

APPENDIX C~~Appendix 3—~~ ~~Energy Efficiency Documentation~~ ~~Requirements~~**ENERGY EFFICIENCY** **DOCUMENTATION REQUIREMENTS**

DOCKET

06-NSPH-1

DATE _____

RECD. OCT 06 2011

A. Plan Check Checklist

The purpose of this checklist is to expedite the required plan check process. Applications submitted without the following documents will be returned to the Applicant.

A complete set of construction plans⁵² which contain the following:

- Architectural, electrical, mechanical, and plumbing information (as applicable)
- A window and door schedule that shows sizes and includes all skylights (if not shown on the floor plan)
- Elevation, wall, roof, floor construction assemblies
- Floor finish schedule (if CF-1R shows high mass design)
- A list of lots and addresses (for residential developments)
- A site plan with a North arrow (for custom homes)

Compliance forms and electronic files:

- Hard copy of the final CF-1R or PERF-1 signed by a CEPE
- Electronic input file(s) for the CF-1R or PERF-1

Equipment and materials documentation:

- Windows, glazed doors, skylights—specification sheet with manufacturer's name that demonstrates U-factor and Solar Heat Gain Coefficient (SHGC)
- Space heating equipment—specification sheet with manufacturer's name/model number and efficiency rating for each unit
- Air Conditioner—specification sheet with manufacturer's name/model numbers for condenser/coil match or AHRI reference number for each proposed unit (<http://www.Ahridirectory.org>) that has an efficiency rating greater than SEER 13, EER 11
- Water heater—specification sheet with manufacturer's name/model number and efficiency rating. If installing a solar water heater, a CF-6R is required
- Roofing material—specification sheet which shows emissivity and reflectivity value of product.
- Specification sheets for any special features or equipment used for compliance with the energy efficiency requirements

Additional requirements:

⁵² Plans may be submitted electronically either as a .pdf file or .dwf file. Minimum plan size of 15" x 21".

- For appliances provided by the builder, specification sheets with manufacturer's name/model number that demonstrate the appliance is ENERGY STAR labeled if ENERGY STAR is applicable⁵³ to that appliance.

B. CF-4R-EE NSHP Part I and Part II Guidelines

The CF-4R-NSHP forms are designed to be used by a HERS rater to verify energy efficiency requirements of the NSHP program. There is a two-step process to verify energy efficiency compliance. The first step is a pre-wall enclosure inspection where the CF-4R-EE NSHP Part I must be filled out, and a final inspection where the CF-4R-EE NSHP Part 2 form is completed. The CF-4R-EE NSHP form will be pre-populated with information from the application CF-1R that has been uploaded to a HERS Provider Data Registry so that a HERS rater would only need to check off whether a measure passed or failed. A general guideline of when in the building process each of these inspections needs to take place is provided below. It is critical that an inspection be completed before the walls are covered so that any measures being used to show compliance can be verified. If the pre-wall enclosure measure inspection is not completed, no NSHP incentive payments will be made.

1. CF-4R-EE NSHP Part 1 –PRE-WALL ENCLOSURE INSPECTION

At this stage of the project, all the framing has been completed as well as the installation of the insulation, fenestration, and rough electrical and plumbing. Typically, the exterior of the building is finished, and in many cases the roofing materials have been installed. Each item listed on the CF-4R-EE NSHP Part 1 must be compared and verified against the actual installed materials. Each item is critical to the building's overall performance and energy savings.

Special features are items that require special attention. For example, items such as radiant barriers would require a rater to visually verify the proper installation of the radiant barrier, insuring that it is installed between the rafters and on the gable ends of the attic.

Forms required at this stage of the project may vary, however the CF-4R-EE NSHP cannot be uploaded to a HERS Provider Data Registry without verifying that the appropriate CF-6R's and CF-4R's are completed for the project. This can be accomplished by receiving a copy of the completed form or an electronic copy from the Provider registry.

2. CF-4R-EE NSHP Part 2 -FINAL INSPECTION

At this stage of the project, the building is complete and ready for final inspection. The walls have been enclosed, HVAC system installed, and electrical fixtures and switches installed as well as a water heating system. Each item listed on the CF-4R-EE NSHP Part 2 must be compared and verified against the actual installed equipment.

Ideally, all HERS verification and diagnostic testing of energy efficiency measures have also been completed. However, the CF-4R-EE NSHP cannot be uploaded without verifying that the appropriate CF-6R's and CF-4R's are completed for the project. This can be accomplished by receiving a copy of the completed form or an electronic copy from the Provider registry.

⁵³ http://www.energystar.gov/index.cfm?c=products.pr_find_es_products

C. NSHP List of Energy Efficiency Special Features

All applicable Special Features must be listed on the CF-4R-EE NSHP Field Verification Form and verified by a HERS rater.

