                                               | 625.00                            |                                         |                      | 1,00 | 1.07                           | 220,20                     | 100.10                     |
| Dsgn. L = 1.50 ft Dsgn. L = 3.50 ft Dsgn. L = 3.50 ft D+0.750L+0.750S+H, Ll. Col Dsgn. L = 1.50 ft Dsgn. L = 3.50 ft D+0.750L+0.750S+H, Ll. Col Dsgn. L = 3.50 ft D+0.750L+0.750S+H, Ll. Col Dsgn. L = 3.50 ft Dsgn. L = 3.50 ft D+0.750L+0.750S+H, Ll. Col Dsgn. L = 3.50 ft D+0.750L+0.750S+H, Ll. Col Dsgn. L = 1.50 ft Dsgn. L = 1.50 ft Dsgn. L = 3.00 ft                                                                                                                                     | 1 2 3 mb Run ("L 1 2 3 3 mb Run ("L 2 3 3 mb Run ("L 1 2 3 3 3 3 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 | 0.190<br>0.003<br>0.001<br>0.190<br>0.003                                | 0.023<br>0.004<br>0.023<br>0.023                                                   |                | -1.08<br>-1.08                            | 33.01                                                                       |                                   | 374 25                                  | 1.00                 |      |                                |                            |                            |
| Dsgn. L = 3.50 ft<br>D+0.750L+0.750S+H, Ll. Con<br>Dsgn. L = 1.50 ft<br>Dsgn. L = 3.50 ft<br>D+0.750L+0.750S+H, Ll. Con<br>Dsgn. L = 3.50 ft<br>Dsgn. L = 3.50 ft<br>Dsgn. L = 3.60 ft<br>D+0.750L+0.750S+H, Ll. Con<br>Dsgn. L = 3.60 ft<br>D+0.750L+0.750S+H, Ll. Con<br>Dsgn. L = 1.50 ft<br>Dsgn. L = 39.00 ft                                                                                                                                                                                 | 3<br>mb Run (*L<br>1 .<br>2<br>3<br>mb Run (*L<br>1<br>2<br>3                                  | 0.003<br>0.001<br>0.190<br>0.003<br>0.001                                | 0.004<br>0.023<br>0.023                                                            |                | -1,08                                     |                                                                             |                                   |                                         | 1.00                 | 1.00 | 3.43                           | 225,23                     | 150.15                     |
| D+0.750L+0.750S+H, Ll. Coi<br>Dsgn. L = 1.50 ft<br>Dsgn. L = 39.00 fi<br>Dsgn. L = 3.50 ft<br>D+0.750L+0.750S+H, Ll. Coi<br>Dsgn. L = 1.50 ft<br>Dsgn. L = 39.00 ft<br>Dsgn. L = 3.60 ft<br>D+0.750L+0.750S+H, Ll. Coi<br>Dsgn. L = 1.50 ft<br>Dsgn. L = 39.00 ft                                                                                                                                                                                                                                  | mb Run (*L<br>1 -<br>2 -<br>3<br>mb Run (*L<br>1 -<br>2 -<br>3                                 | 0.001<br>0.190<br>0.003<br>0.001                                         | 0.023<br>0.023                                                                     | 33.01          |                                           | 1.08                                                                        | 289.61                            | 173.42                                  | 1.14                 |      | 3.47                           | 225,23                     | 150.15                     |
| Dsgn. L = 1.50 ft<br>Dsgn. L = 39.00 ft<br>Dsgn. L = 3.50 ft<br>D+0.750L+0.750S+H, LL Col<br>Dsgn. L = 150 ft<br>Dsgn. L = 3.50 ft<br>D+0.750L+0.750S+H, LL Col<br>Dsgn. L = 1.50 ft<br>Dsgn. L = 39.00 ft                                                                                                                                                                                                                                                                                         | 1 . 2<br>2<br>3<br>mb Run (*L<br>1<br>2<br>3                                                   | 0.190<br>0.003<br>0.001                                                  | 0.023                                                                              | 33.01          | -0.20                                     |                                                                             | 625.00                            | 374.25                                  | 1.00                 | 1.00 | 0.62                           | 225.23                     | 150,15                     |
| Dsgn. L = 3.50 ft<br>D+0.750L+0.750S+H, LL Col<br>Dsgn. L = 1.50 ft<br>Dsgn. L = 3.50 ft<br>Dsgn. L = 3.50 ft<br>D+0.750L+0.750S+H, LL Col<br>Dsgn. L = 1.50 ft<br>Dsgn. L = 39.00 ft                                                                                                                                                                                                                                                                                                              | 3<br>mb Run (*L<br>1<br>2<br>3                                                                 | 0.003<br>0.001                                                           | 0.023                                                                              | 33.01          |                                           | 0.20                                                                        | 625.00                            | 374.25                                  | 1.00                 | 1.00 | 3.43                           | 225.23                     | 150,15                     |
| D+0.750L+0.750S+H, LL Cor<br>Dsgn. L = 1.50 ft<br>Dsgn. L = 39.00 ft<br>Dsgn. L = 39.00 ft<br>D+0.750L+0.750S+H, LL Cor<br>Dsgn. L = 1.50 ft<br>Dsgn. L = 39.00 ft                                                                                                                                                                                                                                                                                                                                 | mb Run (*L<br>1<br>2<br>3                                                                      | 0.001                                                                    | 0.004                                                                              |                | -1.08                                     | 33.01                                                                       | 289.61                            | 173.42                                  | 1.14                 |      | 3.47                           | 225.23                     | 150.15                     |
| Dsgn. L = 1.50 ft<br>Dsgn. L = 39.00 ft<br>Dsgn. L = 3.50 ft<br>D+0.750L+0.750S+H, LL Col<br>Dsgn. L = 1.50 ft<br>Dsgn. L = 39.00 ft                                                                                                                                                                                                                                                                                                                                                               | 1<br>2<br>3                                                                                    |                                                                          |                                                                                    |                | -1.08                                     | 1.08                                                                        | 625.00                            | 374.25                                  | 1.00                 | 1.00 | 0.62                           | 225.23                     | 150.15                     |
| Dsgn. L = 39.00 ft<br>Dsgn. L = 3.50 ft<br>D+0.750L+0.750S+H, LL Cor<br>Dsgn. L = 1.50 ft<br>Dsgn. L = 39.00 ft                                                                                                                                                                                                                                                                                                                                                                                    | 2                                                                                              |                                                                          | 0.023                                                                              |                | -0.20                                     | 0.20                                                                        | 625.00                            | 374.25                                  | 1.00                 | 1.00 | 3.43                           | 225.23                     | 150.15                     |
| Dsgn. L = 3.50 ft<br>D+0.750L+0.750S+H, LL Col<br>Dsgn. L = 1.50 ft<br>Dsgn. L = 39.00 ft                                                                                                                                                                                                                                                                                                                                                                                                          | 3<br>mh Dun A i                                                                                | 0.190                                                                    | 0.023                                                                              | 33.01          | -1.08                                     | 33.01                                                                       | 289.61                            | 173.42                                  | 1.14                 |      | 3.47                           | 225.23                     | 150.15                     |
| Dsgn. L = 1.50 ft<br>Dsgn. L = 39.00 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                            | min Dan III                                                                                    | 0.003                                                                    | 0.004                                                                              |                | -1.08                                     | 1.08                                                                        | 625.00                            | 374.25                                  | 1.00                 | 1.00 | 0.62                           | 225.23                     | 150.15                     |
| Dsgn. L. = 39.00 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                | 0.004                                                                    | 0.000                                                                              |                | . 0.00                                    | 0.00                                                                        | 600.00                            | 974.00                                  | 1.00                 | 4.00 | 2 42                           | 225.23                     | 150.15                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1<br>2                                                                                         | 0.001<br>0.190                                                           | 0.023<br>0.023                                                                     | 33.01          | , -0.20<br>-1.08                          | 0.20<br>33.01                                                               | 625,00<br>289,61                  | 374.25<br>173.42                        | 1.14                 |      | 3.43<br>3.47                   | 225.23                     | 150.15                     |
| Dsgn. L ≈ 3.50 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 3                                                                                              | 0.003                                                                    | 0.004                                                                              | 00.07          | -1.08                                     | 1.08                                                                        | 625.00                            | 374.25                                  | 1.00                 |      | 0.62                           | 225.23                     | 150.15                     |
| D+0.750L+0.750S+H, LL Coi                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | mb Run (L'                                                                                     |                                                                          |                                                                                    |                |                                           |                                                                             |                                   |                                         |                      |      |                                |                            |                            |
| Dsgn. L = 1.50 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1                                                                                              | 0.001                                                                    | 0.023                                                                              | 00.04          | -0.20                                     | 0,20                                                                        | 625,00                            | 374.25                                  | 1.00                 |      | 3.43                           | 225.23                     | 150.15                     |
| Dsgn. L = 39.00 ft<br>Dsgn. L = 3.50 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2<br>3                                                                                         | 0,190<br>0.003                                                           | 0.023<br>0.004                                                                     | 33.01          | -1.08<br>-1.08                            | 33.01<br>1.08                                                               | 289.61<br>625.00                  | 173.42<br>374.25                        | 1.14                 |      | 3.47<br>0.62                   | 225.23<br>225.23           | 150.15<br>150.15           |
| D+0.750L+0.750S+H, LL Coi                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | _                                                                                              | 0.000                                                                    | 0.004                                                                              |                | -1.00                                     | 1.00                                                                        | 424.40                            | 014.20                                  | 1.00                 | 1.00 | V-01                           | 250.20                     | 100,10                     |
| Dsgn. L = 1.50 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1                                                                                              | 0.001                                                                    | 0.023                                                                              |                | -0.20                                     | 0.20                                                                        | 625,00                            | 374.25                                  | 1.00                 |      | 3.43                           | 225.23                     | 150.15                     |
| Dsgn. L = 39.00 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2                                                                                              | 0.190                                                                    | 0.023                                                                              | 33.01          | -1.08                                     | 33.01                                                                       | 289.61                            | 173.42                                  | 1.14                 |      | 3-47                           | 225.23                     | 150.15                     |
| Dsgn. L = 3.50 ft<br>D+0.750L+0.750S+H, LL Coi                                                                                                                                                                                                                                                                                                                                                                                                                                                     | mh Run /II                                                                                     | 0.003                                                                    | 0.004                                                                              |                | -1.08                                     | 1.08                                                                        | 625.00                            | 374.25                                  | 1.00                 | 1.00 | 0.62                           | 225.23                     | 150.15                     |
| Dsgn. L = 1.50 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ino run çu.<br>1                                                                               | 0.001                                                                    | 0.023                                                                              |                | -0.20                                     | 0.20                                                                        | 625.00                            | 374.25                                  | 1.00                 | 1.00 | 3.43                           | 225.23                     | 150.15                     |
| Dsgn. L = 39.00 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2                                                                                              | 0.190                                                                    | 0.023                                                                              | 33.01          | -1.08                                     | 33.01                                                                       | 289.61                            | 173.42                                  | 1.14                 |      | 3_47                           | 225.23                     | 150,15                     |
| Dsgn. L = 3.50 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 3                                                                                              | 0.003                                                                    | 0.004                                                                              |                | -1.08                                     | 1.08                                                                        | 625.00                            | 374.25                                  | 1.00                 | 1.00 | 0.62                           | 225.23                     | 150.15                     |
| D+0.60W+H<br>Dsgn. L = 1.50 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1                                                                                              | 0.001                                                                    | 0.023                                                                              |                | -0.20                                     | 0.20                                                                        | 625.00                            | 374.25                                  | 1.00                 | 1.00 | 3.43                           | 225.23                     | 150.15                     |
| Dsgn. L = 39.00 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2                                                                                              | 0.190                                                                    | 0.023                                                                              | 33.01          | -1.08                                     | 33.01                                                                       | 289.61                            | 173.42                                  | 1.14                 |      | 3.47                           | 225.23                     | 150.15                     |
| Osgn. L. = 3,50 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 3                                                                                              | 0.003                                                                    | 0.004                                                                              |                | -1.08                                     | 1.08                                                                        | 625.00                            | 374.25                                  | 1.00                 | 1.00 | 0.62                           | 225.23                     | 150.15                     |
| D+0.70E+H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                | , 0.004                                                                  | 0.000                                                                              |                | 0.00                                      | 0.00                                                                        | 005.00                            | 074.05                                  | 400                  | 4.00 | 2.42                           | 225.22                     | 450.45                     |
| Dsgn. l. = 1.50 ft<br>Dsgn. l. = 39.00 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1 2                                                                                            | 0.001<br>0.190                                                           | 0.023<br>0.023                                                                     | 33.01          | -0,20<br>-1,08                            | 0.20<br>33.01                                                               | 625.00<br>289.61                  | 374.25<br>173.42                        | 1.00<br>1.14         |      | 3.43<br>3.47                   | 225.23<br>225.23           | 150.15<br>150.15           |
| Dsgn. I. = 3.50 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 3                                                                                              | 0.003                                                                    | 0.004                                                                              | 00.01          | -1.08                                     | 1.08                                                                        | 625.00                            | 374.25                                  | 1.00                 |      | 0.62                           | 225.23                     | 150.15                     |
| D+0.750Lr+0.750L+0.450W+                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | H, LL Con                                                                                      |                                                                          |                                                                                    |                |                                           |                                                                             |                                   |                                         |                      |      |                                |                            |                            |
| Dsgn. L = 1.50 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1                                                                                              | 0.001                                                                    | 0.023                                                                              | 32.10          | -0.20                                     | 0,20                                                                        | 625.00                            | 374.25                                  | 1.00                 |      | 3.38<br>3.52                   | 225.23<br>225.23           | 150,15                     |
| Dsgn. L = 39.00 ft<br>Dsgn. L = 3.50 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2<br>3                                                                                         | 0.184<br>0.008                                                           | 0.023<br>0.011                                                                     | 32.10          | -2.92<br>-2.92                            | 32,10<br>2,92                                                               | 290.88<br>625.00                  | 174.18<br>374.25                        | 1.15                 |      | 3.52<br>1.67                   | 225.23                     | 150,15<br>150,15           |
| D+0.750Lr+0.750L+0.450W+                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                | 0.000                                                                    | 0.011                                                                              |                | 4.02                                      | 2,01                                                                        |                                   | 07 1120                                 | 1100                 | 1.00 | 1.0.                           | 220124                     | ,,,,,,,                    |
| Dsgn. L = 1.50 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1                                                                                              | 0.001                                                                    | 0.062                                                                              |                | -0.20                                     | 0.20                                                                        | 625.00                            | 374.25                                  |                      |      | 9.28                           | 225.23                     | 150.15                     |
| Dsgn. L = 39.00 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2<br>3                                                                                         | 0.520<br>0.003                                                           | 0.062<br>0.004                                                                     | 90.05          | -1,08<br>-1,08                            | 90,05                                                                       | 289.11<br>625.00                  | 173.12<br>374.25                        | 1.14<br>1.00         |      | 9.32<br>0.62                   | 225.23<br>225.23           | 150.15<br>150.15           |
| Dsgn. L =   3.50 ft<br>  D+0.750Lr+0.750L+0.450W4                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                | 0.003                                                                    | 0.004                                                                              |                | -1,00                                     | 1.08                                                                        | 020.00                            | 314.23                                  | 1.00                 | 1.00 | 0.02                           | 220,20                     | 100.10                     |
| Dsgn. L = 1.50 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1                                                                                              | 0.001                                                                    | 0.061                                                                              |                | -0,20                                     | 0.20                                                                        | 625.00                            | 374.25                                  | 1.00                 | 1.00 | 9.23                           | 225.23                     | 150.15                     |
| Dsgn. L = 39,00 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2                                                                                              | 0.514                                                                    | 0.062                                                                              | 89,13          | -2,92                                     | 89.13                                                                       | 289.36                            | 173.27                                  | 1.14                 |      | 9.37                           | 225,23                     | 150.15                     |
| Dsgn. L = 3.50 ft<br>D+0.750Lr+0.750L+0.450W+                                                                                                                                                                                                                                                                                                                                                                                                                                                      | H II Com                                                                                       | 0.008                                                                    | 0.011                                                                              |                | -2.92                                     | 2.92                                                                        | 625.00                            | 374.25                                  | 1.00                 | 1.00 | 1.67                           | 225,23                     | 150.15                     |
| Dsgn. L = 1.50 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1                                                                                              | 0.001                                                                    | 0.023                                                                              |                | ∙0.54                                     | 0.54                                                                        | 625.00                            | 374.25                                  | 1.00                 | 1.00 | 3.44                           | 225,23                     | 150.15                     |
| Dsgn. L = 39.00 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2                                                                                              | 0.189                                                                    | 0.023                                                                              | 32.84          | -1.08                                     | 32.84                                                                       | 289.86                            | 173.57                                  | 1.15                 |      | 3.47                           | 225,23                     | 150.15                     |
| Dsgn, L = 3.50 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 3                                                                                              | 0.003                                                                    | 0.004                                                                              |                | -1.08                                     | 1.08                                                                        | 625.00                            | 374.25                                  | 1.00                 | 1.00 | 0.62                           | 225.23                     | 150.15                     |
| D+0.750Lr+0.750L+0.450W+<br>Dsgn. L = 1.50 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1 1                                                                                            | 0.001                                                                    | 0.023                                                                              |                | -0.54                                     | 0.54                                                                        | 625.00                            | 374.25                                  | 1.00                 | 1.00 | 3.39                           | 225.23                     | 150.15                     |
| Dsgn. L = 39.00 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2                                                                                              | 0.183                                                                    | 0.023                                                                              | 31.93          | -2.92                                     | 31,93                                                                       | 291.13                            | 174.33                                  | 1.15                 |      | 3.51                           | 225.23                     | 150.15                     |
| Dsgn. L = 3,50 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 3                                                                                              | 0.008                                                                    | 0.011                                                                              |                | -2,92                                     | 2.92                                                                        | 625.00                            | 374.25                                  | 1.00                 |      | 1.67                           | 225.23                     | 150,15                     |
| D+0.750Lr+0.750L+0.450W+                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                | V VV1                                                                    | 0.000                                                                              |                | 0.01                                      | 6.04                                                                        | gae na                            | 97 # nr -                               | 4 00                 | 1.00 | 0.00                           | 995 09                     | 450.40                     |
| Dsgn. L = 1.50 ft<br>Dsgn. L = 39.00 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1<br>2                                                                                         | 0.001<br>0.519                                                           | 0.062<br>0.062                                                                     | 89.88          | -0.54<br>-1.08                            | 0.54<br>89.88                                                               | 625.00<br>289.11                  |                                         | 1.00<br>1.14         |      | 9.29<br>9.32                   | 225.23<br>225.23           | 150,15<br>150,15           |
| Dsgn. L = 3,50 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 3                                                                                              | 0.003                                                                    | 0.002                                                                              | νυυψ           | -1.08                                     | 1.08                                                                        | 625.00                            |                                         | 1.00                 |      | 0.62                           | 225.23                     | 150.15                     |
| D+0.750Lr+0.750L+0.450W+                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                |                                                                          |                                                                                    |                |                                           |                                                                             |                                   |                                         |                      |      |                                |                            |                            |
| Dsgn. L = 1.50 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1                                                                                              | 0.001                                                                    | 0.062                                                                              | ** **          | -0.54                                     | 0.54                                                                        | 625.00                            | 374.25                                  | 1.00                 |      | 9.24                           | 225.23                     | 150.15                     |
| Dsgn, L = 39.00 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2<br>3                                                                                         | 0.513<br>0.008                                                           | 0.062                                                                              | 88.96          | -2.92<br>-2.92                            | 88.96<br>2.92                                                               | 289.61<br>625.00                  | 173.42<br>374.25                        | 1,14                 |      | 9.36                           | 225.23<br>225.23           | 150.15<br>150.15           |
| Dsgn. L = 3.50 ft<br>D+0.750L+0.750S+0.450W+                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                | 0.008                                                                    | 0.011                                                                              |                | -L.JL                                     | 2.82                                                                        | 625.00                            | <b>⊍! サ</b> ₁∠Ų                         | 1.00                 | 1,00 | 1.67                           | 440.40                     | 190.19                     |
| Dsgn, L = 1,50 ft                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1                                                                                              | 0.001                                                                    | 0.023                                                                              |                | -0.20                                     | 0.20                                                                        | 625.00                            | 374.25                                  | 1.00                 | 1.00 | 3.43                           | 225.23                     | 150.15                     |

 $\begin{array}{c} \text{Genesis Solar Heavy Equipment Covered Parking } \mathbf{29} \\ \text{BG} & \text{Project ID: } \mathbf{800.0617} \end{array}$ 

Steel Beam

Printed: 3 MAR 2017, 10:51AM File = s:\E0AEZR-G\86YX5A-F-EC6 E NERCALC; INC: 1983-2017; Build:6.17:2.28, Ver:6.17:2.28

| 1 4 0 4 4 9                                |                      | May Ole-               | on Dollan                                |                |                | Dillmondon - E & A     | amont tal.        | ine.                               |      |              | C            | ani at Ob-       | ear Values       |
|--------------------------------------------|----------------------|------------------------|------------------------------------------|----------------|----------------|------------------------|-------------------|------------------------------------|------|--------------|--------------|------------------|------------------|
| Load Combination<br>Segment Length         | Span#                | Max Stres<br>M         | V                                        | Mma×+          | Mmax -         | Summary of M<br>Ma Max | omeni valu<br>Mnx | Mnx/Onneg                          | e Cb | Rm           | Va Max       |                  | Vnx/Omega        |
| Dsgn. L = 39.00 ft                         | 2                    | 0.190                  | 0.023                                    | 33.01          | -1.08          | 33.01                  | 289.61            | 173.42                             | 1.14 | 1.00         | 3,47         | 225.23           | 150.15           |
| Dsgn. L = 3.50 ft                          | 3                    | 0.003                  | 0.004                                    |                | -1.08          | 1.08                   | 625.00            | 374 <b>.2</b> 5                    | 1.00 | 1.00         | 0.62         | 225.23           | 150 <b>.1</b> 5  |
| +D+0.750L++O.750S+0.4<br>Dsgn. L = 1.50 ft | ouw+H, LL Com<br>1   | 0.001                  | 0.023                                    |                | -0.20          | 0.20                   | 625.00            | 374.25                             | 1 00 | 1.00         | 3.43         | 225,23           | 150.15           |
| Dsgn. L = 39.00 ft                         | ż                    | 0.190                  | 0.023                                    | 33.01          | -1.08          | 33.01                  | 289.61            | 173.42                             |      | 1.00         | 3.47         | 225.23           | 150.15           |
| Dsgn. L = 3,50 ft                          | 3                    | 0,003                  | 0.004                                    |                | -1.08          | 1.08                   | 625.00            | 374.25                             |      | 1.00         | 0.62         | 225.23           | 150.15           |
| +D+0.750L+O.750S+0.4                       | 50W+H, LL Com        | 0.004                  | 0.000                                    |                | 0.00           | 0.00                   | 005.00            | 274 (2)5                           | 4.00 | 4 00         | 9.49         | 405.00           | 450.46           |
| Dsgn. L = 1.50 ft<br>Dsgn. L = 39.00 ft    | 2                    | 0.001<br>0.190         | 0.023<br>0.023                           | 33.01          | -0.20<br>-1.08 | 0.20<br>33.01          | 625.00<br>289.61  | 374,25<br>173,42                   |      | 1.00<br>1.00 | 3.43<br>3.47 | 225.23<br>225.23 | 150.15<br>150.15 |
| Dsgn. L ≈ 3.50 ft                          | 3                    | 0.003                  | 0.004                                    |                | -1.08          | 1.08                   | 625.00            | 374.25                             |      | 1.00         | 0.62         | 225.23           | 150.15           |
| +D+0.750L+O.750S+0.4                       |                      | 0.001                  |                                          |                |                | 2.00                   | 225.00            | 274.625                            | 4.00 | 4.00         | 0.10         | 005.00           | JEO 4F           |
| Dsgn. L. ≈ 1.50 ft<br>Dsgn. L. ≈ 39.00 ft  | 1 2                  | 0.001<br>0.190         | 0.023<br>0.023                           | 33. <b>Q</b> 1 | -0.20<br>-1.08 | 0.20<br>33.01          | 625.00<br>289.61  | 374.25<br>173.42                   |      | 1.00<br>1.00 | 3.43<br>3.47 | 225.23<br>225.23 | 150.15<br>150.15 |
| Dsgn, L = 3.50 ft                          | 3                    | 0.003                  | 0.023                                    | 33.01          | -1.08          | 1.08                   | 625.00            | 374.25                             |      | 1.00         | 0.62         | 225.23           | 150.15           |
| +D+0.750L+O.750S+0.4                       | -                    |                        |                                          |                |                |                        | •====             | *******                            |      |              | ***-         |                  |                  |
| Dsgn. L = 1.50 ft                          | 1                    | 0.001                  | 0.023                                    |                | -0.20          | 0.20                   | 625.00            | 374.25                             |      | 1.00         | 3.43         | 225.23           | 150.15           |
| Dsgn. L. ⇒ 39,00 ft<br>Dsgn, L. ⇒ 3,50 ft  | 2<br>3               | 0.190<br>0.003         | 0.023<br>0.004                           | 33. <b>O</b> 1 | -1,08<br>-1,08 | 33.01<br>1.08          | 289,61<br>625.00  | 173.42<br>374.25                   |      | 1.00<br>1.00 | 3.47<br>0.62 | 225.23<br>225.23 | 160.15<br>150.15 |
| - Dsyn, i 3.50 ii<br>+D+0.750L+O.750S+0.4  | -                    | 0.003                  | 0.004                                    |                | -1,00          | 1,00                   | 023.00            | 314.23                             | 1.00 | 1.00         | 0.02         | 223,23           | 130.13           |
| Dsgn. L = 1.50 ft                          | 1                    | 0.001                  | 0.023                                    |                | -0,20          | 0,20                   | 625.00            | 374.25                             |      | 1.00         | 3.43         | 225.23           | 150.15           |
| Dsgn. L = 39.00 ft                         | 2                    | 0.190                  | 0.023                                    | 33. <b>O</b> 1 | -1.08          | 33.01                  | 289.61            | 173.42                             |      | 1.00         | 3.47         | 225.23           | 150.15           |
| Osgn. L = 3.50 ft<br>+D+0.750L+O.750S+0.4  | 3<br>501M4H 11 Com   | 0.003                  | 0.004                                    |                | -1.08          | 1.08                   | 625.00            | 374.25                             | 1.00 | 1.00         | 0.62         | 225.23           | 150.15           |
| Dsgn, L = 1.50 ft                          | 1                    | 0.001                  | 0.023                                    |                | -0.20          | 0.20                   | 625.00            | 374.25                             | 1.00 | 1.00         | 3,43         | 225.23           | 150.15           |
| Dsgn. L = 39.00 ft                         | 2                    | 0.190                  | 0.023                                    | 33.O1          | -1.08          | 33.01                  | 289.61            | 173.42                             |      | 1.00         | 3.47         | 225,23           | 150,15           |
| Dsgn, L = 3.50 ft                          | 3                    | 0.003                  | 0.004                                    |                | -1.08          | 1.08                   | 625.00            | 374.25                             | 1.00 | 1.00         | 0.62         | 225.23           | 150.15           |
| +D+0,750L+O.750S+0.53<br>Dsgn. L = 1.50 ft | 250≥+H, LL Corr<br>1 | 0.001                  | 0.023                                    |                | -0.20          | 0.20                   | 625.00            | 374.25                             | 1 በስ | 1.00         | 3,43         | 225,23           | 150.15           |
| Dsgn, L = 39.00 ft                         | 2                    | 0.190                  | 0.023                                    | 33. <b>O</b> 1 | -1.08          | 33.01                  | 289.61            | 173.42                             |      | 1.00         | 3.47         | 225.23           | 150.15           |
| Dsgn. L = 3.50 ft                          | 3                    | 0.003                  | 0.004                                    |                | -1.08          | 1.08                   | 625.00            | 374.25                             |      | 1.00         | 0.00         | 225.23           | 150.15           |
| +D+0.750L+O.750S+0.5                       | · .                  | 0.004                  | 0.000                                    |                | 0.00           | 0.00                   | 000.00            | 074 O.C                            | 4.00 | 4.00         | 0.40         | 005.00           | 450.45           |
| Dsgn, L = 1,50 ft<br>Dsgn, L = 39,00 ft    | 1 2                  | 0.00 <b>1</b><br>0.190 | 0,023<br>0,023                           | 33.O1          | -0.20<br>-1.08 | 0.20<br>33.01          | 625.00<br>289.61  | 374.25<br>173.42                   |      | 1.00<br>1.00 | 3.43<br>3.47 | 225.23<br>225.23 | 150.15<br>150.15 |
| Dsgn, L = 3.50 ft                          | 3                    | 0.003                  | 0.004                                    | 33.01          | -1.08          | 1.08                   | 625.00            | 374.25                             |      | 1.00         | 0.62         | 225.23           | 150.15           |
| +D+0.750L+O.750S+0.5                       |                      |                        |                                          |                |                |                        |                   |                                    |      |              |              |                  |                  |
| Dsgn, L = 1.50 ft                          | 1<br>2               | 0,001<br>0,190         | 0.023<br>0.023                           | 33.O1          | -0,20<br>-1,08 | 0.20<br>33.01          | 625.00<br>289.61  | 374.25<br>173.42                   |      | 1.00<br>1.00 | 3.43<br>3.47 | 225.23<br>225.23 | 150.15<br>150.15 |
| Dsgn, L = 39.00 ft<br>Dsgn, L = 3.50 ft    | 3                    | 0.003                  | 0.023                                    | 33,01          | -1.08          | 1.08                   | 625.00            | 374.25                             |      | 1.00         | 0.62         | 225.23           | 150,15           |
| +D+0.750L+O.750S+0.5                       |                      | 0.000                  | 01001                                    |                | 1100           | ,,,,,                  | 020.00            | 0                                  | 1.00 | *****        | 0.02         | 220.20           |                  |
| Dsgn, L = 1.50 ft                          | 1                    | 0.001                  | 0.023                                    |                | -0.20          | 0.20                   | 625.00            | 374.25                             |      | 1,00         | 3.43         | 225.23           | 150.15           |
| Dsgn. L = 39,00 ft<br>Dsgn. L = 3,50 ft    | 2<br>3               | 0.190<br>0.003         | 0.023<br>0.004                           | 33. <b>O</b> 1 | -1.08<br>-1.08 | 33.01<br>1.08          | 289.61<br>625.00  | 173. <b>4</b> 2<br>374.25          |      | 1,00<br>1,00 | 3,47<br>0.62 | 225.23<br>225.23 | 150.15<br>150.15 |
| +D+0.750L+O.750S+0.5                       |                      | 0.003                  | 0.004                                    |                | -1.00          | 1.00                   | 920.00            | 314.23                             | 1.00 | 1,00         | V.02         | 223.23           | 130,19           |
| Dsgn. L = 1.50 ft                          | 1                    | 0.001                  | 0.023                                    |                | -0.20          | 0.20                   | 625.00            | 374.25                             | 1.00 | 1.00         | 3,43         | 225,23           | 150.15           |
| Dsgn. L = 39.00 ft                         | 2                    | 0.190                  | 0.023                                    | 33. <b>O</b> 1 | -1.08          | 33.01                  | 289.61            | 173.42                             |      |              | 3.47         | 225,23           | 150.15           |
| Dsgn. L = 3.50 ft<br>+D+0,750L+O,750S+0,5  | 3<br>250E4H 11 Con   | 0.003                  | 0.004                                    |                | -1.08          | 1.08                   | 625.00            | 374.25                             | 1.00 | 1.00         | 0.62         | 225,23           | 150.15           |
| Dsgn. L = 1.50 ft                          | 1                    | 0.001                  | 0.023                                    |                | -0.20          | 0.20                   | 625.00            | 374.25                             | 1.00 | 1.00         | 3.43         | 225.23           | 150,15           |
| Dsgn. L = 39.00 ft                         | 2                    | 0.190                  | 0.023                                    | 33. <b>O</b> 1 | -1.08          | 33.01                  | 289.61            | 173.42                             | 1.14 | 1.00         | 3.47         | 225,23           | 150.15           |
| Dsgn. L = 3.50 ft                          | 3                    | 0.003                  | 0.004                                    |                | -1.08          | 1.08                   | 625.00            | 374.25                             | 1.00 | 1.00         | 0.62         | 225.23           | 150.15           |
| +D+0.750L+O.750S+0.5<br>Dsgn, L = 1.50 ft  | 250E+H, LL Con<br>1  | 0.001                  | 0.023                                    |                | -0.20          | 0.20                   | 625.00            | 374.25                             | 1.00 | 1.00         | 3.43         | 225.23           | 150.15           |
| Dsgn. L = 39.00 ft                         | 2                    | 0.190                  | 0.023                                    | 33.Q1          | -1.08          | 33.01                  | 289.61            | 173,42                             | 1.14 |              | 3.47         | 225.23           | 150.15           |
| Dsgn, L = 3.50 ft                          | 3                    | 0.003                  | 0.004                                    |                | -1.08          | 1.08                   | 625.00            | 374.25                             |      | 1.00         | 0.62         | 225,23           | 150.15           |
| +0.60D+0.60W+0.60H                         |                      | 0.000                  | 0.041                                    |                | 0.40           | 0.40                   | 005.00            | 974.676                            | 4.60 | 4.00         | 0.00         | 005.00           | 450.45           |
| Dsgn. L = 1.50 ft<br>Dsgn. L = 39.00 ft    | 1<br>2               | 0.000<br>0.114         | 0.014<br>0.014                           | 19.81          | -0.12<br>-0.65 | 0.12<br>19.81          | 625.00<br>289.61  | 374.25<br>173.42                   |      | 1.00<br>1.00 | 2,06<br>2,08 | 225,23<br>225,23 | 150,15<br>150,15 |
| Dsgn. L = 3.50 ft                          | 3                    | 0.002                  | 0.002                                    | ,0.01          | -0.65          | 0.65                   | 625.00            | 374.25                             | 1.00 |              | 0.37         | 225,23           | 150.15           |
| +0.60D+0.70E+0.60H                         |                      |                        |                                          |                |                |                        |                   |                                    |      |              |              |                  |                  |
| Dsgn, L = 1.50 ft                          | 1<br>2               | 0.000                  | 0.014                                    | 40.04          | -0.12          | 0.12                   | 625.00            | 374.25                             |      | 1.00         | 2.06         | 225,23           | 150.15           |
| Dsgn, L = 39.00 ft<br>Dsgn, L = 3.50 ft    | 3                    | 0.114<br>0.002         | 0.014<br>0.002                           | 19.81          | -0.65<br>-0.65 | 19.81<br>0.65          | 289.61<br>625.00  | 173. <b>4</b> 2<br>374. <b>2</b> 5 | 1.14 |              | 2.08<br>0.37 | 225,23<br>225,23 | 150,15<br>150,15 |
| Overali Maxim                              | •                    |                        | 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1 |                |                | 4.50                   | -20000            | J,V                                |      |              | -141         |                  | 12410            |
| Load Combination                           | min Pellecf          | Span                   | Max. "-" Def                             |                | in Span        | Load Com               | hination          |                                    |      | May          | . "+" Defi   | Location         | In Span          |
| Page Countillidition                       |                      | 1                      | 0.0000                                   |                | 0,000          | +D+Lr+l                |                   |                                    |      | 141627       | -0.1141      |                  | 0.000            |
| +D+1.F+H                                   |                      | 2                      | 0.9364                                   |                | 9,500          | ייטיטיי                |                   |                                    |      |              | 0.0000       |                  | 0.000            |
|                                            |                      | 3                      | 0.0000                                   |                | 9,500          | +D+Lr+H                |                   |                                    |      |              | -0.2649      |                  | 3.5 <b>O</b> 0   |

Genesis Solar Heavy Equipment Covered Parking  $\begin{array}{c} 30 \\ \text{Project ID:} \end{array}$ 

Printed: 3 MAR 2017, 10:51Ak-1

Steel Beam

ENERCALC, INC. 1983-2017, Build:6.17.2.28, Ver:6.17.2.28

LICALARWEGG003939

Description: Beam B3

| Vertical Reactions                                                       | and the same of th |                  | Support notation : Far left is #1 | Values in KIPS |
|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------------------------------|----------------|
| Load Combination Su                                                      | ipport 1 Support 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Support 3        | Support 4                         |                |
| Overall MAXimum                                                          | 12,106                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 13,357           |                                   |                |
| Overall MtNimum                                                          | -0.063                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -0.012           |                                   |                |
| +D+H                                                                     | 3.694                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4,094            |                                   |                |
| +D+L+H, LL Comb Run (**L)                                                | 3.694                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.094            |                                   |                |
| +D+L+H, LL Comb Run (*L*)                                                | 3.694                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.094            |                                   |                |
| +D+L+H, LL Comb Run (*LL)                                                | 3,694                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.094            |                                   |                |
| +D+L+H, LL Comb Run (L**)                                                | 3.694                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.094            |                                   |                |
| +D+L+H, LL Comb Run (L*L)                                                | 3.694                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.094            | ,                                 |                |
| +D+L+H, LL Comb Run (LL*)                                                | 3.694                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.094            |                                   |                |
| +D+L+H, LL Comb Run (LLL)                                                | 3.694                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.094            |                                   |                |
| +D+Lr+H, LL Comb Run (**L)<br>+D+Lr+H, LL Comb Run (*L*)                 | 3.631<br>11.494                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5,557            |                                   |                |
| +D+Lr+H, LL Comb Run (*LL)                                               | 11.431                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 11,894<br>13,357 |                                   |                |
| +D+Lr+H, LL Comb Run (L**)                                               | 4,306                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.082            |                                   |                |
| +D+Lr+H, LL Comb Run (L*L)                                               | 4,243                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 5.545            |                                   |                |
| -D+Lr+H, LL Comb Run (LL*)                                               | 12,106                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 11,882           |                                   |                |
| +D+Lr+H, LL Comb Run (LLL)                                               | 12,043                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 13.345           |                                   |                |
| *D+S+H                                                                   | 3,694                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.094            |                                   |                |
| +D+0.750Lr+0.750L+H, LL Comb Run (*                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5.191            | •                                 | •              |
| +D+0.750Lr+0.750L+H, LL Comb Run (*                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 9.944            |                                   |                |
| +D+0.750Lr+0.750L+H, LL Comb Run (*                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 11,041           |                                   |                |
| +D+0.750Lr+0.750L+H, LL Comb Run (L                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4.085            | •                                 |                |
| +D+0.750Lr+0.750L+H, LL Comb Run (L                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5.182            |                                   |                |
| +D+0.750Lr+0.750L+H, LL Comb Run (L                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 9.935            |                                   |                |
| +D+0.750Lr+0.750L+H, LL Comb Run (L                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 11.032           |                                   |                |
| ++D+0.750L+0.750S+H, LL Comb Run (**                                     | 3.694                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.094            |                                   |                |
| +-D+0.750L+0.750S+H, LL Comb Run (*L                                     | . 3.694                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4.094            |                                   |                |
| +D+0.750L+0.750\$+H, LL Comb Run (*L                                     | . 3.694                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4.094            | I .                               |                |
| +D+0.750L+0.750S+H, LL Comb Run (L'                                      | 3.694                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.094            |                                   |                |
| +D+0.750L+0.750S+H, LL Comb Run (L'                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4.094            |                                   |                |
| +D+0.750L+0.750S+H, Lt. Comb Run (Ll                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4.094            |                                   |                |
| +D+0.750L+0.750S+H, LL Comb Run (LI                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4.094            | ·                                 | •              |
| +D+0.60W+H                                                               | 3.694                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.094            |                                   |                |
| 4-D-10.70E-H                                                             | 3,694                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.094            |                                   |                |
| +D+0.750Lr+0.750L+0.450W+H, LL Com                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5.191            |                                   |                |
| +D+0.750Lr+0.750L+0.450W+H, LL Com                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 9.944            |                                   |                |
| +D+0.750Lr+0.750L+0.450W+H, LL Com                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 11.041           |                                   |                |
| +D+0.750Lr+0.750L+0.450W+H, LL Com                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4.085            |                                   |                |
| +D+0.750Lr+0.750L+0.450W+H, LL Com<br>+D+0.750Lr+0.750L+0.450W+H, LL Com |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5.182<br>9.935   |                                   |                |
| +D+0.750Lr+0.750L+0.450W+H, LL Com                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 11.032           |                                   |                |
| +D+0.750L+0.750S+0.450W+H, LL Com                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4.094            |                                   |                |
| +D+0.750L+0.750S+0.450W+H, LL Com                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4.094            |                                   |                |
| +D+0.750L+0.750S+0.450W+H, LL Com                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4.094            |                                   |                |
| +D+0.750L+0.750S+0.450W+H, LL Com                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4.094            |                                   |                |
| +D+0.750L+0.750S+0.450W+H, LL Com                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4.094            |                                   |                |
| +D+0.750L+0.750S+0.450W+H, LL Com                                        | 3.694                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.094            |                                   |                |
| -+D+0.750L+0.750S+0.450W+H, LL Com                                       | 3.694                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.094            |                                   |                |
| +D+0.750L+0.750S+0.5250E+H, LL Сол                                       | 3.694                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.094            |                                   | •              |
| -t-D+0.750L+0.750S+0.5250E+H, LL Con                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4.094            |                                   |                |
| +D+0.750L+0.750S+0.5250E+H, LL Con                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4.094            |                                   |                |
| +D+0.750L+0.750S+0.5250E+H, LL Con                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4.094            |                                   |                |
| +D+0.750L+0.750S+0.5250E+H, LL Сол                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4.094            |                                   |                |
| +D+0.750L+0.750S+0.5250E+H, LL Con                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4.094            |                                   |                |
| +D+0.750L+0.750S+0.5250E+H, LL Con                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4.094            |                                   |                |
| +0.60D+0.60W+0.60H                                                       | 2.217                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2,456            |                                   |                |
| +0.60D+0.70E+0.60H                                                       | 2.217                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2.456            |                                   |                |
| D Only                                                                   | 3.694                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.094            |                                   |                |
| Lr Only, LL Comb Run (**L)<br>Lr Only, LL Comb Run (*L*)                 | -0.063<br>7.800                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.463<br>7.800   |                                   | •              |
| Er Only, Lt. Comb Run ("L")<br>Er Only, Lt. Comb Run ("LL)               | 7.737                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 7.800<br>9.263   |                                   |                |
| Er Only, LL Comb Run (LL*)<br>Er Only, LL Comb Run (L**)                 | 7.737<br>0.612                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 9.263<br>-0.012  |                                   |                |
| Lr Only, LL Comb Run (L*L)                                               | 0.549                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1.451            |                                   |                |
| Er Only, LL Comb Run (LL*)                                               | 8.412                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 7.788            |                                   |                |
| er only an oomer rounder /                                               | 0.412                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1.100            |                                   |                |



B.G. Structural Engineering, Inc. 75-175 Merle Drive Palm Desert, CA. 92211 Phone: 1-760-568-3553 Fax: 1-760-568-5681

Project Title: Engineer: Project Descr: Genesis Solar Heavy Equipment Covered Parking  $\frac{31}{\text{Project |D:}}$  800.0617

Printed, 3 MAR 2017, 10:51AM

Beam B3 Description:

| Vertical Reactions           |           |           | i.f       | Support notation: Far left is #1 | Values in KIPS |
|------------------------------|-----------|-----------|-----------|----------------------------------|----------------|
| Load Combination             | Support 1 | Support 2 | Support 3 | Support 4                        |                |
| Lr Only, I.I. Comb Run (LLL) |           | 8.349     | 9.251     |                                  |                |
| L Only, LL Comb Run (**L)    |           |           |           |                                  |                |
|                              |           |           |           |                                  |                |

L Only, LL Comb Run ("L")
L Only, LL Comb Run ("L")
L Only, LL Comb Run ("L")
L Only, LL Comb Run (L")
L Only, LL Comb Run (L")
L Only, LL Comb Run (L")

L Only, LL Comb Run (LLL)

S Only

W Only

E Only

H Only

# **USGS** Design Maps Summary Report

#### **User-Specified Input**

Report Title Genesis Solar

Fri March 3, 2017 19:21:41 UTC

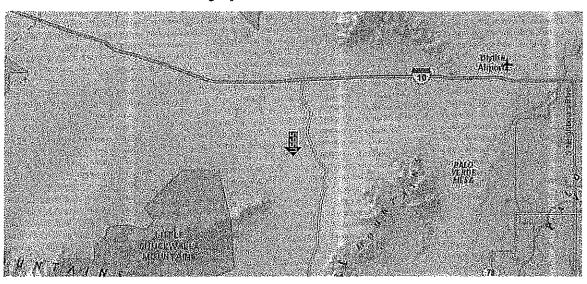
Building Code Reference Document 2012/2015 International Building Code

(which utilizes USGS hazard data available in 2008)

Site Coordinates 33.5594°N, 114.9111°W

Site Soil Classification Site Class D - "Stiff Soil"

Risk Category I/II/III



#### **USGS-Provided Output**

$$S_s = 0.524 g$$

$$S_{MS} = 0.724 g$$

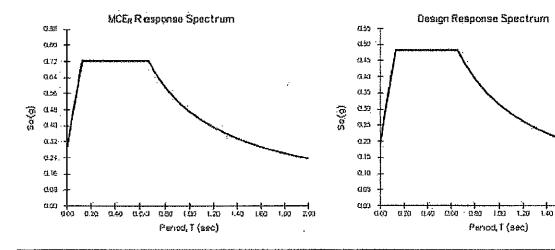
$$S_{ps} = 0.483 g$$

$$S_1 = 0.248 g$$

$$S_{M1} = 0.472 g$$

$$S_{D1} = 0.314 g$$

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.



Although this information is a product of the U.S. Geological Survey, we provide no warranty, expressed or implied, as to the accuracy of the data contained therein. This tool is not a substitute for technical subject-matter knowledge.

#### MecaWind Pro v2.2.7.5 per ASCE 7-10

Developed by MECA Enterprises, Inc. Copyright www.mecaenterprises.com

: 3/6/2017 Date Project No. : 800.0617 Company Name : B.G. Structural Engineering, I Address : 75-175 Merle Drive Designed By : BG : Genesis Solar - Low Roof Description : Palm Desert Customer Name : City Proj Location : Blythe, CA. State : CA. File Location: J:\Jobs\800\800.0617 Heavy Equipment Covered Parking\800.0617 Wind 2 Low Roof.wnd

#### Input Parameters: Envelope Procedure per ASCE 7-10 Chapter 28 Part 1

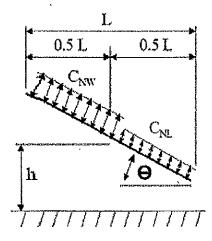
| Basic Wind Speed(V)     | -   | 110.00 mph |                       |    |           |
|-------------------------|-----|------------|-----------------------|----|-----------|
| Structural Category     | Ħ   | II         | Exposure Category     | =  | С         |
| Natural Frequency       | Ħ   | n/a        | Flexible Structure    | =  | No        |
| Importance Factor       | =   | 1.00       | Kd Directional Factor | æ  | 0.85      |
| Alpha                   | =   | 9.50       | Zg                    | •  | 900.00 ft |
| At                      | =   | 0.11       | · Bt                  | =  | 1.00      |
| Am                      | =   | 0.15       | 13m                   | 퍾  | 0.65      |
| Ce                      | =   | 0.20       | 1                     | =  | 500.00 ft |
| Epsilon                 | =   | 0.20       | Zmin                  | =  | 15.00 Et  |
| Pitch of Roof           | tz. | 0.25 : 12  | Slope of Roof(Theta)  | 23 | 1.19 Deg  |
| D: Roof Len along Ridge | =   | 200,00 ft  | L: Horizontal Width   | =  | 12.00 ft  |
| h: Mean Roof Ht         | Ď2  | 12.00 ft   | Type of Roof          | =  | MONOSLOPE |
|                         |     |            |                       |    |           |

#### Gust Factor Calculations

Gust Factor Category I Rigid Structures - Simplified Method Gust1: For Rigid Structures (Nat. Freq.>1 Hz) use 0.85 ~ 0.85

Gust Factor Summary
Not a Flexible Structure use the Lessor of Gust1 or Gust2  $\,=\,$  0.85

Open Building-Monoslope Roof per Figure 27.4-4:



Normal to Ridge - Open Building - Monoslope Roof per Figure 27.4-4:

Gamma = 0 degrees, Obstructed Wind Flow

| Load<br>Case | CUM              |        | Windward Wind<br>psf |             | Wind Pres.<br>psf |
|--------------|------------------|--------|----------------------|-------------|-------------------|
| A<br>B       | -0.500<br>-1.100 | -1.200 | -5.699               | -13.<br>-6. | •                 |

Normal to Ridge - Base Reactions - Roof +GCpi

| Dest       | ription     |                 |              |     | Fy<br>Kip |               |              |    |      |
|------------|-------------|-----------------|--------------|-----|-----------|---------------|--------------|----|------|
|            | vard<br>ard | -13.68          |              | .00 |           |               |              |    | .(   |
| Total      |             | .00             |              |     | 0.97      | 23.25         | -2.8         | .0 |      |
|            | ription     |                 |              |     | Kip       |               |              |    |      |
|            |             |                 |              |     |           |               |              |    | K-EC |
|            |             | -12.54          | 1201         | .00 | 0.63      | 15.05         | 30.1         | .0 |      |
| Roof Leewa | yard<br>ird | -12.54<br>-6.84 | 1201<br>1201 | .00 | 0.63      | 15.05<br>8.21 | 30.1<br>-8.2 | .0 |      |

0, 0, 0, 00, 00, 0 00.

