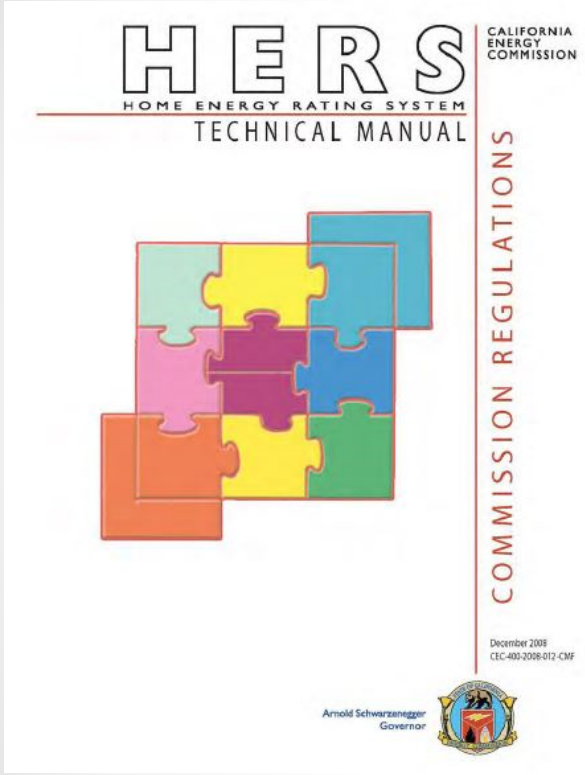
DOCKETED	
Docket Number:	23-HERS-02
Project Title:	HERS Home Energy & Labeling Program Updates Pre-Rulemaking
TN #:	252091
Document Title:	Presentation - April 2022, to CEC on CA HERS Index Project
Description:	N/A
Filer:	Jennifer Brazell
Organization:	CalCERTS, Inc.
Submitter Role:	Public
Submission Date:	8/31/2023 2:26:50 PM
Docketed Date:	8/31/2023

California RESNET® RESIDENTIAL ENERGY SERVICES NETWORK Program

CalCERTS HERS PROVIDER

California Whole House Program



- **Purpose**: The California Whole House program (HERS II), was designed as a systematic process to produce whole-house energy ratings. It created **consistent, accurate**, and **uniform** ratings based on a **single** statewide rating scale (CA HERS Index).
- **Transparency:** Helped to create reasonable estimates of potential utility bill savings through the recommendation of cost-effective measures to improve energy efficiency.

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History

- **HERS Ratings:** Title-24 Field Verification and Diagnostic Testing
- **CA Whole House Program:**
  - Commission to retain jurisdiction over California's energy policy
  - RESNET Scores were not permitted in California
  - Builders wanted consistency in the national market
  - California recognized for its tougher standards

***California's adoption of EDR**

California RESNET

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What is Residential Energy Services Network? (RESNET)

RESNET is a recognized national standards-making body for building energy efficiency rating and certification systems in the United States involving:

- a consensus based standard development and amendment process.
- a transparent review and adoption process.
- a formal public review and comment process.

California RESNET

In October of 2020, the California RESNET *Pilot* Work is Completed

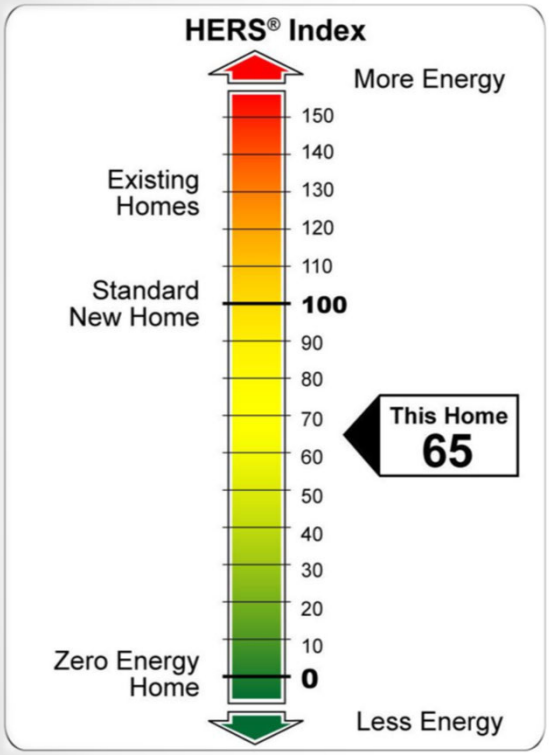
- CA RESNET Rater and Energy Consultant Manuals are created.
- CBECC-RESNET, a California specific RESNET Score modeling software is produced. It is based on CBECC-Res version 2019.1.3