<u>Special Feature</u>	<u>Special Feature Description</u>
<u>Housewrap/ Air -retarding wrap</u>	<u>This building incorporates an air retarding wrap that shall be installed to meet the requirements of Section 150 (f) of the 2008 Building Energy Efficiency Standards, Title 24, Part 6.</u>
<u>Multiple conditioned zones</u>	<u>This building uses multiple conditioned zones. The nonclosable area between zones cannot exceed 40 ft² and each zone must be controlled with a separate thermostat. In addition, the air flow requirements and fan watt draw requirements in Reference Residential Appendix RA3.3 of the Reference Appendices for the 2008 Building Energy Efficiency Standards⁵⁴ must be met.</u>
<u>Sunspace attached to building</u>	<u>This building has an attached sunspace with interzone surfaces, custom solar heat gain distribution, and sunspace thermal mass elements.</u>
<u>Nonstandard free ventilation area</u>	<u>Standard free ventilation area is 10 percent of rough-out opening of all fenestration.</u>
<u>All orientations</u>	<u>When all orientations are specified, see section 151(c)2 of the 2008 Building Energy Efficiency Standards, Title 24, Part 6, and section RA1.3.2 in Reference Residential Appendix RA1 of the Reference Appendices for the 2008 Building Energy Efficiency Standards.</u>
<u>High mass building features</u>	<u>High-mass building features are described in the THERMAL MASS FOR HIGH MASS DESIGN table of compliance form CF-1R.</u>
<u>Gas Absorption equipment</u>	<u>Minimum efficiency for Gas Absorption equipment is specified in Table 112-D in Subchapter 2 of the 2008 Building Energy Efficiency Standards, Title 24, Part 6.</u>
<u>Cool Roofing products installed</u>	<u>Cool roof products installed on this building qualifying for compliance with Sections 141(a)1.B, 143(a)1 or 149(b) 1 B, 151(f)12, or 152(b)1H of the 2008 Building Energy Efficiency Standards, Title 24, Part 6, shall be rated and labeled by the Cool Roof Rating Council in accordance with Section 10-113 of the 2008 Building Energy Efficiency Standards, Title 24, Part 6.</u>
<u>Radiant Barriers installed</u>	<u>The radiant barriers installed in this building shall meet eligibility and installation criteria as specified in Reference Residential Appendix RA4.2.2 of the Reference Appendices for the 2008 Building Energy Efficiency Standards.</u>
<u>Nonstandard Ventilation Height Difference.</u>	<u>Nonstandard ventilation height difference must be verified according to the rules in Chapter 3 of the 2008 Residential Alternative Calculation Method Approval Manual⁵⁵, under Building Zone Information.</u>

⁵⁴ <http://www.energy.ca.gov/2008publications/CEC-400-2008-004/CEC-400-2008-004-CMF.PDF>

⁵⁵ <http://www.energy.ca.gov/2008publications/CEC-400-2008-002/CEC-400-2008-002-CMF.PDF>

<u>Hydronic heating system</u>	<u>Table R3-50 of the 2008 Residential Alternative Calculation Method Approval Manual specifies default assumptions for hydronic systems for existing buildings. System details are in the SPECIAL SYSTEMS - HYDRONIC DISTRIBUTION SYSTEMS AND TERMINALS table of the CF-1R.</u>
<u>Reduced infiltration and/or Mechanical ventilation</u>	<u>This building is modeled with reduced infiltration and/or mechanical ventilation. Consequently the homeowner's manual provided by the builder to the homeowner shall include operating instructions for the homeowner on how to use operable windows and/or mechanical ventilation to achieve adequate ventilation. Testing for reduced infiltration shall be performed as specified in ASTM E 779-03. This listing shall also report the target CFM50H⁵⁶ required for the blower door test to achieve the modeled SLA⁵⁷ and the minimum CFM50H (corresponding to an SLA of 1.5) allowed to avoid backdraft problems.</u>
<u>Metal-framed walls</u>	<u>This building uses metal-framed walls that shall meet mandatory insulation requirements. In many cases sheathing insulation is used in addition to cavity insulation. Metal-framed walls shall be built according to the details in Reference Joint Appendix 4 of the Reference Appendices for the 2008 Building Energy Efficiency Standards for this construction type.</u>
<u>Non-NAECA large storage gas water heater</u>	<u>A non-NAECA large storage gas water heater is specified for this building. System specifications are shown in the SPECIAL WATER HEATER/BOILER DETAILS table of compliance form CF-1R.</u>
<u>Water-heating system does not have a single separate water heater serving each dwelling unit</u>	<u>Water-heating system specifications are in the SPECIAL WATER HEATER/BOILER DETAILS table of compliance form CF-1R.</u>
<u>Controlled-ventilation Crawlspace</u>	<u>Controlled-ventilation Crawlspace is to be constructed in accordance with the alternative to section 150(d) of the 2008 Building Energy Efficiency Standards, Title 24, Part 6, and section 3.5.4 of the 2008 Residential Alternative Calculation Method Approval Manual.</u>
<u>Solar thermal water heating</u>	<u>Solar Savings Fraction (SF) for solar thermal water heating is calculated from the equations in the 2008 Residential Alternative Calculation Method Approval Manual Appendix RG section RG 3.4. See also section 5.13 of the 2008 Residential Alternative Calculation Method Approval Manual.</u>

⁵⁶ <http://www.energy.ca.gov/2008publications/CEC-400-2008-002/CEC-400-2008-002-CMF.PDF>

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