Notes - Normal to Ridge Normal to Eave - Open Building - Monoslope Roof per Figure 27.4-4:

Gamma = 180 degrees, Obstructed Wind Flow

Total

| Load<br>Case | Caw   |        | psf     | Leeward Wind Pres.<br>psf |
|--------------|-------|--------|---------|---------------------------|
| A            | 0.500 | -1.200 | ~5.699  | -13.679                   |
| B            | 1.100 | -0.600 | -12.539 | -6.839                    |

Normal to Eave - Base Reactions - Roof +GCpi

| Description                   | Press<br>psf    | Area<br>ft^2 | Fx<br>Kip | Fy<br>Kip    | Fz<br>Kip     | Mx<br>K-£t      | My<br>K-£t | Mz<br>K-Ét |
|-------------------------------|-----------------|--------------|-----------|--------------|---------------|-----------------|------------|------------|
| Roof Windward<br>Roof Leeward | -5.70<br>-13.68 | 1200<br>1200 | .00       | 0.01<br>0.02 | 6.84<br>16.41 | 342,1<br>-820.5 | , 0<br>, 0 | .0         |
| Total                         | .00             | 2400         | .00       | 0.03         | 23.25         | -478.4          | .0         | .0         |

Normal to Eave - Base Reactions - Roof -GCpi

| Description                   | Press<br>psf    | Area<br>ft^2 | Fx<br>Kip  | Fy<br>Kip    | Fz<br>Kip     | Mx<br>K-ft      | My<br>K-ft | Mz<br>K-Et |
|-------------------------------|-----------------|--------------|------------|--------------|---------------|-----------------|------------|------------|
| Roof Windward<br>Roof Leeward | -12.54<br>-6.84 | 1200<br>1200 | .00<br>.00 | 0.02<br>0.01 | 15.05<br>8.21 | 752.6<br>-410.2 | .0         | .0         |
| Total                         | .00             | 2400         | .00        | 0.03         | 23.25         | 342.3           | .0         | .0         |

Normal to Eave - Base Reactions - Roof MIN

| Description I | psf | Area*<br>ft^2 | Fx<br>Kip | Fy<br>Kip | Fz<br>Kip | Mx<br>K-ft | My<br>K-ft | Mz<br>K-ft |
|---------------|-----|---------------|-----------|-----------|-----------|------------|------------|------------|
|               |     |               |           | .00       |           |            |            |            |

Notes - Normal to Eave Along Ridge - Open Building - Monoslope Roof per Figure 27.4-4:

Gamma = 90 degrees, Obstructed Wind Flow

Length Along Roof Angle Load Cn Wind Press Along Ridge Ridge of Roof (Theta) Case psf psf

|                |           |     |   |        | *****   |  |
|----------------|-----------|-----|---|--------|---------|--|
| <= 12.0        | Theta<=45 | deg | A | -1,200 | -13.679 |  |
|                |           | •   | В | 0.500  | 5.699   |  |
| >12.0&<=2*12.0 | Theta<=45 | deg | A | -0.900 | -10.259 |  |
|                |           |     | В | 0.500  | 5.699   |  |
| >2*12          | Theta<=45 | deg | A | -0.600 | -6.839  |  |
|                |           |     | B | 0.300  | 3.420   |  |

#### Along Ridge - Base Reactions - Roof +GCpi

| Description                             | Press<br>ps£              | Area<br>ft^2          | Fx<br>Kip         | Fy<br>Kip            | Fz<br>Kip                | Mx<br>K-ft | My<br>K-ft                   | Mz<br>K-ft         |
|-----------------------------------------|---------------------------|-----------------------|-------------------|----------------------|--------------------------|------------|------------------------------|--------------------|
| Roof (0 to h) Roof (h to 2h) Roof (>2h) | -13.68<br>-10.26<br>-6.84 | 1272<br>1272<br>18656 | .00<br>.00<br>.00 | 0.04<br>0.03<br>0.30 | 17.40<br>13.05<br>127.59 |            | -1635.5<br>-1070.1<br>1531.1 | 3.9<br>2.5<br>-3.6 |
| Total                                   | ,00                       | 21200                 | .00               | 0.37                 | 158.04                   | 7432.5     | -1174.5                      | 2.8                |

#### Along Ridge - Base Reactions - Roof -GCpi

| Description                  | Press<br>psf | Area<br>ft^2 | Fx<br>Kip | Fy<br>Kip      | Fz<br>Kip | Mx<br>K-ft       | My<br>K-ft     | Mz<br>K-£t   |
|------------------------------|--------------|--------------|-----------|----------------|-----------|------------------|----------------|--------------|
| Roof (0 to h) Roof (h to 2h) | 5.70<br>5.70 | 1272         | .00       | -0.02<br>-0.02 |           | -340.9<br>-340.9 | 681.5<br>594.5 | -1.6<br>-1.4 |
| Roof (>2h)                   | 3.42         | 18656        | .00       | -0.15          |           | -3000.3          | -765.6         | 1.8          |
| Total                        | .00          | 21200        | .00       | ~0,18          | ~78.30    | -3682.2          | 510.4          | -1.2         |

#### Along Ridge - Base Reactions - Roof MIN

| Description | - | Area*<br>ft^2 | <b>Гж</b><br>Кі. <b>1</b> 0 | Fy<br>Kip | Fz<br>Kip | M×<br>K-ft | My<br>K-£t | Mz<br>K-ft |
|-------------|---|---------------|-----------------------------|-----------|-----------|------------|------------|------------|
| Total       |   |               |                             |           |           |            |            |            |

#### Notes - Along Ridge Total Base Reaction Summary

| Description                | Fx<br>Kip | Fy<br>Kip | Fz<br>Kip | Moc<br>K-ft | My<br>K-ft | Mz<br>K-ft |
|----------------------------|-----------|-----------|-----------|-------------|------------|------------|
| Normal to Ridge Roof +GCpi | .0        | 1.0       | 23.3      | -2.8        | .0         | .0         |
| Normal to Ridge Roof -GCpl | .0        | 1.0       | 23.3      | 21.9        | .0         | .0         |
| Normal to Ridge Roof MIN   | .0        | .0        | .0        | .0          | .0         | .0         |
| Normal to Eave Roof +GCpi  | .0        | 0.0       | 23.3      | -478.4      | .0         | . 0        |
| Normal to Eave Roof -GCpi  | .0        | 0.0       | 23.3      | 342.3       | .0         | .0         |
| Normal to Eave Roof MIN    | . 0       | . 0       | . a       | .0          | .0         | .0         |
| Along Ridge Roof +GCpi     | .0        | 0.4       | 158,0     | 7432.5      | -1174.5    | 2.8        |
| Along Ridge Roof -GCpi     | .0        | -0.2      | -78.3     | -3682.2     | 510.4      | -1.2       |
| Along Ridge Roof MIN       | .0        | .0        | .0        | .0          | .0         | .0         |

#### Notes Applying to MWFRS Reactions:

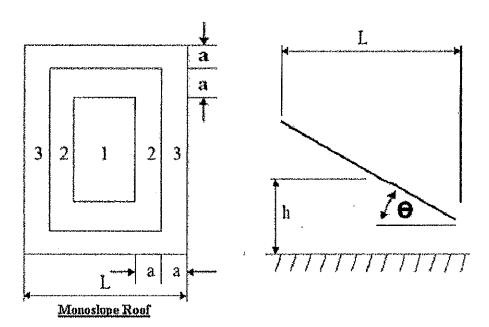
- Note (1) Cnw- Net Press (contrib from top and bottom surf) for windward roof surf. Note (2) Cnl- Net Press (contrib from top and bottom surf) for leeward roof surf.
- Note (3)
- Note (4)
- Cn- Net Press (contributions from top and bottom surfaces).

  + = Pressure acting toward surface, = Pressure acting away from surface.

  Per Fig 27.4-1, Note 9, Use greater of Shear calculated with or without roof.

  X= Along Building ridge, Y = Normal to Building Ridge, Z = Vertical Note (5)
- Note (6)
- Note (7) MIN = Minimum pressures on Walls = 9.6 psf and Roof = 4.8 psf Note (8) MIN area is the area of the surface onto a vertical plane normal to wind. Note (9) Total Roof Area (incl OH Top) = 3600.78 sq. ft

Wind Pressure on Components and Cladding (Ch 30 Part 5)



All pressures shown are based upon ASD Design, with a Load Factor of .6

Width of Pressure Coefficient Zone "a" = 3.00 ft

| Description | Width<br>ft | Span<br>£t | Area Zone<br>ft^2 | Cn<br>Max | Cn<br>Min | Ma⊃c P<br>ps £ | Min P<br>psf |
|-------------|-------------|------------|-------------------|-----------|-----------|----------------|--------------|
| *********** |             |            |                   |           |           |                |              |
| Zone 1      | 1.00        | 2.00       | 1.0 1             | 0.55      | -1.28     | 9.60           | -14.59       |
| Zone 2      | 1,00        | 1.00       | 1.0 2             | 0.86      | -1.93     | 9.84           | -21.97       |
| Zone 3      | 1.00        | 1.00       | 1.0 3             | 1.10      | -3.84     | 12.49          | -43.76       |
| Zone 4      | 1.00        | 1.00       | 1.0 1             | 0.55      | -1.28     | 9,60           | -14.59       |
| Zone 5      | 1.00        | 1.00       | 1.0 1             | 0.55      | -1.28     | 9.60           | -14.59       |

# <u>Project Name: Genesis Solar Heavy Equipment Covered Parking - Low Roof</u> Address: 11995 Wiley's Well Road, Blythe, CA

#### LOADS:

Roof 1:

DEAD LOADS:

Pitch = 0.25:12

Steel Decking

3.00 PSF

Misc.

2.00

DL= Slope Correction =

5.00 PSF 1.00

5.00 PSF

DL=

LL= 20.00 PSF TL= 25.00 PSF

WALLS:

Exterior Wall:

**DEAD LOADS:** 

Steel Decking

3.00 PSF

Girts

3.00 1.00

Misc.

7.00 PSF DL=

# Project Name: Genesis Solar Heavy Equipment Covered Parking - Low Roof - 80

Address: 11995 Wiley's Well Road, Blythe, CA

#### LATERAL LOADING

2015 CBC SEISMIC

Ht. Abv.Gnd.(Ft) = 12

**|= 1.00** 

"R" Factor = 2.5 Site Class = C

Latitude = 33,559

Longitude = -114.911

Cu = 1.4

 $C_1 = 0.02$ 

x = 0.75

Ta = 0.129

 $T_L = 8$ 

 $\rho = 1.3$ 

Occupancy Catetory = II

 $S_S = 0.524$ 

Fa = 1.1904

 $S_{DS} = 0.416$ 

SDC  $(S_{Ds}) = C$ 

 $S_1 = 0.248$ 

Fv = 1.552

 $S_{D1} = 0.257$ 

 $SDC(S_{D1}) = D$ 

USE: SDC = D

**BASE SHEAR** 

Per ASCE7 Eq. 12.8-2

 $C_s = 0.166$ 

**GOVERNS** 

Not to exceed-

Per ASCE7 Eq. 12.8-3

Per ASCE7 Eq. 12.8-5

 $C_s = 0.796$ 

Not less than-

 $C_s = 0.010$ 

0.166 STRENGTH DESIGN

0.119 WORKING STRESS DESIGN

(DIVIDE BY 1.4)

Use- 0.010

| Level   | Wpx    | Hi  | Wi*Hi    | %     | Vi    | ρVi   | Α    | ρVI (psf) |
|---------|--------|-----|----------|-------|-------|-------|------|-----------|
| RF      | 22.70K | 12' | 272.4 'K | 1.000 | 2.70  | 3.51  | 3542 | 0.99      |
|         |        |     |          |       |       |       | •    |           |
| Totals= | 22.70K |     | 272.4 'K | 1.000 | 2.70K | 3.51K |      |           |

## Project Name: Genesis Solar Heavy Equipment Covered Parking - Low Roof - 80

.Address: 11995 Wiley's Well Road, Blythe, CA

#### 2015 CBC WIND

Max. Wind Load = 14.53 psf

(Refer to wind load calcs.attached)

USE Wind Unit Load = 18psf

#### N/S Direction:

#### Wind Areas:

| Level =   | RF    |   |  |
|-----------|-------|---|--|
| (Sq. Ft.) |       |   |  |
| A1        | 88.00 |   |  |
| A2        | 0.00  | • |  |
| A3        | 0.00  |   |  |
| A4        | 0,00  |   |  |

#### Wind Force:

| Level = | RF   |     |          |
|---------|------|-----|----------|
| (Lbs.)  |      | · · | <u> </u> |
| FA1     | 1584 |     |          |
| F A2    | 0    |     |          |
| F A3    | 0    |     |          |
| F A4    | 0    |     |          |
| Total = | 1584 | 0   | 0        |

1.58K

**SEISMIC GOVERNS** 

#### E/W Direction:

#### Wind Areas:

| Level =   | RF     |   |
|-----------|--------|---|
| (Sq. Ft.) |        | 1 |
| A1        | 644.00 |   |
| A2        | 0.00   |   |
| A3        | 0.00   |   |
| A4        | 0.00   | } |

#### Wind Force:

| Level = | RF    |   |   |
|---------|-------|---|---|
| (Lbs.)  |       |   |   |
| FA1     | 11592 |   |   |
| FA2     | 0     | 1 |   |
| FA3     | 0     |   |   |
| FA4     | 0     |   |   |
| Total = | 11592 | 0 | ก |

11.59K

WIND GOVERNS

#### **SEISMIC WEIGHTS:**

#### SEISMIC AREAS (sq. ft.)

|            | RF1    | RF2                                     | RF3   | RF4      |          |   |                 |
|------------|--------|-----------------------------------------|-------|----------|----------|---|-----------------|
|            |        | , ,, ,,,,                               |       | 1        | 1        |   |                 |
|            | 3542.0 | 0.0                                     | 0.0   |          |          |   |                 |
|            |        | 0.0                                     | 0.0   | 1        |          |   |                 |
|            |        | , , , , , , , , , , , , , , , , , , , , | 0.0   | [        | 1        |   | 1               |
|            |        |                                         |       | 1        |          |   |                 |
|            |        |                                         |       | T        |          | 1 |                 |
|            |        |                                         |       | 1        | 1        |   |                 |
|            |        |                                         |       | 1        |          | i |                 |
|            |        |                                         |       |          |          |   |                 |
|            |        | **************                          |       |          |          |   |                 |
|            |        |                                         |       |          |          |   | <del></del>     |
|            |        |                                         |       | <u> </u> |          |   |                 |
|            |        | ··· v: *                                |       |          | 1        | l | <u> </u>        |
|            |        |                                         | -     |          |          |   | <del></del>     |
|            |        |                                         |       | <u></u>  | ļ        |   | ·               |
|            | ·····  |                                         |       | <u> </u> |          |   |                 |
|            |        |                                         |       | <b></b>  |          |   |                 |
|            | ·      |                                         |       | <b></b>  |          |   | <u> </u>        |
|            |        |                                         |       |          |          |   | <del>  , </del> |
| OTAL =     | 3542   | Ö                                       | 0     | l 0      | 0        | 0 | 0               |
| TO TAL = [ | 3842   | U                                       | · · · | <u> </u> | <u> </u> | Ų | l V             |

#### **SEISMIC WEIGHTS:**

| RF          | Α    | w (psf) | Wi    |
|-------------|------|---------|-------|
| Roof 1:     | 3542 | 5.00    | 17714 |
| Roof 2:     | 0 .  | 0.00    | 0     |
| Roof 3:     | Ö    | 16.00   | 0     |
| Roof 4:     | 0    | 21.00   | 0     |
| Ext. Walls: | 712  | 7.00    | 4.984 |
| Int. Walls: | Ô    | 0,00    | 0     |

Roof Total = 22,698 lbs.

# Exterior Walls:

| RF |         |       |    |
|----|---------|-------|----|
| Н  | L       | Α     | ]  |
| 4  | 178     | 712.0 | 1  |
| Q  | 0       | 0.0   |    |
| 0  | 0       | 0.0   | 1  |
|    |         | 0.0   | 1  |
|    | TOTAL = | 712   | ۳, |

#### Interior Walls:

| <u>RF</u> |          |     |   |
|-----------|----------|-----|---|
| Н         | <u>L</u> | Α   | ] |
| 0         | 0        | 0.0 | ٦ |
| Ó         | 0        | 0,0 | 1 |
| 0         | 0        | 0.0 |   |
|           |          | 0.0 |   |
|           | TOTAL =  | 0   | 7 |

2032 2664 0 0 3154 3154 3154 3161 3161 1758 | Upliff LC = 0.6D+7E = 0.6D+0.7(o^\*CQ=-0.2\*Sds^4D) = 0.6D-0.14\*Sds^\*D+0.7\*o^\*CQ= RM D factor= 0.541782 | Addit | LS = 0.6D+0.7(o^\*CQ=-0.2\*Sds^4D) = 0.6D-0.14\*Sds^\*D+0.7\*o^\*CQ= RM D factor= 0.541787 | Addit | LS = 0.51 Cols | 2 | 10 | 17 | 0 | 12 | 5226 | 232 | 31 | Addit | LS = 0.51 Cols | 2 | 10 | 17 | 0 | 12 | 5226 | 232 | 31 | Addit | A 19123 23809 0 0 0 0 0 00 O 00 77 0 8 - Stl Cols 8 - Stl Cols 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 2,491 Sds= 0.42 1594 0 0 0 0 0 SHEAR WALLS: Level = RF Unit Load = 0.99 psf 1594 00 000 00 0000000 000 0 17tb. Area | 5 40 440 440 440 440 440 253 0 0 0 0 0 0 0 0 0 0 0 0 0 0000 8 8 2 **红缸在花帘** 2 2 2 3 < BOD M F O T ΣZ 0 a.ORO-

|                           | Use            | ΑΝ           | N/A          | N/A         | ΑX           | A/A          | A/N          | N/A          | N/A         | N/A  | NA   | AN<br>AN | AN   | ₹Z   | NA   | N/A  | NA   | N.   | N/A  | MIA  | S N | V/4V | 5      | POR STATE OF THE PROPERTY OF THE PARTY OF TH | NW           | ¥Z           | NA   | MA   | NA   | N/A  | NA   | N/A  | ΝΆ   | A/A  | A/N   | N/A        | Α/N  | N/A  | ΑN   | A/A  | NA   | NA   | NA   | NIA  | NA   | AN   | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------|----------------|--------------|--------------|-------------|--------------|--------------|--------------|--------------|-------------|------|------|----------|------|------|------|------|------|------|------|------|-----|------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|------|------|------|------|------|------|------|------|-------|------------|------|------|------|------|------|------|------|------|------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           | Uplift         | 13461        | 13461        | 13461       | 13469        | 13469        | 13469        | 13469        | 7740        | Ф    | 0    | 0        | 0    | 0    | þ    | 0    | 0    | 0    | 0    | Ì    | c   | 0    | - -    | And the second s | 818          | 1047         | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | O          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | ***************************************                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| o.67<br>Factored          | RM             | 287          | 287          | 287         | 273          | 273          | 273          | 273          | 273         | 0    | 0    | 0        | 0    | o    | 0    | 0    | 0    | c    | o    | c    | c   | 0    | ,      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4588         | 4588         | 0    | 0    | 0    | ٥    | C    | 0    | 0    | C    | O     | 0          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                           | OTM            | 21600        | 21600        | 21600       | 21600        | 21600        | 21600        | 21600        | 12528       | 0    | 0    | 0        | 0    | 0    | ٥    | 0    | 0    | 0    | 0    | 0    | ,   | 0    |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 10800        | 12528        | 0    | 0    | 0    | 0    | 0    | O    | 0    | ¢    | 0     | 0          | ¢    | ٥    | 0    | 0    | 0    | 0    | 0    | ٥    | 0    | 0    | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| ļ                         | ş              |              | 12           | 42          | 12           | 12           | 12           | 12           | 12          | 12   | \$   | 20       | 2    | 20   | 10   | 13   | 15   | 7-   | -    | *-   | (O) | 0    | ,      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 12           | 12           | 12   | 8    | 8    | æ    | 8    | 10   | 8    | 10   | 10    | G          | G    | 15   | 11   | 13   | 1.   | 11   | 11   | Ü    | 65   | 6    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Add"                      | s point load   | 0            | 0            | 0           | 0            | 0            | 0            | 0            | 0           | 0    | 0    | 0        | 0    | 0    | o    | 0    | 0    | 0    |      | -    | o   | , c  |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0            | 0            | 0    | 0    | ٥    | 0    | 0    | 0    | 0    | 0    | 0     | 0          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                           | Wwall (ps      | 17           | 17           | 17          | 17           | 13           | 17           | 17           | 17          | 17   | 17   | 17       | 17   | 17   | 17   | 17   | 42   | 1    | 12   | 12   |     |      |        | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 17           | 17           | 17   | 17   | 17   | 17   | 42   | 17   | 17   | 17   | 42    | <b>‡</b>   | 17   | 17   | 11   | 12   | 47   | 42   | 17   | 17   | 11   | 17   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                           | Wm (plf)       | 10           | 10           | Ç           | 0            | 0            | 0            | 0            | 0           | 0    | 0    | 0        | 0    | 0    | 0    | 0    | 0    | 0    | 0    | c    | 0   | -    | ,      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 10           | 9            | 5    | 0    | 0    | Ф    | Đ    | Ó    | Đ    | တ    | 0     | 0          | 0    | 0    | 0    | 0    | 0    | 0    | o    | P    | 0    | 0    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| HD segmen                 | length         | 2            | 7            | N           | 2            | 2            | 23           | 7            | 2           | 0    | 0    | 0        | 0    | o    | ¢    | ٥    | 0    | o    |      |      | 0   | c    | )      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 60           | 00           | C    | Ð    | 0    | o    | Ó    | Ó    | Ö    | Ď    | 0     | o          | 0    | 0    | Þ    | 0    | 0    | o    | 0    | 0    | 0    | 0    | manual and an area                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                           |                | 2 - Sti Cols | 2 - Sti Cols | 2 - St Cols | 2 - Sti Cols | 2 - St Cols | -    | *    | -        | -    | 1    | +    | -    | , .  | -    | 1    | -    | -   |      | -      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 8 - Stl Cols | 8 - Stl Cols | -    | Ļ    | 1    | 1    | ₩.   | •    | 1    | Ψ-   | Υ-    | <b>~</b> - | -    | +    | -    | _    | 1    | 1    | _    | _    | +    | -    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                           | v (pff)        | 0.006        | 900.0        | 9000        | 90000        | 900.0        | 900.0        | 900.0        | 522.0       | 0.0  | 0.0  | 0.0      | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 00   | 0.0 |      | 2      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 112.5        | 130.5        | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   | 0.0        | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0,0  | 0,0  | 0.0  | 0.0  | 0.0  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                           | Length(s) (ft) | 2.00         | 2.00         | 200         | 2.00         | 2.00         | 2,00         | 2.00         | 2.00        | 1.00 | 1.00 | 1.00     | 1,00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |     | 100  | 2      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 8.00         | 8.00         | 3.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1,00 | 1.00  | 1.00       | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1,00 | 1.00 | 1.00 | 1.00 | 1.00 | comments for a summer control of the summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                           | 8              | _            | 1800 j       | 1800        | 1800         | 1800         | 1800         | 1800         | 1044        | 0    | o    | 0        | , 0  | 0    | 0    | 0    | 0    | G    | 0    | 0    | 0   |      | )<br>} |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 900          | 1044         | 0    | o    | 0    | 0    | 0    | 0    | 0    | 0    | o     | 0          | 0    | 0    | a    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | A CHAPTER AND A STATE OF THE PARTY OF THE PA |
|                           | V Above (lbs)  |              |              | 0           |              |              | ĺ            | o            |             | 0    |      |          |      |      | 0    |      | ĺ    |      | İ    |      |     |      | 1      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | c            | 0            | 0    | 0    | 0    | ٥    | ٥    | 0    | o    | 0    | 0     | 0          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| if Loads:                 | hear (lbs)\    | 1800         | 1800         | 1800        | 1800         | 1800         | 1800         | 1300         | 1044        | 0    | 0    | 0        | 0    | o    | 0    | 0    | 0    | C    | 0    | 0    | 0   |      |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 900          | 1044         | 0    | 0    | o    | 0    | 0    | o    | 0    | 0    | o     | 0          | 0    | o    | 0    | 0    | 0    | 0    | 0    | φ    | 0    | 0    | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Wind Unit Loads:<br>18,00 | 2              | 100          |              |             |              | 1            |              | ;            | 28          | ı    | ı    |          | ı    | ł .  |      |      |      | ı    | 1    | 1    | 0   | 1    | ļ      | in the second second                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 50           | 58           | 0    | 0    | ¢    | 0    | 0    | 0    | C    | 0    | <br>Ф |            | ¢    | Ф    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | φ    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

PROJECT

Genesis Solar Heavy Equipment Covered Parking

ITEM

Lateral - Col. - Low Roof

# B.G. STRUCTURAL ENGINEERING

SHEET NO. 43

JOB NO. 800,0617

DATE Mar. 2017

ENGINEER BG

# LATERAL - Typical Columns - Low Roof

#### **INPUT:**

#### FORMULA:

$$F_{Seismic} = (1.4)(Seismic Load)(1/# of Columns) = 0.31 kips$$

$$F_{Wind} = (Wind Load)(1/\# \text{ of Columns}) = 0.90 \text{ kips}$$

$$M_O = (Governing Load)(H) = 10.80 \text{ kips-ft}$$

# USE: HSS 6x6x3/8

#### OMEGA:

$$F_{Omega} = (Governing Load)(1.25) = 1.13 kips$$

$$\mathbf{M}_{0, \text{Omega}} = (\mathbf{F}_{\text{Omega}})(\mathbf{H}) = 13.50 \text{ kips-ft}$$

$$\Delta_0 = (Actual Column Deflection)(2.5) = 2.97 in$$

$$\Delta_{A.Howable} = (0.025)(H)(12) = 3.60 in$$

$$\Delta = \Delta_0 < \Delta_{Allowable}$$
 OK

Genesis Solar Heavy Equipment Covered Parking 4 BG Project ID: 800.0617

Printed: 6 MAR 2017, 10:40AM

0.0ft above base.

Steel Column

File = s:\E0AEZR~G\86YX5A~F,EC6 ENERCALC, INC. 1983-2017, Build:6.17.2.28, Ver.6.17.2.28 Licensee BG STRUCTURAL ENGINEERING

Lic #: (KW/060039B9) Description:

Lateral - Typical Column - Low Roof

Code References

Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10

Load Combinations Used: IBC 2015

General Information

Steel Section Name: Analysis Method:

HSS6x6x3/8 Allowable Strength

Steel Stress Grade

Fy: Steel Yield E: Elastic Bending Modulus

46.0 ksi 19,000.0 ksi Overall Column Height Top & Bottom Fixity

12.0 ft Top Free, Bottom Fixed

Service loads entered. Load Factors will be applied for calculations.

Brace condition for deflection (buckling) along columns:

X-X (width) axis:

Unbraced Length for X-X Axis buckling = 12 fl, K = 2.1

Y-Y (depth) axis:

Unbraced Length for Y-Y Axis buckling = 12 ft, K = 2.1

Applied Loads

Column self weight included: 329,760 lbs \* Dead Load Factor

AXIAL LOADS ...

Axial Load at 12.0 ft, D = 1.580, LR = 5.039 k

BENDING LOADS . .

Lat. Point Load at 12.0 ft creating Mx-x, W = 0.90 k

DESIGN SUMMARY

Bending & Shear Check Results PASS Max. Axial+Bending Stress Ratio =

0.2012 : 1 Load Combination +D+0.60W+H Location of max.a bove base 0.0 ft At maximum location values are . . . Pa: Axial 1.910 k

Ma-x: Applied Mn-x / Omega: Allowable Ma-y: Applied

Pn / Omega: Allowable

Mn-y / Omega: Allowable

36.267 k-ft PASS Maximum Shear Stress Ratio = 0.009451 ; 1 Load Combination +D+0.60W+H 0.0 ft

Location of max.a bove base At maximum location values are . . . Va: Applied

Vn / Omega: Allowable

Maximum SERVICE Load Reactions...

Top along X-X 0.0 k Boltom along X-X  $0.0 \, k$ Top along Y-Y 0.0 k0.90 kBottom along Y-Y

Maximum SERVICE Load Deflections...

Along Y-Y 1.188 in al 12.0ft above base for load combination : W Only

Along X-X 0.0 in at for load combination:

Load Combination Results

| •                                   | Maximum Axial + | - Bending S | tress Ralios | Maximu       | m Shear R | atios    |
|-------------------------------------|-----------------|-------------|--------------|--------------|-----------|----------|
| Load Combination                    | Stress Ratio    | Status      | Localion     | Stress Ratio | Status    | Location |
| +D+H                                | 0.045           | PASS        | O,00 ft      | 0.000        | PASS      | 0.00 ft  |
| <del>+D+L+H</del>                   | 0.045           | PASS        | O.00 fl      | 0.000        | PASS      | 0.00 ft  |
| +D+Lr+H                             | 0.164           | PASS        | O.00 ft      | 0.000        | PASS      | 0.00 ft  |
| +D+S+H                              | 0.045           | PASS        | n 00.00      | 0.000        | PASS      | 0.00 ft  |
| +D+0.750Lr+0.750L+H                 | 0.134           | PASS        | O.00 ft      | 0.000        | PASS      | 0.00 ft  |
| +D+0.750L+0.750S+H                  | 0.045           | PASS        | O.00 ft      | 0.000        | PASS      | 0.00 ft  |
| +D+0.60W+H                          | 0.201           | PASS        | D,00 ft      | 0.009        | PASS      | 0.00 ft  |
| +D+0.70E+H                          | 0.045           | PASS        | O.00 ft      | 0.000        | PASS      | 0.00 ft  |
| +D+0.750Lr+0.750L+0.450W+H          | 0.201           | PASS        | O.00 ft      | 0.007        | PASS      | 0.00 ft  |
| +D+0.750L+0.750S+0.450W+H           | 0.157           | PASS        | O.00 ft      | 0.007        | PASS      | 0.00 ft  |
| +D+0.750L+0.750S+0.525 <b>OE</b> +H | 0.045           | PASS        | O.00 ft      | 0.000        | PASS      | 0.00 ft  |
| +0.60D+0.60W+0.60H                  | 0.192           | PASS        | O.00 ft      | 0.009        | PASS      | 0.00 tt  |
| +0.60D+0.70E+0.60H                  | 0.027           | PASS        | O.00 ft      | 0.000        | PASS      | 0.00 It  |

42.434 k

-6.480 k-fl

36.267 k-ft

0.540 k 57.137 k

0.0 k-ft



Genesis Solar Heavy Equipment Covered Parking 45 BG Project ID: 800.0617

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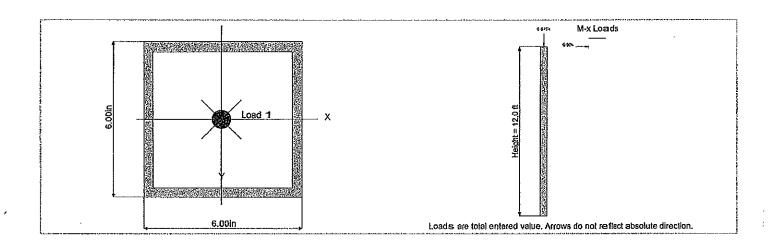
File # S:/E0AEZR-G9867X5A-F.EC6
ENERCALC, INC. 1983-2017, Build:617:228, Ver.6:17:228
ELECTION BIG STRUCTURAL ENGINEERING Steel Column Lic # - KW-06003989

Description: Lateral - Typical Column - Low Roof

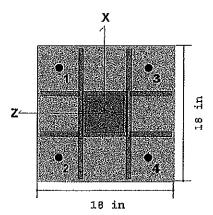
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | X-X Axis                                                                                                                                                                                                                                                                                                                                           | Y-Y Axls                                                                                                                                                                                                                                   | Reaction                                                                                                                          | Axial Reaction                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                             |                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|-----------------------|
| Load Combination                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | @ Base                                                                                                                                                                                                                                                                                                                                             | @ Тор                                                                                                                                                                                                                                      | @ Base                                                                                                                            | @ Top                                                                                                                                                                                                                                                                                                                                                                                                                                                            | @ Base                                      |                       |
| +D+H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                    | k                                                                                                                                                                                                                                          |                                                                                                                                   | k                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.910 k                                     |                       |
| ÷D+L+H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                    | k                                                                                                                                                                                                                                          |                                                                                                                                   | k                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.910 k                                     |                       |
| +D+Lr+H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                    | k                                                                                                                                                                                                                                          |                                                                                                                                   | k                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 6,949 k                                     |                       |
| +D+S+H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                    | k                                                                                                                                                                                                                                          |                                                                                                                                   | k                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.910 k                                     |                       |
| +D+0.750Lr+0.750L+H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                    | k                                                                                                                                                                                                                                          |                                                                                                                                   | k                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5.689 k                                     |                       |
| +D+0.750L+0.750S+H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                    | k                                                                                                                                                                                                                                          |                                                                                                                                   | k                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1,910 k                                     |                       |
| +D+0.60W-+H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    | k                                                                                                                                                                                                                                          | 0.540                                                                                                                             | k                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1,910 k                                     |                       |
| +D+0.70E+H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                    | k                                                                                                                                                                                                                                          |                                                                                                                                   | k                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1,910 k                                     |                       |
| +D+0.750Lr+0.750L+0.450W+H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                    | k                                                                                                                                                                                                                                          | 0.405                                                                                                                             | k                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5.689 k                                     |                       |
| +D+0.750L+0.750S+0.450W+H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                    | k                                                                                                                                                                                                                                          | 0.405                                                                                                                             | k                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1,910 k                                     |                       |
| +D+0.750L-+0.750S+0,5250E+H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                    | k                                                                                                                                                                                                                                          |                                                                                                                                   | k                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.910 k                                     |                       |
| +0.60D+0.60W+0.60H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                    | k                                                                                                                                                                                                                                          | 0.540                                                                                                                             | k                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.146 k                                     |                       |
| +0.60D+0.70E+0.60H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                    | k                                                                                                                                                                                                                                          |                                                                                                                                   | k                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.146 k                                     |                       |
| D Only                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                    | k                                                                                                                                                                                                                                          |                                                                                                                                   | k                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.910 k                                     |                       |
| Lr Only                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                    | k                                                                                                                                                                                                                                          |                                                                                                                                   | k                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5.039 k                                     |                       |
| L Only                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                    | k                                                                                                                                                                                                                                          |                                                                                                                                   | k                                                                                                                                                                                                                                                                                                                                                                                                                                                                | k                                           |                       |
| S Only                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                    | ` k                                                                                                                                                                                                                                        |                                                                                                                                   | k                                                                                                                                                                                                                                                                                                                                                                                                                                                                | k                                           |                       |
| W Only                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                    | k                                                                                                                                                                                                                                          | 0.900                                                                                                                             | k                                                                                                                                                                                                                                                                                                                                                                                                                                                                | k                                           |                       |
| E Only                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                    | k                                                                                                                                                                                                                                          |                                                                                                                                   | k                                                                                                                                                                                                                                                                                                                                                                                                                                                                | k                                           |                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                            |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                             |                       |
| H Only                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                    | k                                                                                                                                                                                                                                          |                                                                                                                                   | k                                                                                                                                                                                                                                                                                                                                                                                                                                                                | k                                           |                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Combinations                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                            |                                                                                                                                   | k                                                                                                                                                                                                                                                                                                                                                                                                                                                                | k                                           |                       |
| Maximum Deflections for Load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                            |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                             |                       |
| Maximum Deflections for Load (<br>Load Combination                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Max. X-X Deflection                                                                                                                                                                                                                                                                                                                                | Distance                                                                                                                                                                                                                                   | Max, Y-Y Defle                                                                                                                    | ction Distar                                                                                                                                                                                                                                                                                                                                                                                                                                                     | псе                                         |                       |
| Maximum Deflections for Load (<br>Load Combination<br>+D+H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Max. X-X Deflection<br>0.0000 in                                                                                                                                                                                                                                                                                                                   | Distance<br>0.000 ft                                                                                                                                                                                                                       | Max, Y-Y Defle<br>0,000                                                                                                           | ction Distar<br>in 0.000                                                                                                                                                                                                                                                                                                                                                                                                                                         | nce<br>ft                                   |                       |
| Maximum Deflections for Load (<br>Load Combination<br>+D+H<br>+D+L+H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Max. X-X Deflection<br>0.0000 in<br>0.0000 in                                                                                                                                                                                                                                                                                                      | Distance 0.000 ft 0.000 ft                                                                                                                                                                                                                 | Max, Y-Y Defle<br>0.000<br>0.000                                                                                                  | ction Distar<br>in 0.000<br>in 0.000                                                                                                                                                                                                                                                                                                                                                                                                                             | nce<br>ft<br>ft                             | NA 19-1               |
| Maximum Deflections for Load (  Load Combination  +D+H  +D+L+H  +D+L+H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Max. X-X Deflection<br>0.0000 in<br>0.0000 in<br>0.0000 in                                                                                                                                                                                                                                                                                         | Distance 0.000 ft 0.000 ft 0.000 ft                                                                                                                                                                                                        | Max, Y-Y Defle<br>0,000<br>0,000<br>0,000                                                                                         | ction Distar<br>in 0.000<br>in 0.000<br>in 0.000                                                                                                                                                                                                                                                                                                                                                                                                                 | nce<br>ft<br>ft                             | 4.470.000.400.400     |
| Maximum Deflections for Load (  Load Combination  +D+H  +D+L+H  +D+L+H  +D+Lr+H  +D+S+H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Max. X-X Deflection<br>0.0000 in<br>0.0000 in<br>0.0000 in<br>0.0000 in                                                                                                                                                                                                                                                                            | Distance 0.000 ft 0.000 ft 0.000 ft 0.000 ft 0.000 ft                                                                                                                                                                                      | Max, Y-Y Defle<br>0,000<br>0,000<br>0,000<br>0,000                                                                                | ction Distar<br>in 0.000<br>in 0.000<br>in 0.000<br>in 0.000                                                                                                                                                                                                                                                                                                                                                                                                     | nce<br>ft<br>ft<br>ft<br>ft                 | 1,49,0 min 4 m,41 m   |
| Maximum Deflections for Load (  Load Combination  +D+H  +D+L+H  +D+Lr+H  +D+Lr+H  +D+S+H  +D+0.750Lr+0.750L+H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Max. X-X Deflection 0.0000 in 0.0000 in 0.0000 in 0.0000 in 0.0000 in                                                                                                                                                                                                                                                                              | Distance 0.000 ft 0.000 ft 0.000 ft 0.000 ft 0.000 ft 0.000 ft                                                                                                                                                                             | Max. Y-Y Defle<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000                                                              | ction Distar<br>in 0.000<br>in 0.000<br>in 0.000<br>in 0.000<br>in 0.000                                                                                                                                                                                                                                                                                                                                                                                         | nce  ft  ft  ft  ft  ft                     | <u> </u>              |
| Maximum Deflections for Load (Load Combination)  +D+H +D+L+H +D+Lr+H +D+S+H +D+0.750Lr+0.750L+H +D+0.750L+0.750S+H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Max. X-X Deflection 0.0000 in 0.0000 in 0.0000 in 0.0000 in 0.0000 in 0.0000 in                                                                                                                                                                                                                                                                    | Distance  0.000 ft                                                                                                                                                                   | Max, Y-Y Deffe<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000<br>0.000                                                     | ction Distar<br>in 0.000<br>in 0.000<br>in 0.000<br>in 0.000<br>in 0.000<br>in 0.000                                                                                                                                                                                                                                                                                                                                                                             | nce  ft  ft  ft  ft  ft  ft  ft  ft  ft     |                       |
| Maximum Deflections for Load (oad Combination                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Max. X-X Deflection 0.0000 in 0.0000 in 0.0000 in 0.0000 in 0.0000 in 0.0000 in                                                                                                                                                                                                                                                                    | Distance  0.000 ft                                                                                                                                                          | Max, Y-Y Defle  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.713                                                                   | ction Distartin 0.000 in 12.000 in 12.000                                                                                                                                                                                                                                                                                                                                                                  | nce ft  | <b>.</b>              |
| Maximum Deflections for Load (Load Combination +D+H +D+L+H +D+L+H +D+L+H +D+S+H +D+0.750L+H +D+0.750L+0.750S+H +D+0.60W+H +D+0.70E+H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Max. X-X Deflection  0.0000 in                                                                                                                                                                                                                                                   | Distance  0.000 ft                                                                                                                                                 | Max, Y-Y Defle  0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.713 0.000                                                             | ction Distartion 0.000 in 0.000                                                                                                                                                                                                                                                                                                                                        | nce  tt ft | A Angus atom danka an |
| Maximum Deflections for Load (Load Combination +D+H +D+L+H +D+L+H +D+Lr+H +D+0.750Lr+0.750L+H +D+0.750L+0.750S+H +D+0.60W+H +D+0.750L+H +D+0.750L+H +D+0.750L+C+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750L+D+0.750 | Max. X-X Deflection  0.0000 in                                                                                                                                                                                                                                        | Distance  0.000 ft                                                                                                                                        | Max, Y-Y Defle  0.000 0.000 0.000 0.000 0.000 0.000 0.713 0.000 0.534                                                             | ction Distar in 0.000 in 0.000 in 0.000 in 0.000 in 0.000 in 0.000 in 12.000 in 12.000 in 12.000 in 12.000                                                                                                                                                                                                                                                                                                                                                       | nce  tt  ft  ft  ft  ft  ft  ft  ft  ft  f  | A day, and a day, and |
| Maximum Deflections for Load (Load Combination +D+H +D+L+H +D+L+H +D+S+H +D+0.750Lr+0.750L+H +D+0.750L+0.750S+H +D+0.60W+H +D+0.750Lr+0.750L+0.450W+H +D+0.750L+0.750S+0.450W+H +D+0.750L+0.750S+0.450W+H +D+0.750L+0.750S+0.450W+H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Max. X-X Deflection  0.0000 in                                                                                                                                                                                                                  | Distance  0.000 ft                                                                                                                      | Max. Y-Y Defle  0.000 0.000 0.000 0.000 0.000 0.000 0.713 0.000 0.534 0.534                                                       | ction Distar in 0.000 in 12.000 in 12.000 in 12.000 in 12.000                                                                                                                                                                                                                                                                                                                                              | nce  tt  ft  ft  ft  ft  ft  ft  ft  ft  f  | 1                     |
| Maximum Deflections for Load (Load Combination +D+H +D+L+H +D+L+H +D+S+H +D+0.750L+0.750L+H +D+0.750L+0.750S+H +D+0.750L+0.750L+0.450W+H +D+0.750L+0.750L+0.450W+H +D+0.750L+0.750S+0.450W+H +D+0.750L+0.750S+0.5250E+H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Max. X-X Deflection  0.0000 in                                                                                                                                                                                            | Distance  0.000 ft                                                                                           | Max. Y-Y Defle  0.000 0.000 0.000 0.000 0.000 0.000 0.713 0.000 0.534 0.534 0.000                                                 | ction Distar in 0.000 in 0.000 in 0.000 in 0.000 in 0.000 in 0.000 in 12.000 in 12.000 in 12.000 in 12.000 in 12.000 in 12.000                                                                                                                                                                                                                                                                                                                                   | nce  tt  ft  ft  ft  ft  ft  ft  ft  ft  f  | 1                     |
| Maximum Deflections for Load (oad Combination  +D+H +D+L+H +D+Lr+H +D+0.750Lr+0.750L+H +D+0.750L+0.750S+H +D+0.750L+0.750S+H +D+0.750L+0.750L+0.450W+H +D+0.750L+0.750S+0.450W+H +D+0.750L+0.750S+0.450W+H +D+0.750L+0.750S+0.5250E+H +0.60D+0.60W+0.60H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Max. X-X Deflection  0.0000 in                                                                                                                                                                      | Distance  0.000 ft                                                                | Max. Y-Y Defle  0.000 0.000 0.000 0.000 0.000 0.000 0.713 0.000 0.534 0.534 0.000 0.713                                           | ction Distar in 0.000 in 0.000 in 0.000 in 0.000 in 0.000 in 0.000 in 12.000                                                                                                                                                                                                                                                                                                     | nce  tt  tt  tt  tt  tt  tt  tt  tt  tt     | A                     |
| Maximum Deflections for Load ().coad Combination  +D+H +D+L+H +D+Lr+H +D+0.750Lr+0.750L+H +D+0.750L+0.750S+H +D+0.60W++H +D+0.750L+0.750S+0.450W+H +D+0.750L+0.750S+0.450W+H +D+0.750L+0.750S+0.450W+H +D+0.750L+0.750S+0.5250E+H +0.60D+0.60W+0.60H +0.60D+0.70E+0.60H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Max. X-X Deflection  0.0000 in                                                                                                                                                           | Distance  0.000 ft                                                       | Max. Y-Y Defle  0.000 0.000 0.000 0.000 0.000 0.000 0.713 0.000 0.534 0.534 0.000 0.713 0.000                                     | ction Distar in 0.000 in 0.000 in 0.000 in 0.000 in 0.000 in 0.000 in 12.000 in 0.000 in 0.000 in 0.000 in 0.000                                                                                                                                                                                                                                                                                     | nce  tt  tt  tt  tt  tt  tt  tt  tt  tt     |                       |
| Maximum Deflections for Load ().coad Combination  +D+H +D+L+H +D+Lr+H +D+0.750Lr+0.750L+H +D+0.750L+0.750S+H +D+0.60W++H +D+0.750L+0.750S+0.450W+H +D+0.750L+0.750S+0.450W+H +D+0.750L+0.750S+0.450W+H +D+0.750L+0.750S+0.5250E+H +0.60D+0.60W+0.60H +0.60D+0.70E+0.60H D Only                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Max. X-X Deflection  0.0000 in                                                                                                                          | Distance  0.000 ft                                     | Max. Y-Y Deffe  0.000 0.000 0.000 0.000 0.000 0.000 0.713 0.000 0.534 0.534 0.000 0.713 0.000 0.713                               | ction Distar in 0.000 in 0.000 in 0.000 in 0.000 in 0.000 in 0.000 in 12.000 in 12.000 in 12.000 in 12.000 in 12.000 in 12.000 in 0.000 in 0.000 in 0.000 in 0.000 in 0.000                                                                                                                                                                                                                                                                                      | nce  tt  tt  tt  tt  tt  tt  tt  tt  tt     |                       |
| Maximum Deflections for Load (Load Combination)  +D+H +D+L+H +D+L+H +D+S+H +D+0.750L+0.750L+H +D+0.750L+0.750S+H +D+0.60W+H +D+0.750L+0.750S+0.450W+H +D+0.750L+0.750S+0.450W+H +D+0.750L+0.750S+0.5250E+H +D-0.750L+0.750S+0.5250E+H +0.60D+0.60W+0.60H +0.60D+0.70E+0.60H D Only Lr Only                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Max. X-X Deflection  0.0000 in                                                                                                               | Distance  0.000 ft                   | Max. Y-Y Deffe  0.000 0.000 0.000 0.000 0.000 0.000 0.713 0.000 0.534 0.534 0.000 0.713 0.000 0.713 0.000                         | ction Distar in 0.000 in 0.000 in 0.000 in 0.000 in 0.000 in 0.000 in 12.000 in 12.000 in 12.000 in 12.000 in 12.000 in 12.000 in 0.000 in 0.000 in 0.000 in 0.000 in 0.000                                                                                                                                                                                                                                                                                      | nce  ## ## ## ## ## ## ## ## ## ## ## ## #  |                       |
| Maximum Deflections for Load (Load Combination +D+H +D+L+H +D+L+H +D+S+H +D+0.750L+C.750L+H +D+0.750L+C.750L+H +D+0.750L+C.750L+H +D+0.750L+C.750L+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C. | Max. X-X Deflection  0.0000 in                                                                                                               | Distance  0.000 ft          | Max. Y-Y Deffe  0.000 0.000 0.000 0.000 0.000 0.000 0.713 0.000 0.534 0.534 0.000 0.713 0.000 0.713 0.000 0.713 0.000             | ction Distartion 0.000 in 0.000 in 12.000 in 12.000 in 12.000 in 10.000 in 0.000                                                                                                                                                                             | nce  II I  |                       |
| Maximum Deflections for Load (Load Combination +D+H +D+L+H +D+L+H +D+S+H +D+0.750L+C.750L+H +D+0.750L+C.750L+C.750L+C.750L+C.750L+C.750L+C.750L+C.750L+C.750L+C.750L+C.750L+C.750L+C.750L+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750 | Max. X-X Deflection  0.0000 in                       | Distance  0.000 ft | Max. Y-Y Deffe  0.000 0.000 0.000 0.000 0.000 0.000 0.713 0.000 0.534 0.534 0.000 0.713 0.000 0.713 0.000 0.713 0.000 0.000 0.000 | ction Distartion 0.000 in 0.000 in 12.000 in 0.000                                                                                                                                                      | nce  tt  ft  ft  ft  ft  ft  ft  ft  ft  f  |                       |
| Maximum Deflections for Load (Load Combination +D+H +D+L+H +D+L+H +D+L+H +D+S+H +D+0.750L+C.750L+H +D+0.750L+C.750L+C.750S+H +D+0.750L+C.750L+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+ | Max. X-X Deflection  0.0000 in   Distance  0.000 ft | Max. Y-Y Deffe  0.000 0.000 0.000 0.000 0.000 0.000 0.713 0.000 0.534 0.534 0.534 0.000 0.713 0.000 0.713 0.000 1.188             | ction Distartion 0.000 in 0.000 in 12.000 in 0.000 in 0.000 in 12.000 in 0.000 in 12.000 in 0.000 | nce  tt  ft  ft  ft  ft  ft  ft  ft  ft  f  |                       |
| Maximum Deflections for Load (Load Combination +D+H +D+L+H +D+L+H +D+S+H +D+0.750L+C.750L+H +D+0.750L+C.750L+H +D+0.750L+C.750L+C.750S+H +D+0.750L+C.750L+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C.750S+C. | Max. X-X Deflection  0.0000 in                       | Distance  0.000 ft | Max. Y-Y Deffe  0.000 0.000 0.000 0.000 0.000 0.000 0.713 0.000 0.534 0.534 0.000 0.713 0.000 0.713 0.000 1.188 0.000             | ction Distartion 0.000 in 0.000 in 12.000 in 0.000                                                                                                                                                      | nce  tt ft |                       |