***Pilot* Program Name Change**

- Outreach showed Builders and HERS Ratings firms reluctant to engage in a *Pilot* program.
- CalCERTS worked with RESNET to change the program name to CA RESNET, providing assurances to Builders that RESNET would honor scores on a National market.

CA RESNET Program Overview

Program Overview



California's RESNET Standard provides a consistent, uniform methodology for evaluating and labeling energy performance of newly constructed *residential buildings*. It is aligned to the original Whole House Rating (HERS Phase II) concept.

- It compares the energy performance of a newly constructed home with a reference home.
- If the actual home and reference home are equal, the Energy Rating Index is 100.
- If the actual home requires *no net purchased energy annually*, the Energy Rating Index is 0.

Why Create a RESNET Score

Builders:

- **Marketing advantage** – This allows builders to demonstrate energy efficiency features in a home with an independently verified HERS Index rating.
- **Opportunity to increase appraised value** – With RESNET's Appraisal Portal, your appraiser can verify the HERS Index.
- **Lower Mortgage Default Risk** – Lenders are taking notice after a study showed Energy Star labeled homes with a better HERS score have a 32% lower mortgage default rate.

Why RESNET in California

- **High Efficiency Homes** – RESNET scores in California allow consumers to better understand the energy efficiency of our newly built homes compared to the rest of the country.
- **Builder Involvement** – Builders will view energy efficiency as an advantage and not just a compliance requirement.
- **Energy Efficient Industry** – More of the building industry will adopt the idea of energy efficiency as a basic requirement of design.

Qualify as a CA RESNET Rater

- To qualify for the California RESNET program CA HERS Raters must have the following **certifications**:

  1. Alterations to existing homes,
  2. New Construction, and
  3. Whole House Rater.

- Much of the inspection process is a blend between new construction and whole house ratings.

RESNET and California's Standards

How RESNET is Implemented in California

Unlike National RESNET Raters, California's RESNET Raters will **NOT** need to model the home using approved *national* modeling software.

- The main modeling process is done by the Energy Consultant when preparing the CF1R in *CBECC-Res based software*.
- There are a few ***additional* RESNET inputs** added to the software.
- These additional inputs allow the home to be rated using all the other Title 24, Part 6 features.

Overall Process

The overall process can vary somewhat. Blue = Energy Consultant Green = Rater Black = Either

1. Demonstration of energy code compliance by Energy Consultant
2. Run house in CBECC-RESNET software, calculate RESNET rating
3. Verification of all CF1R features by HERS Rater, including diagnostic testing
4. Verification of non-CF1R Features by HERS Rater (lighting, appliances, etc.)
5. Rater confirms rating
6. Process rating through CalCERTS
7. Issue Rating

Additional RESNET Features

RESNET Checklist

- 9.1 Lighting
- 9.2 Refrigerators
- 9.3 Range/Oven
- 9.4 Dishwashers
- 9.5 Clothes Washer
- 9.6 Clothes Dryer
- 9.7 Water Heating System
- 9.8 Programmable Thermostat
- 9.9 Opaque Surfaces - Walls
- 9.10 Opaque Surfaces – Cathedral Ceilings
- 9.11 Opaque Surfaces – Attic Roof
- 9.12 Construction Assemblies
- 9.13 HVAC Systems