Genesis Solar Heavy Equipment Covered Parking 46 BG Project ID: 800.0617

|                                                                                                                |                             |                      |      |   |                            |          |   | Printed: 6 MAR 2017, 10:40AM                                 |
|----------------------------------------------------------------------------------------------------------------|-----------------------------|----------------------|------|---|----------------------------|----------|---|--------------------------------------------------------------|
| Steel Colu                                                                                                     | mn 🗼                        |                      |      |   |                            | ENERCALO |   | s.\E0AEZR~G\86YX5A~F,EC6<br>, Bulld:6.17.2.28, Ver.6.17.2.28 |
| (c.#.: KW-060                                                                                                  | 18989                       |                      |      |   |                            |          |   | TURAL ENGINEERIN                                             |
| Description:                                                                                                   | Lateral - Typica            | al Column - Low Roof |      |   | 7.0 -17,71,711,711 - 11,71 | ,        |   |                                                              |
| Maria Ma | erfore social in the sector | HSS6x6               | 010  |   |                            |          |   |                                                              |
|                                                                                                                |                             |                      | ···· |   | 39.50 in^4                 |          |   | 64,600 in^4                                                  |
| Depth                                                                                                          | Ħ                           | 6.000 in             | l xx | # |                            | J        | = | 04.000 11174                                                 |
| Design Thick                                                                                                   | ×                           | 0.349 in             | S xx | = | 13.20 in^3                 |          |   |                                                              |
| Vidth                                                                                                          | ×                           | 6.000 in             | Rxx  | = | 2.280 in                   |          |   |                                                              |
| Vall Thick                                                                                                     | =                           | 0.375 in             | Zx   | = | 15,800 in^3                |          |   |                                                              |
| lrea                                                                                                           | =                           | 7.580 in^2           | 1 yy | = | 39,500 in^4                | Ċ        | = | 22.100 in^3                                                  |
| Veight                                                                                                         | =                           | 27.480 plf           | Syy  | Ħ | 13,200 in^3                |          |   |                                                              |
|                                                                                                                |                             | ·                    | Ŕyy  | = | 2.280 In                   |          | • |                                                              |
|                                                                                                                |                             |                      |      |   |                            |          |   |                                                              |
| You                                                                                                            | =                           | 0.000 In             |      |   |                            |          |   |                                                              |



## Genesis Solar Heavy - BP1



#### Stiffened Base Plate Connection

Base Plate Thickness : 1. in

Base Plate Fy Bearing Surface Fp

: 36, ksi : 3.315 ksi

Anchor Bolt Diameter : 1. in

Anchor Bolt Material : A307 Anchor Bolt Fu

: 60. ksi

Column Shape

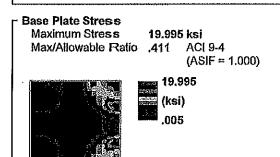
: HSS6x6x6 : AISC 14th:LRFD

Steel Code Concrete Code

: ACI 318-11

(With IBC 2012 Amendments)

# Bearing Pressure Maximum Bearing 1.519 ksi Max/Allowable Ratio .458 ACI 9-6 (ABIF = 1.000)(ksi)



#### **Anchor Bolts**

|   |      | a Dotm              |        |          |        |        |           |          |           |          |          |              |
|---|------|---------------------|--------|----------|--------|--------|-----------|----------|-----------|----------|----------|--------------|
|   | Bolt | X <sup>,</sup> (in) | Z (in) | Tens.(k) | Vx (k) | Vz (k) | Fnt (ksi) | ft (ksi) | Fnv (ksi) | fv (ksi) | Unity    | Combination  |
|   | 1    | 6.                  | 6.     | 12.135   | 0,     | 576    | 45,       | 15.451   | 27.       | .733     | .458 (T) | ACI 9-6 (22) |
|   | 2    | -6.                 | 6.     | 12.135   | 0,     | 576    | 45.       | 15.451   | 27.       | .733     | .458 (T) | ACI 9-6 (22) |
|   | 3_   | 6.                  | -6.    | 12.135   | 0.     | .576   | 45.       | 15,451   | 27.       | .733     | .458 (T) | ACI 9-6 (23) |
| ı | 4    | -6.                 | -6.    | 12.135   | 0.     | .576   | 45.       | 15,451   | 27.       | .733     | .458 (T) | ACI 9-6 (23) |

Note: Fnt and Fnv shown above include phi factors.

| - Loads | P (k) | <b>∨</b> x (k) | Vz (k) | Mx (k-ft)                              | Mz (k-ft) |
|---------|-------|----------------|--------|----------------------------------------|-----------|
| DL.     |       | 1              |        |                                        | 1         |
| LL      | 5.039 |                |        | ······································ |           |
| WL      |       |                | 1.44   | 19.2                                   |           |
| EL*     |       |                | .496   | 5.952                                  |           |

| Anchor | Bolt | <b>Embed</b> | Capacit | y Results |
|--------|------|--------------|---------|-----------|
|        |      |              |         |           |

| Note: All capacities she | own include phi factors |
|--------------------------|-------------------------|
|--------------------------|-------------------------|

| LC | Bolt | Tens.(k) | Nsa(k) | Ncb(k) | Npn(k) | Nsb(k) | Unity | Ductility | Load(k) | Steel(in2) |
|----|------|----------|--------|--------|--------|--------|-------|-----------|---------|------------|
| 22 | 1    | 12.135   | 27.27  | 0.     | 25.2   | 0.     | .482  | N.A.      | 12.135  | .27        |

Single Bolt Vx Envelope Results

| LC | Bolt | Vx (k) | Vz (k) | Vsa(k) | VcbXx(k) | VcbXz(k) | VcbZz(k) | VcbZx(k) | Vcp (k) | VxUnity | VzUnity |
|----|------|--------|--------|--------|----------|----------|----------|----------|---------|---------|---------|
| 1  | 1    | O.     | 0.     | 14.18  | I 0.     | 0.       | 0.       | 0.       | 0.      | N.A.    | N.A.    |

Seismic Ductility & Anchor Reinforcement Results

| LC | Bolt | Vx (k) | Vz (k) | VxUnity | VzUnity | Vx-Duct | Vx-L(k) | Vx-St(in2) | Vz-Duct | Vz-L(k) | Vz-St(in2) |
|----|------|--------|--------|---------|---------|---------|---------|------------|---------|---------|------------|
| 1  | 1    | 0.     | 0.     | N.A.    | N.A,    | N.A.    | 0.      | 0.         | N.A.    | 0.      | 0.         |

Single Bolt Vz Envelope Results

| LC | Bolt | Vx (k) | Vz (k) | Vsa(k) | VcbXx(k) | VcbXz(k) | VcbZz(k) | VcbZx(k) | Vcp (k) | VxUnity | VzUnity |
|----|------|--------|--------|--------|----------|----------|----------|----------|---------|---------|---------|
| 1  | 1    | O.     | O.     | 14.18  | l 0.     | 0.       | 0,       | 0.       | 0.      | N.A.    | N.A.    |

Seismic Ductility & Anchor Reinforcement Results

| LC | Bolt | Vx (k) | Vz (k) | VxUnity | VzUnity | Vx-Duct | Vx-L(k) | Vx-St(in2) | Vz-Duct | Vz-L(k) | Vz-St(in2) |
|----|------|--------|--------|---------|---------|---------|---------|------------|---------|---------|------------|
| 1  | 1    | 0.     | O.     | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 0.      | 0.         |

#### Single Bolt: Combined Tension and Shear Capacity Envelope Results

| LC | Bolt | Nn(k) | Vnx(k) | Vnz(k) | SRSS | Interaction |
|----|------|-------|--------|--------|------|-------------|
| 22 | 1    | 25,2  | 0.     | 0. 1   | .482 | .482        |

**Group Bolt: Tension Capacity Envelope Results** 

| LC Group | Tens.(k) | Nsa.(k) | Ncb.(k) | Nsb.(k) | Unity | Ductility | Load(k) | Steel(in^2) |
|----------|----------|---------|---------|---------|-------|-----------|---------|-------------|
| 1   T-1  | 0.       | 0.      | 0.      | I 0.    | N.A.  | N.A.      | 0.      | 0.          |

Vz Shear Groups Capacity Envelope Results

|    |     | randra - mbarr |        |          | -                |          |          |          |          |         |         |                |
|----|-----|----------------|--------|----------|------------------|----------|----------|----------|----------|---------|---------|----------------|
| LC | Gr  | Type Failure   | Vx (k) | ; Vz (k) | Vsa( <b>i</b> k) | VcbXx(k) | VcbXz(k) | VcbZz(k) | VcbZx(k) | Vcp (k) | VxUnity | <b>VzUnity</b> |
| 3  | S-1 | +Vz   Full     | 0.     | .72      | 0.               | 0.       | 0.       | 0.       | O.       | 0.      | N.A.    | N.A.           |
|    |     | Nr Edge        | Ö.     | .36      | 0.               | 0.       | 0.       | 0.       | O.       | 0.      | N.A.    | N.A.           |

Seismic Ductility & Anchor Reinforcement Results

| LC | Gr  | Type Failure | Vx (k) | Vz (k) | VxUnity | VzUnity | Vx-Duct | Vx-L(k) | Vx-St(in2) | Vz-Duct | Vz-L(k) | Vz-St(in2) |
|----|-----|--------------|--------|--------|---------|---------|---------|---------|------------|---------|---------|------------|
| 3  | S-1 | +Vz   Full   | 0.     | .72    | N.A.    | N.A.    | N.A.    | 0.      | O.         | N.A.    | .72     | .0 16      |
|    |     | Nr Edge      | 0.     | .36    | N.A.    | N.A.    | N.A.    | 0.      | O.         | N.A.    | .36     | .0 08      |

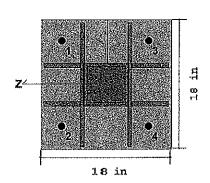
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X



O. in

0. in

| Bolt | X (in) | Z (in) |
|------|--------|--------|
| 1    | 6.     | 6.     |
| 2    | -6,    | 6.     |
| 3    | 6.     | -6.    |
| 4    | -6.    | -6.    |

Geometry and Materials

Length 18. in Column Shape HSS6x6x6 Width Column eX 18. in Column eZ Thickness 1. in Base Plate Fy Column to Edge Min (X) 1. in 36. ksi Base Plate E 29000. ksi Column to Edge Min (Z) 1. in HSS Tube X-sides welded Bearing Fp 3.315 ksi Bearing Fc' HSS Tube Z-sides welded 3. ksi Pedestal Length 36 in Stiffened Base Plate Connection Vx Shear Lug NOT present Pedestal Width 36 in Pedestal Height 36 in Vz Shear Lug NOT present Analyze Base Plate as Rigid Pp Based on AISC J8 Criteria

AB Head: Heavy Hex Seismic Reduction %: 25. Square Base Plate Required

AISC 14th:LRFD Concrete Code: ACI 318-11 (With IBC 2012 Amendments) **NW Concrete** Concrete Cracked

Anchor Bolt Diameter 1. in Anchor Bolt Material A307 Anchor Bolt Fu 60. ksi Anchor Bolt Fy 36. ksi Anchor Bolt E 29000, ksi AB Stretch Length 6. in AB to AB Min Spacing 6 in AB to Stiffner Min Spacing 1.5 in AB to Column Min Spacing 2 in AB to Edge Min Spacing 3 in AB Row Min Spacing 3 In Priority is AB to Edge Spacing Include Threads for AB Design AB Fv, Ft based on AISC Criteria Total AB Length: 24. in Supp. Reinforcement Present **Anchor Reimforcement Present** Tension Anchor Reinf Bar Fy: 60, ksi Shear Anchor Reinf Bar Fy:60. ksi

Loads

Steel Code:

|     | P (k) | Vx (k) | Vz (k) | Mx (k-ft) | Mz (k⊷ft) |
|-----|-------|--------|--------|-----------|-----------|
| DL  | 1.58  |        |        |           |           |
| LL  | 5.039 |        |        |           |           |
| WL. |       |        | 1.44   | 19.2      |           |
| El. |       |        | .496   | 5.952     |           |

ABs NOT Welded to Base Plate

Base Plate Stress and Bearing Result

|                          |                | Base Plat | Base Plate Stress (ksi) |      |           | Bearing Pressure (ksi) |      |  |
|--------------------------|----------------|-----------|-------------------------|------|-----------|------------------------|------|--|
| Combination              | Load Sets      | Allowable | ASIF                    | U.C. | Allowable | ABIF                   | U.C. |  |
| ASCE Strength 1 (1)      | 1.4DL          | 48.6      | 1.                      | .005 | 3.315     | 1.                     | .002 |  |
| ASCE Strength 2 (a) (2)  | 1.2DL+1.6LL    | 48.6      | 1.                      | .02  | 3.315     | 1.                     | .009 |  |
| A\$CE Strength 3 (b) (3) | 1.2DL+.5WL     | 48,6      | 1.                      | .128 | 3.315     | 1.                     | .141 |  |
| ASCE Strength 3 (b) (4)  | 1.2DL5WL       | 48.6      | 1.                      | .128 | 3.315     | 1.                     | .141 |  |
| A\$CE Strength 4 (a) (5) | 1.2DL+.5LL+1WL | 48.6      | 1.                      | .257 | 3,315     | 1.                     | .28  |  |
| A\$CE Strength 4 (a) (6) | 1.2DL+.5LL-1WL | 48.6      | 1.                      | .257 | 3,315     | 1.                     | .28  |  |
| ASCE Strength 5 (7)      | 1.2DL+.5LL+1EL | 48.6      | 1.                      | .089 | 3.315     | 1.                     | .077 |  |
| ASCE Strength 5 (8)      | 1.2DL+.5LL~1EL | 48.6      | 1.                      | .089 | 3.315     | 1.                     | .077 |  |
| ASCE Strength 6 (9)      | .9DL+1WL       | 48,6      | 1,                      | .247 | 3.315     | 1                      | ,287 |  |
| ASCE Strength 6 (10)     | .9DL-1WL       | 48.6      | 1.                      | .247 | 3.315     | <u> 1.</u>             | .287 |  |
| ASCE Strength 7 (11)     | .9DL+1EL       | 48.6      | 1.                      | .08  | 3.315     | 1.                     | .087 |  |
| ASCE Strength 7 (12)     | .9DL-1EL       | 48.6      | 1.                      | .08  | 3.315     | 1.                     | .087 |  |
| ACI 9-1 (13)             | 1.4DL          | 48.6      | 1.                      | .005 | 3,315     | 1.                     | .002 |  |

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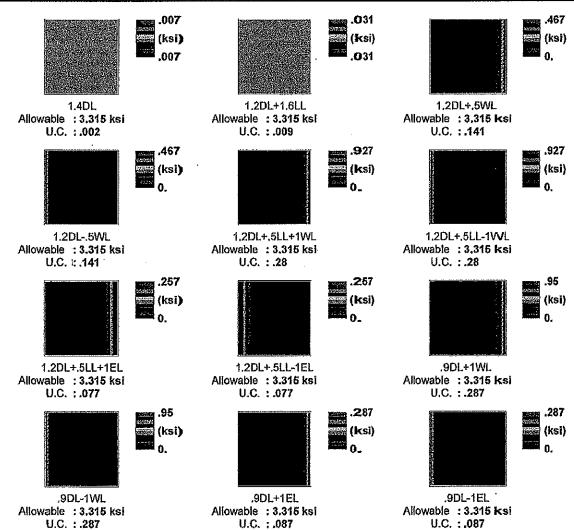
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#### Base Plate Stress and Bearing Results (continued

|                 |                      | Base Pla  | te Stress | (ksi) | Bearing Pressure (ksi) |      |      |
|-----------------|----------------------|-----------|-----------|-------|------------------------|------|------|
| Combination     | Load Sets            | Allowable | ASIF      | U.C.  | Allowable              | ABIF | U.C. |
| ACI 9-2(a) (14) | 1.2DL+1.6LL          | 48.6      | 1.        | .02   | 3,315                  | 1.   | .009 |
| ACI 9-3(a) (15) | 1.2DL+1LL            | 48.6      | 1.        | .014  | 3.315                  | 1,   | ,006 |
| ACI 9-3(d) (16) | 1,2DL+.8 <b>VV</b> L | 48.6      | 1.        | .201  | 3.315                  | 1.   | .229 |
| ACI 9-3(d) (17) | 1,2DL <b>8VV</b> L   | 48.6      | 1.        | .201  | 3,315                  | 1,   | .229 |
| ACI 9-4 (18)    | 1,2DL+1LL+1 .6WL     | 48.6      | 1.        | .411  | 3,315                  | ] 1. | .448 |
| ACI 9-4 (19)    | 1,2DL+1LL-1.6WL      | 48,6      | 1,        | .411  | 3,315                  | 1.   | .448 |
| ACI 9-5 (20)    | 1.2DL+1LL+1EL        | 48.6      | 1.        | .092  | 3,315                  | 1.   | :065 |
| ACI 9-5 (21)    | 1.2DL+1LL-1El.       | 48.6      | 1.        | .092  | 3.315                  | 1.   | .065 |
| ACI 9-6 (22)    | .9DL+1.6 <b>W</b> L  | 48.6      | 1.        | .391  | 3.315                  | 1.   | .458 |
| ACI 9-6 (23)    | .9DL-1.6V <b>V</b> L | 48.6      | 1.        | .391  | 3,315                  | 1.   | .458 |
| ACI 9-7 (24)    | ,9DL+1EL             | 48.6      | 1.        | .08   | 3,315                  | 1.   | .087 |
| ACI 9-7 (25)    | .9DL-1EL             | 48,6      | 1.        | .08   | 3,315                  | 1.   | ,087 |

#### Bearing Contours



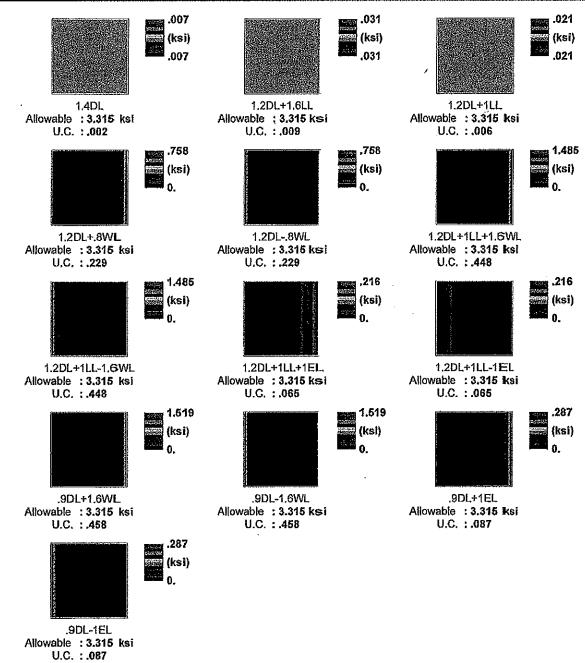
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#### Bearing Contours (continued)



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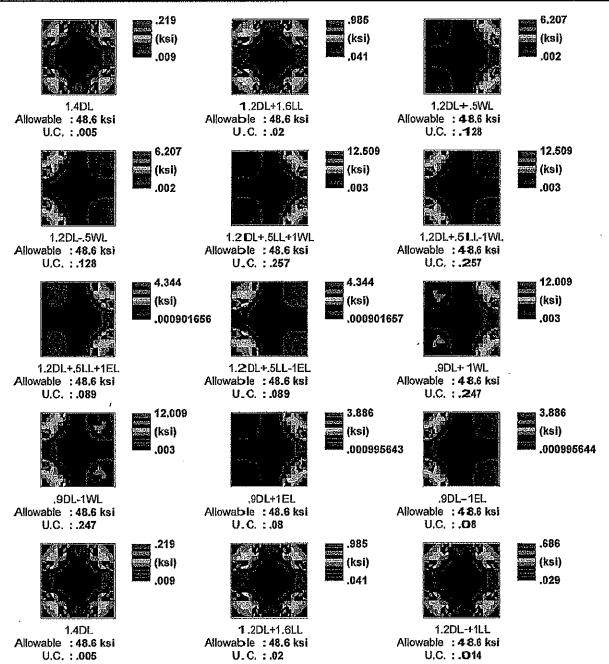
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#### Base Plate Stress Contour



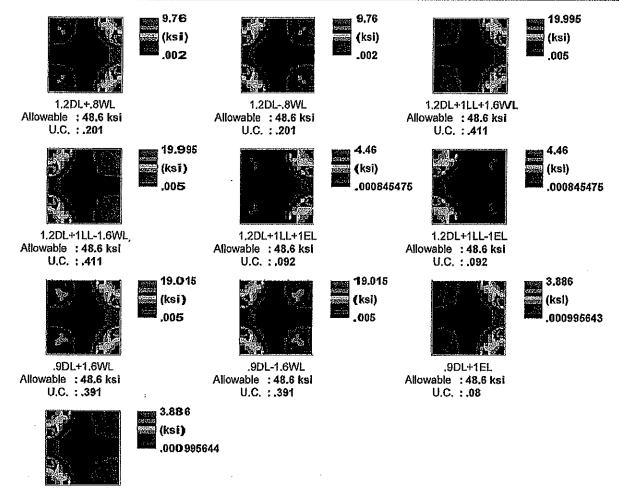
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#### Base Plate Stress Contours (continued)



.9DL-1EL Allowable : 48.6 ksi U.C. : .08

#### Anchor Bolt Results

#### Note: Fnt and Fnv shown below include phi factors.

| Combination             | Load Sets            | Bolt | Tens.(k) | Vx (k) | Vz (k)       | Fnt (ksi) | ft (ksi) | Fnv (ksi) | fv (ksi) | Unity    |
|-------------------------|----------------------|------|----------|--------|--------------|-----------|----------|-----------|----------|----------|
| ASCE Strength 1 (1)     | 1.4DL                | 1    | 0.       | 0.     | 0.           | 33.8      | 0.       | 18.       | N.A.     | 0. (T)   |
|                         |                      | 2    | 0.       | 0.     | 0.           | 33.8      | 0.       | 18.       | N.A.     | 0. (T)   |
|                         |                      | 3    | 0.       | 0.     | 0.           | 33.8      | 0.       | 18.       | N.A.     | 0. (T)   |
|                         |                      | 4    | 0.       | 0.     | 0.           | 33.8      | 0.       | 18.       | N.A.     | 0. (T)   |
| ASCE Strength 2 (a) (2) | 1.2DL+1.6 <b>L</b> L | 1    | 0.       | 0,     | 0.           | 33.8      | 0.       | 18.       | N.A.     | 0. (T)   |
|                         |                      | 2    | 0.       | 0.     | 0.           | 33,8      | 0,       | 18.       | N.A.     | 0. (T)   |
| :                       |                      | 3    | 0.       | 0.     | 0.           | 33,8      | 0.       | 18.       | N.A.     | 0. (T)   |
|                         |                      | 4    | 0.       | 0.     | O.           | 33.8      | 0.       | 18.       | N.A.     | 0. (T)   |
| ASCE Strength 3 (b) (3) | 1.2DL+.5 <b>W</b> L  | 1    | 3.403    | 0.     | 18           | 45.       | 4.333    | 27.       | .229     | .128 (T) |
|                         |                      | 2    | 3.403    | 0.     | - 18         | 45.       | 4.333    | 27.       | .229     | .128 (T) |
|                         |                      | 3    | .227     | 0.     | 18           | 45.       | .289     | 27.       | .229     | .011 (S) |
|                         | -                    | 4    | .227     | 0.     | <i>-</i> .18 | 45.       | .289     | 27.       | .229     | .011 (S) |

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Designer : BG
Job Number : 800.0617

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| Anchor | Bolt | Results | (contin | rued) |
|--------|------|---------|---------|-------|
|        |      |         |         |       |

| Combination<br>A\$CE Strength 3 (b) (4)    | Load Sets<br>1.2DL5WL                  | Bolt<br>I 1      | Tens.(k)<br>.227 | Vx (k)<br>0. | Vz (k)<br>  .18 | Fnt (ksi)<br>45. | ft (ksi)<br>.289 | Fnv (ksi)<br>27. | fv (ksi)<br>.229 | Unity<br>.011 (S) |
|--------------------------------------------|----------------------------------------|------------------|------------------|--------------|-----------------|------------------|------------------|------------------|------------------|-------------------|
| ASCE Stierigth 5 (b) (4)                   | 1,ZDL.=.3VVL                           | - 2              | .227             | 0.           | 18              | 45.              | .289             | 27.              | .229             | .011 (S)          |
|                                            |                                        | 3                | 3.403            | 0.           | .18             | 45.              | 4.333            | 27.              | .229             | .128 (T)          |
| <del></del>                                |                                        | 4                | 3,403            | 0,           | .18             | 45.              | 4.333            | 27.              | .229             | .128 (T)          |
| ASCE Strength 4 (a) (5)                    | 1.2DL+.5LL+1WL                         | <del>  -</del> - | 6.644            | 0.           | 36              | 45.              | 8,459            | 27.              | ,458             | .251 (T)          |
| 1.7 C. | 1.2061.206-1772                        | 1 2              | 6,644            | 0.           | 36              | 45.              | 8.459            | 27.              | .458             | .251 (T)          |
| 1                                          |                                        | 3                | .427             | Õ.           | 36              | 45.              | .544             | 27.              | .458             | .023 (S)          |
|                                            |                                        | 4                | .427             | Ö.           | 36              | 45.              | .544             | 27.              | .458             | .023 (S)          |
| ASCE Strength 4 (a) (6)                    | 1.2DL+,5LL-1WL                         | 1                | .427             | 0.           | .36             | 45.              | .544             | 27.              | .458             | .023 (S)          |
|                                            |                                        | 2                | .427             | Ö,           | .36             | 45.              | ,544             | 27.              | .458             | .023 (S)          |
|                                            |                                        | 3                | 6,644            | 0.           | .36             | 45.              | 8,459            | 27.              | ,458             | .251 (T)          |
|                                            |                                        | 4                | 6,644            | 0,           | ,36             | 45.              | 8,459            | 27.              | ,458             | .251 (T)          |
| ASCE Strength 5 (7)                        | 1.2DL+.5LL+1EL                         | 1                | 1.262            | 0.           | 124             | 45.              | 1.607            | 27.              | .158             | .048 (T)          |
|                                            |                                        | 2                | 1,262            | Q.           | -,124           | 45.              | 1.607            | 27.              | .158             | .048 (T)          |
|                                            |                                        | 3                | .003             | 0.           | 124             | 45.              | .003             | 27.              | .158             | .008 (S)          |
|                                            |                                        | 4                | .003             | 0.           | 124             | 45.              | .003             | 27.              | .158             | .008 (S)          |
| ASCE Strength 5 (8)                        | 1.2DL+. 5LL-1EL                        | 1                | -003             | 0.           | .124            | 45.              | .003             | 27.              | .158             | .008 (S)          |
|                                            |                                        | 2                | .003             | 0.           | .124            | 45.              | .003             | 27.              | .158             | .008 (S)          |
|                                            | ······································ | 3                | 1.262            | 0.           | .124            | 45.              | 1.607            | 27.              | .158             | .048 (T)          |
|                                            |                                        | 4                | 1,262            | 0.           | .124            | 45.              | 1.607            | 27.              | .158             | .048 (T)          |
| ASCE Strength 6 (9)                        | ,9DL,++1WL                             | 1                | 7.436            | 0.           | 36              | 45.              | 9.468            | 27.              | .458             | .281 (T)          |
|                                            |                                        | 2                | 7,436            | 0.           | -,36            | 45.              | 9.468            | 27.              | ,458             | .281 (T)          |
|                                            |                                        | 3                | .563             | 0.           | 36              | 45.              | .717             | 27.              | .458             | .023 (S)          |
|                                            |                                        | 4                | .563             | Q.           | 36              | 45.              | .717             | 27.              | .458             | .023 (S)          |
| ASCE Strength 6 (10)                       | ,9DL-1WL                               | 11               | .563             | O,           | .36             | 45.              | .717             | 27.              | .458             | .023 (S)          |
|                                            |                                        | 2                | ,563             | 0,           | .36             | 45.              | .717             | 27.              | ,458             | .023 (S)          |
|                                            |                                        | 3                | 7.436            | Ö.           | .36             | 45.              | 9.468            | 27.              | .458             | .281 (T)          |
| ·                                          |                                        | 4                | 7,436            | 0.           | .36             | 45.              | 9.468            | 27.              | .458             | .281 (T)          |
| ASCE Strength 7 (11)                       | .9DL+1EL                               | 1                | 2.046            | 0.           | -,124           | 45.              | 2.605            | 27.              | .158             | .077 (T)          |
|                                            |                                        | 2                | 2,046            | 0.           | -,124           | 45,              | 2,605            | 27.              | .158             | .077 (T)          |
|                                            |                                        | 3                | .13              | 0.           | 124             | 45.              | .166             | 27.              | .158             | .008 (\$)         |
|                                            |                                        | 4                | .13              | 0.           | -,124           | 45.              | .166             | 27.              | ,158             | (S) 800,          |
| ASCE Strength 7 (12)                       | .9DL-1EL                               | 1                | .13              | 0.           | .124            | 45.              | ,166             | 27.              | .158             | .008 (S)          |
|                                            |                                        | 2                | .13              | 0.           | .124            | 45.              | .166             | 27.              | .158             | .008 (S)          |
|                                            | -                                      | 3                | 2.046            | 0.           | .124            | 45.              | 2.605            | 27.              | .158             | .077 (T)          |
|                                            |                                        | 4                | 2.046            | 0.           | .124            | 45.              | 2.605            | 27.              | .158             | .077 (T)          |
| ACI 9-1 (13)                               | 1.4 DL                                 | 1                | 0.               | 0.           | 0.              | 33.8             | 0.               | 18.              | N.A,             | 0. (T)            |
|                                            |                                        | 2                | 0.               | 0.           | 0.              | 33.8             | 0.               | 18.              | N.A.             | 0. (T)            |
|                                            |                                        | 3                | 0.               | 0.           | 0.              | 33.8             | 0.               | 18.              | N.A.             | 0. (T)            |
|                                            |                                        | 4                | 0.               | 0.           | 0.              | 33.8             | 0.               | 18.              | N.A.             | 0. (T)            |
| ACI 9-2(a) (14)                            | 1.2DL+1.6LL                            | 1 1              | 0.               | 0,           | 0.              | 33.8             | 0.               | 18.              | N.A.             | 0. (T)            |
|                                            |                                        | 2                | 0.               | 0,           | 0.              | 33.8             | 0.               | 18.              | N.A.             | 0. (T)            |
|                                            |                                        | 3                | 0.               | 0.           | 0.              | 33.8             | 0.               | 18.              | N.A.             | 0. (T)            |
|                                            |                                        | 14               | 0.               | 0.           | 0.              | 33.8             | 0.               | 18.              | <u>N.A.</u>      | 0. (T)            |
| ACI 9-3(a) (15)                            | 1.2DL_+1LL                             | 1                | 0.               | 0.           | 0.              | 33.8             | 0.               | 18.              | N.A.             | 0. (T)            |
|                                            |                                        | 2                | 0.               | 0.           | 0.              | 33.8             | 0,               | 18.              | N.A.             | 0. (T)            |
|                                            |                                        | 3                | 0.               | 0.           | 0.              | 33.8             | 0.               | 18.              | N.A.             | 0. (T)            |
|                                            |                                        | 4                | 0.               | 0.           | 0.              | 33.8             | 0.               | 18.              | N.A.             | 0. (T)            |
| ACI 9-3(d) (16)                            | 1.2DL →.8WL                            | 1                | 5.743            | 0.           | 288             | 45.              | 7.312            | 27.              | .367             | .217 (T)          |
|                                            |                                        | 2                | 5.743            | 0.           | 288             | 45.              | 7.312            | 27.              | .367             | .217 (T)          |
|                                            |                                        | 3                | .411             | 0.           | 288             | 45.              | .524             | 27.              | .367             | .018 (S)          |
|                                            |                                        | 4                | .411             | 0.           | 288             | 45.              | .524             | 27.              | .367             | .018 (S)          |
| ACI 9-3(d) (17)                            | 1,2DL-,8WL                             | 11               | .411             | 0.           | .288            | 45.              | .524             | 27.              | .367             | .018 (S)          |
|                                            |                                        | 2                | .411             | 0.           | .288            | 45.              | .524             | 27.              | .367             | .018 (S)          |
|                                            |                                        | 3                | 5.743            | 0.           | .288            | 45.              | 7.312            | 27.              | .367             | .217 (T)          |
| [                                          |                                        | 4                | 5.743            | 0.           | ,288            | 45.              | 7.312            | 27.              | .367             | .217 (T)          |

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Designer : BG
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#### Anchor Bolt Results (continued)

| Combination  | Load Sets       | Bolt | Tens.(k) | Vx (k) | Vz (k) | Fnt (ksi) | ft (ksi) | Fnv (ksi) | fv (ksi) | Unity     |
|--------------|-----------------|------|----------|--------|--------|-----------|----------|-----------|----------|-----------|
| ACI 9-4 (18) | 1.2DL+1LL+1.6WL | 1    | 10.664   | 0.     | 576    | 45.       | 13.577   | 27.       | .733     | .402 (T)  |
|              |                 | 2    | 10.664   | 0.     | 576    | 45.       | 13.577   | 27.       | .733     | .402 (T)  |
|              |                 | 3    | .689     | 0.     | 576    | 45.       | .877     | 27.       | .733     | .036 (S)  |
|              |                 | 4    | .689     | 0.     | -,576  | 45.       | ,877     | 27.       | ,733     | .036 (\$) |
| ACI 9-4 (19) | 1.2DL+1LL-1,6WL | 1    | .689     | 0.     | .576   | 45,       | .877     | 27.       | .733     | .036 (S)  |
|              |                 | 2    | .689     | 0.     | .576   | 45.       | .877     | 27.       | .733     | .036 (S)  |
|              |                 | 3    | 10.664   | 0.     | .576   | 45.       | 13,577   | 27.       | .733     | .402 (T)  |
|              |                 | 4    | 10.664   | 0.     | .576   | 45.       | 13.577   | 27.       | .733     | .402 (T)  |
| ACI 9-5 (20) | 1.2DL+1LL+1EL   | 1    | .671     | 0,     | 124    | 45.       | .854     | 27.       | .158     | ,025 (T)  |
|              |                 | 2    | .671     | 0,     | 124    | 45.       | .854     | 27,       | .158     | .025 (T)  |
|              |                 | 3    | 0.       | 0.     | 124    | 45.       | 0,       | 27.       | ,158     | .008 (S)  |
|              | ,               | 4    | 0.       | 0.     | 124    | 45.       | 0,       | 27.       | .158     | .008 (S)  |
| ACI 9-5 (21) | 1.2DL+1LL-1EL   | 1    | 0.       | 0.     | .124   | 45.       | 0.       | 27.       | .158     | .008 (S)  |
|              |                 | 2    | 0.       | 0.     | .124   | 45.       | 0.       | 27.       | .158     | .008 (S)  |
|              |                 | 3    | .671     | Ö.     | .124   | 45.       | ,854     | 27.       | .158     | .025 (T)  |
|              |                 | 4    | .671     | 0.     | .124   | 45.       | .854     | 27.       | .158     | .025 (T)  |
| ACI 9-6 (22) | ,9DL+1.6WL      | 1    | 12,135   | 0.     | -,576  | 45.       | 15.451   | 27.       | .733     | .458 (T)  |
|              |                 | 2    | 12.135   | 0.     | 576    | 45.       | 15.451   | 27.       | .733     | .458 (T)  |
|              |                 | 3    | .949     | 0.     | 576    | 45.       | 1.209    | 27.       | .733     | .036 (S)  |
|              |                 | 4    | .949     | 0.     | -,576  | 45.       | 1.209    | 27.       | .733     | .036 (S)  |
| ACI 9-6 (23) | ,9DL-1,6WL      | 1    | 949      | 0,     | 576    | 45.       | 1.209    | 27.       | .733     | .036 (S)  |
|              |                 | 2    | .949     | O,     | .576   | 45.       | 1.209    | 27.       | .733     | .036 (S)  |
|              |                 | 3    | 12.135   | 0.     | .576   | 45.       | 15.451   | 27.       | .733     | .458 (T)  |
|              |                 | 4    | 12.135   | 0.     | .576   | 45.       | 15,451   | 27.       | .733     | .458 (T)  |
| ACI 9-7 (24) | .9DL+1EL        | 1    | 2.046    | Q,     | 124    | 45.       | 2.605    | 27.       | .158     | .077 (T)  |
|              |                 | 2    | 2,046    | 0,     | -,124  | 45.       | 2,605    | 27.       | .158     | .077 (T)  |
|              |                 | 3    | .13      | 0.     | 124    | 45.       | .166     | 27.       | .158     | .008 (S)  |
|              |                 | 4    | .13      | 0.     | 124    | 45.       | .166     | 27.       | .158     | .008 (\$) |
| ACI 9-7 (25) | .9DL-1EL        | 1    | .13      | 0.     | .124   | 45.       | .166     | 27.       | .158     | .008 (S)  |
|              |                 | 2    | .13      | Ö.     | .124   | 45.       | .166     | 27.       | .158     | .008 (S)  |
|              |                 | 3    | 2.046    | 0.     | .124   | 45.       | 2.605    | 27.       | .158     | .077 (T)  |
|              |                 | 4    | 2.046    | 0,     | .124   | 45,       | 2.605    | 27,       | .158     | .077 (T)  |

#### Load Combinations

|    | A                   | 1 1 0 1         |
|----|---------------------|-----------------|
| LC |                     | Load Sets       |
|    | ASCE Strength 1     | 1.4DL           |
| 2  | ASCE Strength 2 (a) | 1.2DL+1.6LL     |
| 3  | ASCE Strength 3 (b) | 1.2DL+.5WIL     |
| 4  | ASCE Strength 3 (b) | 1.2DL5WL        |
| 5  | ASCE Strength 4 (a) | 1.2DL+.5LL+1WL  |
| 6  |                     | 1.2DL+,5LL-1WL  |
| 7  | ASCE Strength 5     | 1.2DL+.5LL+1EL  |
|    | ASCE Strength 5     | 1.2DL+.5LL-1 EL |
| 9  |                     | .9DL+1WL        |
| 10 | ASCE Strength 6     | .9DL-1WL        |
| 11 | ASCE Strength 7     | .9DL+1EL        |
| 12 | ASCE Strength 7     | .9DL-1EL        |
| 13 | ACI 9-1             | 1.4DL           |
| 14 | ACI 9-2(a)          | 1.2DL+1.6L.L    |
| 15 | ACI 9-3(a)          | 1.2DL+1LL       |
| 16 | ACI 9-3(d)          | 1.2DL+.8WL      |
| 17 | ACI 9-3(d)          | 1.2DL8WL        |
| 18 | ACI 9-4             | 1,2DL+1LL+1.6WL |
| 19 | ACI 9-4             | 1.2DL+1LL-1.6WL |
| 20 | ACI 9-5             | 1,2DL+1LL+1 EL  |
| 21 | ACI 9-5             | 1.2DL+1LL-1 EL  |
| 22 |                     | .9DL+1.6WL      |
|    |                     |                 |

|      |                               |                     |                           | 5              |
|------|-------------------------------|---------------------|---------------------------|----------------|
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| Load | l Combinations                | (continued)         |                           |                |
| LC   | Combination                   | Load Sets           | Marie 1474 (1474 ) 144    |                |
| 23   | ACI 9-6                       | .9DL-1.6WL          |                           |                |
| 24   | ACI 9-7                       | .9DL+1EL            |                           |                |
| 25   | ACI 9-7                       | .9DL-1EL            |                           |                |

#### Anchor Bolt Embed Capacity Results

Note: All capacities shown include phi factors.

Single Bolt: Tension Capacity

| LC | Bolt | Tens.(k) | Nsa(k) | Ncb(k) | Npn (k) | Nsb(k) | Unity | Ductility | Load(k) | Steel(in2)  |
|----|------|----------|--------|--------|---------|--------|-------|-----------|---------|-------------|
| 1  | 1    | 0,       | 27.27  | 0,     | 25.2    | 0.     | 0.    | N.A.      | 0.      | 0.          |
|    | 2    | 0.       | 27.27  | 0.     | 25.2    | 0.     | 0.    | N.A.      | 0.      | 0.          |
|    | 3    | 0.       | 27.27  | Ο.     | 25.2    | 0.     | 0.    | N.A.      | 0,      | 0.          |
|    | 4    | 0.       | 27.27  | ٥.     | 25.2    | 0.     | 0.    | N.A.      | 0.      | 0.          |
| 2  | 1    | 0.       | 27.27  | 0.     | 25.2    | 0.     | 0.    | N.A.      | 0.      | 0.          |
|    | 2    | 0.       | 27.27  | O.     | 25.2    | 0.     | 0.    | N.A.      | 0.      | 0.          |
|    | 3    | O,       | 27.27  | O.     | 25.2    | 0.     | Ö.    | N.A.      | 0.      | 0.          |
|    | 4    | 0.       | 27.27  | 0.     | 25.2    | 0.     | 0.    | N.A.      | 0,      | 0.          |
| 3  | 1    | 3.403    | 27.27  | 0.     | 25.2    | 0.     | .135  | N.A.      | 3.403   | .076        |
|    | 2    | 3,403    | 27.27  | 0.     | 25.2    | Ō.     | .135  | N.A.      | 3.403   | .076        |
|    | 3    | 227      | 27,27  | 0,     | 25.2    | O.     | .009  | N.A.      | . 227   | .005        |
|    | 4    | .227     | 27.27  | 0.     | 25.2    | 0,     | ,009  | N.A.      | . 227   | ,005        |
| 4  | 1    | .227     | 27.27  | 0.     | 25.2    | 0.     | .009  | N.A.      | .227    | ,005        |
|    | 2    | .227     | 27.27  | 0.     | 25.2    | Ø,     | .009  | N.A.      | .227    | .005        |
| }  | 3    | 3,403    | 27.27  | 0,     | 25.2    | 0.     | ,135  | N.A.      | 3.403   | .076        |
|    | 4    | 3.403    | 27.27  | 0.     | 25.2    | 0.     | .135  | N.A.      | 3_403   | .076        |
| 5  | 1    | 6.644    | 27.27  | 0.     | 25.2    | 0,     | .264  | N.A.      | 6.644   | .148        |
|    | 2    | 6.644    | 27.27  | 0.     | 25.2    | 0.     | .264  | N.A.      | 6_644   | .148        |
|    | 3    | .427     | 27.27  | 0.     | 25.2    | 0.     | .017  | N.A.      | .427    | .009        |
| [  | 4    | .427     | 27.27  | 0,     | 25.2    | 0.     | .017  | N.A.      | .427    | .009        |
| 6  | 1    | .427     | 27.27  | 0.     | 25.2    | 0.     | 017   | N.A.      | .427    | .009        |
| ļ  | 2    | 427      | 27.27  | 0.     | 25.2    | 0.     | .017  | N.A.      | .427    | .009        |
|    | 3    | 6.644    | 27.27  | 0.     | 25.2    | 0.     | .264  | N.A.      | 6.644   | .148        |
|    | 4    | 6.644    | 27.27  | 0.     | 25.2    | 0.     | .264  | N.A.      | 6.644   | .148        |
| 7  | 1    | 1.262    | 27.27  | 0.     | 18.9    | 0,     | .067  | N.A.      | 1.262   | .028        |
|    | 2    | 1.262    | 27.27  | 0.     | 18.9    | 0.     | .067  | N.A.      | 1.262   | .028        |
|    | 3    | .003     | 27.27  | 0.     | 18.9    | 0,     | 0.    | N,A.      | .003    | 6.02116e-\$ |
|    | 4    | .003     | 27.27  | 0,     | 18.9    | 0.     | 0.    | N.A.      | . 003   | 6.01972e-\$ |
| 8  | 1    | ,003     | 27.27  | 0,     | 18.9    | 0.     | 0.    | N.A.      | . 003   | 6.01948e-\$ |
|    | 2    | .003     | 27.27  | 0,     | 18.9    | 0.     | 0.    | N.A.      | .003    | 6.01952e-5  |
|    | 3    | 1.262    | 27.27  | 0.     | 18.9    | 0      | .067  | N.A.      | 1.262   | .028        |
|    | 4    | 1.262    | 27.27  | 0.     | 18.9    | 0.     | .067  | N.A.      | 1.262   | .028        |
| 9  | 1    | 7.436    | 27.27  | 0.     | 25.2    | 0.     | .295  | N.A.      | 7.436   | .165        |
|    | 2    | 7.436    | 27.27  | 0.     | 25.2    | 0.     | .295  | N.A.      | 7.436   | .165        |
|    | 3    | .563     | 27.27  | 0.     | 25.2    | 0,     | ,022  | N.A.      | . 563   | .013        |
|    | 4    | .563     | 27.27  | 0.     | 25.2    | 0,     | .022  | N.A.      | . 563   | .013        |
| 10 | 1    | .563     | 27.27  | 0,     | 25.2    | 0,     | .022  | N.A.      | . 563   | .013        |
| L  | 2    | .563     | 27.27  | 0.     | 25.2    | 0,     | .022  | N.A.      | . 563   | .013        |
|    | 3    | 7.436    | 27.27  | 0.     | 25.2    | 0.     | .295  | N.A.      | 7.436   | .165        |
|    | 4    | 7.436    | 27.27  | 0.     | 25.2    | 0.     | .295  | N.A.      | 7.436   | .165        |
| 11 | 1    | 2.046    | 27.27  | 0.     | 18_9    | 0.     | .108  | N.A.      | 2.046   | .045        |
|    | 2    | 2.046    | 27.27  | 0.     | 18.9    | 0.     | .108  | N.A.      | 2.046   | .045        |
|    | 3    | .13      | 27.27  | 0.     | 18.9    | 0,     | .007  | N.A.      | . 13    | .003        |
|    | 4    | .13      | 27.27  | 0.     | 18.9    | 0,     | .007  | N.A.      | . 13    | .003        |

Company : BG Structural Engineering
Designer : BG
Job Number : 800.0617 Genesis Solar Heavy - BP1