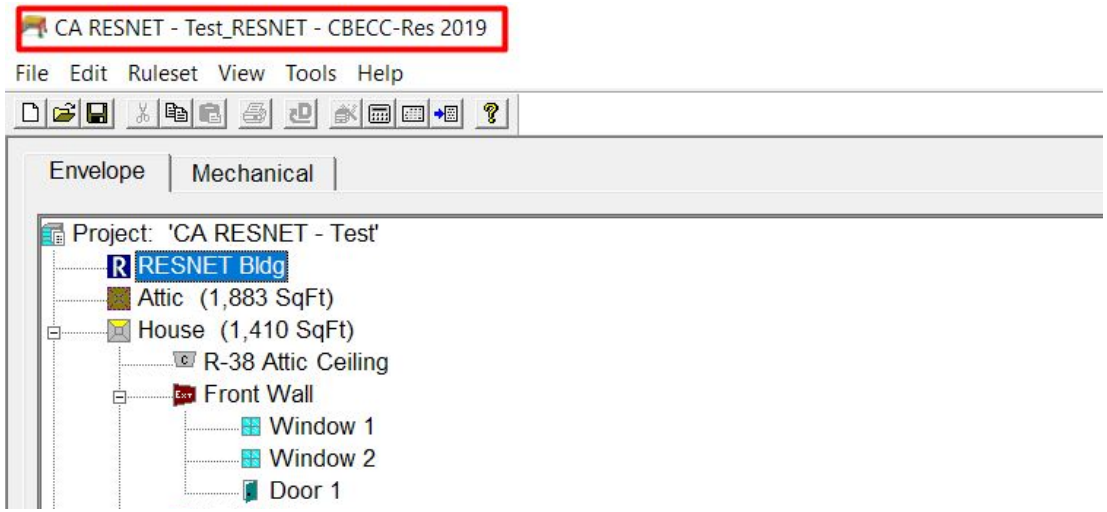
(Section Numbers Refer to the CalCERTS RESNET Manual)

Training Manuals

Overall Process - Energy Consultant

Calculate RESNET Rating

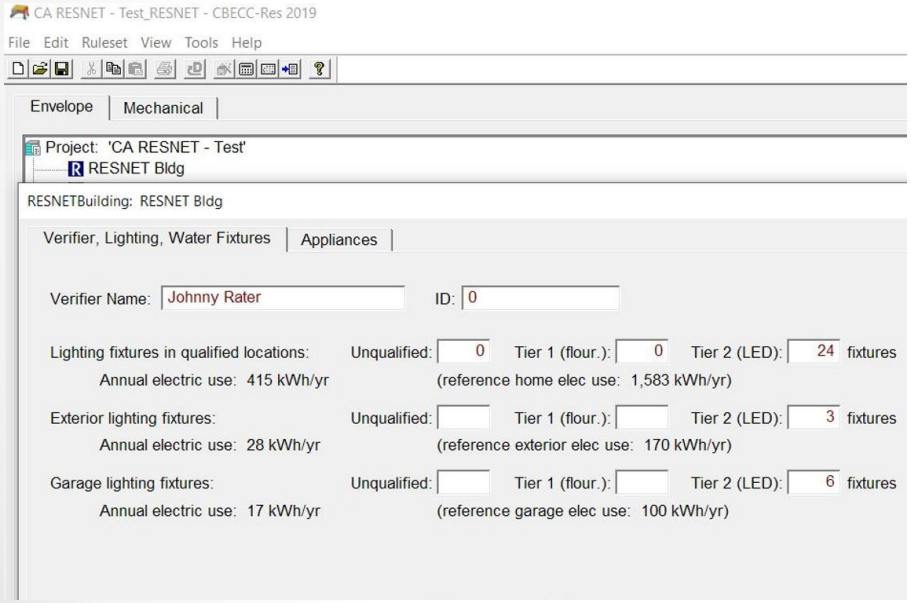
- The Energy Consultant models the project for compliance as usual.
- The CBECC file is then opened in a special version of CBECC for calculating the RESNET score. We've dubbed it CBECC-RESNET.

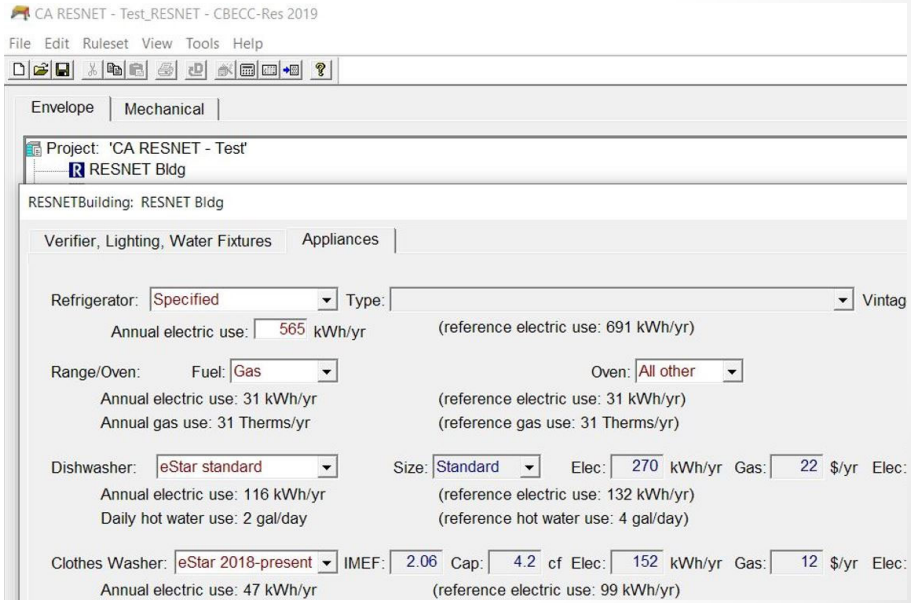


Overall Process - Energy Consultant

Calculate RESNET Rating

- RESNET specific inputs are completed by the Energy Consultant.
- These inputs don't affect Title 24 compliance.