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#### Single Bolt: Tension Capacity (continued)

| LC              | Bolt     | Tens.(k)         | Nsa(k)         | Ncb(k)   | Npn(k)       | Nsb(k)   | Unity          | Ductility    | Load(k)    | Steel(in2) |
|-----------------|----------|------------------|----------------|----------|--------------|----------|----------------|--------------|------------|------------|
| 12              | 1 1      | 13.13            | 27.27          | 0.       | 18.9         | 0.       | .007           | N.A.         | .13        | .003       |
| - <del></del> - | 2        | .13              | 27.27          | O,       | 18.9         | Ö.       | .007           | N.A.         | .13        | .003       |
| -               | 3        | 2.046            | 27.27          | 0.       | 18,9         | 0.       | 108            | N.A.         | 2,046      | .045       |
|                 | 4        | 2.046            | 27.27          | 0.       | 18.9         | 0.       | . 108          | N.A.         | 2.046      | ,045       |
| 13              | 1        | 0.               | 27.27          | 0.       | 25.2         | 0.       | 0.             | N.A.         | 0.         | 0.         |
|                 | 2        | 0.               | 27.27          | Ö.       | 25.2         | 0.       | 0.             | N.A.         | 0,         | 0,         |
|                 | 3        | 0.               | 27.27          | 0.       | 25.2         | 0,       | 0.             | N.A.         | 0.         | O.         |
|                 | 4        | Ö.               | 27,27          | 0,       | 25.2         | 0,       | 0.             | N.A.         | 0.         | 0.         |
| 14              | 1        | 0.               | 27.27          | 0,       | 25.2         | 0,       | 0.             | N,A,         | Q,         | 0.         |
|                 | 2        | 0.               | 27,27          | 0.       | 25,2         | 0,       | 0.             | N,A,         | 0.         | 0.         |
|                 | 3        | 0,               | 27.27          | 0,       | 25.2         | 0.       | 0,             | N.A.         | a.         | 0.         |
|                 | 4        | 0,               | 27.27          | 0,       | 25.2         | 0.       | 0.             | N.A.         | 0.         | 0.         |
| 15              | 1        | 0.               | 27.27          | 0.       | 25.2         | 0.       | 0.             | N.A.         | 0.         | 0.         |
|                 | 2        | 0.               | 27.27          | 0,       | 25.2         | 0,       | Q.             | N.A.         | 0.         | 0,         |
|                 | 3        | 0.               | 27.27          | 0,       | 25.2         | 0.       | Q.             | N.A.         | 0.         | 0.         |
|                 | 4        | 0.               | 27.27          | 0.       | 25.2         | 0.       | 0.             | N.A.         | 0.         | 0.         |
| 16              | 1        | 5.743            | 27.27          | 0.       | 25.2         | 0.       | .228           | N.A.         | 5.743      | .128       |
|                 | 2        | 5.743            | 27.27          | 0.       | 25.2         | 0.       | .228           | N.A.         | 5.743      | .128       |
|                 | 3        | .411             | 27,27          | 0.       | 25.2         | 0.       | .016           | N.A.         | .411       | ,009       |
|                 | 4        | .411             | 27.27          | 0.       | 25.2         | 0.       | .016           | N.A.         | .411       | .009       |
| 17              | 1        | .411             | 27.27          | 0.       | 25,2         | 0,       | .016           | N.A.         | .411       | .009       |
|                 | 2        | .411             | 27.27          | 0.       | 25.2         | 0.       | .016           | N.A.         | .411       | .009       |
|                 | 3        | 5.743            | 27.27          | 0,       | 25.2         | 0.       | .228           | N.A.         | 5,743      | .128       |
|                 | 4        | 5.743            | 27,27          | 0.       | 25.2         | 0.       | .228           | N,A,         | 5.743      | .128       |
| 18              | 1        | 10.664           | 27.27          | 0.       | 25,2         | 0,       | .423           | N.A.         | 10.664     | .237       |
|                 | 2        | 10,664           | 27.27          | 0.       | 25,2         | 0.       | .423           | N.A.         | 10.664     | .237       |
|                 | 3        | .689             | 27.27          | 0.       | 25.2         | 0.       | . 027          | N.A.         | .689       | .015       |
|                 | 4        | .689             | 27.27          | 0.       | 25.2         | 0.       | , 027          | N.A.         | .689       | .015       |
| 19              | 1        | .689             | 27.27          | 0.       | 25.2         | 0.       | .027           | N.A.         | .689       | .015       |
|                 | 2        | 689              | 27,27          | 0,       | 25.2         | 0,       | .027           | N.A.         | .689       | .015       |
| ļ               | 3        | 10.664           | 27.27          | O.       | 25.2         | 0,       | ,423           | N.A.         | 10.664     | .237       |
|                 | 4        | 10.664           | 27.27          | 0.       | 25.2         | 0.       | .423           | N.A.         | 10.664     | .237       |
| 20              | 1        | .671             | 27.27          | 0.       | 18.9         | 0.       | .035           | N.A.         | .671       | .015       |
|                 | 2        | .671             | 27.27          | 0.       | 18.9         | 0.       | .035           | N.A.         | .671       | .015       |
|                 | 3        | 0.               | 27.27          | 0.       | 18.9         | 0.       | 0.             | N.A.         | 0.         | 0.         |
|                 | 4        | 0.               | 27.27          | 0.       | 18.9         | 0,       | 0.             | N.A.         | 0.         | 0,         |
| 21              | 1        | 0.               | 27.27          | 0.       | 18.9         | 0.       | 0,             | N.A.         | 0.         | 0.         |
|                 | 2        | 0.               | 27,27          | 0.       | 18.9         | 0.<br>0. | 0.             | N.A.         | 0.<br>.671 | 0.<br>,015 |
| <u>-</u>        | 3        | 671              | 27.27          | 0.<br>0. | 18.9         | 0.       | .035<br>.035   | N.A.<br>N.A. | .671       | .015       |
| 00              | 4        | 671              | 27.27          |          | 18.9<br>25.2 | 0.<br>0. | . 035<br>. 482 | N.A.         | 12.135     | .015       |
| 22              | 2        | 12.135<br>12.135 | 27,27<br>27.27 | 0.<br>0. | 25.2         | 0.       | .482           | N.A.         | 12.135     | .27        |
|                 | 3        | .949             | 27.27          | 0,       | 25.2         | 0.       | . 038          | N.A.         | ,949       | .021       |
| $\vdash$        | 4        | .949             | 27.27          | 0,       | 25.2         | 0.       | .038           | N.A.         | ,949       | .021       |
| 23              | 1        | .949             | 27.27          | 0.       | 25.2         | 0.       | .038           | N.A.         | .949       | .021       |
|                 | 2        | .949             | 27.27          | 0.       | 25.2         | 0.       | .038           | N.A.         | .949       | .021       |
|                 | 3        | 12.135           | 27.27          | 0.<br>0. | 25.2         | 0.       | .482           | N.A.         | 12.135     | .27        |
|                 | 4        | 12.135           | 27.27          | 0.       | 25.2         | 0.       | .482           | N.A.         | 12.135     | .27        |
| 24              | 1        | 2.046            | 27.27          | 0.<br>0. | 18.9         | 0.       | . 108          | N.A.         | 2.046      | .045       |
| - 24            | 2        | 2.046            | 27.27          | 0.       | 18.9         | 0.       | . 108          | N.A.         | 2.046      | .045       |
|                 | 3        | .13              | 27.27          | 0.<br>0. | 18.9         | 0.       | .007           | N.A.         | .13        | .003       |
|                 | 4        | .13              | 27.27          | 0.       | 18.9         | 0.       | .007           | N.A.         | .13        | .003       |
| 25              | 1        | .13              | 27.27          | 0.       | 18.9         | 0.       | .007           | N.A.         | .13        | .003       |
| 25              | 2        | .13              | 27.27          | 0.       | 18.9         | 0.       | .007           | N.A.         | .13        | .003       |
|                 | 3        | 2.046            | 27.27          | 0.<br>0. | 18.9         | 0.<br>0. | . 108          | N.A.         | 2.046      | .005       |
|                 | 4        | 2,046            | 27.27          | 0.       | 18.9         | 0.       | . 108          | N.A.         | 2.046      | .045       |
| L               | <u> </u> | 2,040            | 41,41          | ν.       | 10.0         | <u> </u> | 1 . 100        | 1 13.73.     | £.070      | ערט, ן     |

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Checked By:\_

#### Single Bolt: Shear Capacity

| LC       | Bolt | Vx (k)    | Vz (k)    | Vsa(k)  | VcbXx(k)     | VcbXz(k)  | VcbZz(k)  | VcbZx(k)                              | Vcp (k)   | VxU nity | VzUnity  |
|----------|------|-----------|-----------|---------|--------------|-----------|-----------|---------------------------------------|-----------|----------|----------|
| 1 1      | 1 1  | 0.        | 0.        | 14.18   | 0.           | 0.        | 0.        | 0,                                    | 0.        | N.A.     | N.A.     |
| <u> </u> | 2    | Ö.        | 0.        | 14.18   | Ö.           | Ö.        | Ö.        | 0.                                    | 0.        | N.A.     | N.A.     |
| <u> </u> | 3    | Q.        | 0.        | 14.18   | 0,           | 0.        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
|          | 4    | 0         | 0.        | 14,18   | 0,           | 0.        | Ö,        | O.                                    | 0,        | N.A.     | N.A.     |
| 2        | 1    | 0.        | 0,        | 14,18   | 0.           | 0.        | 0.        | Ö.                                    | 0.        | N.A.     | N.A.     |
| <u> </u> | 2    | 0.        | 0,        | 14,18   | 0.           | 0.        | Ö.        | 0.                                    | 0,        | N.A.     | N.A.     |
|          | 3    | 0.        | 0.        | 14.18   | 0.           | 0.        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
|          | 4    | 0.        | 0.        | 14.18   | 0.           | <u>0.</u> | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
| 3        | 1    | 0.        | .18       | 14.18   | 0.           | 0.        | 0.        | 0.                                    | 0,        | N.A.     | N.A.     |
|          | 2    | 0.        | .18       | 14.18   | 0.           | <u>0.</u> | Ö,        | 0.                                    | 0.        | N.A.     | N.A.     |
|          | 3    | 0.        | .18       | 14.18   | 0.           | 0.        | 0.        | 0,                                    | 0.        | N.A.     | N.A.     |
|          | 4    | 0.        | .18       | 14,18   | 0.           | 0.        | 0.        | 0,                                    | 0.        | N.A.     | N.A.     |
| 4        | 1    | 0.        | -,18      | 14.18   | 0.           | 0.        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
|          | 2    | 0.        | 18        | 14.18   | 0.           | 0.        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
|          |      |           |           |         | 0.           |           |           |                                       |           | N.A.     |          |
| ļ        | 3    | 0,        | -,18      | 14.18   | <del> </del> | 0.        | 0,        | 0.                                    | 0.        |          | N.A.     |
| <u> </u> | 4    | 0.        | 18        | 14.18   | 0.<br>0.     | 0.        | 0.        | D                                     | 0.        | N.A.     | N.A.     |
| 5        | 1 1  | <u>0.</u> | .36       | 14.18   |              | 0,        | 0,        | 0,                                    | 0.        | N.A.     | N,A.     |
|          | 2    | 0.        | .36       | 14.18   | 0.           | 0.        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
|          | 3    | 0.        | .36       | 14.18   | 0.           | 0.        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
|          | 4    | 0.        | .36       | 14.18   | 0.           | 0,        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
| 6        | 1    | 0.        | 36        | 14.18   | 0.           | 0.        | O.        | 0.                                    | 0.        | N.A.     | N.A.     |
|          | 2    | <u>0.</u> | 36        | 14.18   | 0,           | 0.        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
|          | 3    | <u>0.</u> | 36        | 14.18   | 0.           | 0.        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
|          | 4    | 0.        | -,36      | 14.18   | 0.           | 0.        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
| 7        | 1    | 0.        | .124      | 14,18   | 0.           | 0.        | 0.        | 0.                                    | 0.        | N.A.     | N,A,     |
| ļ        | 2    | 0,        | .124      | 14.18   | 0,           | 0.        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
|          | 3    | 0.        | .124      | 14.18   | 0.           | 0.        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
|          | 4    | 0.        | .124      | 14.18   | 0.           | 0.        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
| 8        | 1    | Û.        | -,124     | 14,18   | 0.           | 0,        | 0,        | 0.                                    | 0.        | N,A,     | N.A.     |
| ļ        | 2    | 0.        | 124       | 14.18   | 0.           | 0.        | 0.        | 0.                                    | 0,        | N.A.     | N.A.     |
|          | 3    | 0.        | 124       | 14.18   | 0.           | 0.        | 0.        | 0.                                    | 0,        | N.A.     | N.A.     |
| L        | 4    | 0.        | 124       | 14.18   | 0.           | 0.        | 0.        | 0,                                    | 0.        | N.A.     | N.A.     |
| 9        | 1    | 0.        | ,36       | 14.18   | 0.           | 0.        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
|          | 2    | 0.        | .36       | 14.18   | 0.           | 0,        | 0,        | 0.                                    | 0.        | N.A.     | N.A.     |
|          | 3    | 0.        | .36       | 14.18   | 0.           | 0,        | 0.        | 0,                                    | 0.        | N.A.     | N.A.     |
|          | 4    | 0.        | .36       | 14,18   | 0.           | 0,        | 0.        | Û.                                    | 0.        | N.A.     | N.A.     |
| 10       | 1    | 0.        | <b>36</b> | 14.18   | 0.           | 0,        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
|          | 2    | Ö.        | 36        | 14.18   | Ó.           | Ö.        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
|          | 3    | 0.        | -,36      | 14.18   | 0.           | 0.        | 0.        | 0.                                    | 0.        | N.A      | N.A.     |
|          | 4    | Q.        | -,36      | 14.18   | 0.           | 0.        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
| 11       | 1    | 0.        | .124      | 14.18   | Q.           | 0.        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
|          | 2    | 0.        | .124      | 14.18   | 0.           | 0.        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
|          | 3    | 0,        | .124      | 14.18   | 0.           | 0.        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
|          | 4    | 0.        | .124      | 14.18   | O.           | 0.        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
| 12       | 1    | 0.        | 124       | 14.18   | 0.           | 0.        | 0.        | O.                                    | Ò.        | N.A.     | N.A.     |
|          | 2    | 0.        | 124       | 14.18   | 0.           | 0.        | 0.        | 0.                                    | Ò.        | N.A.     | N.A.     |
| 1        | 3    | 0.        | 124       | 14.18   | Ö.           | 0.        | 0.        | O.                                    | Ō.        | N.A.     | N.A.     |
|          | 4    | Ö,        | 124       | 14.18   | 0.           | 0.        | Ö.        | 0.                                    | O.        | N.A.     | N.A.     |
| 13       | 1    | 0.        | 0.        | 14.18   | Ö.           | 0.        | 0.        | 0.                                    | Ö.        | N.A.     | N.A.     |
|          | 2    | Ŏ.        | 0,        | 14.18   | 0.           | 0.        | Ö.        | Ö.                                    | O.        | N.A.     | N.A.     |
|          | 3    | 0.        | 0.        | 14.18   | 0,           | 0.        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
|          | 4    | 0.        | 0.        | 14.18   | 0.           | 0.        | Ö.        | Ö.                                    | Ö,        | N.A.     | N.A.     |
| 14       | 1    | 0.        | 0.        | 14.18   | 0.           | 0.        | Ö.        | 0.                                    | 0.        | N.A.     | N,A.     |
|          | 2    | 0.        | Ö         | 14.18   | 0.           | 0,        | <u>0.</u> | 0.                                    | <u>0.</u> | N.A.     | N.A.     |
|          | 3    | 0.        | o.<br>0.  | 14.18   | 0.           | O.        | Ö.        | 0.                                    | 0.        | N.A.     | N.A.     |
|          | 4    | 0.        | 0.        | 14.18   | 0.           | 0.        | 0.        | 0.                                    | 0.        | N.A.     | N.A.     |
| L        |      |           |           | 1-11-17 | L ¥/₹        | · · · ·   | ·         | · · · · · · · · · · · · · · · · · · · | ~.        |          | - 21/ 11 |

Company : BG Structural Engineering
Designer : BG
Job Number : 800.0617

Genesis Solar Heavy - BP1

March 15, 2017

Checked By:\_

#### Single Bolt: Shear Capacity (continued)

|    | Bolt  | Vx (k)    | Vz (k) | Vsa(k) | VcbXx(k)  | VcbXz(k)                              | VcbZz(k) | VcbZx(k) | Vcp (k)  | VxUnity | VzUnity  |
|----|-------|-----------|--------|--------|-----------|---------------------------------------|----------|----------|----------|---------|----------|
| 15 | 1     | 0,        | 0.     | 14.18  | 0.        | 0,                                    | 0.       | Ö.       | 0.       | N,A.    | N.A.     |
|    | 2     | 0.        | 0,     | 14.18  | 0.        | 0.                                    | 0.       | 0.       | 0.       | N.A.    | N.A.     |
|    | 3     | 0.        | 0.     | 14.18  | 0.        | 0.                                    | 0        | Ö.       | 0.       | N,A.    | N,A,     |
|    | 4     | 0.        | 0,     | 14.18  | 0.        | 0,                                    | 0.       | 0.       | 0.       | N,A,    | N.A.     |
| 16 | 1     | 0.        | .288   | 14.18  | 0.        | 0,                                    | 0.       | 0.       | O.       | N.A.    | N.A.     |
|    | 2     | 0.        | .288   | 14.18  | 0.        | Ö.                                    | 0.       | 0,       | 0.       | N.A.    | N,A,     |
|    | 3     | 0,        | .288   | 14.18  | 0.        | 0.                                    | 0.       | 0,       | 0.       | N.A.    | N.A.     |
|    | 4     | 0.        | .288   | 14,18  | 0.        | 0.                                    | 0.       | 0.       | 0.       | N.A.    | N.A.     |
| 17 | [ 1 ] | 0.        | 288    | 14.18  | 0.        | 0.                                    | 0.       | 0.       | 0.       | N.A.    | N.A.     |
|    | 2     | 0.        | 288    | 14.18  | 0.        | 0.                                    | 0.       | 0.       | 0.       | N.A.    | N.A.     |
|    | 3     | 0,        | 288    | 14.18  | 0.        | 0.                                    | 0.       | 0.       | 0,       | N,A,    | N.A.     |
|    | 4     | Q,        | 288    | 14.18  | 0.        | 0.                                    | 0.       | Ó,       | 0,       | N,A.    | N.A.     |
| 18 | 1     | 0.        | ,576   | 14.18  | 0.        | 0,                                    | 0.       | 0.       | 0.       | N.A.    | N.A.     |
|    | 2     | 0.        | .576   | 14.18  | 0.        | 0.                                    | 0.       | 0.       | 0.       | N.A.    | N.A.     |
|    | 3     | 0.        | ,576   | 14,18  | 0,        | 0,                                    | 0.       | 0.       | 0.       | N.A.    | N.A.     |
|    | 4     | 0.        | .576   | 14.18  | 0.        | 0.                                    | Ö.       | 0.       | 0.       | N.A.    | N.A.     |
| 19 | 1     | 0.        | 576    | 14.18  | 0.        | 0.                                    | O.       | 0.       | 0.       | N.A.    | N.A.     |
|    | 2     | Ö.        | ~,576  | 14.18  | 0.        | Ò.                                    | 0.       | 0.       | 0.       | N.A.    | N.A.     |
|    | 3     | 0.        | 576    | 14,18  | O.        | 0,                                    | 0,       | 0.       | 0.       | N.A.    | N.A.     |
|    | 4     | 0.        | 576    | 14,18  | 0.        | 0.                                    | 0.       | 0.       | 0.       | N.A.    | N.A.     |
| 20 | 1     | 0.        | .124   | 14.18  | 0.        | 0.                                    | 0.       | 0.       | 0.       | N.A.    | N.A.     |
|    | 2     | 0.        | .124   | 14.18  | 0.        | 0.                                    | 0,       | 0.       | 0,       | N.A.    | N.A.     |
|    | 3     | 0.        | .124   | 14,18  | 0.        | 0.                                    | 0.       | 0.       | 0.       | N.A.    | N.A.     |
|    | 4     | 0.        | .124   | 14.18  | 0.        | 0.                                    | 0.       | 0.       | 0.       | N.A.    | N.A.     |
| 21 | 1     | Ó.        | 124    | 14.18  | 0.        | 0.                                    | 0.       | 0,       | 0.       | N.A.    | N.A.     |
|    | Ž     | Q,        | 124    | 14.18  | 0.        | 0.                                    | 0.       | Ō.       | Ō,       | N.A.    | N.A.     |
|    | 3     | 0.        | 124    | 14.18  | 0.        | 0.                                    | O.       | 0.       | 0.       | N.A.    | N.A.     |
|    | 4     | O.        | 124    | 14.18  | 0.        | 0.                                    | 0.       | 0.       | 0.       | N.A.    | N.A.     |
| 22 | 1     | 0,        | .576   | 14.18  | Ö.        | 0,                                    | O.       | 0.       | 0,       | N.A.    | N.A.     |
|    | 2     | O,        | .576   | 14.18  | O.        | Ö.                                    | Ö.       | O.       | O.       | N.A.    | N.A.     |
|    | 3     | 0.        | .576   | 14.18  | 0.        | 0.                                    | 0.       | 0.       | 0,       | N.A.    | N.A.     |
|    | 4     | 0.        | .576   | 14.18  | Q,        | 0.                                    | 0.       | 0.       | 0.       | N.A.    | N.A.     |
| 23 | 1     | 0.        | 576    | 14.18  | 0.        | Q.                                    | 0.       | 0.       | Ö.       | N.A.    | N.A.     |
|    | 2     | 0.        | 576    | 14.18  | o.        | ō. l                                  | o.       | 0.       | Õ.       | N.A.    | N.A.     |
|    | 3     | 0.        | 576    | 14.18  | o.        | ō.                                    | 0.       | 0.       | Ö.       | N.A.    | N.A.     |
|    | 4     | Ö.        | 576    | 14.18  | 0.        | 0.                                    | Ö,       | Ö.       | Ö.       | N.A.    | N.A.     |
| 24 | 1     | Ö.        | 124    | 14.18  | 0.        | 0,                                    | Q.       | 0.       | 0.       | N.A.    | N.A.     |
|    | 2     | Ō.        | .124   | 14.18  | 0,        | D.                                    | 0.       | 0.       | 0.       | N.A.    | N.A.     |
|    | 3     | 0.        | 124    | 14.18  | 0.        | 0.                                    | 0.       | 0.       | 0.       | N.A.    | N.A.     |
|    | 4     | <u>0.</u> | 124    | 14.18  | 0.        | 0.                                    | 0.       | 0.       | 0.       | N.A.    | N.A.     |
| 25 | 1     | 0.        | -124   | 14.18  | 0.        | 0.                                    | 0.       | Ö.       | 0.<br>0. | N.A.    | N.A.     |
|    | 2     | 0,        | 124    | 14.18  | <u>0.</u> | 0.                                    | 0.       | 0.       | 0.       | N.A.    | N.A.     |
|    | 3     | 0.        | 124    | 14.18  | 0.        | 0.                                    | 0.       | 0.       | 0.       | N.A.    | N.A.     |
|    | 4     | 0.        | 124    | 14.18  | 0.        | 0.                                    | 0.       | 0.       | 0.       | N.A.    | N.A.     |
| L  | ·     | ~.        | · 14-T | 17.10  | , V. )    | · · · · · · · · · · · · · · · · · · · | U. 1     | υ,       | ν.       | 13070   | 14-(7- ) |

#### Single Bolt: Seismic Ductility & Anchor Reinforcement Results

| LC | Bolt | Vx (k) | Vz (k) | VxUnity | VzUnit <b>y</b> | Vx-Duct | Vx-L(k) | Vx-St(in2) | Vz-Duct | Vz-L(k) | Vz-St(in2) |
|----|------|--------|--------|---------|-----------------|---------|---------|------------|---------|---------|------------|
| 1  | 1 1  | 0.     | 0.     | N.A.    | N.A.            | N.A.    | 0.      | 0.         | N.A.    | 0.      | 0.         |
|    | 2    | 0.     | 0.     | N.A.    | N.A.            | N.A.    | 0.      | 0.         | N.A.    | 0.      | Ö.         |
|    | 3    | 0.     | 0.     | N.A.    | N.A.            | N.A.    | 0.      | 0.         | N.A.    | 0.      | 0.         |
|    | 4    | 0.     | 0.     | N.A.    | N.A.            | N.A.    | 0.      | 0.         | N.A.    | 0.      | 0,         |
| 2  | 1    | 0.     | 0.     | N.A.    | N.A.            | N.A.    | 0.      | 0.         | N,A.    | 0.      | 0.         |
|    | 2    | O.     | 0.     | N.A.    | N.A.            | N.A.    | 0.      | 0.         | N.A.    | 0.      | 0.         |
|    | 3    | 0,     | 0.     | N.A.    | N.A.            | N.A.    | 0.      | 0.         | N.A.    | 0.      | 0.         |
|    | 4    | 0.     | 0.     | N.A.    | N.A.            | N.A.    | 0.      | 0.         | N.A.    | 0.      | 0.         |

Company : BG Structural Engineering Designer : BG

Job Number: 800,0617

Genesis Solar Heavy - BP1

March 15, 2017

Checked By:

#### Single Bolt: Seismic Ductility & Anchor Reinforcement Results (continued)

| LC       | Bolt | Vx (k)     | Vz (k) | VxUn ity | VzUnity      | Vx-Duct      | Vx-L(k) | Vx-St(in2) |      |              | Vz-St(in2) |
|----------|------|------------|--------|----------|--------------|--------------|---------|------------|------|--------------|------------|
| 3        | 1    | 0.         | .18    | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | .18          | .004       |
|          | 2    | 0.         | .18    | N.A_     | N,A.         | N.A.         | 0.      | 0.         | N.A. | .18          | .004       |
|          | 3    | Ö,         | .18    | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | .18          | .004       |
|          | 4    | 0,         | .18    | N.A.     | N,A,         | N.A.         | 0.      | Ö,         | N,A, | .18          | .004       |
| 4        | 1    | 0.         | 18     | N.A.     | N,A,         | N.A.         | 0,      | 0,         | N.A. | .18          | .004       |
|          | 2    | 0.         | 18     | N,A.     | N.A.         | N.A.         | 0,      | 0.         | N.A. | ,18          | .004       |
|          | 3    | 0.         | -,18   | N.A.     | N.A.         | N.A.         | Q.      | 0.         | N,A. | .18          | .004       |
|          | 4    | O.         | -,18   | N.A.     | N.A.         | N.A.         | Q.      | 0.         | N.A. | .18          | .004       |
| 5        | 1    | 0.         | .36    | N.A.     | N.A.         | N.A.         | 0.      | O.         | N.A. | .36          | .008       |
|          | 2    | 0.         | ,36    | N.A.     | N.A.         | N,A.         | 0.      | 0.         | N.A. | .36          | .008       |
| •        | 3    | 0.         | .36    | N.A.     | N.A.         | N.A.         | 0.      | 0,         | N,A, | .36          | .008       |
|          | 4    | 0.         | .36    | N.A.     | N.A.         | N.A.         | Ó.      | 0.         | N,A, | .36          | .008       |
| 6        | 1    | 0.         | 36     | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | .36          | .008       |
| 1        | 2    | 0,         | 36     | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | .36          | .008       |
|          | 3    | 0.         | -,36   | N.A.     | N.A.         | N.A.         | Ö.      | 0,         | N.A. | .36          | .008       |
|          | 4    | 0.         | -,36   | N.A.     | N.A.         | N,A,         | 0.      | 0.         | N.A. | .36          | .008       |
| 7        | 1    | 0.         | .124   | N.A.     | N.A.         | N.A.         | Ö.      | Ö.         | N.A. | ,124         | .003       |
|          | 2    | 0.         | .124   | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | .124         | ,003       |
|          | 3    | 0.         | .124   | N.A.     | N.A.         | N.A.         | 0.      | O.         | N.A. | .124         | .003       |
|          | 4    | 0.         | .124   | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | .124         | .003       |
| 8        | 1    | 0.         | 124    | N.A.     | N.A.         | N,A.         | 0.      | Ō.         | N,A. | .124         | .003       |
|          | 2    | 0.         | 124    | N.A.     | N.A.         | N.A.         | O.      | 0.         | N,A, | .124         | .003       |
|          | 3    | 0.         | 124    | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | .124         | .003       |
|          | 4    | 0.         | 124    | N.A.     | N.A.         | N.A.         | Ö.      | 0.         | N.A. | .124         | .003       |
| 9        | 1    | 0.         | .36    | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | .36          | .008       |
| "        | 2    | 0.         | .36    | N.A.     | N.A.         | N.A.         | 0.      | 0,         | N.A. | .36          | ,008       |
|          | 3    | 0.         | .36    | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | .36          | .008       |
|          | 4    | 0.         | .36    | N.A.     | N.A.         | N.A.         | Ö.      | 0.         | N.A. | .36          | .008       |
| 10       | 1    | 0.<br>0.   | 36     | N.A.     | N.A.         | N.A.         | 0.      | 0,         | N.A. | .36          | .008       |
| 1.0      | 2    | 0.         | 36     | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | .36          | .008       |
|          | 3    | 0.         | 36     | N.A.     | N.A.         | N.A.         | Ö.      | 0.         | N.A. | .36          | .008       |
| }        | 4    | 0.         | 36     | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | ,36          | .008       |
| 11       | 1    | 0.         | .124   | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | .124         | .003       |
| 111      | 2    | 0.         | .124   | N.A.     | N.A.         | N,A.         | 0.      | 0.         | N.A. | .124         | .003       |
|          | 3    | 0.         | .124   | N.A.     | N.A.<br>N.A. | N.A.         | 0.      | 0.         | N.A. | .124         | .003       |
|          | 4    |            |        |          |              |              | 0.      | 0.         | N.A. | ,124<br>,124 | .003       |
| 10       |      | 0.         | .124   | N.A.     | N.A.         | N.A.         | 0.      | 0.         |      | .124         | .003       |
| 12       | 1    | 0.         | 124    | N.A.     | N.A.         | N.A.         |         |            | N.A. |              | .003       |
|          | 2    | 0.         | -,124  | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | .124         |            |
| <b> </b> | 3    | 0,         | 124    | N.A.     | N.A.         | N,A.<br>N.A. | 0.      | 0.<br>0.   | N.A. | .124<br>.124 | .003       |
| 1,0      | 4    | 0.         | 124    | N.A.     | N.A.         |              | 0.      |            | N.A. |              | .003       |
| 13       | 1    | 0.         | 0.     | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | 0.           | 0.         |
|          | 2    | 0.         | 0.     | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | 0.           | 0.         |
| <u> </u> | 3    | 0.         | 0.     | N.A.     | N.A.         | N.A.         | 0.      | 0,         | N.A. | 0.           | 0.         |
|          | 4    | 0.         | 0.     | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | 0.           | 0.         |
| 14       | 1    | 0.         | 0,     | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | 0.           | 0.         |
|          | 2    | 0.         | 0,     | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | 0.           | 0.         |
|          | 3    | 0.         | 0,     | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | 0.           | 0.         |
|          | 4    | <b>0</b> . | 0.     | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | 0.           | 0.         |
| 15       | 1    | 0.         | 0.     | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | 0.           | 0.         |
|          | 2    | 0.         | 0.     | N.A.     | N.A.         | N.A.         | 0.      | 0,         | N.A. | 0.           | 0.         |
|          | 3    | 0.         | 0.     | N.A.     | N.A.         | N.A.         | 0.      | 0,         | N.A. | 0.           | 0.         |
|          | 4    | 0.         | 0.     | N.A.     | N.A.         | N.A.         | 0.      | 0,         | N.A. | 0.           | 0.         |
| 16       | 1    | 0.         | ,288   | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | .288         | .006       |
|          | 2    | 0.         | .288   | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | .288         | .006       |
|          | 3    | 0.         | .288   | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | .288         | .006       |
| L        | 4    | 0.         | .288   | N.A.     | N.A.         | N.A.         | 0.      | 0.         | N.A. | .288         | .006       |

Company : BG Structural Engineering
Designer : BG
Job Number : 800.0617

Genesis Solar Heavy - BP1

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#### Single Bolt: Seismic Ductility & Anchor Reinforcement Results (continued)

| LC          | Bolt  | Vx (k) | Vz (k)       | VxUnity | VzUnity | Vx-Duct | Vx-L(k) | Vx-St(in2) | Vz-Duct | Vz-L(k) | Vz-St(in2) |
|-------------|-------|--------|--------------|---------|---------|---------|---------|------------|---------|---------|------------|
| 17          | [ 1 ] | 0.     | -,288        | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .288    | .006       |
|             | 2     | 0.     | -,288        | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .288    | .006       |
| , , , , , , | 3     | 0.     | -,288        | N.A.    | N,A,    | N.A.    | 0.      | 0.         | N.A.    | .288    | .006       |
|             | 4     | 0.     | 288          | N.A.    | N,A.    | N,A.    | 0.      | 0.         | N.A.    | .288    | .006       |
| 18          | 1     | 0.     | .576         | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .576    | .013       |
|             | 2     | 0.     | .576         | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .576    | .013       |
|             | 3     | 0.     | .576         | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .576    | .013       |
|             | 4     | 0.     | .576         | N.A.    | A,A     | N.A.    | 0.      | 0.         | N.A.    | .576    | .013       |
| 19          | 1     | 0.     | 576          | N.A.    | N,A.    | N.A.    | 0.      | 0.         | N.A.    | .576    | .013       |
|             | 2     | 0.     | <b>-,576</b> | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .576    | .013       |
|             | 3     | 0.     | 576          | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .576    | .013       |
|             | 4     | 0.     | -,576        | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .576    | .013       |
| 20          | 1     | 0,     | .124         | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .124    | .003       |
|             | 2     | 0.     | .124         | N.A.    | N.A.    | N.A.    | Q,      | 0,         | N.A.    | .124    | .003       |
|             | 3     | 0.     | .124         | N.A.    | N,A.    | N.A.    | 0,      | 0.         | N.A.    | .124    | .003       |
|             | 4     | 0.     | .124         | N.A.    | N.A.    | N.A.    | Q,      | 0,         | N.A.    | .124    | .003       |
| 21          | 1     | 0.     | 124          | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .124    | .003       |
|             | 2     | 0.     | -,124        | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .124    | .003       |
|             | 3     | 0.     | 124          | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .124    | .003       |
|             | 4     | 0.     | -,124        | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .124    | .003       |
| 22          | 1     | 0.     | .576         | N.A.    | N.A.    | N,A.    | 0.      | 0.         | N.A.    | .576    | .013       |
|             | 2     | 0.     | .576         | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .576    | .013       |
|             | 3     | 0.     | .576         | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .576    | .013       |
|             | 4     | 0.     | .576         | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .576    | .013       |
| 23          | 1     | 0.     | -,576        | N.A.    | N.A.    | N,A,    | 0.      | 0.         | N.A.    | ,576    | .013       |
|             | 2     | 0.     | 576          | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .576    | .013       |
|             | 3     | 0.     | -,576        | N.A.    | N.A.    | N.A.    | 0.      | 0,         | N.A.    | .576    | .013       |
| l           | 4     | 0.     | 576          | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N,A.    | .576    | .013       |
| 24          | 1     | 0.     | .124         | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A,    | .124    | .003       |
|             | 2     | 0.     | ,124         | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .124    | .003       |
|             | 3     | 0.     | .124         | N.A.    | N.A.    | N.A.    | Ò.      | 0,         | N.A.    | .124    | .003       |
|             | 4     | 0,     | .124         | N.A.    | N.A.    | N.A.    | 0,      | 0,         | N.A.    | .124    | .003       |
| 25          | 1     | 0.     | 124          | N.A.    | N.A.    | N.A.    | 0.      | Ò,         | N.A.    | .124    | .003       |
|             | 2     | 0.     | 124          | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .124    | .003       |
|             | 3     | 0.     | 124          | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .124    | .003       |
|             | 4     | 0.     | 124          | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .124    | .003       |

Company : BG Structural Engineering
Designer : BG
Job Number : 800.0617 Genesis Solar Heavy - BP1

March 15, 2017

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#### Single Bolt: Combined Tension and Shear Capacity

| LC       | Bolt   | Nn(k)  | Vnx(k) | Vnz(k) | SRSS     | Interaction |
|----------|--------|--------|--------|--------|----------|-------------|
| 1        | 1      | 25,2   | 0.     | 0.     | 0.       | ₽N.A.       |
|          | 2      | 25,2   | 0.     | 0.     | 0.       | N.A.        |
|          | 3      | 25.2   | 0.     | 0.     | 0.       | N.A.        |
|          | 4      | 25.2   | 0.     | 0.     | 0.       | N.A.        |
| 2        | 1      | 25.2   | 0.     | 0.     | 0.       | N.A.        |
| ļ        | 2      | 25.2   | 0.     | 0.     | 0.       | N.A.        |
|          | 3      | 25.2   | 0.     | 0,     | Ö.       | N.A.        |
|          | 4      | 25.2   | 0,     | 0,     | 0.       | N.A.        |
| 3        | 1      | 25.2   | 0,     | 0,     | .135     | N,A,        |
|          | 2      | 25.2   | 0,     | 0,     | .135     | N.A.        |
|          | 3      | 25.2   | 0.     | 0.     | .009     | N.A.        |
|          | 4      | 25.2   | 0.     | 0.     | .009     | N.A.        |
| 4        | 1      | 25,2   | .0.    | 0.     | .009     | N.A.        |
|          | 2      | 25.2   | 0.     | Ö,     | .009     | N.A,        |
|          | 3      | 25.2   | 0.     | 0.     | .135     | N,A.        |
|          | 4      | 25.2   | 0.     | 0,     | .135     | N.A.        |
| 5        | 1      | 25.2   | 0,     | 0.     | ,264     | .264        |
|          | 2      | 25.2   | 0.     | 0.     | .264     | .264        |
| <b> </b> | 3      | 25.2   | Ō.     | 0.     | .017     | N.A.        |
|          | 4      | 25.2   | Ö.     | 0.     | .017     | N.A.        |
| 6        | 1      | 25.2   | 0.     | Ō.     | .017     | N.A.        |
|          | 2      | 25,2   | 0.     | Ö.     | 017      | N.A.        |
|          | 3      | 25,2 . | 0.     | 0.     | 264      | .264        |
|          | 4      | 25,2   | 0.     | 0.     | 264      | .264        |
| 7        | 1      | 18.9   | 0.     | 0.     | .067     | NA,         |
|          | 2      | 18.9   | 0.     | 0.     | .067     | N.A.        |
|          | 3      | 18.9   | 0.     | 0.     | 00014336 |             |
|          | 4      | 18.9   | 0.     | 0.     | 00014332 |             |
| 8        | 1      | 18.9   | 0.     | 0.     | 00014332 | N.A.        |
|          | 2      | 18.9   | 0.     | 0.     | 00014332 |             |
|          | 3      | 18.9   | 0.     | O.     | .067     | N.A.        |
| *****    | 4      | 18.9   | 0.     | 0.     | .067     | N.A.        |
| 9        | 1      | 25.2   | 0.     | 0,     | .295     | .295        |
|          | 2      | 25.2   | 0.     | Q,     | .295     | .295        |
|          | 3      | 25.2   | 0.     | 0.     | .022     | N.A.        |
|          | 4      | 25.2   | 0.     | 0.     | .022     | N.A.        |
| 10       | 1      | 25.2   | 0.     | 0.     | .022     | N.A.        |
|          | 2      | 25.2   | 0.     | 0.     | .022     | N.A.        |
|          | 3      | 25.2   | 0.     | 0.     | .295     | .295        |
|          | 4      | 25,2   | 0.     | 0.     | .295     | .295        |
| 11       | 1      | 18.9   | 0.     | 0.     | .108     | N.A.        |
|          | 2      | 18.9   | 0.     | 0.     | .108     | N.A.        |
|          | 3      | 18.9   | 0.     | 0.     | .007     | N.A.        |
|          | 4      | 18.9   | 0.     | 0.     | .007     | N.A.        |
| 12       | 1      | 18.9   | 0.     | 0.     | .007     | N.A.        |
|          | 2      | 18.9   | 0.     | 0.     | .007     | N.A.        |
|          | 2<br>3 | 18.9   | 0.     | 0.     | .108     | N.A.        |
|          | 4      | 18.9   | 0.     | 0.     | .108     | N.A.        |
| 13       | 1      | 25,2   | 0.     | 0.     | 0.       | N.A.        |
|          | 2      | 25.2   | 0.     | 0.     | 0.       | N.A.        |
|          | 3      | 25.2   | 0.     | 0.     | 0.       | N.A.        |
|          | 4      | 25.2   | 0.     | 0,     | 0.       | N.A.        |
| 14       | 1      | 25.2   | 0.     | 0.     | 0.       | N.A.        |
|          | 2      | 25.2   | 0.     | 0.     | 0.       | N.A.        |
|          | 3      | 25,2   | 0.     | 0.     | 0.       | N.A.        |
|          | 4      | 25,2   | 0.     | 0.     | 0.       | N.A.        |
|          | احتنصا |        |        | L      |          |             |

Company : BG Structural Engineering Designer : BG

Designer : BG Job Number : 800.0617

Genesis Solar Heavy - BP1

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#### Single Bolt: Combined Tension and Shear Capacity (continued)

| LC | Bolt | Nn(k) | Vnx(k) | Vnz(k) | SRSS | Interaction |
|----|------|-------|--------|--------|------|-------------|
| 15 | 1    | 25.2  | 0.     | 0.     | 0.   | N.A.        |
|    | 2    | 25.2  | 0.     | 0.     | 0.   | N.A.        |
|    | 3    | 25.2  | 0.     | 0.     | 0,   | N.A.        |
|    | 4    | 25.2  | 0.     | 0.     | O.   | N.A.        |
| 16 | 1    | 25,2  | 0.     | 0.     | .228 | .228        |
|    | 2    | 25.2  | Ö.     | 0.     | .228 | .228        |
|    | 3    | 25.2  | 0.     | 0.     | ,016 | N,A.        |
|    | 4    | 25.2  | 0.     | 0.     | ,016 | N,A,        |
| 17 | 1    | 25.2  | 0.     | 0.     | .016 | N.A.        |
|    | 2    | 25.2  | 0.     | 0.     | .016 | N.A.        |
|    | 3    | 25.2  | 0,     | 0.     | .228 | .228        |
|    | 4    | 25,2  | Q,     | 0.     | .228 | .228        |
| 18 | 1    | 25,2  | 0,     | 0.     | .423 | .423        |
|    | 2    | 25.2  | 0.     | Ō.     | .423 | .423        |
|    | 3    | 25.2  | 0,     | 0.     | .027 | N.A.        |
|    | 4    | 25.2  | 0.     | 0.     | .027 | N.A.        |
| 19 | 1    | 25.2  | 0.     | O.     | .027 | N.A.        |
|    | 2    | 25.2  | 0.     | 0.     | .027 | N.A.        |
|    | 3    | 25.2  | 0,     | 0.     | .423 | .423        |
|    | 4    | 25.2  | 0.     | 0.     | .423 | .423        |
| 20 | 1    | 18.9  | 0.     | 0.     | .035 | N,A.        |
|    | 2    | 18,9  | 0.     | Q.     | ,035 | N.A.        |
|    | 3    | 18.9  | Ō,     | Q.     | O,   | N.A.        |
|    | 4    | 18,9  | 0.     | 0.     | 0.   | N.A.        |
| 21 | 1    | 18.9  | Û.     | 0.     | 0.   | N.A.        |
|    | 2    | 18,9  | Q.     | 0_     | 0.   | N.A.        |
|    | 3    | 18.9  | Ō,     | 0_     | .035 | N.A.        |
|    | 4    | 18.9  | O.     | 0.     | .035 | N.A.        |
| 22 | 1    | 25,2  | 0.     | 0.     | .482 | .482        |
|    | 2    | 25.2  | 0,     | 0.     | .482 | .482        |
|    | 3    | 25.2  | 0.     | 0.     | .038 | N.A.        |
|    | 4    | 25.2  | 0.     | 0.     | .038 | N.A.        |
| 23 | 1    | 25.2  | 0.     | Ö.     | .038 | N.A.        |
|    | 2    | 25.2  | 0.     | 0.     | .038 | N.A.        |
|    | 3 ]  | 25.2  | 0.     | 0.     | .482 | .482        |
|    | 4    | 25.2  | 0.     | 0.     | .482 | .482        |
| 24 | 1    | 18.9  | 0.     | 0.     | .108 | N.A.        |
|    | 2    | 18,9  | 0,     | 0.     | .108 | N,A.        |
|    | 3    | 18.9  | 0.     | 0.     | .007 | N.A.        |
|    | 4    | 18.9  | 0.     | 0.     | .007 | N.A.        |
| 25 | 1    | 18.9  | 0.     | 0.     | .007 | N.A.        |
|    | 2    | 18.9  | Ö.     | 0.     | .007 | N.A.        |
|    | 3    | 18.9  | 0.     | 0.     | .108 | N.A.        |
|    | 4    | 18.9  | 0,     | 0.     | .108 | N.A.        |

Tension Bolt Groups

Group Bolt List T-1 | 1, 2, 3, 4

Shear Bolt Groups

| Group Tyl | Full   1, 2, 3, 4 | 1      |
|-----------|-------------------|--------|
|           | Nr Edge 1, 2      | $\neg$ |
| 1         | SideFull   1, 3   | ٦      |
|           | SideNr J 1        | $\neg$ |

Company Designer : BG Structural Engineering

: BG 31

Job Number: 800.0617

Genesis Solar Heavy - BP1

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#### Shear Bolt Groups (continued)

| Group | Type | ailure Bolt List              |
|-------|------|-------------------------------|
| S-2   | -Vz  | Full   1, 2, 3, 4             |
|       |      | Edge   3, 4                   |
|       |      | eFull   1, 3                  |
|       |      | deNr 13                       |
| S-3   | +Vx  | -ul   1, 2, 3, 4              |
|       |      | Edg⊕   1, 3                   |
|       |      | leFulf   1, 2                 |
|       |      | deNr }1                       |
| S-4   | -Vx  | <sup>2</sup> ull   1, 2, 3, 4 |
|       |      | Edge   2, 4                   |
|       |      | eFuil 1, 2                    |
|       |      | deNr 12                       |

#### Anchor Bolt Group Embed Capacity Results

Note: All capacities shown include phi factors

**Group Bolt: Tension Capacity** 

| LC | Group | Tens.(k) | Nsa(k) | Ncbg(k) | Nsbg(k) | Unity | Ductility | Load(k) | Steel(in) |
|----|-------|----------|--------|---------|---------|-------|-----------|---------|-----------|
| 1  | T-1   | 0.       | 0.     | 0.      | 0.      | N.A.  | N.A.      | 0.      | 0,        |
| 2  | T-1   | 0,       | 0.     | 0.      | 0.      | N.A.  | N.A.      | Ο.      | 0.        |
| 3  | T-1   | 7,26     | 0.     | 0.      | 0.      | N.A.  | N,A,      | 7,26    | ,161      |
| 4  | T-1   | 7.26     | 0.     | 0.      | 0.      | N.A.  | N.A.      | 7.26    | .161      |
| 5  | T-1   | 14.141   | 0.     | 0.      | O.      | N.A.  | N.A.      | 14.141  | .314      |
| 6  | ( T-1 | 14,141   | 0.     | 0.      | 0.      | N.A.  | N.A.      | 14.141  | .314      |
| 7  | T-1   | 2.53     | 0.     | 0.      | 0.      | N.A.  | N.A.      | 2,53    | .056      |
| 8  | T-1   | 2.53     | 0.     | 0.      | 0.      | N.A.  | N.A.      | 2.53    | .056      |
| 9  | T-1   | 15,999   | 0.     | 0.      | 0.      | N.A.  | N.A.      | 15.999  | .356      |
| 10 | T-1   | 15,999   | 0.     | 0.      | 0.      | N.A.  | N.A.      | 15.999  | .356      |
| 11 | T-1   | 4.351    | 0.     | 0.      | O,      | N.A,  | N.A.      | 4.351   | .097      |
| 12 | T-1   | 4.351    | 0.     | 0.      | 0. ,    | N.A.  | N.A.      | 4.351   | .097      |
| 13 | T-1   | 0,       | 0.     | 0.      | 0.      | N.A.  | N.A.      | 0.      | 0.        |
| 14 | T-1   | 0.       | 0.     | 0.      | 0.      | N.A.  | N.A.      | 0.      | 0.        |
| 15 | T-1   | 0.       | 0.     | 0,      | 0.      | N.A,  | N,A.      | 0.      | 0.        |
| 16 | T-1   | 12.309   | 0.     | 0.      | 0.      | N.A.  | N.A.      | 12,309  | .274      |
| 17 | T-1   | 12,309   | 0_     | 0.      | 0.      | N.A.  | N.A.      | 12,309  | .274      |
| 18 | T-1   | 22,705   | 0.     | 0.      | 0.      | N.A.  | N.A.      | 22,705  | .505      |
| 19 | T-1   | 22,705   | 0.     | 0.      | 0.      | N.A.  | N.A.      | 22,705  | .505      |
| 20 | T-1   | 1.342    | 0.     | 0.      | 0.      | N.A.  | N.A.      | 1.342   | .03       |
| 21 | T-1   | 1.342    | 0.     | 0.      | 0.      | N.A.  | N.A.      | 1.342   | .03       |
| 22 | T-1   | 26.169   | 0.     | 0.      | 0.      | N.A,  | N.A.      | 26.169  | .582      |
| 23 | T-1   | 26.169   | 0.     | 0.      | 0.      | N.A.  | N.A.      | 26.169  | .582      |
| 24 | T-1   | 4.351    | 0.     | 0,      | 0.      | N.A.  | N.A.      | 4.351   | .097      |
| 25 | T-1   | 4.351    | 0.     | 0.      | 0.      | N.A.  | N.A.      | 4.351   | .097      |

Shear Groups: Shear Capacity

|   | LC | Gr  | Type Failure | Vx (k) | Vz (k) | Vsa(k) | VcbgXx(k) | VcbgXz(k) | VcbgZz(k) | VcbgZx(k) | Vcpg(k) | VxUnity | VzUnity |  |
|---|----|-----|--------------|--------|--------|--------|-----------|-----------|-----------|-----------|---------|---------|---------|--|
| ļ | 3  | S-1 | +Vz   Full   | 0.     | .72    | 0.     | 0.        | 0.        | 0.        | 0.        | 0.      | N.A.    | N.A.    |  |
|   |    | 1   | Nr Edge      | 0.     | .36    | 0,     | 0.        | Õ.        | 0.        | 0.        | Q.      | N.A.    | N.A.    |  |