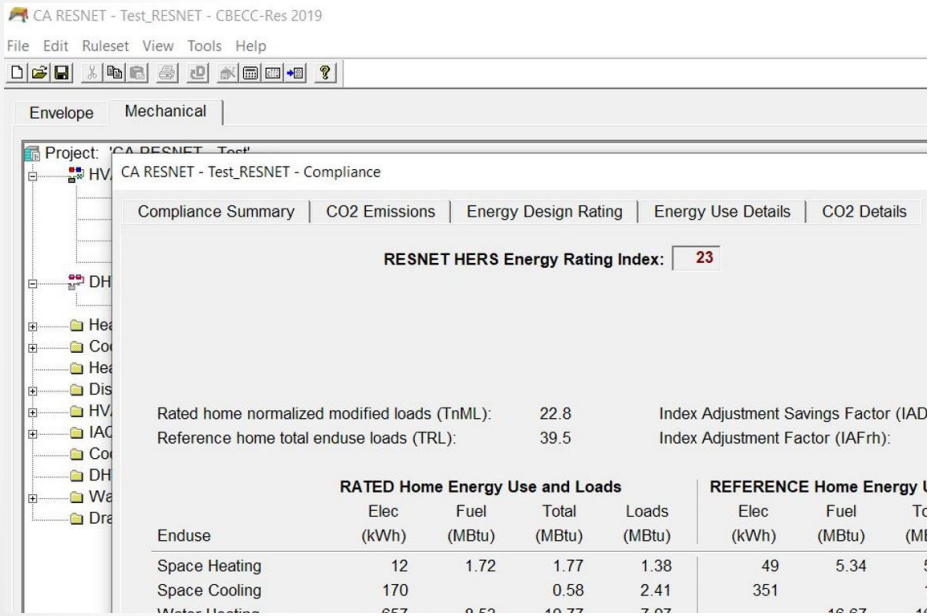


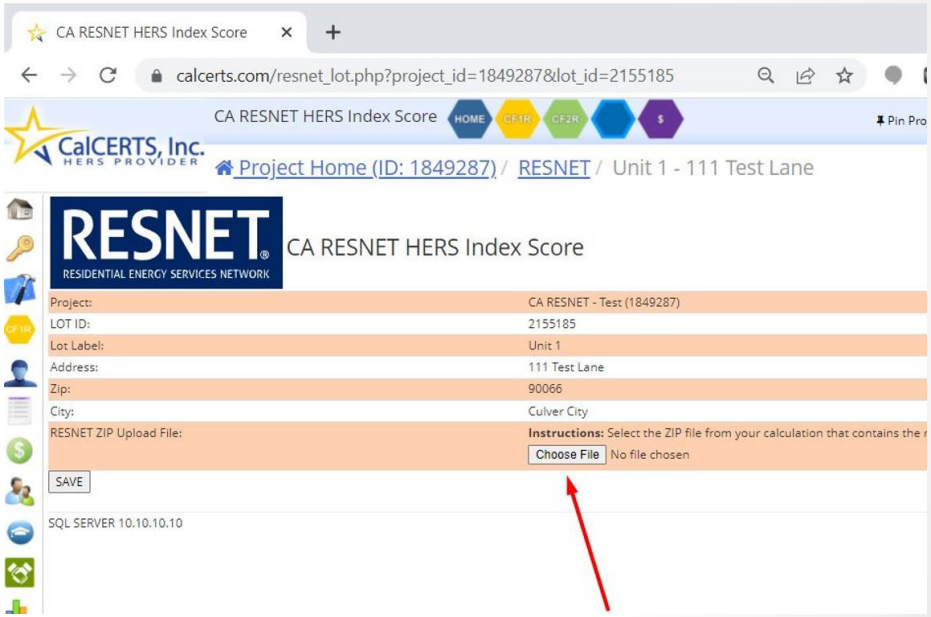


Overall Process - Energy Consultant

Calculate RESNET Rating

Once the CBECC RESNET calculation has been completed, it is uploaded to CalCERTS.

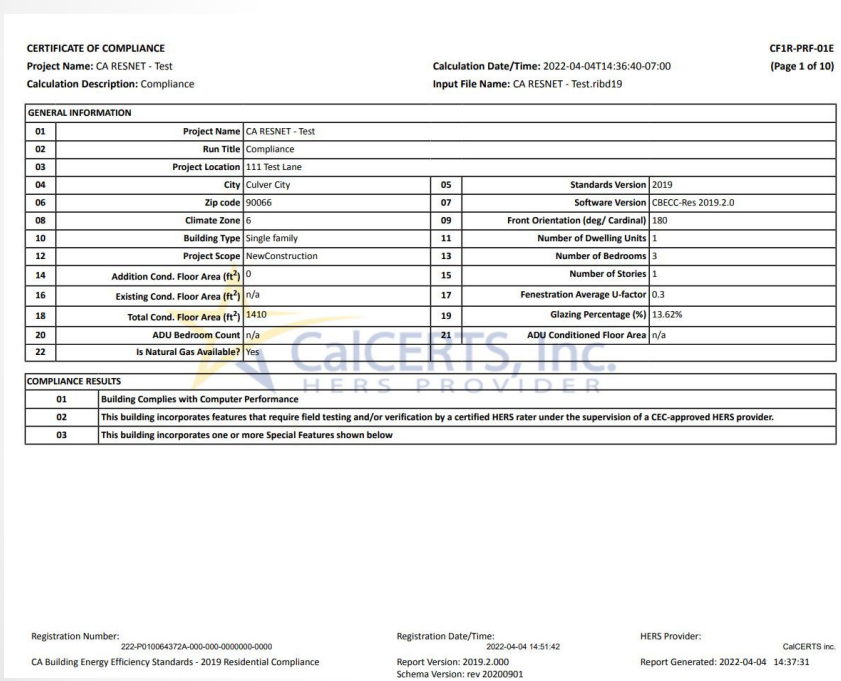




Overall Process – HERS Rater

Field Verification

HERS Rater field verifies CF1R features, including diagnostic testing as well as non-CF1R features (lighting, appliances, etc.) listed on RESNET Verification Worksheet.



CERTIFICATE OF COMPLIANCE — **CF1R-PRF-01E**

Project Name: CA RESNET - Test — **Calculation Date/Time:** 2022-04-04T14:36:40-07:00 — **(Page 1 of 10)**

Calculation Description: Compliance — **Input File Name:** CA RESNET - Test.ribd19

GENERAL INFORMATION					
01	Project Name	CA RESNET - Test			
02	Run Title	Compliance			
03	Project Location	111 Test Lane			
04	City	Culver City	05	Standards Version	2019
06	Zip code	90066	07	Software Version	CBECC-Res 2019.2.0
08	Climate Zone	6	09	Front Orientation (deg/ Cardinal)	180
10	Building Type	Single family	11	Number of Dwelling Units	1
12	Project Scope	NewConstruction	13	Number of Bedrooms	3
14	Addition Cond. Floor Area (ft^2)	0	15	Number of Stories	1
16	Existing Cond. Floor Area (ft^2)	n/a	17	Fenestration Average U-factor	0.3
18	Total Cond. Floor Area (ft^2)	1410	19	Glazing Percentage (%)	13.62%
20	ADU Bedroom Count	n/a	21	ADU Conditioned Floor Area	n/a
22	Is Natural Gas Available?	Yes			