Company : BG Structural Engineering Designer : BG

Job Number: 800,0617

Genesis Solar Heavy - BP1

March 15, 2017

Checked By:\_

#### Shear Groups: Shear Capacity (continued)

| LC | Gr   | Type Failure | Vx (k) | Vz (k)       | Vsa(k) | VcbgXx(k) | VcbgXz(k) | VcbgZz(k) | VcbgZx(k) | Vcpg(k) | VxUnity | VzUnity |
|----|------|--------------|--------|--------------|--------|-----------|-----------|-----------|-----------|---------|---------|---------|
| 4  | \$-2 |              | 0.     | 72           | 0.     | 0.        | 0.        | 0.        | 0.        | 0.      | N.A.    | N.A.    |
|    |      | Nr Edge      | 0.     | 36           | 0.     | 0.        | 0.        | 0.        | 0.        | 0.      | N.A.    | N.A.    |
| 5  | S-1  | +Vz I Full   | 0,     | 1.44         | 0.     | 0.        | 0.        | 0.        | 0.        | 0.      | N,A.    | N.A.    |
|    | 1.   | Nr Edge      | 0.     | ,72          | 0.     | 0.        | 0.        | Ö.        | 0.        | 0.      | N.A.    | N.A.    |
| 6  | S-2  | -Vz Full     | 0.     | -1.44        | 0.     | O.        | 0.        | 0.        | 0.        | 0.      | N.A.    | N.A.    |
|    |      | Nr Edge      | Ö.     | 72           | 0.     | 0.        | 0.        | 0.        | 0.        | 0.      | N.A.    | N.A.    |
| 7  | S-1  | +Vz   Full   | 0.     | .496         | 0.     | 0.        | O.        | 0.        | 0.        | 0.      | N.A.    | N.A.    |
|    |      | Nr Edge      | 0.     | .248         | 0.     | 0.        | 0.        | 0.        | 0.        | 0.      | N.A.    | N,A.    |
| 8  | S-2  | -Vz   Full   | 0.     | 496          | 0.     | 0.        | 0.        | 0,        | 0,        | 0.      | N.A.    | N.A.    |
| 1  |      | Nr Edge      | 0.     | <b>4.248</b> | Q.     | O,        | 0,        | Q.        | 0.        | 0.      | N.A.    | N.A.    |
| 9  | S-1  | +Vz   Full   | 0.     | 1.44         | 0,     | 0.        | 0.        | 0,        | 0.        | 0, .    | N.A.    | N.A.    |
|    |      | Nr Edge      | 0.     | .72          | 0.     | 0.        | 0.        | 0,        | 0.        | 0.      | N.A.    | N.A.    |
| 10 | S-2  | -Vz Full     | 0.     | -1.44        | 0.     | 0.        | 0.        | 0.        | 0.        | 0.      | N.A.    | N.A.    |
|    | T    | Nr Edge      | Ō,     | -,72         | 0.     | 0.        | 0.        | 0.        | 0.        | 0,      | N.A.    | N.A.    |
| 11 | S-1  | +Vz   Full   | 0.     | .496         | 0.     | 0.        | 0.        | 0,        | 0.        | Q,      | N.A.    | N.A.    |
|    |      | Nr Edge      | 0,     | ,248         | 0,     | 0,        | 0,        | 0.        | 0.        | 0.      | N.A.    | N,A,    |
| 12 | S-2  | -Vz   Full   | 0.     | 496          | 0.     | 0.        | 0.        | 0.        | 0.        | 0.      | N.A.    | N.A.    |
|    | T    | Nr Edge      | 0.     | 248          | 0.     | 0.        | 0.        | 0.        | 0.        | 0.      | N.A.    | N.A.    |
| 16 | S-1  | +Vz   Full   | 0.     | 1.152        | 0.     | 0.        | 0.        | 0.        | 0.        | 0.      | N.A.    | N.A.    |
| İ  |      | Nr Edge      | 0,     | ,576         | 0.     | 0.        | 0.        | 0.        | 0.        | 0.      | N.A.    | N.A.    |
| 17 | S-2  | -Vz   Full   | O.     | -1.152       | 0,     | 0,        | 0.        | 0.        | 0.        | O,      | N.A.    | N,A.    |
|    | 1    | Nr Edge      | 0.     | 576          | 0.     | 0.        | 0.        | 0.        | 0.        | 0.      | N.A.    | N.A.    |
| 18 | S-1  | +Vz   Full   | 0.     | 2.304        | 0.     | 0.        | 0.        | 0,        | 0.        | 0.      | N.A.    | N.A.    |
|    |      | Nr Edge      | O.     | 1,152        | 0.     | 0,        | 0.        | Q.        | 0.        | 0,      | N.A.    | N.A.    |
| 19 | S-2  | -Vz I Full   | 0,     | -2,304       | 0,     | 0,        | 0,        | 0,        | 0.        | 0.      | N.A.    | N.A.    |
|    |      | Nr Edge      | 0.     | -1.152       | 0.     | 0.        | 0.        | 0.        | 0.        | 0.      | N.A.    | N.A.    |
| 20 | S-1  | +Vz   Full   | 0.     | .496         | 0.     | 0.        | O.        | 0,        | 0.        | 0,      | N.A.    | N.A.    |
| 1  |      | Nr Edge      | 0.     | .248         | 0.     | 0.        | 0,        | 0,        | 0.        | O,      | N.A.    | N.A.    |
| 21 | S-2  | -Vz I Full   | 0.     | 496          | 0.     | 0.        | 0.        | 0,        | 0.        | 0.      | N.A.    | N.A.    |
|    |      | Nr Edge      | O.     | 248          | 0.     | 0.        | 0.        | 0.        | 0.        | 0.      | N.A.    | N.A.    |
| 22 | S-1  | +Vz   Full   | 0.     | 2,304        | 0,     | O.        | O.        | Ō.        | 0.        | 0,      | N.A.    | N.A.    |
|    |      | Nr Edge      | 0.     | 1.152        | 0.     | 0.        | 0.        | 0.        | 0.        | O.      | N.A.    | N.A.    |
| 23 | \$-2 | -Vz Full     | 0.     | -2.304       | 0.     | 0.        | 0,        | 0.        | 0.        | 0,      | N.A.    | N.A.    |
|    |      | Nr Edge      | 0.     | -1.152       | 0.     | 0.        | 0.        | 0.        | 0.        | 0.      | N.A.    | N.A.    |
| 24 | S-1  | +Vz   Full   | 0.     | .496         | 0.     | 0.        | 0.        | 0.        | 0.        | O.      | N.A.    | N.A.    |
|    |      | Nr Edge      | 0.     | .248         | 0.     | 0.        | 0.        | 0.        | 0.        | O.      | N.A.    | N.A.    |
| 25 | 5-2  | -Vz   Full   | 0.     | 496          | 0.     | 0.        | 0.        | 0.        | 0.        | 0,      | N.A.    | N.A.    |
|    |      | Nr Edge      | 0.     | 248          | 0.     | 0.        | 0.        | 0.        | 0.        | 0.      | N.A.    | N.A.    |

Company ; BG Structural Engineering
Designer : BG
Job Number : 800.0617

Genesis Solar Heavy - BP1

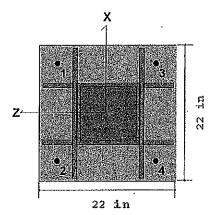
March 15, 2017

Checked By:\_\_\_

#### Shear Groups: Seismic Ductility & Anch or Reinforcement Results

| LC       | Gr             | Type Failure | Vx (k) | Vz (k) | VxUnity | VzUnity | Vx-Duct | Vx-L(k) | Vx-St(in2) | Vz-Duct | Vz-L(k) | Vz-St(ln2) |
|----------|----------------|--------------|--------|--------|---------|---------|---------|---------|------------|---------|---------|------------|
| 3        | S-1            |              | 0.     | .72    | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .72     | l .016 l   |
| <u> </u> | <del> </del> - | Nr Edge      | Ö.     | ,36    | N.A.    | N.A.    | N.A.    | O,      | 0.         | N.A.    | .36     | .008       |
| 4        | S-2            | -Vz   Full   | Ō.     | 72     | N.A.    | N.A.    | N.A.    | Ö.      | 0.         | N.A.    | .72     | ,016       |
| <u> </u> |                | Nr Edge      | 0.     | 36     | N.A.    | N,A.    | N.A.    | 0.      | 0.         | N,A,    | ,36     | .008       |
| 5        | S-1            | +Vz   Full   | 0.     | 1,44   | N.A.    | N,A.    | N.A.    | 0.      | 0.         | N.A.    | 1.44    | .032       |
|          |                | Nr Edge      | 0.     | .72    | N.A.    | N.A.    | N,A.    | 0.      | 0,         | N.A.    | ,72     | .016       |
| 6        | S-2            | -Vz   Full   | 0.     | -1.44  | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 1.44    | .032       |
|          |                | Nr Edge      | 0.     | 72     | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .72     | .016       |
| 7        | S-1            | +Vz   Full   | 0.     | .496   | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | ,496    | .011       |
|          | 1              | Nr Edge      | 0.     | .248   | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .248    | .006       |
| 8        | S-2            | -Vz I Full   | 0.     | 496    | N.A.    | N.A.    | N,A,    | 0,      | 0.         | N.A.    | .496    | .011       |
|          | <u> </u>       | Nr Edge      | 0.     | 248    | N,A,    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .248    | .006       |
| 9        | S-1            | +Vz I Full   | 0.     | 1.44   | N,A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 1.44    | .032       |
|          | $\vdash$       | Nr Edge      | 0,     | .72    | N.A.    | N.A.    | N.A.    | O.      | 0.         | N.A.    | .72     | .016       |
| 10       | S-2            | -Vz I Full   | 0,     | -1.44  | N.A.    | N.A.    | N.A.    | 0.      | Ö.         | N.A.    | 1.44    | .032       |
|          |                | Nr Edge      | 0.     | 72     | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .72     | .016       |
| 11       | S-1            | +Vz   Full   | 0.     | .496   | N,A.    | N.A.    | N.A.    | O.      | Ö.         | N.A.    | .496    | .011       |
|          |                | Nr Edge      | Q.     | .248   | N.A.    | N.A.    | N.A.    | 0.      | 0,         | N.A.    | .248    | .006       |
| 12       | S-2            | -Vz   Full   | 0.     | 496    | N.A.    | N,A.    | N.A.    | 0,      | 0.         | N.A.    | .496    | .011       |
|          |                | Nr Edge      | 0.     | 248    | N.A.    | N.A.    | N.A.    | Ò.      | 0.         | N.A.    | .248    | .006       |
| 16       | S-1            | +Vz   Full   | 0.     | 1.152  | N.A.    | N.A.    | N,A.    | ٥,      | 0.         | N.A.    | 1.152   | .026       |
|          | 1              | Nr Edge      | 0.     | .576   | N.A.    | N,A,    | N.A.    | Ö.      | 0.         | N.A.    | .576    | .013       |
| 17       | S-2            | -Vz   Full   | Ō.     | -1.152 | ·N.A.   | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 1.152   | .026       |
|          |                | Nr Edge      | Q.     | -,576  | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .576    | .013       |
| 18       | S-1            | +Vz   Full   | 0.     | 2.304  | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 2,304   | .051       |
|          |                | Nr Edge      | 0.     | 1,152  | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 1.152   | .026       |
| 19       | S-2            | -Vz I Full   | 0.     | -2.3Q4 | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 2.304   | .051       |
|          | } :            | Nr Edge      | 0.     | -1.152 | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 1.152   | .026       |
| 20       | S-1            | +Vz   Full   | 0.     | .496   | N.A.    | N.A.    | N.A.    | 0,      | 0.         | N.A.    | .496    | .011       |
|          |                | Nr Edge      | 0.     | ,248   | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .248    | .006       |
| 21       | \$-2           | -Vz I Full   | Ò.     | 496    | N.A.    | N.A.    | N.A.    | 0.      | 0,         | N,A.    | .496    | .011       |
|          |                | Nr Edge      | 0.     | -,248  | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .248    | .006       |
| 22       | S-1            | +Vz   Full   | Q.     | 2,304  | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 2.304   | .051       |
|          |                | Nr Edge      | 0.     | 1.152  | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 1.152   | .026       |
| 23 ·     | S-2            | -Vz I Full   | 0.     | -2.304 | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 2.304   | .051       |
|          |                | Nr Edge      | 0.     | -1.152 | N.A.    | N.A.    | N.A.    | 0.      | 0,         | N,A.    | 1.152   | .026       |
| 24       | S-1            | +Vz   Full   | 0.     | .496   | N.A.    | N.A.    | N.A.    | 0,      | 0.         | N.A.    | .496    | .011       |
|          |                | Nr Edge      | Q.     | ,248   | N.A,    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .248    | .006       |
| 25       | S-2            | -Vz   Full   | 0.     | 496    | N.A.    | N.A.    | N.A.    | ٥.      | 0.         | N.A.    | .496    | .011       |
| ]        |                | Nr Edge      | 0.     | 248    | N.A.    | N,A.    | N.A.    | Ò.      | 0.         | N.A.    | .248    | .006       |

#### Genesis Solar Heavy - BP2 -



#### Stiffened Base Plate Connection

Base Plate Thickness : 1. in Base Plate Fy

Bearing Surface Fp : 2,712 Anchor Bolt Diameter : 1, in

: 2,712 ksi

Anchor Bolt Material : A307 Anchor Bolt Fu

: 60. ksi

Column Shape Steel Code

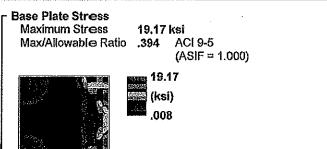
: HSS10x10x8

Concrete Code

: AISC 14th:LRFD : ACI 318-11

(With IBC 2012 Amendments)

| Maximu |                                           | 1.36 ks<br>.501     | si<br>ASCE Strength 7<br>(ABIF = 1.000) |  |
|--------|-------------------------------------------|---------------------|-----------------------------------------|--|
|        | 20.00<br>20.00<br>20.00<br>20.00<br>20.00 | 1.36<br>(ksi)<br>0. |                                         |  |



| - Ançı | JOL ROITS |        |          |        |        |           |          |           |          |          |                      |
|--------|-----------|--------|----------|--------|--------|-----------|----------|-----------|----------|----------|----------------------|
| Bolt   | X (in)    | Z (in) | Tens.(k) | Vx (k) | Vz (k) | Fnt (ksí) | ft (Ksi) | Fnv (ksi) | fv (ksi) | Unity    | Combination          |
| 1      | 8.        | 8.     | 14.075   | 0,     | -,56   | 45.       | 17.921   | 27.       | .713     | .531 (T) | ASCE Strength 7 (11) |
| 2      | -8.       | 8.     | 14.075   | O.     | 56     | 45.       | 17.921   | 27,       | .713     | .531 (T) | ASCE Strength 7 (11) |
| 3      | 8.        | -8.    | 14.075   | 0.     | .56    | 45.       | 17.921   | 27.       | .713     | .531 (T) | ASCE Strength 7 (12) |
| 4      | -8.       | -8.    | 14.075   | 0.     | .56    | 45.       | 17.921   | 27.       | .713     | .531 (T) | ASCE Strength 7 (12) |

Note: Fnt and Fnv shown above include phi factors.

| r Load | s     |        |        |      |           |           |
|--------|-------|--------|--------|------|-----------|-----------|
|        | P (k) | Vx (k) | Vz (k) |      | Mx (k-ft) | Mz (k-ft) |
| DL     | 4.094 | · ·    |        |      |           |           |
| LL     | 9.263 |        |        | .,,, |           |           |
| WL.    |       |        | 1.01   | ı    | 21.21     |           |
| EL*    |       |        | 2.24   | - 1  | 47.04     |           |

| LC | Bolt | Tens.(k) | Nsa(k) | Ncb(k) | Npn(k) | Nsb(k) | Unity | Ductility | Load(k) | Steel(in2) |  |
|----|------|----------|--------|--------|--------|--------|-------|-----------|---------|------------|--|
| 11 | 1    | 14.075   | 27.27  | Q.     | 18.9   | 0.     | .745  | N.A.      | 14.075  | .313       |  |

#### Single Bolt Vx Envelope Results

| LÇ | Bolt | <b>V</b> x (k) | Vz (k) | Vsa(k) | VcbXx(k)     | VcbXz(k) | VcbZz(k) | VcbZx(k) | Vcp (k) | VxUnity | VzUnit <b>y</b> |
|----|------|----------------|--------|--------|--------------|----------|----------|----------|---------|---------|-----------------|
| 1  | 1    | 0.             | 0.     | 14.18  | l <b>0</b> . | 0.       | 0,       | 0.       | 0,      | N.A.    | N.A.            |

#### Seismic Ductility & Anchor Reinforcement Results

| LC | Bolt | <b>∨</b> x (k) | ∨z (k) | VxUnity | VzUnity | Vx-Duct | Vx-L(k) | Vx-St(in2) | Vz-Duct | Vz-L(k) | Vz-St(in2) |
|----|------|----------------|--------|---------|---------|---------|---------|------------|---------|---------|------------|
| 1  | 1    | 0.             | 0.     | N.A.    | N.A.    | N,A,    | 0,      | Q.         | N.A.    | Q.      | 0.         |

#### Single Bolt Vz Envelope Results

| LC Bolt | Vx (k) | Vz (k) | Vsa(k) | VcbXx(k) | VcbXz(k) | VcbZz(k) |    | Vcp (k) | VxUnity | VzUnit <b>y</b> |
|---------|--------|--------|--------|----------|----------|----------|----|---------|---------|-----------------|
| 1 1     | 0.     | 0.     | 14.18  | 1 0.     | 0.       | 0.       | 0. | 0.      | N.A.    | N.A.            |

#### Seismic Ductifity & Anchor Reinforcement Results

| LC | Bolt | Vx (k) | Vz (k) | VxUnity | VzUnity | Vx-Duct | Vx-L(k) | Vx-St(in2) | Vz-Duct | Vz-L(k) | Vz-St(in:2) | Į |
|----|------|--------|--------|---------|---------|---------|---------|------------|---------|---------|-------------|---|
| 1  | 1    | 0.     | 0.     | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 0.      | 0.          | ŀ |

#### Single Bolt: Combined Tension and Shear Capacity Envelope Results

| L | С. | Bolt | Nn(k) | Vnx(k) | Vnz(k) | SRSS | Interaction |
|---|----|------|-------|--------|--------|------|-------------|
| 1 | [1 | 1    | 18.9  | 0.     | 0.     | 745  | .745        |

#### **Group Bolt: Tension Capacity Envelope Results**

| LC | Group | Tens.(k) | Nsa.(k) | Ncb.(k) | Nsb.(k) | Unity  | Ductility | Load(k) | Steel(in^2) |
|----|-------|----------|---------|---------|---------|--------|-----------|---------|-------------|
| 1  | T-1   | 0.       | 0.      | 0.      | 1 0.    | Í N.A. | N.A.      | 0.      | 0.          |

#### Vz Shear Groups Capacity Envelope Results

| LC | Gr  | Type Failure | Vx (k) | Vz (k) | Vsa.(k) | VcbXx(k) | VcbXz(k) | VcbZz(k) | VcbZx(k) | Vcp (k) | <b>Vx Unity</b> | VzUnity |
|----|-----|--------------|--------|--------|---------|----------|----------|----------|----------|---------|-----------------|---------|
| 3  | S-1 | +Vz  Full    | 0.     | 1 .505 | 0.      | 0.       | 0.       | 0.       | 0.       | 0.      | N.A.            | N.A.    |
|    |     | Nr Edge      | 0.     | .252   | 0_      | 0.       | 0.       | 0.       | 0.       | Ó.      | N.A.            | N.A.    |

#### Seismic Ductility & Anchor Reinforcement Results

| LC | Gr  | Type Failure | Vx (k) | Vz (k) | VxUnity | VzUnity | Vx-Duct | Vx-L(k) | Vx-St(in2) | Vz-Duct | Vz-Ł(k)       | Vz-St(in2) |
|----|-----|--------------|--------|--------|---------|---------|---------|---------|------------|---------|---------------|------------|
| 3  | S-1 | +Vzl Full    | 0. 1   | .505   | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | . <b>5</b> 05 | .011       |
|    |     | Nr Edge      | 0,     | .252   | N.A.    | N.A.    | N.A.    | Ò.      | 0.         | N.A.    | .252          | .006       |

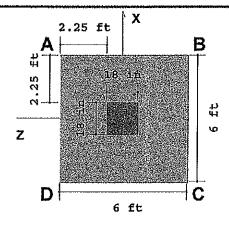
Designer : KDC

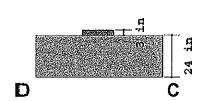
Job Number: 800.0617 Genesis Solar Heavy Pad-1

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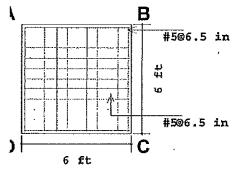
Checked By:\_\_

#### Sketch

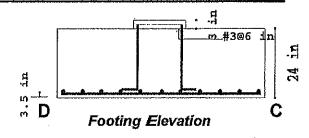




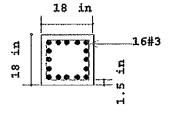
#### Details



z



**Bottom Rebar Plan** 



Pedestal Rebar Plan

Phi for Bearing : 0.65

#### Geometry, Materials and Criteria

Pedestal Longitudinal Bar Cover :1.5 in

| Length :6 ft Width :6 ft Thickness :24 in Height :3 in | eX :0 in<br>eZ :0 in<br>pX :18 in<br>pZ :18 in | Gross Allow. Bearing<br>Concrete Weight<br>Concrete f'c<br>Design Code | : 1995 psf (gross)<br>: 145 pcf<br>: 4 ksi<br>: ACI 318-05 | Steel fy :60 ksi<br>Minimum Steel :.0018<br>Maximum Steel :.0075 |
|--------------------------------------------------------|------------------------------------------------|------------------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------------|
| Footing Top Bar Cover                                  | :3.5 in                                        | Overturning Safety Fac                                                 | etor :1.5                                                  | Phi for Flexure : 0.9                                            |
| Footing Bottom Bar Cover                               | r_ :3.5 in                                     | Coefficient of Friction                                                | :0.35                                                      | Phi for Shear : 0.75                                             |

Passive Resistance of Soil

:.25 k

Designer :

: KDC

Job Number: 800.0617

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#### Loads

|     | P (k) | Vx (k) | Vz (k) | Mx (k-ft) | Mz (k-ft) | Overburden (psf) |
|-----|-------|--------|--------|-----------|-----------|------------------|
| DL  | 1.58  | -      |        |           |           | 100              |
| EL  |       |        | .496   | 5.952     |           |                  |
| WL. |       |        | 1.44   | 19.2      |           |                  |
| RLL | 5.039 |        |        |           |           |                  |
| •   | ↓ +P  | -tVx   | +Vz    | ≱+Mx      | +Mz       | +Over            |
|     |       |        |        |           |           |                  |
|     |       | . A D  | D C    | D C       | A D       |                  |

#### Soil Bearing

|   | Description   | Categories and Factors | Gross Allow.(psf) | Max Bearing (psf) | Max/Allowable Ratio |
|---|---------------|------------------------|-------------------|-------------------|---------------------|
|   | ASCE 2.4.1-1  | 1DL                    | 1995              | 429.905 (A)       | .215                |
|   | ASCE 2.4.1-2  | 1DL+1LL                | 1995              | 429.905 (A)       | .215                |
| Г | ASCE 2.4.1-3a | 1DL+1WL                | 1995              | 873.451 (B)       | .438                |
|   | ASCE 2.4,1-3b | 1DL+,7EL               | 1995              | 523,938 (B)       | .263                |
|   | ASCE 2,4,1-3c | 1DL+,75LL+,75WL        | 1995              | 762.405 (B)       | .382                |
|   | ASCE 2,4,1-3d | 1DL+.75LL+.7EL         | 1995              | 523.938 (B)       | .263                |
|   | ASCE 2.4.1-4  | .6DL+1 <b>VV</b> L     | 1995              | 805,271 (B)       | .404                |
|   | ASCE 2.4.1-5  | .6DL+,7 <b>E</b> L     | 1995              | 351,976 (B)       | .176                |



1DL QA: 429,905 psf QB: 429,905 psf

QB: 429.905 psf QC: 429.905 psf QD: 429.905 psf NAZ: -1 in

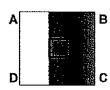
NAX: -1 in



1DL+,75LL+,7EL QA: 335.871 psf QB: 523.938 psf QC: 523.938 psf QD: 335.871 psf NAZ: 200.586 in NAX: -1 in

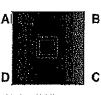


1DL+1LL QA: 429.905 psf QB: 429.905 psf QC: 429.905 psf QD: 429.905 psf NAZ: -1 in

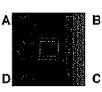


NAX:-1 in

.6DL+1WL QA: 0 psf QB: 805.271 psf QC: 805.271 psf QD: 0 psf NAZ: 46.126 in NAX: -1 in



1DL+1WL QA: 0 psf QB: 873.451 psf QC: 873.451 psf QD: 0 psf NAZ: 70.875 in NAX: -1 in



.6DL+.7EL QA: 163.909 psf QB: 351.976 psf QC: 351.976 psf QD: 163.909 psf NAZ: 134.752 in NAX: -1 in



1DL+.7El. QA: 335.871 psf QB: 523.938 psf QC: 523.938 psf QD: 335.871 psf NAZ: 200.586 in NAX: -1 in



1 DL+,75LL+,75WL QA: 97.405 psf QB: 762.405 psf QC: 762.405 psf QD: 97.405 psf NAZ: 82.546 in NAX: -1 in

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Footing Flexure Design (Bottom Bars)

| Description | Categories and Factors | Mu-XX (k-ft) | Z Dir As (in²) | Mu-ZZ (k-ft) | X Dir As (in²) |
|-------------|------------------------|--------------|----------------|--------------|----------------|
| ACI-99 9-1  | 1,4DL+1,7LL            | .848         | .009           | .848         | .009           |
| ACI-99 9-2  | 1,05DL+1.275LL+1.275WL | 7,226        | _08            | .636         | .007           |
| ACI-99 9-3  | .9DL+1.3WL             | 7.655        | .084           | .545         | .006           |
| IBC 16-5    | 1.2DL+1LL+1EL          | 2.257        | .025           | .727         | .008           |
| IBC 16-6    | .9DL+1EL               | 2.076        | .023           | .545         | .006           |

Footing Flexure Design (Top Bars)

| Description     | Categories and Factors                | Mu-XX (k-ft)      | Z Dir As (in2) | Mu-ZZ (k-ft)    | X Dir As (in <sup>2</sup> ) |
|-----------------|---------------------------------------|-------------------|----------------|-----------------|-----------------------------|
| SW+OB           | 1SW+10B-(ACI-99 9-3,ACI-99 9-3)       | 5.815             | 0              | .047            | 0                           |
| Moment Capacity | of Plain Concrete Section Along XX ar | nd ZZ=84.18k-ft.8 | 4.18k-ft Per C | hapter 22 of AC | 318.                        |

#### Footing Shear Check

| Two Way (Puncl | hing) Vc: 780.106 k | One Way (X. Di | r. Cut) Vc 18 | 3.855 k | One Way ( | Z Dir. Cut) V         | <b>/c</b> : 183.8 | 155 k  |
|----------------|---------------------|----------------|---------------|---------|-----------|-----------------------|-------------------|--------|
|                |                     |                | Pune          | ching   | X Di      | ir. Cut               | Z Di              | r. Cut |
| Description    | Categories a        | and Factors    | Vu(k)         | Vu/⊘Vc  | Vu(k)     | Vu/ <sub>∕</sub> ∕√Vc | Vu(k)             | Vu/∠Vc |
| ACI-99 9-1     | 1.4DL+1.7LL         |                | 1.445         | 1,002   | ,19       | .001                  | .19               | .001   |
| ACI-99 9-2     | 1,05DL+1,275LL+     | -1,275WL       | 1.179         | .002    | 1.934     | .014                  | .143              | .001   |
| ACI-99 9-3     | .9DL+1,3WL          |                | 1.34          | .002    | 2.076     | .015                  | .122              | 0      |
| IBC 16-5       | 1.2DL+1LL+1EL       |                | 1.239         | .002    | .577      | .004                  | .163              | .001   |
| IBC 16-6       | .9DL+1EL            |                | ,929          | .002    | .537      | .004                  | ,122              | 0      |

#### Pedestal Design

Shear Check Results (Envelope):

Shear Along X Direction Vc: 36.287 k Vs: 35.205 k Vu: 0 k

Shear Along Z Direction Vc: 36.287 k Vs: 35.205 k Vu: 1.872 k

Vulo Vn: 0 Vulø Vn:.035

ø: .75

Pedestal Ties: #3 @ 6 in

Bending Check Results (Envelope):

Phi : .9 Mux : 24.96 k-ft Unity Check: .391 Parme Beta::65 Pu :0 k :0 k-ft Muz: Mnx:71.004 k-ft Pn :0 k :NA Minz: Mnox: NA Minoz :NA

Pedestal Bars: 16 #3 % Steel: .545

Compression Development Length Pedestal Bars (Envelope): Lreg.: 7.115 in Lpro.: 18.875 in Lreq./Lpro.: .377

#### Concrete Bearing Check (Vertical Loads Only)

Bearing Bc: 2203.2 k

| Description | Categories and Factors | Bearing Bu (k) | Bearing Bu/⊘Bc |
|-------------|------------------------|----------------|----------------|
| ACI-99 9-1  | 1.4DL+1.7LL            | 21,667         | .015           |
| ACI-99 9-2  | 1.05DL+1.275LL+1.275WL | 16.25          | .011           |
| ACI-99 9-3  | .9DL+1.3WL             | 13.929         | .01            |
| IBC 16-5    | 1.2DL+1LL+1EL          | 18.572         | .013           |
| IBC 16-6    | .9DL+1EL               | 13.929         | .01            |

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#### Overturning Check (Service)

| Description   | Categories and Factors | Mo-XX (k-ft) | Ms-XX (k-ft) | Mo-ZZ (k-ft) | Ms-ZZ (k-ft) |         |         |
|---------------|------------------------|--------------|--------------|--------------|--------------|---------|---------|
| ASCE 2.4.1-1  | 1DL.                   | .43          | 46.86        | .43          | 46.86        |         | 108.898 |
| ASCE 2.4.1-2  | 1DL+1LL                | .43          | 46.86        | .43          | 46.86        |         | 108.898 |
| ASCE 2.4.1-3a | 1DL+1WL                | 19.63        | 50.1         | .43          | 46.86        |         | 108.898 |
| ASCE 2.4,1-3b | 1DL+.7EL               | 4.597        | 47,641       | .43          | 46,86        |         | 108.898 |
| ASCE 2.4.1-3c | 1DL+.75LL+.75WL        | 14.83        | 49,29        | .43          | 46.86        | 13.324  | 108.898 |
| ASCE 2.4.1-3d | 1DL+,75LL+,7EL         | 4.597        | 47.641       | .43          | 46,86        | 110,364 | 108.898 |
| ASCE 2.4.1-4  | .6DL+1WL               | 19.458       | 31.356       | .2 58        | 28.116       | I 1.611 | 108.898 |
| ASCE 2.4.1-5  | .6DL+.7EL              | 4.425        | 28.897       | .2 58        | 28,116       | 6,531   | 108.898 |

Mo-XX: Governing Overturning Moment about AD or BC Ms-XX: Governing Stablizing Moment about AD or BC

OSF-XX: Ratio of Ms-XX to Mo-XX

#### Sliding Check (Service)

| Description   | Categories and Factors | Va-XX (k) | Vr-XX (k) | Va-ZZ (k) | Vr-ZZ (k) | SR-XX | SR-ZZ  |
|---------------|------------------------|-----------|-----------|-----------|-----------|-------|--------|
| ASCE 2.4.1-1  | 1DL                    | 0         | 5.667     | O         | 5.667     | I NA  | NA     |
| ASCE 2.4.1-2  | 1DL+1LL                | 0         | 5.667     | 0         | 5.667     | I NA  | NA     |
| ASCE 2.4.1-3a | 1DL+1WL                | 0         | 5.667     | 1.44      | 5.667     | l NA  | 3.935  |
| ASCE 2.4.1-3b | 1DL+.7EL               | 0         | 5.667     | .347      | 5.667     | I NA  | 16.321 |
| ASCE 2.4.1-3c | 1DL+.75LL+.75WL        | 0         | 5.667     | 1.08      | 5.667     | I NA  | 5.247  |
| ASCE 2.4.1-3d | 1DL+,75LL+,7EL         | 0         | 5.667     | .347      | 5.667     | I NA  | 16.321 |
| ASCE 2,4,1-4  | .6DL+1WL               | 0         | 3,5       | 1,44      | 3,5       | I NA  | 2,431  |
| ASCE 2.4.1-5  | .6DL+.7EL              | 0         | 3.5       | .347      | 3.5       | I NA  | 10.081 |

Va-XX: Applied Lateral Force to Cause Sliding Along XX Axis Vr-XX: Resisting Lateral Force Against Sliding Along XX Axis

SR-XX: Ratio of Vr-XX to Va-XX

#### MecaWind Pro v2.2.7.5 per ASCE 7-10

Developed by MECA Enterprises, Inc. Copyright www.mecaenterprises.com

: 3/6/2017 Project No. : 800.0617 Date Company Name : B.G. Structural Engineering, I Address : 75-175 Merle Drive : BG Designed By : Genesis Solar - High Roof Description : Palm Desert Customer Name : City Proj Location : Blythe, CA. State : CA. File Location: J:\Jobs\800\800.0617 Heavy Equipment Covered Parking\800.0617 Wind 1 High Roof.wnd Input Parameters: Envelope Procedure per ASCE 7-10 Chapter 28 Part 1

| Basic Wind Speed(V)    | =   | iio.oo mpn |                       |     |           |  |
|------------------------|-----|------------|-----------------------|-----|-----------|--|
| Structural Categoxy    | Ħ   | II         | Exposure Category     | =   | C         |  |
| Natural Frequency      | =   | N/A        | Flexible Structure    | £2  | No        |  |
| Importance Factor      | =   | 1.00       | Kd Directional Factor | =   | 0.85      |  |
| Alpha                  | =   | 9.50       | 2g                    | =   | 900.00 ft |  |
| At                     | === | 0.11       | Bt.                   | =   | 1.00      |  |
| Am                     | =   | 0.15       | Bm                    | ×   | 0.65      |  |
| Cc                     | =   | 0.20       | 1                     | Ħ   | 500.00 ft |  |
| Epsilon                | pp. | 0.20       | Zmin                  | ₽   | 15.00 ft  |  |
| Pitch of Roof          | ==  | 0.25 : 12  | Slope of Roof(Theta)  | =   | 1.19 Deg  |  |
| D: Roof Len along Ridg | e = | 40.00 ft   | L: Horizontal Width   | =   | 40.00 ft  |  |
| h: Mean Roof Ht        | ==  | 20.00 ft   | Type of Roof          | ás: | MONOSLOPE |  |
|                        |     |            |                       |     |           |  |

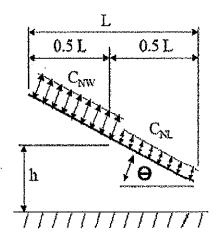
#### Gust Factor Calculations

Gust Factor Category I Rigid Structures - Simplified Method Gust1: For Rigid Structures (Nat. Freq.>1 Hz) use 0.85 = 0.85

Gust Factor Category II Rigid Structures - Complete Analysis 0.6\*Ht 15,00 ft Zm: C: (33/Zm) ^0.167 1\*(Zm/33) ^ Epsilon (1/(1+0.63 \*((B+Ht)/Lzm)^0.63))^0.5 0.23 lzm; 427.06 ft Lzm: 0.92 Q: Gust2: 0.925\*((1+1.7\*lzm\*3.4\*Q)/(1+1.7\*3.4\*lzm)) 0.88

Gust Factor Summary Not a Flexible Structure use the Lessor of Gust1 or Gust2 0.85

Open Building-Monoslope Roof per Figure 27.4-4;



Normal to Ridge - Open Building - Monoslope Roof per Figure 27.4-4:

Gamma = 0 degrees, Obstructed Wind Flow

| Load<br>Case | CIIW    | Cnl W  | indward Wind Pres.<br>psf | Leeward Wind Pres.<br>psf |
|--------------|---------|--------|---------------------------|---------------------------|
| A            | - O.500 | -1,200 | -6.055                    | -14.533                   |
| В            | -1.100  | -0.600 | -13.322                   | ÷7.266                    |

Normal to Ridge - Base Reactions - Roof +GCpi

| Description   | Press<br>psf | Area<br>ft^2 | Fx<br>Kip | Fy<br>Kip | Fz<br>Kip | Mx<br>K-ft | My<br>K-£t | Mz<br>K-ft |
|---------------|--------------|--------------|-----------|-----------|-----------|------------|------------|------------|
| Roof Windward | -6.06        | 801          | .00       | 0.20      | 4.84      | 28.3       | .0         | .0         |
| Roof Leeward  | -14.53       | 801          | .00       | 0.48      | 11.63     | -48.5      | .0         | .0         |
| Total         | .00          | 1601         | .00       | 0.69      | 16.47     | -20.2      | .0         |            |

Normal to Ridge - Base Reactions - Roof -GCpi

| Description   | Press<br>psf | Area<br>ft^2 | Fx<br>Kip | Fy<br>Kip | Fz<br>Kip | Mx<br>K-ft | My<br>K-ft | Mz<br>K-ft |
|---------------|--------------|--------------|-----------|-----------|-----------|------------|------------|------------|
| Roof Windward | -13.32       | 801          | .00       | 0.44      | 10.66     | 62.3       | .0         | .0         |
| Roof Leeward  | -7.27        | 801          | .00       | 0,24      | 5,81      | -24,3      | .0         | .0         |
| Total         | .00          | 1601         | .00       | 0,69      | 16.47     | 38.0       | . 0        | - 0        |

Normal to Ridge - Base Reactions - Roof MIN

| Description | Press<br>psf | Area*<br>ft^2 | Fx<br>Kip | Fy<br>Kip | Fz<br>Kip | Mx<br>K-ft | My<br>K-ft | Mz<br>X-ft |
|-------------|--------------|---------------|-----------|-----------|-----------|------------|------------|------------|
|             |              |               |           |           |           |            |            |            |
| Total       | .00          | 0             | .00       | .00       | .00       | .0         | .0         | .0         |

Notes - Normal to Ridge Normal to Eave - Open Building - Monoslope Roof.per Figure 27.4-4:

Gamma = 180 degrees, Obstructed Wind Flow

| Load<br>Case | Cnw    | Cnl    | Windward Wind<br>psf | Pres.Leeward | Wind Pres.<br>psf |
|--------------|--------|--------|----------------------|--------------|-------------------|
| A            | -0.500 | -1.200 | -6.055               | -14.5        |                   |
| В            | -1.100 | -0.600 | -13.322              | -7.2         | 266               |

Normal to Eave - Base Reactions - Roof +GCpi

| Description   | Press  | Area | Fx  | Fy   | Fz    | Mĸ     | My   | Mz   |
|---------------|--------|------|-----|------|-------|--------|------|------|
|               | psf    | ft^2 | Kip | Kip  | Kip   | K-ft   | K-ft | K-ft |
| Roof Windward | -6.06  | 800  | .00 | 0.10 | 4.84  | 50.5   | , 0  | _ 0  |
| Roof Leeward  | -14.53 | 800  |     | 0.24 | 11.63 | -111.5 | . 0  | _ 0  |
| Total         | .00    | 1600 | .00 | 0.34 | 16.47 | -61.0  | .0   | _0   |

Normal to Eave - Base Reactions - Roof -GCpi

| Description   | Press  | Area | Fx  | Fy   | Fz    | Mx    | My   | Mz   |
|---------------|--------|------|-----|------|-------|-------|------|------|
|               | psf    | ft^2 | Kip | Kip  | Kip   | K-Et  | K~ft | K-ft |
| Roof Windward | -13.32 | 800  | .00 | 0.22 | 10.66 | 111.1 | .0   | - 0  |
| Roof Leeward  | -7.27  | 800  | .00 | 0.12 | 5.81  | -55.7 |      | - 0  |
| Total         | .00    | 1600 | .00 | 0.34 | 16.47 | 55.3  | .0   | . 0  |

Normal to Eave - Base Reactions - Roof MIN

| Desc <del>r</del> iption | Press<br>psf | Area*<br>£t^2 | Fx<br>Kip | Fy<br>Kip | Fz<br>Kip | Mx<br>K-ft | My<br>K-ft | Mz<br>K-ft |  |
|--------------------------|--------------|---------------|-----------|-----------|-----------|------------|------------|------------|--|
|                          |              |               |           |           |           |            |            |            |  |
| Total                    | .00          | 0             | .00       | )         | 00 .      | 00 .4      | o .c       | 0          |  |

Notes - Normal to Eave Along Ridge - Open Building - Monoslope Roof per Figure 27.4-4:

Gamma = 90 degrees, Obstructed Wind Flow .

Length Along Roof Angle Load Cn Wind Press Along Ridge Ridge of Roof (Theta) Case psf psf

| <≈ 20.0        | Theta<=45 | degr | A | -1.200 | -14.533 |  |
|----------------|-----------|------|---|--------|---------|--|
|                |           | -    | В | 0.500  | 6.055   |  |
| >20.0&<=2*20.0 | Theta<=45 | degr | A | -0.900 | -10.900 |  |
|                |           | _    | В | 0.500  | 6.055   |  |

#### Along Ridge - Base Reactions - Roof +GCpi

| Description                  | Press<br>psf     | Area<br>ft^2 | Fx<br>Kip | Fy<br>Kip | Fz<br>Kip     | Mx<br>K-ft | My<br>K-ft     | Mz<br>K-ft |
|------------------------------|------------------|--------------|-----------|-----------|---------------|------------|----------------|------------|
| Roof (0 to h) Roof (h to 2h) | -14.53<br>-10.90 | 800          | .00       | 0.24      | 11.63<br>8.72 |            | -116.3<br>87.2 | 2.4        |
| Total                        | .00              | 1.600        | .00       |           | 20.35         | 8 . 5      |                | 0.6        |

#### Along Ridge - Base Reactions - Roof -GCpi

| Description .  | Press | Area | Fx  | Fy    | Fz    | Mx   | My    | Mz   |
|----------------|-------|------|-----|-------|-------|------|-------|------|
|                | psf   | ft^2 | Kip | Kip   | Kip   | K-ft | K-ft  | K-ft |
| Roof (0 to h)  | 6.06  | 800  | .00 | -0.10 | -4.84 | -2.0 | 48.4  | -1.0 |
| Roof (h to 2h) | 6.06  | 800  |     | -0.10 | -4.84 | -2.0 | -48.4 | 1.0  |
| Total          | ,00   | 1600 | .00 | -0.20 | -9.69 | -4.0 | .0    | ,0   |

#### Along Ridge - Base Reactions - Roof MIN

| Description                             | Press<br>psf | Area*<br>ft^2 | Fx<br>Kip | Fy<br>Kip | Fz<br>Kip | Mx<br>K-ft | My<br>K-ft | Mz<br>K-Ét |  |
|-----------------------------------------|--------------|---------------|-----------|-----------|-----------|------------|------------|------------|--|
| *************************************** |              |               |           |           |           |            |            |            |  |
| Total                                   | .00          | 0             | .00       | .00       | .00       | . (        | . 0        | 0          |  |

#### Notes - Along Ridge Total Base Reaction Summary

| Description                | Fx<br>Kip | Fy<br>Kip | Fz<br>Kip | Mx<br>K-ft | My<br>K-ft | Mz<br>K-ft |
|----------------------------|-----------|-----------|-----------|------------|------------|------------|
| ******                     |           |           |           |            |            |            |
| Normal to Ridge Roof +GCpi | .0        | 0.7       | 16.5      | -20.2      | .0         | .0         |
| Normal to Ridge Roof -GCpi | .0        | 0.7       | 16.5      | 38,0       | .0         | .0         |
| Normal to Ridge Roof MIN   | .0        | .0        | , ο       | .0         | .0         | .0         |
| Normal to Eave Roof +GCpi  | .0        | 0.3       | 16,5      | -61.0      | .0         | .0         |
| Normal to Eave Roof ~GCpi  | .0        | 0.3       | 16.5      | 55.3       | .0         | .0         |
| Normal to Eave Roof MIN    | .0        | .0        | .0        | .0         | .0         | .0         |
| Along Ridge Roof +GCpi     | .0        | 0.4       | 20.3      | 8.5        | -29.1      | 0.6        |
| Along Ridge Roof -GCpi     | .0        | -0.2      | -9.7      | -4.0       | ,0         | .0         |
| Along Ridge Roof MIN       | .0        | .0        | . 0       | . 0        | . 0        | .0         |

#### Notes Applying to MWFRS Reactions:

- Note (1) Cnw- Net Press (contrib from top and bottom surf) for windward roof surf.
- Cnl- Net Press (contrib from top and bottom surf) for leeward roof surf.
- Note (3)
- Note (4)
- Cn- Net Press (contrib from top and bottom surf.) for leeward roof surf.

  Cn- Net Press (contributions from top and bottom surfaces).

  + = Pressure acting toward surface, = Pressure acting away from surface.

  Per Fig 27.4-1, Note 9, Use greater of Shear calculated with or without roof.

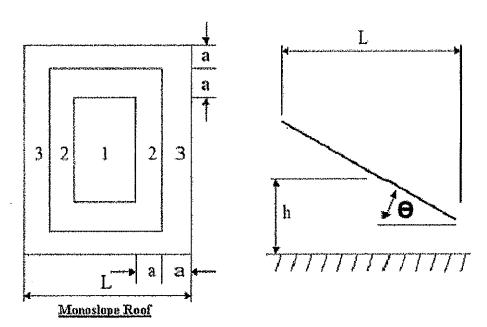
  X= Along Building ridge, Y = Normal to Building Ridge, Z = Vertical

  MIN = Minimum pressures on Walls = 9.6 psf and Roof = 4.8 psf

  MIN area is the area of the surface onto a vertical plane normal to wind.

  Total Roof Area (incl OH Top) = 1840.40 sq. ft Note (5)
- Note (6)
- Note (7)
- Note (8)
- Note (9)

Wind Pressure on Components and Cladding (Ch 30 Part 5)



All pressures shown are based upon ASD Design, with a Load Factor of .6 Width of Pressure Coefficient Zone "a" = 4.00 ft

| Description | Width<br>ft | Span<br>ft | Area Zone<br>ft^2 | Çn<br>Max | Çn<br>Min | Max P<br>psf | Min P<br>psf |
|-------------|-------------|------------|-------------------|-----------|-----------|--------------|--------------|
| Zone 1      | 1.00        | 1.00       | 1.0 1             | 0.55      | -1.28     | 9.60         | -15,50       |
| Zone 2      | 1.00        | 1.00       | 1.0 2             | 0.86      | -1,93     | 10,46        | -23.34       |
| Zone 3      | 1.00        | 1.00       | 1.0 3             | 1.10      | -3.84     | 1.3.27       | -46.49       |
| Zone 4      | 1,00        | 1,00       | 1.0 1             | 0.55      | -1.28     | 9.60         | -15.50       |
| Zone 5      | 1.00        | 1.00       | 1.0 1             | 0.55      | -1.28     | 9,60         | -15.50       |

# <u>Project Name: Genesis Solar Heavy Equipment Covered Parking - High Rool</u> Address: 11995 Wiley's Well Road, Blythe, CA

#### LOADS:

Roof 1:

**DEAD LOADS:** 

Pitch = 0.25:12

Steel Decking

3.00 PSF Misc. 2.00

DL= 5.00 PSF Slope Correction = 1.00

DL⇔ 5.00 PSF 20.00 PSF LL= TL= 25.00 PSF

WALLS:

Exterior Wall:

#### **DEAD LOADS:**

| Steel Decking<br>Girts | 3,00 PSF<br>3.00 |
|------------------------|------------------|
| Misc.                  | 1.00             |
| DI =                   | 7 00 000         |

#### Project Name: Genesis Solar Heavy Equipment Covered Parking - High Roof - 80

Address: 11995 Wiley's Well Road, Blythe, CA

#### LATERAL LOADING

2015 CBC SEISMIC

Ht. Abv.Gnd.(Ft) = 21

Cu = 1.4

I= 1.00

 $C_t = 0.02$ 

"R" Factor = 2.5

x = 0.75

Site Class = C

Ta = 0.196

Latitude = 33.559

T<sub>L</sub> = 8

Longitude = -114.911

 $\rho = 1.3$ 

Occupancy Catetory = II

 $S_S = 0.524$ 

Fa = 1.1904

 $S_{DS} = 0.416$ 

SDC  $(S_{Ds}) = C$ 

 $S_1 = 0.248$ 

Fv = 1.552

 $S_{D1} = 0.257$ 

SDC  $(S_{D1}) = D$ 

USE: SDC = D

**BASE SHEAR** 

Per ASCE7 Eq. 12.8-2

 $C_s = 0.166$ 

**GOVERNS** 

Not to exceed- $C_s = 0.523$ 

Per ASCE7 Eq. 12.8-3

Per ASCE7 Eq. 12.8-5

Not less than-

0.166 STRENGTH DESIGN

 $C_s = 0.010$ 

0.119 WORKING STRESS DESIGN

(DIVIDE BY 1.4)

Use- 0.010

| Level   | Wpx    | Hi          | Wi*Hi    | %     | Ví    | ρVi   | Α    | ρVi (psf) |
|---------|--------|-------------|----------|-------|-------|-------|------|-----------|
| RF      | 12.60K | 21'         | 264.6 'K | 1.000 | 1.50  | 1.95  | 1848 | 1.05      |
|         |        |             |          |       |       |       |      |           |
| Totals= |        | <del></del> | 264 6 'K | 1 000 | 1.50K | 1 95K | •    |           |

#### Project Name: Genesis Solar Heavy Equipment Covered Parking - High Roof - 80

Address: 11995 Wiley's Well Road, Blythe, CA

2015 CBC WIND

Max. Wind Load = 14.53 psf

(Refer to wind load calcs.attached)

USE Wind Unit Load = 18psf

#### N/S Direction:

#### Wind Areas:

| Level ≃    | RF     |  |
|------------|--------|--|
| (\$q. Ft.) |        |  |
| A1         | 105.00 |  |
| A2         | 0.00   |  |
| A3         | 0.00   |  |
| A4         | 0.00   |  |

#### Wind Force:

|        | Level = | RF   |   |   |
|--------|---------|------|---|---|
| (Lbs.) |         |      | 1 |   |
|        | FAI     | 1890 |   |   |
|        | F A2    | 0    |   |   |
|        | F A3    | 0    |   |   |
|        | F A4    | 0    |   |   |
|        | Total = | 1890 | n | n |

**SEISMIC GOVERNS** 

#### E/W Direction:

#### Wind Areas:

| Level =   | RF     | 1 | ************************************** |
|-----------|--------|---|----------------------------------------|
| (Sg. Ft.) |        |   |                                        |
| A1        | 110.00 |   |                                        |
| , A2      | 0.00   |   |                                        |
| A3        | 0.00   | , |                                        |
| A4        | 0.00   |   |                                        |

#### Wind Force:

| Level = | RF   |   |   |
|---------|------|---|---|
| (Lbs.)  |      |   | 1 |
| FA1     | 1980 |   |   |
| F A2    | 0    |   |   |
| F A3    | 0    |   |   |
| F A4    | 0    |   |   |
| Total ≂ | 1980 | Ö | O |

1.98K

1.89K

WIND GOVERNS

#### **SEISMIC WEIGHTS:**

#### SEISMIC AREAS (sq. ft.)

|         | RF1      | RF2        | RF3 | RF4                                     |          |          |        |
|---------|----------|------------|-----|-----------------------------------------|----------|----------|--------|
|         |          |            |     |                                         |          |          |        |
|         | 1848.0   | 0.0        | 0,0 |                                         |          | 445.20   | ļ<br>[ |
|         |          | 0.0        | 0.0 |                                         | ļ        |          |        |
|         |          | ļ          | 0.0 | ]<br>                                   |          |          | [      |
|         |          |            |     |                                         |          |          | ļ      |
|         |          |            |     |                                         |          |          | ļ      |
|         |          |            |     |                                         |          |          |        |
|         | ******** | ļ          |     |                                         |          | ******   |        |
|         |          | ļ          |     | 474411411141111111111111111111111111111 |          |          |        |
|         |          | ļ. <b></b> |     |                                         |          |          |        |
|         |          | <u> </u>   |     |                                         |          |          | ļ      |
|         | ļ        | ļ          |     |                                         | <b>L</b> | <b>!</b> |        |
|         |          | ļ          |     |                                         |          | <u> </u> |        |
|         |          |            |     |                                         | ļ        |          | ļ. —   |
|         |          |            |     |                                         |          |          |        |
|         |          |            |     |                                         |          |          | L      |
|         |          |            |     |                                         |          |          |        |
|         |          | <u> </u>   |     |                                         |          |          |        |
| TOT41 - | 4040     |            |     | •                                       | <u> </u> | )        | 1      |
| TOTAL = | 1848     | 0          | 0   | 0                                       | 0        | 0        | 0      |

#### SEISMIC WEIGHTS:

| <u>RF</u>   | Α    | w (psf)    | Wi          |
|-------------|------|------------|-------------|
| Roof 1:     | 1848 | 5,00       | 9242        |
| Roof 2:     | 0    | 0.00       | 0           |
| Roof 3:     | 0    | 16.00      | 0           |
| Roof 4:     | 0    | 21.00      | 0           |
| Ext. Walls: | 480  | 7.00       | 3360        |
| Int. Walls: | O    | 0.00       | 0           |
| _           | Re   | of Total = | 12.602 lbs. |

Roof Total = 12,602 lbs

#### Exterior Walls:

| <u>RF</u> |         |       |   |
|-----------|---------|-------|---|
| Н         | L       | A     |   |
| 6         | 80      | 480.0 |   |
| 0         | 0       | 0.0   |   |
| 0         | 0       | 0.0   |   |
|           |         | 0.0   |   |
|           | TOTAL = | 480   | , |

#### Interior Walls:

| R | E |         |     |    |
|---|---|---------|-----|----|
|   | Н | L       | A   |    |
|   | 0 | 0       | 0.0 |    |
|   | 0 | 0       | 0.0 |    |
|   | 0 | 0       | 0.0 |    |
| Ĺ |   |         | 0.0 |    |
|   |   | TOTAL = | Ô   | SF |

|          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | es C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | V/N         | AN<br>AN     | A'N  | N/A  | AX   | 4×             | AN   | N/A  | AN   | N/A  | N/A | NA     | AM   | N/A  | N/A          | MA   | N/A  | N/A        | N/A  | N/A  |   | N/A         | ΑΝ           | ΑŊ        | K/A | MA   | N/A | Y.       | C 2/2 | N/A | N/A  | Z Z  | ΑN   | A'A  | A'N  | N/A      | NA   | ΑX   | N/A  | N/A | N/A | NA  |                               |                                         |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------|------|------|------|----------------|------|------|------|------|-----|--------|------|------|--------------|------|------|------------|------|------|---|-------------|--------------|-----------|-----|------|-----|----------|-------|-----|------|------|------|------|------|----------|------|------|------|-----|-----|-----|-------------------------------|-----------------------------------------|
|          | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Special Specia | 11725       | 5870         | 0    | 0    | 0    | 0              | 0    | 0    | 0    | 0    | 0   | 0      | 0    | 0    | 0            | 0    | 0    | 0          | 0    | 0    |   | <br>3789    | 11190        | 4508      | ٥   | 0    | 0   | 0        | ) c   | 0   | 0    | 0    | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0   | 0   | 0   |                               | _                                       |
| 0.5418°D | Factored                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | KIN.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 308         | 895          | 0    | 0    | o    | 0              | 0    | 0    | 0    | o    | 0   | 0      | О    | 0    | 0            | 0    | o    | 0          | ٥    | 0    |   | 895         | 398          | 895       | 0   | 0    | 0   | 0        | 9     | 0   | 0    | 0    | 0    | 0    | 0    | 0        | 0    | o    | 0    | 0   | 0   | 0   | and the same beautiful to the |                                         |
| 0.5418°L | , m. (                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 13.489                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 18078       | 16058        | 0    | 0    | 0    | 0              | 0    | o    | 0    | 0    | 0   | ٥      | 0    | O    | ဝ            | ¢    | 0    | 0          | 0    | 0    |   | 10683       | 18115        | 12541     | 0   | ٥    | 0   | 5        |       | 0   | 0    | 0    | o    | 0    | 0    | 0        | 0    | 0    | 0    | 0   | o   | 0   | and the second section of     |                                         |
|          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <u> 2</u> 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2,6         | 21           | 80   | 80   | 10   | σ <sub>0</sub> | G    | 9    | 9    | 10   | 10  | 10     | 10   | 12.5 | 14.5         | 10.5 | 10.5 | 10.5       | 6    | 6    |   | 23          | 23           | 21        | 8   | 80   | 0   | p)       | 2 00  | 10  | 40   | 6    | တ    | 14.5 | 10.5 | 12.5     | 10.5 | 10.5 | 10.5 | 12  | Ð   | 6   |                               |                                         |
|          | Add'i                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | point load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | c           | 0            | 0    | 0    | 0    | 0              | 0    | 0    | o    | 0    | 0   | 0      | 0    | 0    | 0            | o    | ٥    | 0          | 0    | 0    |   | ٥           | 0            | 0         | ٥   | 0    | 0   | <b>5</b> | 0     | 0   | 0    | 0    | c    | Û    | O    | c        | 0    | O    | 6    | O   | c   | 0   |                               |                                         |
| ľ        | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | rwaii (psr)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 4           | 12           | 17   | 17   | 17   | 17             | 17   | - 45 | 17   | 17   | 17  | 17     | 17   | 17   | 17           | 17   | 47   | 17         | 17   | 17   |   | 17          | 1            | 2         | 17  | 17   | 12  | - 1      | 13/   | 17  | 17   | 17   | 17   | 17   | 1,   | 17       | 17   | 47   | 17   | 17  | 17  | 44  |                               |                                         |
|          | 1 91-7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | vvrm (pir) ivvwsii                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 100         | 90           | 0    | 0    | 0    | 0              | o    | 0    | O    | Û    | 0   | _<br>ტ | 0    | Ð    | o            | o    | 0    | 0          | Q    | ٥    |   | 10          | 9            | 2         | 0   | 0    | 0   | 5 0      |       | 0   | 0    | 0    | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0   | 0   | ٥   |                               |                                         |
|          | HD segment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | neugru -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 000         | 4 m          | 0    | 0    | 0    | 0              | 0    | 0    | 0    | 0    | 0   | ٥      | 0    | 0    | 0            | 0    | o    | 0          | o    | ¢    |   | 3           | 2            | 3         |     | 0    | 0 0 |          | 0     | 0   | 0    | 0    | 0    | 0    | ٥    | 0        | 0    | o    | o    | ٥   | 0   | 0   |                               |                                         |
| ,        | ļ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | USE SW #                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2 . S. Cofs | 3 - Stl Cols | -    |      | -    | -              | -    | 1    |      | -    | 1   | -      | 1    | 1    |              | ,    | -    | <b>1</b> - | ,-   | -    |   | 3 - St Cols | 2 - Stl Cols | 3-St Cols |     | •    |     |          |       | -   | -    | ,    | 1    | _    | •    | -        | -    | -    | 1    | -   | -   | 1   |                               |                                         |
|          | 91-7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 4777                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 4519        | 254.9        | 0,0  | 0,0  | 0.0  | 0.0            | 0.0  | 0.0  | 0.0  | 0.0  | 0.0 | 0.0    | 0.0  | 0.0  | 0.0          | 0.0  | 0.0  | 0.0        | 0,0  | 0,0  |   | 169.6       | 431.3        | 199.1     | 0.0 | 2    | 0.0 | 0.0      | 000   | 0.0 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0,0      | 0.0  | 0.0  | 0.0  | 0'0 | 0.0 | 0.0 |                               |                                         |
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|          | Total (last                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | F73                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 206         | 765          | 0    | 0    | 0    | 0              | Q    | 0    | 0    | 0    | 0   | 0      | 0    | Ö    | 0            | 0    | 0    | 0          | 0    | 0    |   | 509         | 863          | 597       | 0   | 0    | 0   |          | 0     | 0   | 0    | 0    | 0    | 0    | ٥    | 0        | 0    | 0    | 0    | 0   | 0   | ٥   |                               | -                                       |
|          | Charle Avenue                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Shear (los)! Above (los)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 904         | 765          | 0    | 0    | 0    | 0              | 0    | ٥    | 0    | 0    | 0   | 0      | 0    | 0    | 0            | 0    |      |            | 0    | ō    | } | 509         | 863          | 597       | 0   | 0    | 5   | 2        | 0     | 0   | 0    | 0    | 0    | 0    | 0    | 0        | 0    | 0    | 0    | 0   | 0   | 0   |                               | 3                                       |
|          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | O.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 858         | 726          | 0    | o    | 0    | 0              | 0    | 0    | o    | 0    | 0   | 0      | 0    | Ö    | 0            | 0    | 0    | 0          | 0    |      |   | <br>483     | 819          | 567       | o ( | 0    | 5 0 |          | 0     | 0   | o.   | 0    | 0    | ٥    | 0    | 0        | 0    | 0    | 0    | 0   | 0   | 0   |                               | *************************************** |
| •        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2           | 8            | 4    | 2    | g    | 7              | 00   | മ    | 0,   | ÷    | 12  | 13     | 4    | 15   | <del>ე</del> | 17   | 18   | 9          | 20   | 23   |   | 4           | 20 (         | اد        |     | J.   | T ( | 9 3      | -     | 7   | ¥    |      | ×    | z    | 0    | <b>~</b> | Q    | oκ   | S    | ㅂ   | ລ   | >   |                               |                                         |

| 1                            | N/A       | NIA          | NAM         | AN   | Y/N  | Ą   | N/A | A'N  | ΥN  | N/A | ΑΝ   | N/A  | ΑX   | N/A  | AN   | AN        | AN   | AW   | ΝΑ   | ΑΝ       | NA   | MICA     | <b>4</b>    | V V          | V S        | ξ <u>5</u> 2 | Z Z     | S.  | N/A | N/A  | A/N  | ΝΆ       | ΝΆ         | N/A | N/A | N/A  | ΑN       | N/A     | AN<br>A | ΜA   | NA   | M/A  | N/A  |   |
|------------------------------|-----------|--------------|-------------|------|------|-----|-----|------|-----|-----|------|------|------|------|------|-----------|------|------|------|----------|------|----------|-------------|--------------|------------|--------------|---------|-----|-----|------|------|----------|------------|-----|-----|------|----------|---------|---------|------|------|------|------|---|
| Burt.                        | 13033     | 28035        | 13033       | 0    | 0    | 0   | 0   | 0    | o   | 0   | 0    | 0    | 0    | 0    | 0    | 0         | 0    | 0    | 0    | 0        | o    | 49000    | 36022       | 15275        | 2000       | 0 6          | 9 6     | 0   | 0   | 0    | o    | o        | o          | 0   | 0   | 0    | 0        | 0       | 0       | 0    | 0    | 0    | 0    |   |
| Factored                     | 1107      | \$62         | 1107        | 0    | 0    | o   | 0   | 0    | 0   | o   | 0    | O    | 0    | 0    | 0    | 0         | 0    | 0    | Φ    | 0        | 0    | 1407     | 507         | 1107         | č          | 0            | ) c     | 0   | 0   | 0    | 0    | Ō        | 0          | o   | 0   | 0    | 0        | ō       | 0       | 0    | 0    | 0    | 0    |   |
| ME                           | 1         | 58968        | 34776       | 0    | 0    | 0   | 0   | 0    | 0   | 0   | 0    | O    | 0    | 0    | 0    | 0         | 0    | 0    | 0    | 0        | 0    | 27776    | 24770       | 40834        | 47001      | 0            | 0       | 0   | o   | 0    | ٥    | 0        | 0          | O   | O   | 0    | 0        | 0       | 0       | 0    | 0    | 0    | 0    |   |
| 17.4                         |           | 2            | 23          | 80   | 80   | 2   | o   | 6    | 9   | 10  | - 10 | 10   | 9    | 0    | 13   | 15        | 1    | £    | F    | 6        | 69   | i        | 3 6         | 3 6          | a          | ٥            | 000     | 8   | 9   | 80   | 10   | 10       | <u></u>    | 6   | 15  | Ţ.,  | £.       | <u></u> |         | Ę.   | 12   | Ø)   | o    |   |
|                              | ם בייונים | c            | 0           | 0    | 0    | 0   | 0   | 0    | 0   | O   | 0    | o    | 0    | 0    | 0    | 0         | 0    | 0    | 0    | 0        | 0    | C        | > <         | 0            | ) c        | > c          | )<br> - | o   | 0   | 0    | ۵    | 0        | 0          | 0   | 0   | ٥    | 0        | 0       | O       | 0    | o    | 0    | 0    |   |
| 110.174                      | 17 17     | 4            | 17          | 17   | 17   | 17  | 17  | 17   | 17  | 17  | 17   | 17   | 42   | 4    | 17   | 17        | -2   | 17   | 17   | 17       | 17   | 4.5      | 12          |              | -          | -14          | 14      | 4.  | 17  | 17   | 17   | 17       | 17         | 1,2 | 1.1 | 17   | <u>_</u> | 17      | 17      | 17   | 17   | 17   | 44   |   |
| 1. 1. July (1015)            | 441       | Ç            | 9           | ٥    | 0    | 0   | ٥   | 0    | ٥   | 0   | 0    | 0    | 0    | 0    | 0    | 0         | 0    | 0    | 0    | 0        | O    | Ç        | 2 6         | 2 4          | 2          | > <          | > 0     | 0   | 0   | 0    | 0    | 0        | ٥          | ٥   | 0   | 0    | 0        | 0       | 0       | 0    | 0    | 0    | 0    |   |
| HD segment                   | 3         | -            | 3           | 0    | 0    | ¢   | 0   | Đ    | 0   | ပ   | 0    | 0    | ပ    | 0    | 0    | 0         | o    | 0    | 0    | 0        | 0    | -        | 2           | 1            | )<br> <br> | Þ            | , 0     | ¢   | 0   | o    | Q    | 0        | 0          | 0   | ٥   | 0    | 0        | 0       | ٥       | 0    | 0    | 0    | 0    |   |
| 27.751.00                    | 3 St Cole | 2 - Stl Cols | 3 - St Cols |      | -    | 1   | 1   |      | 1   | 1   | 1    |      | Ţ    | -1   | -    | <b>,-</b> | -    | -    | 1    | <b>-</b> |      | 2 04 000 | 2 - St Cols | St. St. Cole | 200        |              |         | 1   | 1   | *-   | 1    | <b>,</b> | ~          | •   | -   | ,    | •        | 1       | -       | ·    | 1    | 1    | -    | - |
| 4 Ala)                       | 552.0     | 1404 0       | 552.0       | 0.0  | 0.0  | 0.0 | 0.0 | 0.0  | 0.0 | 0,0 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0       | 0,0  | 0.0  | 0.0  | 0.0      | 0.0  | 5500     | 14040       | 848.0        |            | 300          | 000     | 0.0 | 0.0 | 0.0  | 0.0  | 0.0      | 0.0        | 0.0 | 0.0 | 0.0  | 0.0      | 0.0     | 0.0     | 0.0  | 0.0  | 0.0  | 0.0  | - |
| Ab/ Co/Altono                | 3.00      | 2.00         | 3.00        | 1.00 | 1.00 |     |     | 1.00 |     |     | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00      | 1.00 | 1.00 | 1.00 | 1.00     | 1.00 | 3 00     | 8.5         | 200          | 88         | 3.5          | 1.00    |     |     | 1.00 | 1.00 | 1.00     | ,00<br>,00 | .8  |     | 1.00 | 1.00     | 1.00    | 1.00    | 1.00 | 1.00 | 1.00 | 1.00 |   |
| 1/ Total / [max]             |           | 2808         | 1656        | 0    | 0    | 0   | 0   | 0    | 0   | 0   | 0    | 0    | c    | O    | 0    | 0         | Ö    | o    | 0    | ٥        | 0    | 1,555    | 2808        | 1944         |            | 0            | 0       | 0   | 0   | 0    | 0    | 0        | 0          | 0   | O   | O    | 0        | o       | o       | Ö    | 0    | Ö    | 0    |   |
| Shoot (healt / About (healt) |           | 0            | 0           | 0    | 0    | 0   | 0   | 0    | Û   | 0   | 0    | ф    | 0    | 0    | 0    | 0         | 0    | 0    | 0    | o        | 0    |          | 0           | 0            |            | 200          | 0       | 0   | 0   | O    | O    | 0        | 0          | 0   | ٥   | 0    | 0        | 0       | 0       | 0    | 0    | 0    | 0    | - |
| Choos (lboth)                | 1656      | 2808         | 1656        | 0    | 0    | o   | 0   | 0    | 0   | c   | 0    | 0    | 0    | o    | 0    | O         | 0    | Ö    | o    | 0        | 0    | 1556     | 2808        | 1944         |            | 00           | 0       | o   | 0   | 0    | 0    | 0        | 0          | 0   | 0   | 0    | 0        | Þ       | 0       | 0    | 0    | 0    |      |   |
| 2<br>2<br>2<br>3<br>3<br>3   | ٦         | 156          | 25          | 0    | 0    | 0   | 0   | c    | ¢   | ø   | 0    | 0    | 0    | 0    | 0    | 0         | 0    | 0    | 0    | 0        | 0    | 8        | 156         | 108          |            | 0            | , 0     | 0   | 0   | 0    | 0    | 0        | 0          | 0   |     | 0    | 0        | 0       | 0       | 0    | 0    | 0    | 0    |   |

Wind Check

Level = RF

SHEAR WALLS:

PROJECT

Genesis Solar Heavy Equipment Covered Parking

ITEM

Lateral - Col. - High Roof

# B.G. STRUCTURAL ENGINEERING

JOB NO. 800.0617

DATE Mar. 2017

ENGINEER BG

## **LATERAL - Typical Columns - High Roof**

#### INPUT:

Vertical Load (F<sub>y</sub>) = 
$$13357.00$$
 lbs  
Column Height (H) =  $21.00$  ft  
# of Columns =  $2$ 

#### FORMULA:

 $F_{Seismic} = (1.4)(Seismic Load)(1/# of Columns) = 0.63 kips$ 

 $F_{Wind} = (Wind Load)(1/# of Columns) = 1.40 kips$ 

Governing Load = 1.40 kips

 $M_0 = (Governing Load)(H) = 29.48 \text{ ki ps-ft}$ 

### USE: HSS 10x10x1/2

#### OMEGA:

$$F_{Omega} = (Governing Load)(1.25) = 1.76 \text{ kips}$$

$$M_{O,Omega} = (F_{Omega})(H) = 36.86 \text{ kips-ft}$$

 $\Delta_0 = (Actual Column Deflection)(2.5) = 3.82 in$ 

 $\Delta_{Allowable} = (0.025)(H)(12) = 6.30 \text{ in}$ 

 $\Delta = \Delta_0 < \Delta_{Allowable}$  OK

Project Title: Engineer: Project Descr: Genesis Solar Heavy Equipment Covered Parking 84 Project ID: 800.0617

Printed: 6 MAR 2017, 10:17AM

Steel Column

File = s:\E0AEZR-G\86YX6A~F,EC6. ENERCALC, INC. 1983-2017, Build:6.17.2.28, Ver:6.17.2.28 Licensee BG STRUCTURAL ENGINEERING

Lic.#: KW-06003989 Description:

Lateral - Typical Column - High Roof

Code References

Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10

Load Combinations Used: IBC 2015

General Information

Steel Section Name: Analysis Method:

HSS10x10x1/2 Allowable Strength

Steel Stress Grade

Fy: Steel Yield

E: Elastic Bending Modulus

46.0 ksi 19,000,0 ksi Overall Column Height

21.0 ft

Top & Bottom Fixity Top Free, Bottom Fixed

Brace condition for deflection (buckling) along columns:

X-X (width) axis:

Unbraced Length for X-X Axis buckling = 21 ft, K = 2.1 Y-Y (depth) axis:

Unbraced Length for Y-Y Axis buckling = 21 ft, K = 2.1

Applied Loads

Service loads entered, Load Factors will be applied for calculations.

Column self weight included: 1,311.66 lbs \* Dead Load Factor

AXIAL LOADS . . .

Axial Load at 21.0 ft, D = 4.094, LR = 9.263 k

BENDING LOADS ...

Lat. Point Load at 21.0 ft creating Mx-x, W = 1.40 k

DESIGN SUMMARY

**Bending & Shear Check Results** 

PASS Max. Axial+Bending Stress Ratio = 0.1635 :1 Load Combination +D+0,750Lr+0.750L+0.450W+H 0.0 ft

Location of max.above base At maximum location values are . . .

Pa: Axial Pn / Omega: Allowable Ma-x: Applied

Mn-x / Ornega: Allowable

Ma-y: Applied Mn-y / Omega: Allowable

PASS Maximum Shear Stress Ratio = Load Combination Location of max.above base At maximum location values are . . .

Va: Applied Vn / Omega: Allowable

139.331 k-ft 0.006351 :1

+D+0.60W+I-I 0.0 ft

12.353 k

90.116 k

-13.23O k-ft

139.331 k-ft

0.0 k-ft

0.84O k 132,259 k Maximum SERVICE Load Reactions ...

0.0 kTop along X-X Bottom along X-X 0.0 kTop along Y-Y 0.0 kBottom along Y-Y 1.40 k

Maximum SERVICE Load Deflections...

Along Y-Y 1.528 in at

for load combination:

Along X-X

for load combination :W Only

0.0 in at

0.0ft above base

21.0ft above base

Load Combination Results

| Load Combination           | Maximum Axial + Bending Stress Ratios  Stress Ratio Status Location |      |         | <u>Maximur</u><br>Stress Ratio | alios<br>Localion |         |  |
|----------------------------|---------------------------------------------------------------------|------|---------|--------------------------------|-------------------|---------|--|
|                            |                                                                     |      |         |                                | Status            |         |  |
| +D+H                       | 0.060                                                               | PASS | 0.00 ft | 000.0                          | PASS              | 0.00 ft |  |
| +D+L+H                     | 0.060                                                               | PASS | 0.00 ft | 0.000                          | PASS              | ) 00.0  |  |
| +D+Lr+H                    | 0.163                                                               | PASS | 0.00 ft | 0.000                          | PASS              | 0.00 ft |  |
| +D+S+H                     | 0.060                                                               | PASS | 0.00 ft | 0.000                          | PASS              | 0.00 ft |  |
| +D+0.750Lr+0.750L+H        | 0.137                                                               | PASS | 0.00 ft | 0.000                          | PASS              | 0.00 ft |  |
| +D+0.750L+0.750S+H         | 0.060                                                               | PASS | 0.00 ft | 0.000                          | PASS              | 0.00 ft |  |
| +D+0.60W+H                 | 0.157                                                               | PASS | 0.00 ft | 0.006                          | PASS              | 0.00 ft |  |
| +D+0.70E+H                 | 0,060                                                               | PASS | 0.00 ft | 0.000                          | PASS              | 0.00 ft |  |
| +D+0.750Lr+0.750L+0.450W+H | 0,163                                                               | PASS | 0.00 ft | 0.005                          | PASS              | 0.00 ft |  |
| +D+0.750L+0.750S+0.450W+H  | 0.125                                                               | PASS | 0.00 ft | 0.005                          | PASS              | 0.00 ft |  |
| +D+0.750L+0.750S+0.5250E+H | 0.060                                                               | PASS | 0.00 ft | 0.000                          | PASS              | 0.00 ft |  |
| +0.60D+0.60W+0.60H         | 0.145                                                               | PASS | 0.00 ft | 0.006                          | PASS              | 0.00 ft |  |
| +0.60D+0.70E+0.60H         | 0.036                                                               | PASS | 0.00 ft | 0.000                          | PASS              | 0.00 ft |  |

Project Title: Engineer: Project Descr:

Genesis Solar Heavy Equipment Covered Parking  $\begin{array}{ccc} 85 \\ \text{Project ID:} \end{array}$ 

Printed, 6MAR 2017, 10:17AM

# Steel Column

File = StEOAEZR-GI86YX5A-F.EC6

ENERCALC, INC. 1983-2017, Bulki 6.17.2.28

EIGHTSDG EIGHT RUCTURAL ENGINEERING

Steel Section Properties : HSS10x10x1/2

| Maximum Reactions              | х-х            | Axis Re  | eaction    |    | Y-Y Axis       | Reaction |         |          | non-zero reactions are lis<br>Axial Reaction |
|--------------------------------|----------------|----------|------------|----|----------------|----------|---------|----------|----------------------------------------------|
| Load Combination               | @ Base         |          | @ Тор      |    | @ Base         | @ Тор    |         |          | @ Base                                       |
| +D+H                           |                |          | k          |    |                |          | k       |          | 5.406 k                                      |
| +D+L+H                         |                |          | k          |    |                |          | k       |          | 5.406 k                                      |
| +D+L(+H                        |                |          | k          |    |                |          | k       |          | 14.669 k                                     |
| +D+S+H                         |                |          | k          |    |                |          | k       |          | 5.406 k                                      |
| +D+0.750Lr+0.750L+H            |                |          | k          |    |                |          | k       |          | 12.353 k                                     |
| +D+0.750L+0.750S+H             |                |          | k          |    |                |          | k       |          | 5.406 k                                      |
| +D+0.60W+H                     |                |          | k          |    | 0.840          |          | k       |          | 5,406 k                                      |
| +D+0.70E+H                     |                |          | k          |    | 2.2            |          | k       |          | 5.406 k                                      |
| +D+0.750Lr+0.750L+0.450W+H     |                |          | k          |    | 0.630          |          | k       |          | 12,353 k                                     |
| +D+0.750L+0.750S+0.450W+H      |                |          | k          |    | 0.630          |          | k       |          | 5.406 k                                      |
| +D+0.750L+0.750S+0.5250E+H     |                |          | k          |    | *****          |          | k       |          | 5.406 k                                      |
| +0.60D+0.60W+0.60H             |                |          | k          |    | 0.840          |          | ķ       |          | 3.243 k                                      |
| +0.60D+0.70E+0.60H             |                |          | k          |    | 0.010          |          | k       |          | 3.243 k                                      |
| D Only                         |                |          | <br>k      |    |                |          | k       |          | 5,406 k                                      |
| Lr Only                        |                |          | k          |    |                |          | k       |          | 9.263 k                                      |
| L Only                         |                |          | ,<br>k     |    |                |          | k       |          | k                                            |
| S Only                         |                |          | k          |    |                |          | k       |          | ķ                                            |
| W Only                         |                |          | ,<br>k     |    | 1.400          |          | k       |          | <br>k                                        |
| E Only                         |                |          | k<br>k     |    |                |          | k       |          | <br>k                                        |
| H Only                         |                |          | k          |    |                |          | k .     |          | k<br>k                                       |
| Maximum Deflections for Load C | ombinations    | Wild Six | N STATELLY |    |                |          |         |          |                                              |
| .oad Combination               | Max. X-X Defle | ction    | Distance   |    | Max. Y-Y Defic | ection   | Distanç | e        |                                              |
| +D+H                           | 0.0000         | in       | 0,000      | fi | 0.000          | in       | 0.000   | ft       |                                              |
| +D+L+I-i                       | 0.0000         | in       | 0,000      | ft | 0.000          | in       | 0.000   | ft       |                                              |
| +D+Lr+#-                       | 0.0000         | in       | 0.000      | fŧ | 0.000          | in       | 0.000   | ft       |                                              |
| +D+S+H                         | 0.0000         | in       | 0.000      | ſŧ | 0.000          | in       | 0.000   | ft       |                                              |
| +D+0.750Lr+0.750L+H            | 0.0000         | in       | 0.000      | ſĹ | 0.000          | in       | 0.000   | ft       |                                              |
| +D+0.750L+0.750S+H             | 0.0000         | in       | 0.000      | ft | 0.000          | in       | 0.000   | ft       |                                              |
| +D+0.60W+H                     | 0,000          | in       | 0.000      | ft | 0.917          | în       | 21.000  | ft       |                                              |
| +D+0.70E+H                     | 0.0000         | in       | 0.000      | ft | . 0.000        | in       | 0.000   | ft       |                                              |
| +l)+0.750Lr+0.750L+0.450W+H    | 0.0000         | in       | 0.000      | ft | 0.687          | in       | 21.000  | ft       |                                              |
| +D+0.750L+0.750S+0.450W+H      | 0.0000         | in       | 0.000      | ft | 0.687          | in       | 21.000  | ft       |                                              |
| +D+0.750L+0.750S+0.5250E+H     | 0.0000         | in       | 0.000      | ft | 0.000          | łn       | 0.000   | ft       |                                              |
| +0.60D+0.60W+0.60H             | 0.0000         | in       | 0.000      | ft | 0.917          | in       | 21.000  | ft       |                                              |
| +0.60D+0.70E+0.60H             | 0.0000         | in       | 0.000      | ft | 0.000          | in       | 0.000   | ft       |                                              |
| D Only                         | 0.0000         | in       | 0.000      | fl | 0.000          | in       | 0.000   | ft       |                                              |
| Lr Only                        | 0.0000         | in       | 0.000      | ft | 0.000          | in       | 0.000   | ft       |                                              |
| L Only                         | 0.0000         | in       | 0.000      | fL | 0.000          | in       | 0.000   | ft       |                                              |
| S Only                         | 0.0000         | in       | 0.000      | ft | 0.000          | in       | 0.000   | ft       |                                              |
| 1U O-L.                        | 0.0000         | in       | 0.000      | ft | 1.528          | in       | 21.000  | ft       |                                              |
| W Only                         | 0.0000         | 831      | 01000      | •• | 11080          | ***      |         |          |                                              |
| w Only<br>E Only<br>H Only     | 0.0000         | in       | 0.000      | ft | 0.00.0         | in       | 0.000   | ft<br>ft |                                              |

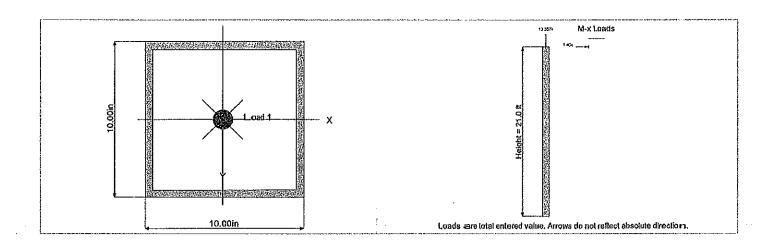
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Project Title: Engineer: Project Descr:

 $\begin{array}{ll} \text{Genesis Solar Heavy Equipment Covered} \\ \text{EG} & \text{Project ID:} \end{array} \begin{array}{ll} \textbf{86} \\ \textbf{800.0617} \end{array}$ 

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|                                                                                    |                              |                                                               |                                |                         |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            | Panjed: 6 MAR 2017, 10:17/  |
|------------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------|--------------------------------|-------------------------|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------------------------|
| teel Colu                                                                          | ทก                           |                                                               |                                | TEN                     |                                                       | CNEDON O                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | File #     | silEOAEZR-GI66YX5A-F.EO     |
| * 81KW-010                                                                         | and the second of the second |                                                               |                                |                         |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            | TURALENG NEER               |
| escription :                                                                       |                              | cal Column - High Roc                                         | )Í                             | (COLUMN CANDIDATE DAMA) |                                                       | SALES SALES CONTRACTOR SALES CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONT |            |                             |
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|                                                                                    |                              | HSS 10x                                                       | 10-412                         |                         |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |                             |
| TERL SPOTON I                                                                      | PAITINGTON                   |                                                               |                                |                         |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |                             |
|                                                                                    |                              |                                                               | ··                             |                         | 256.00 in/4                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | = =        | 412 000 in 44               |
| pth                                                                                | =                            | 10.000 in                                                     | l xx                           | #<br>#                  | 256.00 in^4                                           | J                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>=</b> . | 412.000 in^4                |
| pth<br>sign Thick                                                                  | = =                          | 10.000 in<br>0.465 in                                         | l xx<br>xx &                   | п                       | 51.20 in^3                                            | J                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>=</b> . | 412.000 in^4                |
| pth<br>sign Thick<br>Ith                                                           | =<br>=                       | 10.000 in<br>0.465 in<br>10.000 in                            | Exx<br>S xx<br>R xx            | n<br>m                  | 51,20 in^3<br>3.860 in                                | J                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>#</b> . | 412,000 in <b>^4</b>        |
| pth<br>sign Thick<br>dth<br>dl Thick                                               | #<br>=<br>=                  | 10.000 in<br>0.465 in<br>10.000 in<br>0.500 in                | i xx<br>S xx<br>R xx<br>Zx     | 22<br>22<br>23          | 51.20 in^3<br>3.860 in<br>60.700 in^3                 | J                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                             |
| epth<br>esign Thick<br>idth<br>all Thick<br>ea                                     | =<br>=                       | 10.000 in<br>0.465 in<br>10.000 in<br>0.500 in<br>17.200 in^2 | ixx<br>Sxx<br>Rxx<br>Zx<br>Iyy | n<br>m                  | 51.20 in^3<br>3.860 in<br>60.700 in^3<br>256.000 in^4 | c                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>=</b> . | 412.000 in^4<br>84.200 in^3 |
| i <b>teer Section F</b><br>epth<br>esign Thick<br>idth<br>all Thick<br>ea<br>eight | #<br>=<br>=                  | 10.000 in<br>0.465 in<br>10.000 in<br>0.500 in                | i xx<br>S xx<br>R xx<br>Zx     | 22<br>22<br>23          | 51.20 in^3<br>3.860 in<br>60.700 in^3                 | c                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                             |



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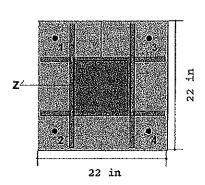
Job Number: 800.0617

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| Bolt | X (in) | Z (in) |
|------|--------|--------|
| 1    | 8,     | 8,     |
| 2    | -8.    | 8.     |
| 3    | 8,     | -8.    |
| 4    | -8.    | -8,    |

Geometry and Materials

Length 22. in Column Shape HS\$10x10x8 Width Column eX 22, in 0. in Thickness 1. in Column eZ 0. in Base Plate Fy 36. ksi Column to Edge Min (X) 1. in Base Plate E 2900**0**. ksi Column to Edge Min (Z) 1. in Bearing Fp 2.712 ksi HSS Tube X-sides welded Bearing Fc' HSS Tube Z-sides welded 3. ksi Pedestal Length 36 in Stiffened Base Plate Connection Pedestal Width 36 In Vx Shear Lug NOT present Pedestal Height 36 in Vz Shear Lug NOT present Analyze Base Plate as Rigid

Pp Based on AISC J8 Criteria AISC 14th:LRFD Steel Code:

Concrete Code: ACI 318-11 (With IBC 2012 Amendments) AB Head: Heavy Hex **NW Concrete** 

Seismic Reduction %: , 25. Square Base Plate Required

Concrete Cracked

ABs NOT Welded to Base Plate

Anchor Bolt Diameter 1. in Anchor Bolt Material A307 Anchor Bolt Fu 60. ksi Anchor Bolt Fy 36. ksi Anchor Bolt E 29000. ksi AB Stretch Length 6. in AB to AB Min Spacing 6 in AB to Stiffner Min Spacing 1.5 in AB to Column Min Spacing 2 in AB to Edge Min Spacing 3 in AB Row Min Spacing 3 in Priority is AB to Edge Spacing Include Threads for AB Design AB Fv, Ft based on AISC Criteria Total AB Length: 24. in Supp. Reinforcement Present Anch or Reinforcement Present Tension Anchor Reinf Bar Fy: 60, ksi

Shear Anchor Reinf Bar Fy:60. ksi

Loads

|      | P (k) | Vx (k) | Vz (k) | Mx (k-ft) | Mz (k-ft) |
|------|-------|--------|--------|-----------|-----------|
| DL [ | 4.094 |        |        |           |           |
| LL   | 9.263 |        |        |           |           |
| WL [ |       |        | 1.01   | 21.21     |           |
| EL   |       |        | 2.24   | 47.04     |           |

Base Plate Stress and Bearing Result

|                         |                | Base Pla  | te Stress | (ksi) | Bearing I | ressure ( | ksi) |
|-------------------------|----------------|-----------|-----------|-------|-----------|-----------|------|
| Combination             | Load Sets      | Allowable | ASIF      | Ú.C.  | Allowable | ABIF      | U.C. |
| ASCE Strength 1 (1)     | 1.4DL          | 48.6      | 1.        | .007  | 2.712     | 1,        | .004 |
| ASCE Strength 2 (a) (2) | 1.2DL+1.6LL    | 48.6      | 1.        | .025  | 2,712     | 1.        | .015 |
| ASCE Strength 3 (b) (3) | 1,2DL+,5WL     | 48.6      | 1.        | .094  | 2.712     | 1         | .107 |
| ASCE Strength 3 (b) (4) | 1.2DL5WL       | 48.6      | 1.        | .094  | 2.712     | 1.        | .107 |
| ASCE Strength 4 (a) (5) | 1.2DL+.5LL+1WL | 48.6      | 1.        | .186  | 2.712     | 1.        | .213 |
| ASCE Strength 4 (a) (6) | 1.2DL+.5LL-1WL | 48.6      | 1.        | .186  | 2.712     | 1.        | .213 |
| ASCE Strength 5 (7)     | 1,2DL+,5LL+1EL | 48,6      | 1.        | .382  | 2.712     | 1.        | .492 |
| ASCE Strength 5 (8)     | 1.2DL+.5LL-1EL | 48.6      | 1.        | .382  | 2,712     | 1, 1,     | .492 |
| ASCE Strength 6 (9)     | .9DL+1WL       | 48,6      | 1.        | .17   | 2,712     | 1.        | .223 |
| ASCE Strength 6 (10)    | .9DL-1WL       | 48.6      | 1.        | .17   | 2.712     | 1.        | .223 |
| ASCE Strength 7 (1)     | .9DL+1EL       | 48.6      | 1.        | ,366  | 2.712     | 1.        | .501 |
| ASCE Strength 7 (12)    | .9DL-1EL       | 48.6      | 1.        | .366  | 2.712     | 1.        | .501 |
| ACI 9-1 (13)            | 1.4DL          | 48.6      | 1.        | .007  | 2.712     | 1.        | .004 |

Designer : BG Job Number : 800.0617

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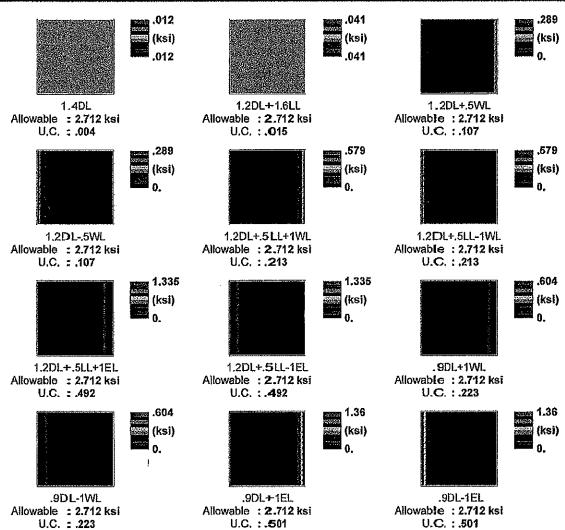
March 15, 2017

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#### Base Plate Stress and Bearing Results (continued

|                 |                 | Base Pla  | te Stress | (ksi) | Bearing I | Pressure ( | ksi) |
|-----------------|-----------------|-----------|-----------|-------|-----------|------------|------|
| Combination     | Load Sets       | Allowable | ASIF      | U.C.  | Allowable | ABIF       | U.C. |
| ACI 9-2(a) (14) | 1.2DL+1.6LL     | 48.6      | 1,        | .025  | 2.712     | 1,         | .015 |
| ACI 9-3(a) (15) | 1.2DL+1LL       | 48.6      | 1.        | .018  | 2.712     | <u> </u>   | .011 |
| ACI 9-3(d) (16) | 1,2DL+,8WL      | 48,6      | 1.        | ,142  | 2,712     | 1.         | .175 |
| ACI 9-3(d) (17) | 1,2DL8WL        | 48,6      | 1.        | .142  | 2.712     | 1.         | .175 |
| ACI 9-4 (18)    | 1,2DL+1LL+1,6WL | 48.6      | 1.        | ,295  | 2.712     | 1,         | .343 |
| ACI 9-4 (19)    | 1.2DL+1LL-1.6WL | 48.6      | 1.        | .295  | 2.712     | 1.         | .343 |
| ACI 9-5 (20)    | 1.2DL+1LL+1EL   | 48.6      | 1.        | .394  | 2.712     | 1.         | .485 |
| ACI 9-5 (21)    | 1.2DL+1LL-1EL   | 48.6      | 1         | .394  | 2.712     | 1.         | .485 |
| ACI 9-6 (22)    | .9DL+1.6WL      | 48.6      | 1.        | .267  | 2.712     | 1.         | .36  |
| ACI 9-6 (23)    | .9DL-1.6WL      | 48.6      | 1.        | .267  | 2.712     | 1.         | .36  |
| ACI 9-7 (24)    | ,9DL+1EL        | 48.6      | 1.        | .366  | 2.712     | 1.         | .501 |
| ACI 9-7 (25)    | .9DL-1EL        | 48.6      | 1.        | .366  | 2.712     | 1.         | .501 |

#### Bearing Contours



Designer : BG

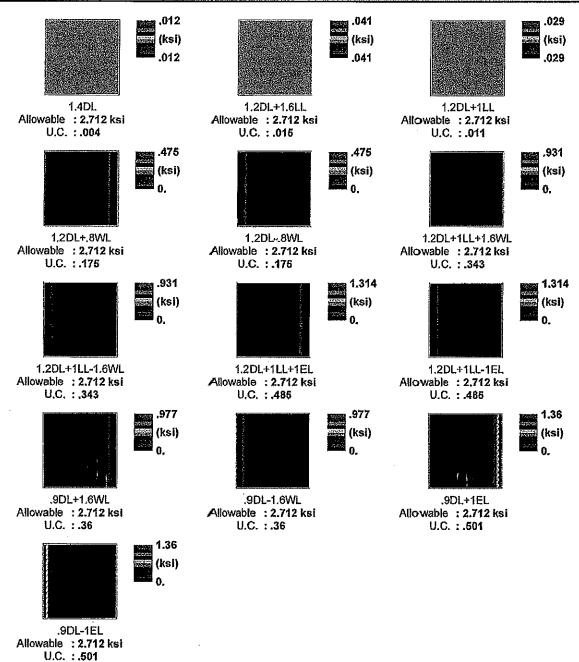
Job Number : 800.0617

Genesis Solar Heavy - BP2

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#### Bearing Contours (continued)



Designer : BG

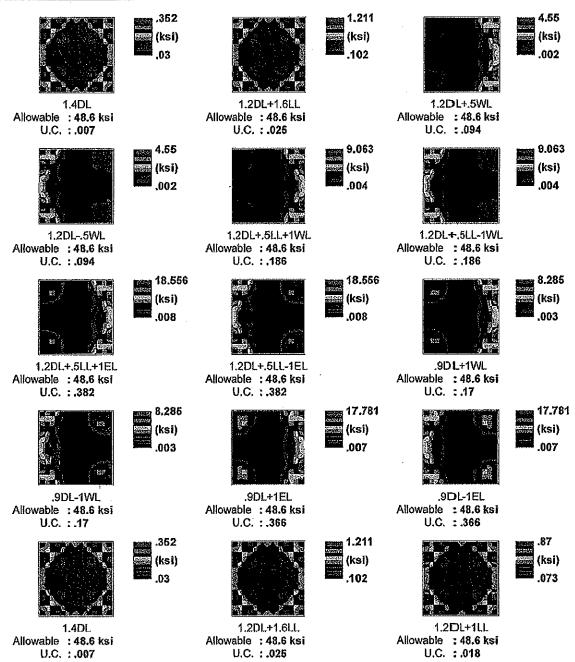
Job Number: 800.0617

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### Base Plate Stress Contour



Сотралу : BG Structural Engineering

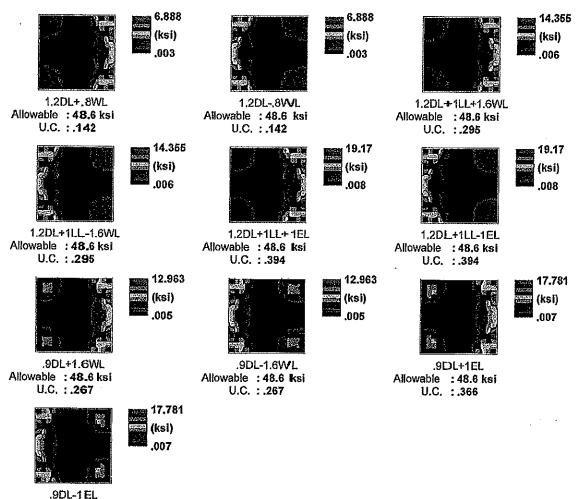
Designer : BG Job Number: 800-0617

Genesis Solar Heavy - BP2

March 15, 2017

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#### Base Plate Stress Contours (continued)