COMPLIANCE RESULTS	
01	Building Complies with Computer Performance
02	This building incorporates features that require field testing and/or verification by a certified HERS rater under the supervision of a CEC-approved HERS provider.
03	This building incorporates one or more Special Features shown below

Registration Number: 222-P010064372A-000-000-0000000-0000

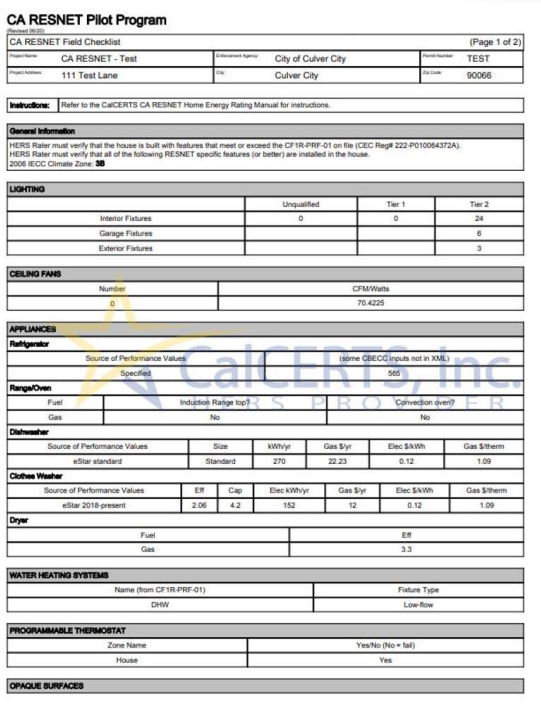
CA Building Energy Efficiency Standards - 2019 Residential Compliance

Registration Date/Time: 2022-04-04 14:51:42

Report Version: 2019.2.000
Schema Version: rev 20200901

HERS Provider: CalCERTS inc.

Report Generated: 2022-04-04 14:37:31



CA RESNET Pilot Program

CA RESNET Field Checklist (Page 1 of 2)

Project Name	CA RESNET - Test	Enforcement Agency	City of Culver City	Permit Number	TEST
Project Address	111 Test Lane	City	Culver City	Zip Code	90066

Instructions: Refer to the CalCERTS CA RESNET Home Energy Rating Manual for instructions.

General Information

HERS Rater must verify that the house is built with features that meet or exceed the CF1R-PRF-01 on file (CEC Reg# 222-P010064372A).
HERS Rater must verify that all of the following RESNET specific features (or better) are installed in the house.
2006 IECC Climate Zone: **3B**

LIGHTING

	Unqualified	Tier 1	Tier 2
Interior Fixtures	0	0	24
Garage Fixtures			6
Exterior Fixtures			3

CEILING FANS

Number	CFM/Watts
0	70.4225

APPLIANCES

Refrigerator

Source of Performance Values	(some CBECC inputs not in XML)
Specified	565

Range/Oven

Fuel	Induction Range top?	Convection oven?
Gas	No	No

Dishwasher

Source of Performance Values	Size	kWh/yr	Gas $/yr	Elec $/kWh	Gas $/therm
eStar standard	Standard	270	22.23	0.12	1.09

Clothes Washer

Source of Performance Values	Eff	Cap	Elec kWh/yr	Gas $/yr	Elec $/kWh	Gas $/therm
eStar 2018-present	2.06	4.2	152	12	0.12	1.09