Company : BG Structural Engineering
Designer : BG

Job Number: 800,0617

Genesis Solar Heavy - BP2

March 15, 2017

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## Anchor Bolt Results

| Combination                             | Load Sets                               | Bolt  | Tens.(k) | Vx (k)        | Vz (k)   | Fnt (ksi)    | ft (ksi) | Fnv (ksi)  | · tv (KSI)   | Unity          |
|-----------------------------------------|-----------------------------------------|-------|----------|---------------|----------|--------------|----------|------------|--------------|----------------|
| SCE Strength 1 (1)                      | 1.4DL                                   | 1     | 0.       | 0.            | 0.       | 33.8         | 0.       | 18.        | N.A.         | 0. (T          |
| ,                                       |                                         | 2     | 0.<br>0. | 0.            | 0.       | 33,8         | 0,       | 18.        | N.A.         | 0, (T          |
|                                         |                                         | 3     |          | 0.            | 0,       | 33,8         | 0.       | 18.        | N.A.         | 0. (T          |
|                                         |                                         | 4     | . 0.     | 0.            | 0.       | 33,8         | 0,       | [ 18.      | N.A.         | 0. (T          |
| CE Strength 2 (a) (2)                   | 1,2DL+1.6LL                             | 1 1   | 0.       | 0.            | 0,       | 33,8         | 0.       | 18.        | N.A.         | 0. (T          |
|                                         |                                         | 2     | 0.       | 0.            | 0.       | 33.8         | 0.       | 18.        | N.A.         | 0. (T          |
|                                         |                                         | 3     | 0.       | 0.            | 0.       | 33.8         | 0.       | 18.        | N.A.         | 0. (T          |
| }                                       |                                         | 4     | 0.       | 0.            | 0.       | 33.8         | 0.       | J 18.      | N.A.         | 0. (T          |
| CE Strength 3 (b) (3)                   | 1.2DL+.5WL                              | 1     | 2.094    | 0.            | 126      | 45.          | 2.667    | 27.        | .161         | .079 (         |
|                                         |                                         | 2     | 2,094    | 0.            | 126      | 45.          | 2.667    | 27.        | .161         | ,079 (         |
|                                         |                                         | 3     | .035     | 0.            | 126      | 45.          | .045     | 27.        | .161         | ,008 (         |
|                                         |                                         | 4     | .035     | 0.            | -,126    | 45.          | .045     | 27.        | .161         | .008 (         |
| CE Strength 3 (b) (4)                   | 1,2DL5WL                                | 1     | .035     | 0.            | .126     | 45.          | .045     | 27.        | .161         | .008 (         |
|                                         |                                         | 2     | .035     | 0.            | ,126     | 45.          | ,045     | 27.        | .161         | .008 (         |
|                                         |                                         | 3     | 2.094    | 0.            | .126     | 45.          | 2,667    | 27.        | ,161         | .079 (         |
|                                         |                                         | 4     | 2.094    | 0,            | .126     | 45.          | 2.667    | 27.        | .161         | .079 (         |
| CE Strength 4 (a) (5)                   | 1.2DL+.5LL+1WL                          | 1     | 4,263    | 0.            | 252      | 45.          | 5.428    | 27.        | .321         | .161 (         |
|                                         |                                         | 2     | 4,263    | 0.            | 252      | 45.          | 5.428    | 27.        | .321         | .161 (         |
|                                         |                                         | 3     | .08      | Ō.            | -,252    | 45.          | .102     | 27.        | .321         | .016 (         |
|                                         |                                         | 4     | .08      | 0.            | 252      | 45.          | ,102     | 27.        | ,321         | ,016 (         |
| CE Strength 4 (a) (6)                   | 1.2DL+.5LL-1WL                          | 1     | .08      | 0,            | .252     | 45.          | .102     | 27.        | .321         | .016 (         |
| V 1-7.                                  |                                         | 2     | .08      | 0.            | .252     | 45.          | .102     | 27.        | .321         | .016 (         |
|                                         |                                         | 3     | 4.263    | 0.            | ,252     | 45.          | 5.428    | 27.        | .321         | .161 (         |
|                                         |                                         | 1 4   | 4.263    | 0.            | .252     | 45.          | 5.428    | 27.        | .321         | .161 (         |
| SCE Strength 5 (7)                      | 1.2DL+.5LL+1EL                          | 1 1   | 12,527   | 0.            | 56       | 45.          | 15,949   | 27.        | .713         | .473 (         |
|                                         | . ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | 2     | 12.527   | Ö.            | 56       | 45.          | 15.949   | 27.        | .713         | .473 (         |
|                                         |                                         | 3     | .612     | 0,            | 56       | 45.          | .779     | 27.        | 713          | .035 (         |
|                                         |                                         | 4     | .612     | 0.            | 56       | 45.          | .779     | 27.        | .713         | .035 (         |
| SCE Strength 5 (8)                      | 1,2DL+,5LL-1EL                          | 1     | .612     | 0.            | .56      | 45.          | .779     | 27.        | .713         | .035 (         |
| 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 |                                         | 2     | .612     | 0.            | .56      | 45.          | .779     | 27.        | .713         | .035 (         |
|                                         |                                         | 3     | 12,527   | 0.            | .56      | 45.          | 15.949   | 27.        | .713         | .473 (         |
|                                         |                                         | 4     | 12,527   | 0.            | .56      | 45.          | 15.949   | 27.        | .713         | .473 (         |
| SCE Strength 6 (9)                      | .9DL+1WL                                | 17    | 5,812    | 0,            | -,252    | 45.          | 7.4      | 27.        | .321         | .219 (         |
| DOL Oddigat o (d)                       | ,002. (110                              | 1 2   | 5.812    | 0.            | 252      | 45.          | 7.4      | 27.        | .321         | .219 (         |
|                                         |                                         | 3     | ,299     | <del>0.</del> | 252      | 45.          | .381     | 27,        | ,321         | .016 (         |
|                                         |                                         | 4     | .299     | 0.            | 252      | 45.          | .381     | 27.        | .321         | .016 (         |
| GCE Strength 6 (10)                     | .9DL-1WL                                | 1     | .299     | <u>0.</u>     | ,252     | 45.          | .381     | 27.        | ,321         | .016 (         |
| OL Offerigut o (10)                     | 1001-1045                               | 2     | .299     | 0.<br>0.      | .252     | 45.          | .381     | 27.        | .321         | .016 (         |
|                                         |                                         | 3     | 5.812    | 0,            | .252     | 45.          | 7.4      | 27.        | .321         | .219 (         |
|                                         |                                         | 4     | 5.812    | 0.            | .252     | 45.          | 7.4      | 27.        | .321         | .219 (         |
| CE Strength 7 (11)                      | .9DL+1EL                                | 1 7   | 14.075   | 0,            | 56       | 45.          | 17.921   | 27.        | .713         | .531 (         |
| ,oe onungin / (11)                      | .opc, (LL                               | 2     | 14.075   | 0.            | 56       | 45.          | 17.921   | 27.        | .713         | .531 (         |
|                                         |                                         | 3     | .83      | 0.            | 56       | 45.          | 1.057    | 27.        | .713         | .035 (         |
|                                         |                                         | 4     | .83      | 0.            | 56       | 45.          | 1.057    | 27.        | .713         | .035 (         |
| GCE Strength 7 (12)                     | .9DL-1EL                                | - 1 7 | .83      | 0.            | ,56      | 45.          | 1.057    | 27.        | .713         | .035 (         |
| OE ORGINGER / (12)                      | -3DL-1LL                                | 2     | .83      | 0.            | .56      | 45.          | 1.057    | 27.        | .713         | .035 (         |
|                                         |                                         | 3     | 14.075   | 0.            | .56      | 45.          | 17.921   | 27.        | .713         | .531 (         |
|                                         |                                         | 4     | 14.075   |               | .56      | 45.<br>45.   | 17.921   | 27.        | .713<br>.713 | .531 (         |
| ACI 9-1 (13)                            | 1.4DL                                   | 1-1-  | 0.       | 0.<br>0.      | 0.       | 33.8         | 0.       | 1 18.      | N.A.         |                |
| VOI 9-1 (19)                            |                                         |       |          |               |          |              |          |            |              | 0. (1          |
|                                         |                                         | 2     | 0.       | 0,<br>0.      | 0,       | 33.8         | 0.       | 18.        | N.A.         | 0. (1          |
|                                         |                                         | 3     | 0.       |               | 0.       | 33.8         | 0.       | 18.        | N.A.         | 0. (1          |
| 4010.0(2) (44)                          | anni a ali                              | 4     | 0.       | 0.            | 0.       | 33.8         | 0.       | 18.        | N.A.         | 0. (T          |
| ACI 9-2(a) (14)                         | 1.2DL+1.6LL                             | 1 1   | 0.       | 0.            | 0.       | 33.8         | 0.       | 18.        | N.A.         | 0. (T          |
|                                         |                                         | 3     | 0.<br>0. | 0.<br>0.      | 0.<br>0. | 33.8<br>33.8 | 0.<br>0. | 18.<br>18. | N.A.<br>N.A. | 0. (T<br>0. (T |
|                                         |                                         |       |          |               |          |              |          |            |              |                |

Company : BG Structural Engineering Designer : BG

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#### Anchor Bolt Results (continued)

| Combination     | Load Sets                               | Bolt | Tens.(k) | Vx (k) | Vz (k) | Fnt (ksi) | ft (ksi) | Fnv (ksi) | fv (ksi) | Unity    |
|-----------------|-----------------------------------------|------|----------|--------|--------|-----------|----------|-----------|----------|----------|
| ACI 9-3(a) (15) | 1.2DL+1LL                               | 1    | 0.       | 0.     | ] 0.   | 33.8      | Ö.       | 18.       | N.A.     | 0. (T)   |
|                 |                                         | 2    | 0.       | 0.     | 0.     | 33.8      | 0.       | 18.       | N.A.     | 0. (T)   |
|                 |                                         | 3    | 0.       | 0.     | 0.     | 33,8      | 0.       | 18.       | N.A.     | 0. (T)   |
|                 |                                         | 4    | Ö.       | 0.     | 0.     | 33.8      | 0.       | 18.       | N.A.     | 0. (T)   |
| ACI 9-3(d) (16) | 1.2DL+.8WL                              | 1    | 4.13     | O.     | 202    | 45.       | 5,259    | 27.       | .257     | . 156 (T |
| 113             |                                         | 2    | 4,13     | 0,     | -,202  | 45.       | 5.259    | 27.       | .257     | . 156 (T |
|                 |                                         | 3    | .166     | 0.     | 202    | 45.       | .211     | 27.       | .257     | 013 (S   |
|                 |                                         | 4    | .166     | 0.     | 202    | 45.       | .211     | 27.       | .257     | .013 (S  |
| ACI 9-3(d) (17) | 1,2DL8WL                                | 1    | .166     | 0.     | .202   | 45.       | .211     | 27.       | .257     | .013 (S  |
| 1               |                                         | 2    | .166     | 0.     | .202   | 45.       | .211     | 27.       | .257     | .013 (S  |
|                 | *************************************** | 3    | 4,13     | 0.     | .202   | 45.       | 5,259    | 27.       | .257     | . 156 (T |
|                 |                                         | 4    | 4.13     | 0.     | .202   | 45.       | 5.259    | 27.       | .257     | . 156 (T |
| ACI 9-4 (18)    | 1,2DL+1LL+1,6WL                         | 1    | 7.111    | 0.     | 404    | 45.       | 9,053    | 27.       | .514     | .268 (T  |
|                 |                                         | 2    | 7.111    | 0.     | 404    | 45.       | 9.053    | 27.       | .514     | .268 (T  |
|                 |                                         | 3    | .17      | 0.     | 404    | 45.       | .216     | 27.       | .514     | .025 (S  |
|                 |                                         | 4    | .17      | 0.     | 404    | 45.       | ,216     | 27.       | .514     | .025 (S  |
| ACI 9-4 (19)    | 1.2DL+1LL-1.6WL                         | 1    | .17      | 0.     | .404   | 45.       | .216     | 27.       | .514     | .025 (\$ |
|                 | W                                       | 2    | .17      | Q.     | .404   | 45.       | .216     | 27.       | .514     | .025 (S  |
|                 |                                         | 3    | 7,111    | 0,     | ,404   | 45.       | 9.053    | 27.       | .514     | .268 (T  |
|                 |                                         | 4    | 7.111    | 0.     | .404   | 45.       | 9,053    | 27.       | .514     | . 268 (T |
| ACI 9-5 (20)    | 1.2DL+1LL+1EL                           | 1    | 11.303   | 0.     | 56     | 45.       | 14,391   | 27,       | .713     | .426 (T  |
|                 |                                         | 2    | 11.303   | 0.     | 56     | 45.       | 14,391   | 27.       | ,713     | .426 (T  |
|                 | **************************************  | 3    | .439     | 0,     | ÷.56   | 45.       | .559     | 27.       | .713     | .035 (S  |
|                 |                                         | 4    | .439     | 0.     | 56     | 45.       | .559     | 27.       | .713     | .035 (S  |
| ACI 9-5 (21)    | 1,2DL+1LL-1EL                           | 1    | .439     | 0.     | .56    | 45.       | .559     | 27.       | .713     | .035 (S  |
|                 |                                         | 2    | .439     | 0.     | .56    | 45.       | .559     | 27.       | 713      | .035 (S  |
|                 |                                         | 3    | 11.303   | 0.     | .56    | 45.       | 14.391   | 27.       | 713      | .426 (T  |
|                 |                                         | 4    | 11.303   | Ō.     | .56    | 45.       | 14,391   | 27.       | 713      | .426 (T  |
| ACI 9-6 (22)    | ,9DL+1,6WL                              | 1    | 9.883    | 0.     | 404    | 45.       | 12.583   | 27.       | .514     | . 373 (T |
|                 |                                         | 2    | 9.883    | Ö.     | 404    | 45.       | 12.583   | 27.       | .514     | _373 (T  |
|                 |                                         | 3    | .561     | 0.     | 404    | 45.       | .714     | 27.       | .514     | . 025 (S |
|                 | •                                       | 4    | .561     | 0.     | 404    | 45.       | .714     | 27.       | .514     | .025 (S  |
| ACI 9-6 (23)    | .9DL-1,6WL                              | 1    | .561     | 0,     | .404   | 45.       | .714     | 27.       | .514     | .025 (S  |
| ,               |                                         | 2    | .561     | Ö.     | .404   | 45.       | .714     | 27.       | .514     | .025 (S  |
|                 |                                         | 3    | 9.883    | 0,     | ,404   | 45.       | 12,583   | 27.       | .514     | .373 (T  |
| *               |                                         | 4    | 9.883    | Ö.     | .404   | 45.       | 12.583   | 27.       | .514     | .373 (T  |
| ACI 9-7 (24)    | .9DL+1EL                                | 17   | 14.075   | 0.     | 56     | 45.       | 17.921   | 27.       | .713     | .531 (T  |
|                 | .v.c. (LL                               | 2    | 14.075   | 0.     | ~.56   | 45.       | 17.921   | 27.       | .713     | .531 (1  |
|                 |                                         | 3    | .83      | 0.     | -,56   | 45,       | 1.057    | 27,       | .713     | . O35 (S |
|                 |                                         | 4    | .83      | Ö.     | 56     | 45.       | 1.057    | 27.       | .713     | .035 (S  |
| ACI 9-7 (25)    | .9DL-1EL                                | 1    | .83      | 0.     | .56    | 45.       | 1.057    | 27.       | .713     | . 035 (S |
| 7(01 0-7 (20)   | , 47 \$7 kg = 1 kg kg                   | 2    | .83      | Q.     | .56    | 45.       | 1.057    | 27.       | .713     | .035 (S  |
|                 |                                         | 3    | 14.075   | 0.     | -56    | 45.       | 17.921   | 27.       | .713     | .531 (T  |
|                 |                                         | 4    | 14.075   | 0.     | .56    | 45.       | 17,921   | 27.       | .713     | .531 (T  |

#### Load Combinations

| 2 ASCE Strength 2 (a) 3 ASCE Strength 3 (b) 4 ASCE Strength 3 (b) 5 ASCE Strength 4 (a) 6 ASCE Strength 4 (a) 7 ASCE Strength 5 8 ASCE Strength 5 9 ASCE Strength 6 1.2DL+.5LL-1El 9 ASCE Strength 6 1.2DL+.5LL-1El 9 ASCE Strength 6 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9 ASCE Strength 6 .9DL+1WL<br>10 ASCE Strength 6 .9DL-1WL                                                                                                                                                                             |

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Company : BG-Structural Engineering

Designer : BG

Job Number : 800.0617 Genesis Solar Heavy - BP2

|   | Load | Combinations 1  | (continued)     |
|---|------|-----------------|-----------------|
|   |      |                 |                 |
|   | ĽÇ   | Combination     | Load Sets       |
|   | 11   | ASCE Strength 7 | .9DL+1EL        |
|   | 12   | ASCE Strength 7 | .9DL-1EL        |
|   | 13   | ACI 9-1         | 1.4DL           |
|   | 14   | ACI 9-2(a)      | 1.2DL+1.6LL     |
|   | 15   | ACI 9-3(a)      | 1.2DL+1LL       |
| Ì | 16   | ACI 9-3(d)      | 1,2DL+.8WL      |
|   | 17   | ACI 9-3(d)      | 1.2DL8WL        |
|   | 18   | ACI 9-4         | 1.2DL+1LL+1.6WL |
|   | 19   | ACI 9-4         | 1.2DL+1LL-1.6WL |
|   | 20   | ACI 9-5         | 1.2DL+1LL+1EL   |
|   | 21   | ACI 9-5         | 1.2DL+1LL-1EL   |
|   | 22   | ACI 9-6         | .9DL+1.6WL      |
|   | 23   | ACI 9-6         | .9DL-1.6WL      |
|   | 24   | ACI 9-7         | .9DL+1EL        |
| ļ | 25   | ACI 9-7         | .9DL-1EL        |

#### Anchor Bolt Embed Capacity Results

Note: All capacities shown include phi factors.

Single Bolt: Tension Capacity

RISABase Version 2.10

| LC | Bolt | Tens.(k) | Nsa(k)        | Ncb(k) | Npn(k) | Nsb(k) | Unity | Ductility | Load(k) | Steel(in2) |
|----|------|----------|---------------|--------|--------|--------|-------|-----------|---------|------------|
| 1  | 1    | 0.       | 27.27         | 0.     | 25.2   | 0,     | 0.    | N.A.      | 0.      | 0.         |
|    | 2    | 0.       | 27.27         | 0.     | 25.2   | 0.     | 0.    | N.A.      | 0,      | 0.         |
|    | 3    | 0.       | 27.27         | 0,     | 25.2   | 0.     | 0.    | N,A.      | 0,      | 0.         |
|    | 4    | 0.       | 27,27         | 0.     | 25.2   | 0.     | 0.    | N.A.      | 0.      | 0.         |
| 2  | 1    | 0.       | 27.27         | 0.     | 25.2   | 0.     | 0,    | N.A,      | 0.      | 0.         |
|    | 2    | 0,       | 27,27         | 0.     | 25.2   | 0.     | 0.    | N.A.      | 0.      | 0.         |
|    | 3    | 0.       | 27,27         | 0.     | 25.2   | 0.     | 0.    | N.A.      | 0.      | 0.         |
|    | 4    | 0.       | 27.27         | 0.     | 25.2   | 0.     | 0.    | N.A.      | . O.    | 0.         |
| 3  | 1    | 2.094    | 27.27         | 0.     | 25.2   | 0,     | .083  | N.A.      | 2.094   | .047       |
| 1  | 2    | 2,094    | 27.2 <b>7</b> | 0.     | 25.2   | 0.     | .083  | N.A.      | 2.094   | .047       |
|    | 3    | .035     | 27,27         | 0.     | 25.2   | 0.     | .001  | N.A.      | .035    | 00077788   |
|    | 4    | .035     | 27.27         | 0.     | 25,2   | Q.     | .001  | N.A.      | .035    | .00077788  |
| 4  | 1    | .035     | 27.27         | 0.     | 25,2   | 0.     | .001  | N.A.      | .035    | .00077788  |
|    | 2    | 035      | 27,27         | 0.     | 25.2   | 0.     | .001  | N.A.      | .035    | 00077787   |
| ļ  | 3    | 2,094    | 27.27         | 0.     | 25.2   | 0.     | .083  | N.A.      | 2.094   | .047       |
| 1  | 4    | 2.094    | 27.27         | 0.     | 25.2   | 0.     | .083  | N.A.      | 2.094   | .047       |
| 5  | 1    | 4,263    | 27.27         | 0.     | 25.2   | 0.     | .169  | N.A.      | 4.263   | .095       |
| i  | 2    | 4,263    | 27.27         | 0,     | 25.2   | 0.     | .169  | N.A.      | 4.263   | .095       |
|    | 3    | .08      | 27.27         | 0.     | 25.2   | 0.     | .003  | N.A.      | .08     | .002       |
|    | 4    | .08      | 27.27         | 0.     | 25.2   | 0.     | .003  | N.A.      | .08     | .002       |
| 6  | 1    | .08      | 27.27         | 0.     | 25,2   | 0.     | ,003  | N,A.      | .08     | .002       |
|    | 2    | .08      | 27.27         | 0.     | 25.2   | 0.     | .003  | N.A.      | -08     | .002       |
|    | 3    | 4.263    | 27.27         | 0.     | 25.2   | 0,     | .169  | N.A.      | · 4.263 | .095       |
|    | 4    | 4.263    | 27.27         | 0.     | 25.2   | 0.     | .169  | N.A.      | 4.263   | .095       |
| 7  | 1    | 12.527   | 27.27         | 0.     | 18.9   | 0.     | .663  | N.A.      | 12.527  | .278       |
|    | 2    | 12.527   | 27.27         | 0.     | 18.9   | 0.     | .663  | N.A.      | 12.527  | .278       |
|    | 3    | .612     | 27.27         | 0.     | 18.9   | 0.     | .032  | N.A.      | .612    | .014       |
|    | 4    | .612     | 27.27         | 0.     | 18.9   | 0.     | .032  | N.A.      | .612    | .014       |
| 8  | 1    | .612     | 27.27         | 0.     | 18.9   | 0.     | .032  | N.A.      | .612    | .014       |
|    | 2    | .612     | 27.27         | 0.     | 18.9   | 0.     | .032  | N.A.      | .612    | .014       |
|    | 3    | 12.527   | 27.27         | 0.     | 18.9   | Ö.     | .663  | N.A.      | 12.527  | .278       |
|    | 4    | 12.527   | 27.27         | 0.     | 18.9   | 0.     | .663  | N.A.      | 12.527  | .278       |

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March 15, 2017

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#### Single Bolt: Tension Capacity (continued)

| LC                                               | Bolt | Tens.(k) | Nsa(k) | Ncb(k)    | Npn(k)       | Nsb(k)       | Unity     | Ductility | Load(k) | Steel(in2) |
|--------------------------------------------------|------|----------|--------|-----------|--------------|--------------|-----------|-----------|---------|------------|
| 9                                                | 1    | 5.812    | 27,27  | 0,        | 25,2         | ) <b>o</b> . | .231      | N.A.      | 5.812   | 129        |
|                                                  | 2    | 5.812    | 27.27  | 0,        | 25.2         | 0.           | .231      | N.A.      | 5,812   | .129       |
|                                                  | 3    | .299     | 27.27  | 0.        | 25.2         | 0.           | .012      | N.A.      | .299    | .007       |
|                                                  | 4    | .299     | 27.27  | 0.        | 25.2         | 0.           | .012      | N.A.      | .299    | .007       |
| 10                                               | 1    | ,299     | 27.27  | 0.        | 25.2         | 0.           | .012      | N.A.      | .299    | .007       |
|                                                  | 2    | .299     | 27.27  | O.        | 25.2         | Ö.           | .012      | N.A.      | ,299    | .007       |
|                                                  | 3    | 5,812    | 27,27  | 0,        | 25.2         | 0.           | .231      | N.A.      | 5.812   | .129       |
|                                                  | 4    | 5.812    | 27.27  | Ö,        | 25,2         | O,           | .231      | N.A.      | 5,812   | ,129       |
| 11                                               | 1    | 14.075   | 27.27  | O.        | 18.9         | 0.           | .745      | N.A.      | 14.075  | ,313       |
|                                                  | 2    | 14,075   | 27.27  | 0,        | 18,9         | O.           | .745      | N.A.      | 14.075  | .313       |
|                                                  | 3    | .83      | 27.27  | 0.        | 18,9         | 0.           | .044      | N.A.      | .83     | .018       |
|                                                  | 4    | .83      | 27.27  | 0.        | 18,9         | 0,           | .044      | N.A.      | .83     | .018       |
| 12                                               | 1    | .83      | 27,27  | Û.        | 18.9         | 0.           | .044      | N.A.      | .83     | .018       |
|                                                  | 2    | .83      | 27.27  | Ö.        | 18.9         | Ö.           | .044      | N.A.      | .83     | ,018       |
|                                                  | 3    | 14.075   | 27.27  | 0.        | 18.9         | 0.           | .745      | N.A.      | 14,075  | .313       |
|                                                  | 4    | 14.075   | 27.27  | 0,        | 18.9         | 0.           | .745      | N.A.      | 14,075  | .313       |
| 13                                               | 1    | 0.       | 27.27  | 0.        | 25.2         | Ö.           | 0.        | N.A.      | 0,      | 0.         |
| H-                                               | 2    | 0.       | 27.27  | 0.        | 25.2         | 0.           | <u>0.</u> | N.A.      | 0.      | 0.         |
| <b>-</b>                                         | 3    | 0.       | 27.27  | <u>0.</u> | 25.2         | 0,           | O.        | N.A.      | 0.      | 0.         |
| 1                                                | 4    | Ö.       | 27.27  | 0.        | 25.2         | 0,           | 0.        | N.A.      | Ö.      | 0.         |
| 14                                               | 1/   | 0.       | 27.27  | 0.        | 25.2         | 0.           | 0.        | N.A.      | 0.      | 0.         |
| 1                                                | 2    | 0.       | 27.27  | 0.        | 25.2         | 0.           | 0.        | N.A.      | 0.      | 0.         |
| <b> </b>                                         | 3    | 0.       | 27.27  | 0.        | 25.2         | 0.           | Ö.        | N.A.      | 0,      | 0.         |
| <b> </b>                                         | 4    | 0.       | 27.27  | 0.        | 25,2         | 0.           | 0,        | N.A.      | 0.      | 0.         |
| 15                                               | 1    | 0.       | 27.27  | 0,        | 25.2         | 0.           | 0.        | N.A.      | 0.      | 0.         |
| -19                                              | 2    | 0.       | 27.27  | 0.        | 25.2         | 0.           | 0.        | N.A.      | 0,      | 0.         |
| ļi                                               | 3    | 0.       | 27,27  | 0.        | 25,2         | 0.           | 0.        | N.A.      | 0,      | 0.         |
|                                                  | 4    | 0.       | 27.27  | 0.<br>0.  | 25,2         | 0.           | 0.        | N.A.      | 0.      | 0.         |
| 16                                               | 1    | 4,13     | 27.27  | 0.        | 25.2         | 0.           | .164      | N.A.      | 4.13    | .092       |
| -'                                               | 2    | 4.13     | 27,27  | 0.        | 25,2         | 0.           | .164      | N.A.      | 4.13    | .092       |
|                                                  | 3    | .166     | 27.27  | 0.        | 25.2         | 0.           | .007      | N.A.      | .166    | .004       |
|                                                  | 4    | .166     | 27.27  | 0.        | 25.2         | 0.           | .007      | N.A.      | .166    | .004       |
| 17                                               | 1    | .166     | 27.27  | 0.        | 25,2         | 0.           | .007      | N.A.      | .166    | .004       |
| ''                                               | 2    | .166     | 27.27  | 0.<br>0.  | 25.2         | 0.           | .007      | N.A.      | .166    | .004       |
|                                                  | 3    | 4.13     | 27.27  | 0.        | 25.2         | 0.           | .164      | N.A.      | 4.13    | .092       |
|                                                  | 4    | 4,13     | 27.27  | 0.        | 25.2         | 0.           | .164      | N.A.      | 4.13    | .092       |
| 18                                               | 1    | 7.111    | 27.27  | 0.        | 25.2         | 0.           | .282      | N.A.      | 7.111   | .158       |
| 10                                               | 2    | 7.111    | 27,27  | 0.        | 25.2         | 0.           | ,282      | N.A.      | 7,111   | .158       |
| $\vdash$                                         | 3    | .17      | 27.27  | 0.        | 25.2         | 0.           | .007      | N.A.      | .17     | .004       |
|                                                  | 4    | ,17      | 27.27  | 0.        | 25.2         | 0.           | .007      | N.A.      | .17     | .004       |
| 19                                               | 1    | .17      | 27.27  | 0.        | 25.2<br>25.2 | 0.<br>0.     | .007      | N.A.      | .17     | .004       |
| 13                                               | 2    | .17      | 27.27  | 0.        | 25.2<br>25.2 | 0.<br>0.     | .007      | N,A.      | .17     | .004       |
| <del>                                     </del> | 3    | 7.111    | 27.27  | 0.        | 25,2         | 0.           | .282      | N.A.      | 7.111   | .158       |
| $\vdash$                                         | 4    | 7.111    | 27.27  | 0.        | 25.2         | 0.           | .282      | N.A.      | 7.111   | .158       |
| 20                                               | 1    | 11.303   | 27.27  | 0.        | 18.9         | 0.           | .598      | N.A.      | 11.303  | .251       |
| -20                                              | 2    | 11.303   | 27.27  | 0.        | 18.9         | 0.           | .598      | N.A.      | 11.303  | .251       |
|                                                  | 3    | .439     | 27.27  | 0.<br>0.  | 18.9         | 0.<br>0.     | .023      | N.A.      | .439    | .01        |
|                                                  | 4    | .439     | 27.27  | 0.        | 18.9         | 0.           | .023      | N.A.      | .439    | .01        |
| 21                                               | 1    | .439     | 27,27  | 0.<br>0.  | 18.9         | 0.<br>0.     | .023      | N.A.      | .439    | .01        |
|                                                  | 2    | .439     | 27.27  | 0.        | 18.9         | 0.<br>0.     | .023      | N.A.      | .439    | .01        |
|                                                  | 3    | 11.303   | 27.27  | 0.        | 18.9         | 0.           | .598      | N.A.      | 11,303  | .251       |
|                                                  | 4    | 11.303   | 27.27  |           | 18.9         | 0.           | .598      | N.A.      | 11.303  | .251       |
| 22                                               | 1    | 9.883    |        | 0.        | 25.2         | 0.<br>0.     | .392      | N.A.      | 9.883   | .22        |
| 44                                               | 2    | 9.883    | 27.27  | 0.<br>0.  |              | 0.<br>0.     | .392      | N.A.      | 9.883   |            |
|                                                  |      |          | 27.27  |           | 25.2         |              |           |           |         | .22        |
|                                                  | 3    | .561     | 27.27  | 0.        | 25.2         | 0.           | .022      | N.A.      | .561    | .012       |
| 1,                                               | 4    | .561     | 27,27  | 0.        | 25.2         | 0.           | .022      | N.A.      | .561    | .012       |

Designer : BG

Job Number: 800,0617

Genesis Solar Heavy - BP2

March 15, 2017

Checked By:\_\_\_

#### Single Bolt: Tension Capacity (continued)

| LC | Bolt | Tens.(k) | Nsa(k) | Ncb(k) | Nipn(k) | Nsb(k) | Unity | Ductility | Load(k) | Steel(In2) |
|----|------|----------|--------|--------|---------|--------|-------|-----------|---------|------------|
| 23 | 1    | .561     | 27,27  | 0.     | 25.2    | 0.     | .022  | N.A.      | .561    | .012       |
|    | 2    | .561     | 27.27  | 0.     | 25.2    | 0.     | .022  | N.A.      | .561    | .012       |
|    | 3    | 9,883    | 27.27  | 0.     | 25,2    | 0.     | ,392  | N.A.      | 9,883   | ,22        |
|    | 4    | 9.883    | 27.27  | 0.     | 25,2    | 0,     | .392  | N.A.      | 9,883   | .22        |
| 24 | 1    | 14.075   | 27.27  | 0.     | 18.9    | 0.     | .745  | N.A.      | 14.075  | .313       |
|    | 2    | 14.075   | 27.27  | 0.     | 18.9    | 0.     | .745  | N.A.      | 14.075  | .313       |
|    | 3    | .83      | 27.27  | 0.     | 18.9    | 0.     | .044  | N.A.      | .83     | .018       |
|    | 4    | .83      | 27.27  | O.     | 18,9    | 0,     | .044  | N.A,      | .83     | .018       |
| 25 | 1    | .83      | 27.27  | 0,     | 18.9    | 0.     | .044  | N.A.      | .83     | .018       |
|    | 2    | .83      | 27,27  | 0.     | 18.9    | 0.     | .044  | N.A.      | .83     | .018       |
|    | 3    | 14.075   | 27,27  | 0.     | 18.9    | 0.     | .745  | N.A.      | 14.075  | ,313       |
|    | 4    | 14.075   | 27,27  | 0.     | 18.9    | 0.     | 745   | N.A.      | 14.075  | .313       |

#### Single Bolt: Shear Capacity

| LC      | Bolt | Vx (k) | Vz (k) | Vsa(k) | VctoXx(k) | VcbXz(k) | VcbZz(k) | VcbZx(k)  | Vcp (k) | VxUnity | VzU nity |
|---------|------|--------|--------|--------|-----------|----------|----------|-----------|---------|---------|----------|
| 1       | 1    | 0.     | 0.     | 14.18  | 0.        | 0,       | 0.       | 0.        | 0.      | N,A.    | N.A.     |
|         | 2    | 0.     | 0.     | 14.18  | 0.        | 0.       | 0.       | 0         | 0.      | N.A.    | N.A.     |
|         | 3    | 0.     | 0.     | 14.18  | 0.        | 0.       | 0.       | 0.        | 0.      | N.A.    | N.A.     |
|         | 4    | 0.     | 0,     | 14.18  | 0.        | 0.       | . 0.     | 0.        | 0.      | N.A.    | N.A.     |
| 2       | 1    | 0,     | 0,     | 14,18  | 0,        | Ò,       | 0.       | 0.        | 0,      | N.A.    | N.A.     |
|         | 2    | 0.     | 0.     | 14.18  | 0.        | 0.       | 0.       | 0.        | 0.      | N.A.    | N.A.     |
|         | 3    | 0.     | 0.     | 14.18  | 0.        | Ö.       | 0.       | 0.        | 0.      | N.A.    | N.A.     |
|         | 4    | 0.     | 0.     | 14.18  | 0.        | 0.       | 0.       | 0.        | 0.      | N.A.    | N.A.     |
| 3       | 1    | Ó,     | ,126   | 14,18  | 0.        | 0.       | 0.       | 0.        | 0,      | N,A.    | N.A.     |
|         | 2    | 0.     | .126   | 14.18  | 0.        | 0.       | 0.       | 0.        | 0.      | N.A.    | N.A.     |
|         | 3    | 0.     | .126   | 14.18  | 0.        | Ó,       | 0,       | 0,        | 0.      | N.A.    | N.A.     |
|         | 4    | 0.     | .126   | 14.18  | 0.        | 0.       | 0.       | Ò,        | 0,      | N.A.    | N.A.     |
| 4       | 1    | 0.     | 126    | 14.18  | 0.        | 0.       | 0.       | 0.        | 0.      | N.A.    | N.A.     |
|         | 2    | 0.     | 126    | 14.18  | 0.        | 0.       | 0.       | 0.        | 0.      | N.A.    | N.A.     |
|         | 3    | 0,     | -,126  | 14.18  | 0,        | 0,       | 0,       | Ò,        | 0.      | N.A.    | N.A.     |
|         | 4    | Ö.     | 126    | 14.18  | 0.        | 0,       | 0.       | Ó         | 0.      | N.A.    | N.A.     |
| 5       | 1 1  | 0.     | .252   | 14.18  | 0.        | 0.       | 0,       | 0,        | . 0.    | N.A.    | N.A.     |
|         | 2    | 0.     | .252   | 14.18  | O.        | 0.       | 0.       | 0.        | 0.      | N.A.    | N.A.     |
|         | 3    | 0.     | .252   | 14.18  | 0.        | Ò.       | 0.       | 0.        | 0.      | N,A.    | N.A.     |
|         | 4    | 0.     | .252   | 14.18  | 0,        | 0.       | 0.       | 0.        | 0.      | N.A.    | N.A.     |
| 6       | 1    | 0.     | 252    | 14.18  | 0.        | 0,       | 0.       | 0.        | 0.      | N.A.    | N.A.     |
|         | 2    | 0.     | -,252  | 14.18  | 0.        | 0.       | 0.       | 0.        | 0.      | N.A.    | N.A.     |
|         | 3    | 0.     | -,252  | 14.18  | O.        | 0.       | 0.       | 0.        | 0.      | N.A.    | N.A.     |
|         | 4    | 0.     | -,252  | 14.18  | 0.        | 0.       | 0.       | 0.        | 0.      | N.A.    | N.A.     |
| 7       | 1    | 0.     | .56    | 14.18  | 0.        | 0.       | 0.       | 0.        | 0.      | N.A.    | N.A.     |
|         | 2    | O.     | .56    | 14.18  | 0.        | 0.       | 0.       | 0.        | 0.      | N.A.    | N.A.     |
|         | 3    | 0.     | .56    | 14.18  | 0.        | 0.       | 0.       | 0.        | 0.      | N,A.    | N.A.     |
| <u></u> | 4    | Ö.     | .56    | 14.18  | 0.        | 0.       | 0.       | 0.        | 0.      | N.A.    | N.A.     |
| 8       | 1    | 0.     | 56     | 14.18  | O.        | 0.       | 0.       | 0.        | 0.      | N.A.    | N.A.     |
|         | 2    | 0.     | 56     | 14.18  | 0.        | O.       | 0.       | 0.        | 0.      | N.A.    | N.A.     |
|         | 3    | 0.     | 56     | 14.18  | 0.        | 0.       | 0.       | 0.        | 0.      | N.A.    | N.A.     |
|         | 4    | 0.     | 56     | 14.18  | O.        | Ö.       | 0.       | 0.        | 0.      | N.A.    | N.A.     |
| 9       | 1    | Û.     | .252   | 14.18  | 0.        | 0.       | 0.       | 0.        | 0.      | N.A.    | N.A.     |
|         | 2    | 0.     | .252   | 14.18  | O.        | 0.       | 0.       | 0.        | Ó.      | N.A.    | N.A.     |
|         | 3    | 0.     | .252   | 14.18  | 0.        | 0.       | 0.       | <u>O.</u> | 0.      | N.A.    | N.A.     |
|         | 4    | 0.     | .252   | 14.18  | 0,        | 0.       | 0,       | 0.        | 0.      | N,A.    | N.A.     |
| 10      | 1    | 0.     | 252    | 14.18  | 0,        | 0.       | 0.       | 0.        | 0.      | N.A.    | N.A.     |
|         | 2    | 0.     | 252    | 14.18  | 0.        | 0.       | 0.       | 0.        | 0.      | N.A.    | N:A.     |
|         | 3    | 0.     | 252    | 14.18  | 0,        | 0.       | 0.       | 0,        | 0.      | N.A.    | N.A.     |
| L       | 4    | 0.     | 252    | 14.18  | Û,        | 0,       | 0.       | O.        | 0.      | N.A.    | N.A.     |

Company : BG Structural Engineering
Designer : BG
Job Number : 800,0617

Genesis Solar Heavy - BP2

March 15, 2017

Checked By:\_

#### Single Bolt: Shear Capacity (continued)

| LC                                               | Bolt | Vx (k)   | Vz (k) | Vsa(k) | VcbXx(k)  | VcbXz(k)      | VcbZz(k)  | VcbZx(k) | Vcp (k)   | VxUnity | VzUnity |
|--------------------------------------------------|------|----------|--------|--------|-----------|---------------|-----------|----------|-----------|---------|---------|
| 11                                               | 1 1  | 0.       | .56    | 14.18  | 0.        | 0.            | 0.        | 0.       | O.        | N.A.    | N.A.    |
|                                                  | 2    | O.       | .56    | 14.18  | 0.        | 0.            | 0.        | 0.       | 0.        | N.A.    | N.A.    |
|                                                  | 3    | 0,       | .56    | 14.18  | 0.        | 0.            | 0.        | 0.       | 0.        | N.A.    | N.A.    |
|                                                  | 4    | 0.       | .56    | 14,18  | 0.        | 0,            | 0,        | 0,       | O.        | N.A.    | N.A.    |
| 12                                               | 1    | 0.       | 56     | 14,18  | 0,        | Q.            | 0.        | 0.       | 0,        | N,A,    | N,A.    |
|                                                  | 2    | 0,       | -,56   | 14.18  | 0,        | 0.            | 0.        | 0.       | 0,        | N.A.    | N.A.    |
|                                                  | 3    | 0.       | 56     | 14.18  | 0,        | 0.            | 0.        | 0.       | O.        | N,A,    | N,A.    |
|                                                  | 4    | Q,       | -,56   | 14.18  | 0.        | 0,            | 0.        | 0.       | 0,        | N.A.    | N.A.    |
| 13                                               | 1    | 0.       | 0,     | 14.18  | 0.        | 0,            | 0,        | 0.       | 0.        | N.A.    | N.A.    |
|                                                  | 2    | 0.       | Q,     | 14.18  | 0.        | Ö.            | O.        | 0.       | 0,        | N.A.    | N.A.    |
|                                                  | 3    | 0.       | 0,     | 14.18  | 0.        | 0,            | 0.        | 0,       | 0,        | N.A.    | N,A,    |
|                                                  | 4    | 0.       | 0.     | 14.18  | 0.        | 0.            | 0.        | 0.       | 0.        | N.A.    | N.A.    |
| 14                                               | 1    | 0.       | 0.     | 14.18  | 0.        | 0.            | 0.        | 0,       | 0.        | N.A.    | N.A.    |
|                                                  | 2    | O,       | 0.     | 14.18  | 0.        | 0.            | 0.        | O,       | 0.        | N.A.    | N.A.    |
|                                                  | 3    | 0.       | 0.     | 14.18  | Ö.        | Ö,            | 0.        | Ō.       | 0.        | N.A.    | N.A.    |
|                                                  | 4    | 0.       | 0.     | 14.18  | O.        | O.            | Ö.        | O.       | 0.        | N.A.    | N.A.    |
| 15                                               | 1    | 0.       | 0,     | 14,18  | O,        | 0.            | Ö.        | O,       | Ö,        | N.A.    | N.A.    |
|                                                  | 2    | 0.       | 0.     | 14.18. | Ö.        | 0.            | 0.        | 0.       | 0.        | N.A.    | N.A.    |
|                                                  | 3    | 0.       | 0.     | 14.18  | 0.        | 0.            | 0.        | 0.       | 0.        | N.A.    | N.A.    |
| 1 1                                              | 4    | Ŏ.       | ő.     | 14.18  | o.        | 0.            | 0.        | Ö.       | o.        | N.A.    | N.A.    |
| 16                                               | 1    | 0.       | .202   | 14.18  | 0.        | 0.            | 0.        | 0.       | 0.        | N.A.    | N.A.    |
|                                                  | 2    | 0.       | .202   | 14.18  | 0,        | 0.            | 0.        | 0.       | <u>0.</u> | N.A.    | N,A,    |
|                                                  | 3    | 0.       | .202   | 14.18  | 0.        | Ō,            | Ö.        | 0.       | 0.        | N.A.    | N.A.    |
|                                                  | 4    | 0.       | .202   | 14.18  | 0.        | 0,            | Ö.        | 0.       | 0.        | N.A.    | N.A.    |
| 17                                               | 1    | 0.       | -,202  | 14.18  | 0.        | 0,            | 0.        | 0.       | 0.        | N.A.    | N.A.    |
|                                                  | 2    | 0.       | -,202  | 14.18  | 0,        | 0.            | 0.        | Ŏ,       | 0.        | N.A.    | N.A.    |
|                                                  | 3    | 0,       | 202    | 14.18  | 0.        | 0.            | 0,        | 0.       | 0.        | N.A.    | N.A.    |
| 1 1                                              | 4    | 0.       | ~.202  | 14.18  | 0.        | 0.            | ő.        | 0.       | 0.        | N.A.    | N.A.    |
| 18                                               | 1    | 0.       | .404   | 14.18  | 0.        | 0,            | Ö.        | 0.       | 0,        | N.A.    | N.A.    |
| `` <u> </u>                                      | 2    | 0.       | .404   | 14.18  | <u>0.</u> | 0.            | <u>0.</u> | Ö.       | 0.        | N.A.    | N.A.    |
|                                                  | 3    | Ō.       | 404    | 14,18  | 0.        | 0.            | 0,        | 0.       | 0.        | N.A.    | N.A.    |
|                                                  | 4    | 0,       | .404   | 14.18  | 0.        | 0.            | 0.        | 0.       | 0,        | N.A.    | N,A.    |
| 19                                               | 1    | Ö.       | -404   | 14.18  | 0.        | 0.            | 0.        | 0.       | 0.        | N.A.    | N.A.    |
| `                                                | 2    | 0.       | 404    | 14.18  | 0.        | Ö.            | 0.        | 0.       | 0.        | N.A.    | N.A.    |
|                                                  | 3    | Õ.       | 404    | 14.18  | Õ.        | 0.            | 0.        | Ö.       | 0.        | N.A.    | N.A.    |
|                                                  | 4    | 0.       | 404    | 14.18  | 0,        | <del>0.</del> | 0.        | 0.       | 0.        | N.A.    | N,A.    |
| 20                                               | 计计   | 0.       | .56    | 14.18  | 0.        | 0.            | 0.        | 0.       | 0.        | N.A.    | N.A.    |
| 1                                                | 2    | 0.       | .56    | 14.18  | 0.        | 0.            | 0.        | 0.       | 0.        | N.A.    | N.A.    |
|                                                  | 3    | Ŏ,       | ,56    | 14,18  | 0.        | 0.            | 0.        | 0.       | 0.        | N.A.    | N.A.    |
|                                                  | 4    | 0.       | .56    | 14.18  | 0.        | 0.            | 0.        | 0.       | 0.        | N.A.    | N.A.    |
| 21                                               | 1    | ő. l     | -,56   | 14.18  | 0.        | 0.            | 0.        | o.       | 0.        | N.A.    | N.A.    |
|                                                  | 2    | 0.       | 56     | 14.18  | 0.        | 0.            | 0.        | 0.       | 0.        | N.A.    | N.A.    |
| <u> </u>                                         | 3    | 0.       | 56     | 14.18  | 0.        | 0.            | 0.        | 0.       | 0.        | N.A.    | N.A.    |
| <del>                                     </del> | 4    | Ö.       | 56     | 14.18  | 0.        | 0.            | 0.        | 0.       | 0.        | N.A.    | N.A.    |
| 22                                               | 7    | 0.       | .404   | 14.18  | 0.        | 0.            | 0.        | 0.       | 0.        | N.A.    | N.A.    |
| ****                                             | 2    | 0.       | .404   | 14.18  | 0.        | 0.            | 0.        | 0.       | 0.        | N.A.    | - N.A.  |
| "                                                | 3    | ö.       | .404   | 14.18  | 0.        | 0.            | 0.        | 0.       | 0.        | N.A.    | N.A.    |
|                                                  | 4    | 0.       | .404   | 14.18  | 0.        | 0.            | 0.        | Ö.       | 0.        | N.A.    | N.A.    |
| 23                                               | 1    | 0.       | 404    | 14.18  | 0.        | 0.            | 0.        | 0.       | 0.        | N.A.    |         |
|                                                  | 2    | 0.       | -,404  | 14.18  | 0.        | 0.            | 0.        | 0,       | 0.        | N.A.    | N.A.    |
|                                                  | 3    | 0.       | 404    | 14.18  | 0.        | 0.            | 0.        | 0.       | 0.        | N.A.    | N.A.    |
|                                                  | 4    | 0.       | 404    | 14.18  | 0.        | 0.            | 0.        | 0,       |           |         | N.A.    |
| 24                                               |      | Ö.       | .56    | 14.18  | 0.        | 0.            | 0.        | 0.       | 0.<br>0.  | N.A.    | N.A.    |
|                                                  | 2    | 0.       | .56    | 14.18  | 0.        | 0.            | 0.        | 0.       |           | N.A.    | N.A.    |
| ļ <b>!</b>                                       | 3    | 0.       | .56    | 14.18  | 0.        | 0.            |           | 1        | 0.        | N.A.    | N.A.    |
|                                                  | 4    | 0.       | .56    |        | 0.        | 0.            | 0.        | 0.       | 0.        | N.A.    | N.A.    |
| Li                                               |      | <u> </u> | .00    | 14.18  | U.        | υ,            | 0.        | 0.       | 0.        | N.A.    | N.A.    |

Company : BG Structural Engineering
Designer : BG

Job Number: 800.0617

Genesis Solar Heavy - BP2

March 15, 2017

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#### Single Bolt: Shear Capacity (continued)

|   | LC | Bolt | Vx (k) | Vz (k) | Vsa(k) | VcbXx(k) | VcbXz(k) | VcbZz(k) | VcbZx(k) | Vcp (k) | VxUnity | VzUnity |
|---|----|------|--------|--------|--------|----------|----------|----------|----------|---------|---------|---------|
|   | 25 | 1    | 0.     | -,56   | 14.18  | 0.       | 0.       | 0.       | 0,       | 0.      | N.A.    | N.A.    |
| 1 |    | 2    | O.     | 56     | 14,18  | 0,       | 0.       | 0.       | 0.       | 0.      | N.A.    | N.A.    |
| ŀ |    | 3    | 0.     | 56     | 14.18  | 0,       | Ö.       | 0.       | Q.       | Ö.      | N.A.    | N.A.    |
| Ì | ,  | 4    | 0.     | 56     | 14.18  | 0.       | 0.       | 0.       | Q,       | 0.      | N.A.    | N.A.    |

#### Single Bolt: Seismic Ductility & Anchor Reinforcement Results

| LC       | Bolt | Vx (k)                                        | Vz (k)         | VxUnity      | VzUnity      | Vx-Duct      | Vx-L(k)  | Vx-St(in2) | Vz-Duct      | Vz-L(k) | Vz-St(in2)   |
|----------|------|-----------------------------------------------|----------------|--------------|--------------|--------------|----------|------------|--------------|---------|--------------|
| 1        | 1    | 0.                                            | 0.             | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | 0.      | 0.           |
| <u> </u> | 2    | O.                                            | 0.             | N.A.         | N,A.         | N.A.         | Ö,       | 0.         | N.A.         | 0.      | 0.           |
|          | 3    | 0.                                            | 0.             | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | 0,      | 0.           |
|          | 4    | 0.                                            | 0.             | N.A.         | N,A,         | N,A.         | 0_       | 0.         | N.A.         | 0.      | 0.           |
| 2        | 1    | Ö.                                            | Ö.             | N,A,         | N,A,         | N.A.         | 0.       | 0.         | N.A.         | 0.      | 0.           |
| -        | 2    | 0.                                            | 0.             | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | 0.      | 0.           |
|          | 3    | 0.                                            | 0.             | N.A.         | N.A.         | N.A.         | 0.       | O,         | N.A.         | 0.      | 0.           |
|          | 4    | 0.                                            | 0.             | N.A.         | N.A.         | N.A.         | Ö.       | 0.         | N.A.         | 0.      | 0.           |
| 3        | 1    | 0.                                            | .126           | N.A.         | N.A.         | N.A.         | Q.       | Ö.         | N,A,         | ,126    | ,003         |
|          | 2    | 0,                                            | .126           | N.A.         | N.A.         | N,A.         | 0.       | 0.         | N,A.         | .126    | ,003         |
|          | 3    | Q.                                            | .126           | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N,A.         | ,126    | ,003         |
|          | 4    | 0.                                            | .126           | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N,A.         | .126    | .003         |
| 4        | 1    | 0.                                            | 126            | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | ,126    | .003         |
|          | 2    | 0.                                            | 126            | N.A.         | N.A.         | N,A.         | 0.       | 0.         | N.A.         | ,126    | .003         |
|          | 3    | Ö.                                            | 126            | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | .126    | .003         |
|          | 4    | O.                                            | 126            | N.A.         | N,A.         | N.A.         | 0.       | 0.         | N.A.         | .126    | .003         |
| 5        | 1    | 0.                                            | .252           | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | .252    | .006         |
|          | 2    | 0.                                            | .252           | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | .252    | ,006         |
|          | 3    | O.                                            | .252           | N,A,         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | .252    | .006         |
|          | 4    | 0.                                            | .252           | N,A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | .252    | .006         |
| 6        | 1    | 0.                                            | 252            | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | .252    | .006         |
|          | 2    | 0,                                            | -,252          | N,A,         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | .252    | .006         |
|          | 3    | 0.                                            | 252            | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | .252    | .006         |
|          | 4    | 0.                                            | 252            | N.A.         | N.A.         | N.A.         | Q.       | 0.         | N.A.         | .252    | ,006         |
| 7        | 1    | 0,                                            | .56            | N.A.         | N.A.         | N.A.         | 0.       | O,         | N.A.         | .56     | ,012         |
|          | 2    | 0.                                            | .56            | N.A.         | N.A.         | N.A.         | O.       | 0.         | N.A.         | .56     | .012         |
|          | 3    | 0.                                            | .56            | N.A.         | N.A.         | N.A.         | 0.       | 0.         | , N.A.       | .56     | .012         |
| L        | 4    | 0.                                            | .56            | N.A.         | N.A.         | N.A.         | 0,       | 0.         | N.A.         | ,56     | ,012         |
| 8        | 1    | 0.                                            | 56             | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | .56     | .012         |
|          | 2    | 0,                                            | 56             | N.A.         | N,A.         | N,A.         | 0.       | 0.         | N.A.         | .56     | .012         |
| ļ        | 3    | 0.                                            | 56             | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | .56     | .012         |
| 1 _      | 4    | 0,                                            | ~.56           | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | .56     | .012         |
| 9        | 1    | 0,                                            | .252           | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | .252    | .006         |
|          | 2    | 0,                                            | .252           | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | .252    | .006<br>300. |
|          | 3    | 0.                                            | .252           | N.A.         | N.A.         | N.A.         | 0.<br>0. | 0.         | N.A.<br>N.A. | ,252    | .000.        |
| 40       | 4    | 0.<br>0.                                      | .252           | N.A.         | N.A.<br>N.A. | N.A.<br>N.A. | 0.       | 0.         | N.A.         | .252    | .006         |
| 10       |      |                                               | 252            | N.A.         |              | N.A.         | Ο.       | 0.         | N.A.         | ,252    | .006         |
|          | 2 3  | 0.                                            | -,252<br>-,252 | N.A.<br>N.A. | N.A.<br>N.A. | N.A.         | 0.<br>0. | 0.         | N.A.         | .252    | .006         |
|          | 4    | 0,<br>0,                                      | 252            | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | .252    | .006         |
| 11       | 1    | 0.<br>0.                                      | .56            | N.A.         | N.A.<br>N.A. | N.A.         | 0.       | 0.         | N.A.         | .56     | .012         |
|          | 2    | 0.                                            | ,56            | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | .56     | .012         |
| <b></b>  | 3    | 0.                                            | .56            | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | .56     | .012         |
|          | 4    | 0.                                            | .56            | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | .56     | 012          |
| 12       | 1    | 0.                                            | 56             | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | .56     | .012         |
| 12       | 2    | 0.                                            | 56             | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | .56     | .012         |
|          | 3    | o.<br>o.                                      | 56             | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | .56     | .012         |
| -        | 4    | 0.                                            | 56             | N.A.         | N.A.         | N.A.         | 0.       | 0.         | N.A.         | .56     | .012         |
| L        | 1    | <u>, , , , , , , , , , , , , , , , , , , </u> |                | 17.77.       | 1 14.7.1.    | 1 14.1 14    | L        | <u> </u>   | 11011        |         |              |

Designer : BG

Job Number : 800.0617

Genesis Solar Heavy - IBP2

March 15, 2017

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#### Single Bolt: Seismic Ductility & Anchor Reinforcement Results (continued)

| LC       | Bolt | Vx (k) | Vz (k)      | VxUnity | VzUnity | Vx-Duct | Vx-L(k) | Vx-St(in2) | Vz-Duct | Vz-L(k)     | Vz-St(in2) |
|----------|------|--------|-------------|---------|---------|---------|---------|------------|---------|-------------|------------|
| 13       | 1 1  | 0.     | 0.          | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 0.          | 0.         |
| 1        | 2    | Ö.     | 0.          | N.A.    | N.A.    | N.A.    | 0,      | 0.         | N.A.    | 0.          | ō.         |
|          | 3    | 0,     | 0.          | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 0.          | Ö.         |
| ļ        | 4    | 0.     | 0.          | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 0.          | o.         |
| 14       | 1    | 0.     | 0.          | N,A,    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 0.          | O.         |
| 17       | 2    | 0.     | 0.          | N.A.    | N_A.    | N.A.    | 0.      | 0.         | N.A.    | 0.          | 0.         |
|          | 3    | 0,     | 0.          | N.A.    | N.A.    | N,A.    | 0.      | 0.         | N.A.    | 0.          | 0.         |
|          | 4    | 0.     | 0.          | N.A.    | N_A,    | N.A.    | 0.      | 0.         | N.A.    | 0.          | 0.         |
| 15       | 1    | 0.     | 0.          | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 0.          | 0.         |
| 13       | 2    | 0.     | 0.          | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 0.          | 0.         |
|          | 3    | 0.     | Ö.          | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | Ö.          | 0.         |
|          | 4    | 0.     | 0.          | N.A.    | N.A.    | N.A.    | Ö.      | 0.         | N.A.    | 0.          | 0.         |
| 40       | 1 1  |        | .202        |         |         |         | Ö.      | 0.         | N.A.    | .202        | .004       |
| 16       |      | 0.     | .202        | N.A.    | N.A.    | N.A.    |         | 0.         | N.A.    | .202        | .004       |
| <u> </u> | 2    | 0.     |             | N.A.    | N.A.    |         | 0.      |            |         |             |            |
| ļ        | 3    | 0.     | .202        | N.A.    | N_A.    | N.A.    | 0.      | 0.         | N.A.    | ,202        | ,004       |
|          | 4    | 0.     | .202        | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .202        | .004       |
| 17       | 1    | 0.     | 202         | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .202        | .004       |
| ļ        | 2    | 0.     | -,202       | N.A.    | N.A.    | N,A.    | 0.      | 0.         | N.A.    | .202        | .004       |
|          | 3    | 0.     | -,202       | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .202        | .004       |
|          | 4    | 0.     | 202         | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | ,202        | .004       |
| 18       | 1    | 0.     | .404        | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .404        | .009       |
| ļ        | 2    | 0.     | .404        | N.A.    | N.A.    | N.A.    | 0.      | 0,         | N.A.    | .404        | .009       |
| L        | 3    | 0.     | .404        | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .404        | .009       |
|          | 4    | 0.     | .404        | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .404        | .009       |
| 19       | 1    | 0.     | 404         | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .404        | .009       |
| ļ.,      | 2    | 0.     | 404         | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .404        | .009       |
|          | 3    | 0.     | 404         | N.A.    | N.A.    | N.A.    | O.      | 0.         | N.A.    | .404        | .009       |
|          | 4    | 0.     | 404         | N.A.    | N.A.    | N,A.    | 0,      | 0.         | N.A.    | .404        | .009       |
| 20       | 1    | 0.     | .56         | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .56         | .012       |
|          | 2    | 0.     | .56         | N.A.    | N.A.    | N.A.    | O,      | 0.         | N.A.    | .56         | .012       |
| L        | 3    | 0.     | .56         | N.A.    | N.A.    | N.A.    | Ů.      | 0.         | N.A.    | .56         | .012       |
| <u> </u> | 4    | 0.     | .56         | N.A.    | N.A.    | N.A.    | O,      | 0.         | N.A.    | .56         | .012       |
| 21       | 1    | 0,     | -,56        | N,A,    | N.A.    | N.A.    | 0,      | 0.         | N.A.    | .56         | .012       |
|          | 2    | 0,     | 56          | N.A.    | N.A.    | N.A.    | 0.      | ] 0. [     | N.A.    | .56         | .012       |
|          | 3    | Q.     | 56          | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .56         | ,012       |
|          | 4    | O,     | <b>~.56</b> | N.A.    | N.A.    | N.A.    | Q.      | 0.         | N.A.    | .56         | .012       |
| 22       | 1    | 0.     | .404        | N.A.    | N.A.    | N.A.    | Q.      | 0.         | N.A.    | .404        | .009       |
|          | 2    | 0.     | .404        | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | ,404        | .009       |
|          | 3    | 0.     | .404        | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .404        | .009       |
|          | 4    | 0,     | .404        | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .404        | .009       |
| 23       | 1    | 0.     | 404         | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .404        | .009       |
|          | 2    | 0.     | 404         | N,A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | ,404        | .009       |
|          | 3    | 0.     | 404         | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .404        | .009       |
|          | 4    | 0.     | 404         | N.A.    | N.A.    | N.A.    | . 0.    | 0.         | N.A.    | .404        | .009       |
| 24       | 1    | 0.     | .56         | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .56         | .012       |
|          | 2    | 0.     | .56         | N.A.    | N.A.    | N.A.    | Ö.      | 0.         | N.A.    | .56         | .012       |
|          | 3    | 0.     | .56         | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .56         | .012       |
|          | 4    | 0.     | .56         | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .56         | .012       |
| 25       | 1    | 0.     | 56          | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .56         | .012       |
|          | 2    | 0.     | 56          | N.A.    | N.A.    | N.A.    | 0.      | O.         | N.A.    | ,56         | .012       |
|          | 3    | 0.     | 56          | N.A.    | N.A.    | N.A.    | O.      | 0.         | N.A.    | .56         | .012       |
|          | 4    | 0.     | 56          | N.A.    | N.A.    | N.A.    | 0.      | Ō.         | N.A.    | .56         | .012       |
| t.,      |      |        | <del></del> |         |         |         | <u></u> |            |         | <del></del> |            |

Single Bolt: Combined Tension and Shear Capacity

LC Bolt Nn(k) Vnx(k) Vnz(k) SRSS Interaction

Designer : BG Job Number : 800.0617 Genesis Solar Heavy - BP2 March 15, 2017

Checked By:\_\_

## Single Bolt: Combined Tension and Shear Capacity (continued)

| , rc        | Bolt | Nn(k) | Vnx(k)   | Vnz(K) | SRSS         | Interaction  |
|-------------|------|-------|----------|--------|--------------|--------------|
| 1           | 1 1  | 25,2  | 0.       | 0.     | 0.           | N.A.         |
| <u> </u>    | 2    | 25.2  | 0.       | 0.     | 0.           | N.A.         |
|             | 3    | 25.2  | 0.       | 0.     | 0.           | N.A.         |
|             | 4    | 25.2  | 0.       | 0.     | 0.           | N,A,         |
| 2           | 1    | 25.2  | 0.       | 0.     | 0.           | N.A.         |
|             | 2    | 25,2  | 0.       | 0,     | 0.           | N.A.         |
|             | 3    | 25.2  | 0.       | 0.     | 0.           | N.A.         |
|             | 4    | 25.2  | 0.       | 0.     | 0.           | N.A.         |
| 3           | 1    | 25.2  | 0.       | 0.     | .083         | N.A.         |
|             | 2    | 25.2  | Ó.       | 0.     | .083         | N.A.         |
|             | 3    | 25.2  | Q,       | 0.     | .001         | N.A.         |
|             | 4    | 25.2  | 0.       | 0.     | .001         | N.A.         |
| 4           | 1    | 25.2  | 0.       | 0.     | .001         | N.A.         |
|             | 2    | 25.2  | 0.       | 0,     | .001         | N.A.         |
|             | 3    | 25.2  | 0.       | 0.     | .083         | N.A.         |
|             | 4    | 25.2  | 0.       | O.     | .083         | N.A.         |
| 5           | 1    | 25,2  | 0.       | O.     | .169         | N.A.         |
|             | 2    | 25.2  | 0,       | Ö.     | .169         | N.A.         |
|             | 3    | 25.2  | 0.       | 0.     | ,003         | N.A.         |
|             | 4    | 25.2  | 0.       | Ō.     | .003         | N.A.         |
| 6           | 1    | 25.2  | Ö.       | 0.     | .003         | N.A.         |
| <del></del> | 2    | 25,2  | 0,       | 0,     | .003         | N.A.         |
|             | 3    | 25.2  | 0.       | 0.     | .169         | N.A.         |
|             | 4    | 25,2  | 0.       | 0.     | .169         | N.A.         |
| 7           | 1    | 18.9  | 0.       | 0.     | .663         | .663         |
| <del></del> | 2    | 18.9  | 0.       | 0,     | ,663         | .663         |
|             | 3    | 18.9  | 0.       | 0.     | .032         | N.A.         |
|             | 4    | 18.9  | Ö.       | 0.     | .032         | N.A.         |
| 8           | 1    | 18.9  | 0.<br>0. | 0.     | ,032         | N.A.         |
|             | 2    | 18,9  | 0.       | .0,    | .032         | N.A.         |
|             | 3    | 18.9  |          | 0.     | .663         | .663         |
| -           | 4    | 18.9  | 0.<br>0. | Q.     | .663         | .663         |
|             |      |       |          |        |              |              |
| 9           | 1    | 25.2  | 0.       | 0.     | .231<br>.231 | .231<br>.231 |
| ļ           | 2    | 25.2  | 0.       | 0.     |              |              |
|             | 3    | 25.2  | 0,       | 0.     | .012         | N.A.         |
|             | 4    | 25,2  | 0.       | 0.     | ,012         | N,A,         |
| 10          | 1    | 25.2  | 0.       | 0.     | .012         | N.A.         |
| <u> </u>    | 2    | 25,2  | 0,       | 0,     | .012         | N,A.         |
|             | 3    | 25.2  | 0.       | 0.     | .231         | .231         |
| ١           | 4    | 25.2  | 0.       | 0.     | .231         | .231         |
| 11          | 1    | 18.9  | 0.       | 0.     | .745         | .745         |
|             | 2    | 18.9  | 0.       | 0.     | .745         | 745          |
|             | 3    | 18.9  | 0.       | 0,     | .044         | N.A.         |
|             | 4    | 18.9  | 0.       | 0.     | .044         | N.A.         |
| 12          | 1    | 18.9  | 0.       | 0.     | .044         | N.A,         |
|             | 2    | 18.9  | Q.       | 0.     | .044         | N.A.         |
|             | 3    | 18.9  | 0,       | 0.     | .745         | .745         |
| [           | 4    | 18.9  | 0.       | 0.     | .745         | .745         |
| 13          | 1    | 25.2  | 0.       | 0.     | 0,           | N.A.         |
|             | 2    | 25.2  | 0.       | 0.     | 0.           | N.A.         |
|             | 3    | 25.2  | 0.       | 0,     | 0.           | N.A.         |
|             | 4    | 25,2  | 0.       | 0.     | 0.           | N.A.         |
| 14          | 1    | 25.2  | 0.       | 0.     | 0.           | N.A.         |
|             | 2    | 25.2  | 0.       | 0.     | 0.           | N.A.         |
|             | 3    | 25.2  | 0.       | 0.     | 0.           | N.A.         |
|             | 4    | 25.2  | 0.       | 0.     | 0.           | N.A.         |
|             |      |       |          |        |              | <del></del>  |

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#### Single Bolt: Combined Tension and Shear Capacity (continued)

| LC<br>15     | Bolt<br>1 | Nn(k)<br>25.2 | Vnx(k)<br>0. | Vnz(k)<br>  0. | SRSS<br>0. | Interaction<br>N.A. |
|--------------|-----------|---------------|--------------|----------------|------------|---------------------|
| 10           | 2         | 25.2          | 0.           | 0.             | 0.         | N.A.                |
| <del> </del> | 3         | 25.2          | 0.           | 0.             | 0.         | N.A.                |
| <b></b>      | 4         | 25.2          | 0.           | 0.             | 0.         | N.A.                |
| 16           | 1         | 25.2          | 0.           | 0.             | .164       | N.A.                |
| 10           | 2         | 25.2          | 0.           | 0.             | .164       | N.A.                |
|              | 3         | 25.2          | 0.           | 0.             | .007       | N,A,                |
|              | 4         | 25.2          | 0.           | 0.             | .007       | N.A.                |
| 17           | 1         | 25,2          | 0,           | 0.             | .007       | N.A.                |
|              | 2         | 25.2          | 0.           | 0.             | .007       | N.A.                |
| <b></b>      | 3         | 25.2          | 0.           | 0.             | .164       | N.A.                |
|              | 4         | 25.2          | 0.           | 0.             | .164       | N.A.                |
| 18           | 1         | 25.2          | 0.           | 0.             | ,282       | .282                |
| 10           | 2         | 25,2          | 0,           | 0,             | ,282       | .282                |
|              | 3         | 25.2          | 0.           | 0,             | .007       | N.A.                |
|              | 4         | 25.2          | 0.           | 0.             | .007       | N.A.                |
| 19           | 1         | 25.2          | 0.           | 0,             | .007       | N.A.                |
| 19           | 2         | 25.2          | 0.           | 0.             | .007       | N.A.                |
|              | 3         | 25.2          | 0.           | 0.             | .282       | ,282                |
|              | 4         | 25.2<br>25.2  | 0.<br>0.     | 0.             | .282       | .282                |
| 20           | 1         | 18.9          | 0.           | 0.             | .598       | .598                |
| 20           | 2         | 18.9          | 0.           | 0.             | .598       | .598                |
|              | 3         | 18.9          | 0.           | 0.             | ,023       | N.A.                |
|              | 4         | 18.9          | 0.           | 0.             | .023       | N.A.                |
| 21           | 1         | 18.9          | 0.           | 0.             | .023       | N.A.                |
| ZI           | 2         | 18.9          | 0.           | 0.             | .023       | N,A,                |
|              | 3         | 18.9          | 0.           | 0.             | .598       | .598                |
|              | 4         | 18.9          | 0.           | 0.             | .598       | .598                |
| 22           | 1         | 25.2          | 0.           | 0.             | .392       | .392                |
| - 22         | 2         | 25.2          | 0.           | 0.             | ,392       | .392                |
|              | 3         | 25.2          | 0,           | 0.             | .022       | N.A.                |
|              | 4         | 25.2          | 0.           | 0.             | .022       | N.A,                |
| 23           | 1         | 25.2          | 0.           | <u>0.</u>      | .022       | N.A.                |
| 20           | 2         | 25.2          | 0.<br>0.     | 0.             | .022       | N.A.                |
|              | 3         | 25.2          | 0.<br>0.     | 0.             | .392       | .392                |
| <b></b>      | 4         | 25.2          | 0.           | 0,             | .392       | .392                |
| 24           | 1         | 18.9          | 0.           | 0.             | .745       | .745                |
|              | 2         | 18.9          | 0.           | 0.             | .745       | 745                 |
| <del> </del> | 3         | 18.9          | 0.           | 0.             | .044       | N.A.                |
| <b> </b>     | 4         | 18.9          | 0.           | 0.             | .044       | N.A.                |
| 25           | 1         | 18.9          | 0.           | 0.<br>0.       | .044       | N.A.                |
|              | 2         | 18.9          | 0.           | 0.             | .044       | N.A.                |
|              | 3         | 18.9          | 0.           | 0.             | .745       | .745                |
| <del> </del> | 4         | 18.9          | Ö.           | 0.             | .745       | .745                |
| L            | 4         | 10.9          | <u> </u>     | Γ΄΄            | 1 ./40     | 145                 |

#### **Tension Bolt Groups**

Group Bolt List T-1 | 1, 2, 3, 4

#### Shear Bolt Groups

| Group | Type | Failure Bolt List |   |
|-------|------|-------------------|---|
| S-1   | +Vz  | Full   1, 2, 3, 4 |   |
|       |      | Nr Edge   1, 2    | , |
|       |      | SideFull 1, 3     |   |
|       |      | SideNr I 1        |   |

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#### Shear Bolt Groups (continued)

| Group | Type | Failure Bolt List |
|-------|------|-------------------|
| S-2   | -Vz  | Full   1, 2, 3, 4 |
|       |      | Nr Edge   3, 4    |
|       |      | SideFull 1, 3     |
|       |      | SideNr   3        |
| 5-3   | +Vx  | Full   1, 2, 3, 4 |
|       |      | Nr Edge   1, 3    |
|       |      | SideFull 1, 2     |
|       |      | SideNr I 1        |
| S-4   | -Vx  | Full [1, 2, 3, 4  |
| -     |      | Nr Edge   2, 4    |
|       |      | SideFull   1, 2   |
|       |      | SideNr I 2        |

## Anchor Bolt Group Embed Capacity Results

Note: All capacities shown include phi factors

#### **Group Bolt: Tension Capacity**

| LC | Group      | Tens.(k) | Nsa(k) | Ncbg(k) | Nsbg(k) | Unity | Ductility | Load(k) | Steel(in) |
|----|------------|----------|--------|---------|---------|-------|-----------|---------|-----------|
| 1  | T-1        | 0.       | 0.     | 0,      | 0.      | N.A.  | N.A.      | 0.      | O.        |
| 2  | T-1        | 0,       | 0.     | 0.      | 0.      | N.A.  | N.A.      | 0.      | O.        |
| 3  | T-1        | 4.259    | 0.     | 0.      | 0.      | N.A.  | N.A.      | 4.259   | .0.95     |
| 4  | T-1        | 4.259    | 0.     | Ö.      | 0.      | N.A.  | N.A.      | 4.259   | .095      |
| 5  | T-1        | 8.687    | 0.     | Ö.      | 0.      | N.A.  | N.A.      | 8.687   | .1 93     |
| 6  | T-1        | 8.687    | 0.     | 0.      | 0.      | N.A.  | N.A.      | 8.687   | .1 93     |
| 7  | T-1        | 26.277   | 0.     | 0.      | 0.      | N.A.  | N.A.      | 26,277  | .584      |
| 8  | T-1        | 26.277   | 0.     | 0.      | 0.      | N.A.  | N.A.      | 26,277  | .584      |
| 9  | T-1        | 12.221   | 0.     | 0.      | 0.      | N.A.  | N.A.      | 12,221  | .272      |
| 10 | T-1        | 12.221   | 0.     | 0,      | 0.      | N.A.  | N.A.      | 12.221  | .272      |
| 11 | T-1        | 29,81    | 0,     | 0,      | 0,      | N.A.  | N.A.      | 29.81   | .662      |
| 12 | T-1        | 29.81    | 0.     | 0.      | 0.      | N.A.  | N.A.      | 29.81   | .662      |
| 13 | T-1        | 0.       | 0.     | 0,      | 0.      | N.A.  | N.A.      | 0.      | O.        |
| 14 | T-1        | 0.       | 0,     | 0.      | 0,      | N.A.  | N.A.      | 0.      | O.        |
| 15 | T-1        | 0.       | 0,     | O.      | 0.      | N,A.  | N.A.      | 0.      | O.        |
| 16 | T-1        | 8.592    | 0.     | 0.      | 0.      | N.A.  | N.A.      | 8.592   | .191      |
| 17 | T-1        | 8.592    | 0.     | 0.      | 0.      | N,A.  | N.A.      | 8.592   | .191      |
| 18 | T-1        | 14.56    | 0.     | 0.      | 0.      | N.A.  | N.A.      | 14.56   | .3.24     |
| 19 | T-1        | 14,56    | O,     | Ò,      | 0.      | N.A.  | N.A.      | 14.56   | .324      |
| 20 | T-1        | 23.484   | 0.     | 0.      | 0.      | N.A.  | N.A.      | 23.484  | .5:22     |
| 21 | T-1        | 23.484   | 0.     | 0.      | 0.      | N.A.  | N.A.      | 23,484  | .5-22     |
| 22 | T-1        | 20.887   | 0.     | 0.      | 0.      | N.A.  | N.A.      | 20,887  | .464      |
| 23 | T-1        | 20.887   | 0.     | 0:      | 0.      | N.A.  | N.A.      | 20.887  | .464      |
| 24 | T-1        | 29.81    | 0.     | 0.      | 0.      | N.A.  | N.A.      | 29,81   | .662      |
| 25 | <b>T-1</b> | 29.81    | 0.     | 0.      | 0.      | N.A.  | N.A.      | 29.81   | .662      |

#### **Shear Groups: Shear Capacity**

|   | L.C | Gr  | Type Failure | Vx (k) | Vz (k) | Vsa(k) | VcbgXx(k) | VcbgXz(k) | VcbgZz(k) | VcbgZx(k) | Vcpg(k) | VxUnity | VzUnity |
|---|-----|-----|--------------|--------|--------|--------|-----------|-----------|-----------|-----------|---------|---------|---------|
| ſ | 3   | S-1 | +Vz Full     | 0.     | .505   | Ο.     | 0.        | 0.        | 0,        | 0.        | 0.      | N.A.    | N.A.    |
|   |     |     | Nr Edge      | 0.     | .252   | 0.     | Ö.        | 0.        | 0.        | Q.        | 0.      | N.A.    | N.A.    |

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#### Shear Groups: Shear Capacity (continued)

| LC | Gr   | Type Failure | Vx (k) | <b>∨</b> z (k) | Vsa(k) | VcbgXx(k) | VcbgXz(k) | )VcbgZz(k) | VcbgZx(k) | Vcpg(k) | VxUnity | VzUnity |
|----|------|--------------|--------|----------------|--------|-----------|-----------|------------|-----------|---------|---------|---------|
| 4  | S-2  | -Vz I Full   | 0.     | -,505          | 0.     | 0.        | 0.        | O.         | 0.        | 0.      | N.A.    | N.A.    |
|    |      | Nr Edge      | 0.     | 252            | 0,     | 0,        | 0,        | O,         | 0.        | 0.      | N.A.    | N.A.    |
| 5  | S-1  | +Vz   Full   | 0.     | 1.01           | 0.     | 0.        | Q.        | O.         | 0.        | 0.      | N.A.    | N.A.    |
|    |      | Nr Edge      | 0.     | .505           | 0.     | 0.        | 0,        | O.         | 0.        | 0.      | N.A.    | N.A.    |
| 6  | S-2  | -Vz   Full   | 0.     | ~1.01          | 0.     | 0.        | 0.        | O.         | 0.        | 0.      | N.A.    | N.A.    |
|    |      | Nr Edge      | 0.     | 505            | Q,     | 0,        | 0.        | O.         | 0.        | 0.      | N.A.    | N.A.    |
| 7  | S-1  | +Vz   Full   | 0.     | 2,24           | 0,     | 0,        | 0.        | O.         | 0.        | 0.      | N.A.    | N.A.    |
|    |      | Nr Edge      | Ö.     | 1.12           | 0.     | 0.        | 0.        | O.         | 0.        | 0.      | N.A.    | N.A.    |
| 8  | S-2  | -Vz   Full   | Ó.     | -2.24          | 0.     | 0.        | 0.        | O.         | 0,        | 0,      | N.A.    | N.A.    |
|    |      | Nr Edge      | 0.     | -1.12          | 0.     | 0.        | 0.        | O.         | 0,        | 0.      | N.A.    | N.A.    |
| 9  | \$-1 | +Vz   Full   | 0.     | 1.01           | 0.     | 0.        | 0.        | O.         | 0,        | 0.      | N.A.    | N.A.    |
|    |      | Nr Edge      | 0.     | .505           | 0.     | 0.        | 0.        | Ο.         | 0.        | 0.      | N.A.    | N.A.    |
| 10 | S-2  | -Vz   Full   | 0.     | -1.01          | 0.     | 0.        | 0.        | O.         | 0.        | 0.      | N.A.    | N.A.    |
|    |      | Nr Edge      | 0.     | 505            | 0.     | 0.        | 0.        | Ο,         | 0.        | Q,      | N,A.    | N.A.    |
| 11 | S-1  | +Vz   Full   | 0,     | 2.24           | 0.     | 0.        | 0.        | Ο,         | 0.        | 0.      | N.A.    | N.A.    |
|    |      | Nr Edge      | 0.     | 1.12           | 0.     | 0.        | 0,        | O.         | 0.        | 0.      | N,A.    | N.A.    |
| 12 | S-2  | -Vz i Full   | 0.     | -2.24          | Q.     | 0.        | Ó.        | Ö          | 0.        | 0.      | N.A.    | N.A.    |
|    |      | Nr Edge      | Ö,     | -1,12          | 0.     | 0.        | 0.        | O.         | 0.        | 0.      | N.A.    | N.A.    |
| 16 | S-1  | +Vz ! Full   | 0,     | .808           | 0,     | 0.        | 0.        | О.         | 0.        | 0.      | N.A.    | N.A.    |
|    |      | Nr Edge      | O.     | -404           | O.     | 0.        | 0.        | О.         | 0.        | 0.      | N.A.    | N.A.    |
| 17 | S-2  | -Vz   Full   | 0.     | 808            | 0.     | 0.        | 0.        | O.         | 0.        | 0,      | N.A.    | N,A.    |
|    |      | Nr Edge      | 0.     | 404            | 0.     | 0.        | 0,        | O.         | 0.        | 0.      | N.A.    | N.A.    |
| 18 | S-1  | +Vz   Full   | 0.     | 1.616          | 0.     | 0.        | 0.        | O.         | 0.        | 0.      | N.A.    | N.A.    |
|    |      | Nr Edge      | Ó,     | .808.          | 0.     | 0.        | 0.        | Ο.         | 0.        | 0,      | N.A.    | N.A.    |
| 19 | S-2  | -Vz i Full   | 0.     | -1.616         | 0.     | 0.        | 0.        | Ο,         | 0,        | 0,      | N.A.    | N.A.    |
|    |      | Nr Edge      | 0.     | 808            | 0.     | 0.        | Ö.        | Ω,         | 0.        | 0.      | N.A.    | N.A.    |
| 20 | S-1  | +Vz   Full   | 0.     | 2.24           | 0.     | 0.        | 0.        | O,         | 0.        | 0.      | N.A.    | N.A,    |
|    |      | Nr Edge      | 0.     | 1.12           | 0.     | 0.        | 0.        | O,         | 0.        | 0,      | N.A.    | N,A,    |
| 21 | S-2  | -Vz Full     | 0.     | -2.24          | 0,     | 0.        | 0.        | Ο,         | 0,        | 0.      | N.A.    | N.A.    |
|    |      | Nr Edge      | 0.     | <b>1.12</b>    | 0,     | 0.        | 0.        | Ο.         | 0.        | 0,      | N.A.    | N.A.    |
| 22 | S-1  | +Vz i Full   | 0.     | 1.616          | 0.     | O.        | 0.        | Ο,         | 0.        | 0.      | N,A.    | N.A.    |
|    |      | Nr Edge      | 0.     | -808           | 0.     | 0.        | 0.        | O,         | 0.        | Ö.      | N.A.    | N.A.    |
| 23 | S-2  | -Vz Full     | 0.     | -1.616         | 0,     | 0.        | 0.        | O.         | 0,        | 0.      | N.A.    | N.A.    |
| 1  |      | Nr. Edge     | 0.     | 808            | 0.     | 0.        | O,        | Ο.         | 0.        | 0.      | N.A.    | N.A.    |
| 24 | S-1  | +Vz   Full   | 0.     | 2.24           | 0.     | 0.        | 0.        | O,         | 0.        | 0.      | N.A.    | N,A.    |
|    |      | Nr Edge      | 0.     | 1.12           | 0.     | 0,        | O,        | Ο,         | Û,        | O.      | N.A.    | N.A.    |
| 25 | S-2  | -Vz   Full   | 0.     | -2.24          | Q.     | 0.        | 0.        | O.         | 0.        | 0.      | N.A.    | N.A.    |
|    |      | Nr Edge      | 0.     | -1.12          | 0,     | 0,        | O.        | O.         | O.        | 0.      | N.A.    | N.A.    |

March 15, 2017

Company : BG Structural Engineering
Designer : BG
Job Number : 800.0617 Genesis Solar Heavy - BP2

Checked By:\_

## Shear Groups: Seismic Ductility & Anchor Reinforcement Results

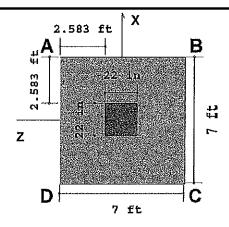
| LÇ | Gr   | Type Fallure | Vx (k) | Vz (k) | VxUnity | VzUnity | Vx-Duct | Vx-L(k) | Vx-St(in2) | Vz-Duct | Vz-L(k) | Vz-St(Im2) |
|----|------|--------------|--------|--------|---------|---------|---------|---------|------------|---------|---------|------------|
| 3  | S-1  | +Vz   Full   | 0.     | .505   | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .505    | .011       |
|    |      | Nr Edge      | 0.     | .252   | N.Ä.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .252    | .006       |
| 4  | S-2  | -Vz   Full   | 0.     | 505    | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .505    | .011       |
|    |      | Nr Edge      | . 0.   | 252    | N.A.    | N.A.    | N.A.    | 0,      | 0.         | N.A.    | .252    | .006       |
| 5  | S-1  | +Vz   Full   | 0.     | 1.01   | N.A.    | N.A.    | N.A.    | 0.      | 0,         | N,A,    | 1,01    | ,022       |
|    |      | Nr Edge      | 0.     | .505   | N.A.    | N.A.    | N.A,    | 0.      | 0,         | N,A.    | ,505    | .011       |
| 6  | \$-2 | -Vz Full     | Q.     | -1.01  | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 1.01    | .022       |
|    |      | Nr Edge      | Q.     | 505    | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .505    | .011       |
| 7  | S-1  | +Vz   Full   | 0.     | 2.24   | N.A.    | N,A,    | N.A.    | 0,      | 0.         | N.A.    | 2,24    | .05        |
|    |      | Nr Edge      | 0.     | 1,12   | N.A.    | Ñ.Ä.    | N.A.    | 0.      | 0,         | N.A.    | 1.12    | .025       |
| 8  | S-2  | -Vz I Full   | 0.     | -2.24  | N.A.    | N.A.    | N,A,    | 0.      | 0,         | N.A.    | 2,24    | .05        |
|    | Ī    | Nr Edge      | 0.     | -1.12  | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 1.12    | .025       |
| 9  | S-1  | +Vz   Full   | 0.     | 1.01   | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 1.01    | .022       |
|    |      | Nr Edge      | 0.     | .505   | N.A.    | N,A.    | N.A.    | 0.      | 0.         | N.A.    | .505    | .011       |
| 10 | S-2  | -Vz   Full   | 0.     | -1.01  | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 1.01    | .022       |
|    |      | Nr Edge      | 0.     | 505    | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .505    | .011       |
| 11 | S-1  | +Vz   Full   | 0,     | 2,24   | N,A,    | N.A.    | N.A.    | 0.      | 0,         | N,A,    | 2,24    | ,05        |
|    |      | Nr Edge      | 0.     | 1.12   | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 1.12    | .025       |
| 12 | S-2  | -Vz l Full   | 0,     | -2.24  | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N,A.    | 2.24    | .05        |
| 1  |      | Nr Edge      | 0.     | -1.12  | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 1.12    | .025       |
| 16 | S-1  | +Vz   Full   | 0.     | .808   | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .808    | .018       |
|    |      | Nr Edge      | 0.     | .404   | N,A.    | N.A.    | N,A.    | 0.      | 0.         | N.A.    | .404    | .009       |
| 17 | S-2  | -Vz   Full   | 0.     | 808    | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .808    | .018       |
|    |      | Nr Edge      | 0.     | 404    | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .404    | .009       |
| 18 | S-1  | +Vz   Full   | ٥,     | 1.616  | N,A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 1.616   | .036       |
|    |      | Nr Edge      | 0.     | 808,   | N,A.    | N.A.    | N.A.    | »O.     | 0,         | N.A.    | ,808,   | ,018       |
| 19 | S-2  | -Vz   Full   | 0.     | -1.616 | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 1.616   | .036       |
| 1  |      | Nr Edge      | 0.     | 808    | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .808    | .018       |
| 20 | S-1  | +Vz   Full   | 0.     | 2.24   | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 2.24    | .05        |
|    |      | Nr Edge      | . 0.   | 1.12   | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 1.12    | .025       |
| 21 | S-2  | -Vz   Full   | 0.     | -2.24  | N,A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 2.24    | .05        |
|    |      | Nr Edge      | 0.     | -1.12  | N,A.    | N,A.    | N,A,    | 0,      | 0,         | N.A.    | 1,12    | .025       |
| 22 | S-1  | +Vz   Full   | 0,     | 1,616  | N.A.    | N.A.    | N.A.    | 0.      | 0,         | N.A.    | 1,616   | .036       |
|    |      | Nr Edge      | 0.     | .808   | N.A. ;  | N.A.    | N.A.    | · 0.    | 0,         | N.A.    | .808    | .018       |
| 23 | S-2  | -Vz   Full   | 0.     | -1.616 | N.A.    | N.A.    | N.A,    | 0,      | 0.         | N.A.    | 1,616   | .036       |
|    |      | Nr Edge      | 0.     | 808    | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | .808    | .018       |
| 24 | S-1  | +Vz   Full   | 0.     | 2.24   | N.A.    | N.A.    | N.A.    | O.      | 0.         | N.A.    | 2.24    | .05        |
|    |      | Nr Edge      | 0.     | 1.12   | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 1.12    | .025       |
| 25 | S-2  | -Vz   Full   | 0.     | -2.24  | N.A.    | N.A.    | N.A.    | 0.      | 0.         | N.A.    | 2.24    | .05        |
| 1  | 1    | Nr Edge      | 0.     | -1.12  | N.A.    | N,A.    | N.A.    | 0.      | 0.         | N.A.    | 1.12    | .025       |

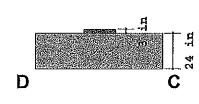
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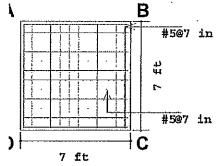
Checked By:\_

#### Sketch

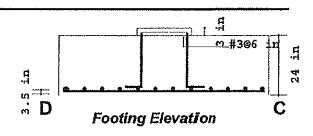


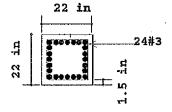


# Details



Bottom Rebar Plan





Pedestal Rebar Plan

## Geometry, Materials and Criteria

| Length : 7 ft Width : 7 ft Thickness : 24 in Height : 3 in                    | eX :0 in<br>eZ :0 in<br>pX :22 in<br>pZ :22 in | Gross Allow. Bearing<br>Concrete Weight<br>Concrete f'c<br>Design Code          | :1995 psf (gross)<br>:145 pcf<br>:4 ksi<br>:ACI 318-05 | Steel fy :60 ksi<br>Minimum Steel :.0018<br>Maximum Steel :.0075        |
|-------------------------------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------------------------|
| Footing Top Bar Cover<br>Footing Bottom Bar Cover<br>Pedestal Longitudinal Ba |                                                | Overturning Safety Factore Coefficient of Friction Passive Resistance of States | : 0.35                                                 | Phi for Flexure : 0.9<br>Phi for Shear : 0.75<br>Phi for Bearing : 0.65 |

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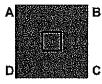
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#### Loads

|     | P (k)              | Vx (k)                | Vz (k)          | Mx (k-ft) | Mz (k-ft) | Overburden (psf) |
|-----|--------------------|-----------------------|-----------------|-----------|-----------|------------------|
| DL  | 4.094              |                       |                 |           |           | 100              |
| EL  |                    |                       | 2.24            | 47.04     |           |                  |
| WL  |                    |                       | 1,01            | 21.21     |           |                  |
| RLL | 9.263              |                       |                 |           |           | (-VI             |
|     | ↓ +P               | <b>,</b> + <b>√</b> x | +Vz<br><u>w</u> | →+Mx      | ¥Mz       | +Over            |
|     | brancocker, presid | A D                   | D C             | D C       | A D       |                  |

Soil Bearing

| Description   | Categories and Factors   | Gross Allow.(psf) | Max Bearing (psf) | Max/Allowable Ratio |
|---------------|--------------------------|-------------------|-------------------|---------------------|
| ASCE 2.4.1-1  | 1DL                      | 1995              | 469,178 (A)       | .235                |
| ASCE 2.4.1-2  | 1DL+1LL                  | 1995              | 469.178 (A)       | .235                |
| ASCE 2.4,1-3a | 1DL+1WL                  | 1995              | 800.446 (B)       | .401                |
| ASCE 2.4.1-3b | 1DL+.7EL                 | 1995              | 985,742 (B)       | .494                |
| ASCE 2.4.1-3c | 1DL+,75LL+.7 <b>5</b> WL | 1995              | 717.629 (B)       | .36                 |
| ASCE 2.4.1-3d | 1DL+.75LL+.7 <b>E</b> L  | 1995              | 985.742 (B)       | .494                |
| ASCE 2,4,1-4  | .6DL+1WL                 | 1995              | 617.6 (B)         | .31                 |
| ASCE 2.4.1-5  | .6DL+.7EL                | 1995              | 959.876 (B)       | .481                |



1DL QA: 469,178 psf QB: 469,178 psf QC: 469,178 psf QD: 469,178 psf

NAZ: -1 in NAX: -1 in



1DL+,75LL+,7EL QA: 0 psf QB: 985,742 psf QC: 985,742 psf QD: 0 psf NAZ: 79,962 in NAX: -1 in



1DL+1LL QA: 469, 178 psf QB: 469, 178 psf QC: 469, 178 psf QD: 469, 178 psf NAZ: -1 in NAX: -1 in



.6DL+1WL QA: 0 psf QB: 617.6 psf QC: 617.6 psf QD: 0 psf NAZ: 76.576 in NAX: -1 in



1DL+1WL QA: 137.91 psf QB: 800.446 psf QC: 800.446 psf QD: 137.91 psf NAZ: 101.485 in NAX: -1 in



,6DL+,7EL QA: 0 psf QB: 959,876 psf QC: 959,876 psf QD: 0 psf NAZ: 49,27 in NAX: -1 in



1DL+,7EL QA: 0 psf QB: 985,742 psf QC: 985,742 psf QD: 0 psf NAZ: 79,962 in NAX: -1 in



1DL+,75LL+.75WL QA: 220.727 psf QB: 717.629 psf QC: 717.629 psf QD: 220.727 psf NAZ: 121.313 in NAX: -1 in

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Job Number: 800.0617

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Footing Flexure Design (Bottom Bars)

| Description | Categories and Factors | Mu-XX (k-ft) | Z Dir As (in²) | Mu-ZZ (k-ft) | X Dir As (in <sup>2</sup> ) |
|-------------|------------------------|--------------|----------------|--------------|-----------------------------|
| ACI-99 9-1  | 1.4DL+1.7LL            | 2,589        | .029           | 2,589        | .029                        |
| ACI-99 9-2  | 1.05DL+1.275LL+1.275WL | 9.38         | .103           | 1.942        | .021                        |
| ACI-99 9-3  | .9DL+1,3WL             | 9,25         | .102           | 1.664        | .018                        |
| IBC 16-5    | 1.2DL+1LL+1EL          | 15,597       | .172           | 2.219        | .024                        |
| IBC 16-6    | .9DL+1EL               | 16,997       | .187           | 1.664        | .018                        |

Footing Flexure Design (Top Bars)

| Description     | Categories and Factors                | Mu-XX (k-ft)     | Z Dir As (in²)   | Mu-ZZ (k-ft)     | X Dir As (in <sup>2</sup> ) |
|-----------------|---------------------------------------|------------------|------------------|------------------|-----------------------------|
| SW+OB           | 1SW+10B-(IBC 16-6,ASCE 2.4.1)         | 9,109            | 0                | 0                | 0                           |
| Moment Capacity | of Plain Concrete Section Along XX an | d 77=98 21k-ft 9 | 38.21 k-ft Per C | hapter 22 of ACI | 318                         |

Footing Shear Check

| Two Way (Punchi | ing) Vc: 861.819 k One Way (X Di | r. Cut) Vc 21 | 4.497 k | One Way ( | Z Dir. Cut) \ | /c: 214.4     | 97 k   |
|-----------------|----------------------------------|---------------|---------|-----------|---------------|---------------|--------|
|                 |                                  | Pun           | ching   | X Di      | r. Cut        | Z Di          | r. Cut |
| Description     | Categories and Factors           | Vu(k)         | Vul∕⊘Vo | · Vu(k)   | Vu/∠Vc        | Vu(k)         | Vul⊯Vc |
| ACI-99 9-1      | 1.4DL+1.7LL                      | 4.062         | .006    | .699      | .004          | .6 <b>9</b> 9 | .004   |
| ACI-99 9-2      | 1.05DL+1.275LL+1.275WL           | 3.046         | .005    | 2.845     | .018          | .524          | .003   |
| ACI-99 9-3      | .9DL+1.3WL                       | 2.612         | .004    | 2.816     | .018          | .449          | .003   |
| IBC 16-5        | 1.2DL+1LL+1EL                    | 3,707         | .006    | 4.792     | .03           | .599          | .004   |
| IBC 16-6        | ,9DL+1EL                         | 4.027         | .006    | 5.377     | .033          | .4-49         | .003   |

#### Pedestal Design

Shear Check Results (Envelope):

Shear Along X Direction Vc; 55.482 k

Vs: 44.041 k Vu: 0 k Vs: 44.041 k Vu: 2.24 k Vulø Vn: 0 Vule Vn: .03

Ø: .75

Shear Along Z Direction Vc: 55,482 k Pedestal Ties: #3 @ 6 in

Bending Check Results (Envelope):

Unity Check: .399 :0 k

Phi :.9 Mux :47.04 k-ft Parme Beta: .65

Pu Ρn

Muz:

: 0 k-ft

:0 k

Mnx:131.031 k-ft Mnox: NA

Mnz:

:NA

Mnoz :NA

Pedestal Bars: 24 #3

% Steel: .548

Compression Development Length Pedestal Bars (Envelope): Lreq.: 7.115 in Lpro.: 18.875 in Lreg./Lpro.: .377

## Concrete Bearing Check (Vertical Loads Only)

Bearing Bc: 3291.2 k

| Description | Categories and Factors | Bearing Bu (k) | Bearing Bu/⊘Bc |
|-------------|------------------------|----------------|----------------|
| ACI-99 9-1  | 1.4DL+1.7LL            | 32.186         | .015           |
| ACI-99 9-2  | 1.05DL+1.275LL+1.275WL | 24.139         | .011           |
| ACI-99 9-3  | .9DL+1.3WL             | 20.691         | ,01            |
| IBC 16-5    | 1.2DL+1LL+1EL          | 27.588         | .013           |
| IBC 16-6    | .9DL+1EL               | 20.691         | .01            |

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: KDC

Job Number: 800.0617

Genesis Solar Heavy Pad-2

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## Overturning Check (Service)

| Description   | Categories and Factors | Mo-XX (k-ft) | Ms-XX (k-ft) | Mo-ZZ (k-ft) | Ms-ZZ (k-ft) |         | OSF-ZZ  |
|---------------|------------------------|--------------|--------------|--------------|--------------|---------|---------|
| ASCE 2.4.1-1  | 1DL                    | .75          | 81.214       | .75          | 81.214       | 108,293 | 108.293 |
| ASCE 2.4.1-2  | 1DL+1LL                | .75          | 81.214       | .75          | 81.214       | 108.293 | 108.293 |
| ASCE 2.4.1-3a | 1DL+1WL                | 21.96        | 83.486       | .75          | 81.214       | 13.802  | 108.293 |
| ASCE 2,4,1-3b | 1DL+.7EL               | 33,678       | 84.742       | .75          | 81.214       |         | 108,293 |
| ASCE 2.4.1-3c | 1DL+.75LL+.75WL        | 16.657       | 82.918       | .75          | 81.214       | 4.978   | 108.293 |
| ASCE 2.4.1-3d | 1DL+.75LL+.7EL         | 33,678       | 84.742       | .75          | 81.214       | 12,516  | 108.293 |
| ASCE 2.4.1-4  | .6DL+1WL               | 21.66        | 51.001       | .45          | 48.728       | 2.355   | 108.293 |
| ASCE 2.4.1-5  | .6DL+.7EL              | 33.378       | 52.256       | .45          | 48.728       | 1.566   | 108.293 |

Mo-XX: Governing Overturning Moment about AD or BC Ms-XX: Governing Stablizing Moment about AD or BC

OSF-XX: Ratio of Ms-XX to Mo-XX

#### Sliding Check (Service)

| Description   | Categories and Factors | Va-XX (k) | Vr-XX (k) | Va-ZZ (k) | Vr⊷ZZ (k) | SR-XX | SR-ZZ  |
|---------------|------------------------|-----------|-----------|-----------|-----------|-------|--------|
| ASCE 2.4.1-1  | 1DL                    | 0         | 8.296     | 0         | 8.296     | I NA  | NA     |
| ASCE 2.4.1-2  | 1DL+1LL                | 0         | 8.296     | 0         | 8.296     | I NA  | NA     |
| ASCE 2.4.1-3a | 1DL+1WL                | 0         | 8.296     | 1.01      | 8.296     | I NA  | 8.214  |
| ASCE 2.4.1-3b | 1DL+.7EL               | 0         | 8,296     | 1.568     | 8.296     | I NA  | 5.291  |
| ASCE 2.4.1-3c | 1DL+.75LL+.75WL        | O         | 8.296     | .758      | 8.296     | l NA  | 10.952 |
| ASCE 2.4.1-3d | 1DL+,75LL+.7EL         | 0         | 8,296     | 1.568     | 8,296     | l NA  | 5,291  |
| ASCE 2.4.1-4  | .6DL+1WL               | 0         | 5.078     | 1.01      | 5.078     | l NA  | 5.028  |
| ASCE 2.4.1-5  | .6DL+.7EL              | 0         | 5.078     | 1.568     | 5.078     | I NA  | 3.238  |

Va-XX: Applied Lateral Force to Cause Sliding Along XX Axis Vr-XX: Resisting Lateral Force Against Sliding Along XX Axis

SR-XX: Ratio of Vr-XX to Va-XX