Dryer

Fuel	Eff
Gas	3.3

WATER HEATING SYSTEMS

Name (from CF1R-PRF-01)	Fixture Type
DHW	Low-flow

PROGRAMMABLE THERMOSTAT

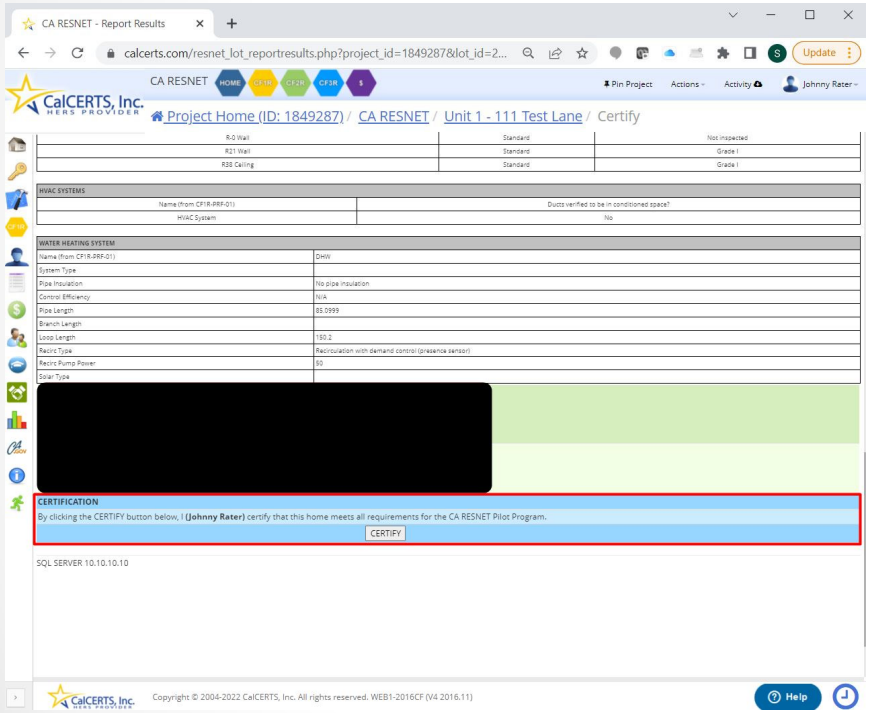
Zone Name	Yes/No (No = fail)
House	Yes

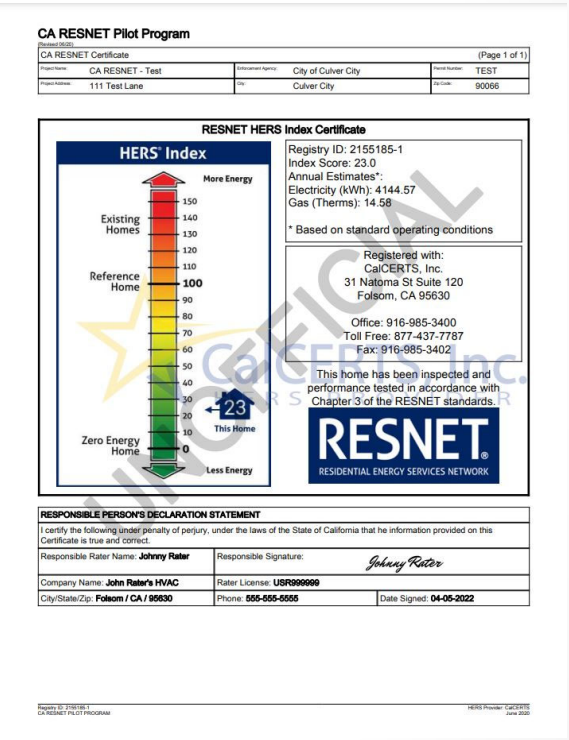
OPAQUE SURFACES

Overall Process – HERS Rater

Rating Confirmed and Processed through CalCERTS

HERS Rater confirmed all features, and certifies the CA RESNET rating. A certificate is produced.





Additional Benefits for California

- HERS Raters conduct verifications of energy code features delegated to Authorities Having Jurisdiction (AHJ – Building Departments).
- HERS Raters provide second set of eyes on energy code compliance for features such as windows, radiant barriers, lighting, etc.
- CA Energy Code is more consistently and thoroughly inspected.

What is Driving Interest in the Program

There is growing involvement in Environmental, Social, and Governance (ESG) programs, where companies are reviewed on ESG metric.

- Builder lending can be impacted. More access to lending if the builder is designated as an ESG company.
- Can impact homebuyer purchasing. Fannie May, Freddie Mac may provide mortgage assistance for homes that are built by ESG builders.
- Builders need to show their investments in efficiency. This will support the market of above code programs, CA RESNET, H20 & Water Sense, ENERGY Star, DOE's Zero Energy Ready Homes.

Who is Interested?

Large Production Builders want access to ESG related benefits. The CA RESNET program would facilitate this.

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How the CEC can Support the Program

- The CBECC-RESNET translator needs to be carried forward from version 2019.1.3, to the latest version of CBECC-Res 2019.2.0

- Support to carry the program into the 2022 Standards cycle.