

## 2. Standard Reports

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### 2.1 General

For consistency and ease of enforcement, the manner in which building features are reported by Compliance Software is standardized. This ~~and the subsequent~~ chapter ~~of the compliance software Approval manual~~ describes the required standard reports. All residential Compliance Software shall automatically produce standardized compliance reports. These *Standard Reports* are required to enable building officials to evaluate the results without having to learn each computer program. Included in every compliance package will be reports CF-1R and other related forms, which are described in detail in this manual.

The Certificate of Compliance (CF-1R) is the principal compliance report. The CF-1R shall indicate the features and performance specifications needed to comply with Part 6 of Title 24 and shall be approved by the local enforcement agency by stamp or authorized signature. The CF-1R and supporting documentation shall be readily legible and of substantially similar format, ~~and~~ informational order and content to the CF-1R model provided in the ~~appropriate 2013~~ Residential Compliance Manual ~~and~~ as approved by the CEC Executive Director. ~~A.~~

~~At the beginning of the CF-1R, notification of the use of that the compliance report is part of a~~ HERS or NSHP ~~process~~ shall be prominently displayed. ~~A run identification code shall be placed on each page of the CF-1R per the requirements in Section 2.2.~~

The CF-1R shall have two highly visible sections, one for Special Features Inspection Checklist and a second for features requiring *Hers Required Verification*. These two sections serve as “punch lists” during compliance verification by the local building department. Items listed in the *Special Features Inspection Checklist* section indicate the use for compliance of unusual features or assumptions, and call for special care by the local building department. Items listed in the *Hers Required Verification* section are for features that require diagnostic testing or *independent* verification to insure proper field installation in addition to local building department inspection.

~~Only user inputs are described and included in the standard reports. The fixed and restricted inputs are not included in the standard reports since compliance software shall be designed so that the fixed and restricted inputs and default values are automatically used in the absence of specific user input.~~

Deviations from the standard reports will be approved by the Commission on a case-by-case basis. ~~when they are necessary because of conceptual differences between compliance software or because of special modeling features.~~ However, the categories of information represented in the tables and the standard headings shall not be changed. Additional columns or additional tables may be added when necessary and column headings may be abbreviated, and reports may be reformatted with different character spacing, line spacing, row heights or column widths to permit better readability or paper conservation. Compliance Software may also provide additional customized information at the bottom of the standard reports, separated from the standard report by a line.

Some of the information in the standard reports may not be applicable for all buildings. When information is not applicable for a particular building, it should be omitted. When a feature exists, however, all the information about that feature should be included, even if some of the detail is not applicable to the proposed design.

~~The Standard Reports are designed to accommodate the optional modeling capabilities included in this manual. Approval of additional optional modeling capabilities may require modification of the standard report format.~~

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## **2.2 Certificate of Compliance – Residential Computer Method (CF-1R)**

The Certificate of Compliance (report CF-1R) is the principal standard report that shall be produced. The Certificate of Compliance is required by the Administrative Regulations (Title 24, Part 1, §10-103).

The CF-1R (Residential Computer Method) shall include all information provided by the program user. If the standard report does not fully document all user inputs, additional tables or notes shall be added by the program vendor to fully document all user inputs. Information on the Certificate of Compliance is provided below to illustrate the use of all the standard tables.

### 2.2.1 Report Headings

The following heading shall appear on the first page and contain the following information:

- Date
- Project Title
- Project address
- Documentation author, telephone, email and address
- A box for use by the building department containing the building permit number, the plan check date, the field check date and other information to be specified by the ~~CEC~~ Executive Director.
- Run identification information shall be provided to verify the compliance run. This shall include information such as the computer simulation file name, a run code, the run title, the run date, etc.
- The filename and ~~computer~~ run identification information shall appear as part of the header information for all pages of the Certificate of Compliance.

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### 2.2.2 Energy Use Summary

This section compares the energy use of the proposed building to the energy budget of the standard design building. The energy budgets for the proposed and standard designs All units in this table are TDV (time dependent valuation) energy (kTDV/ft<sup>2</sup>-yr). TDV Energy shall be separately reported for space heating, space cooling, hot water, ventilation, and other uses. Additionally, the proposed building electricity and gas energy use shall be reported in kWh and therms, respectively. ~~The energy budgets are determined from the standard design using the custom budget method. The water heating~~

~~budget is calculated from the custom budget water heating calculation methods described in this document.~~ Compliance software vendors may add additional columns or rows to this report when appropriate, such as for multi-zone building analyses or breaking out energy use components such as HVAC fans.

### 2.2.3 Building Features

~~The features of the proposed building shall be entered in a manner that matches the building plans. The features and characteristics of the proposed design shall be described in a series of tables that are described in the subsequent chapter. The page number where specific features can be found shall be included. These specific features are listed in the documentation template provided in Table R2-1:~~

<u>List page number from the plans where the following information is found. Information from CF-1R will be incorporated in to the plans by note block, schedule, or a drawing. Put NA if the project does not have that feature. Example if there were no raised floors then NA. Documentation Author and Plans examiner required to verify CF-1R information is incorporated in plans and the corresponding page numbers below are correct.</u>	
▲	Front Orientation of the building in degrees
	Envelope (Opaque Surface)
	Insulation values for walls
	Insulation values for ceilings
	Insulation value for catwalks
	Diagram of catwalks with dimensions required to install the modeled R-value
	Insulation values for floors
	Window schedule showing area and orientation of each window/skylight
	Window schedule showing maximum U-factor and SHGC value for each window/skylight
	HVAC
	Efficiencies of HVAC equipment
	Duct Insulation values
	Indoor Air Quality and Mechanical Ventilation description how it will be met, the specifications for the required equipment, and exhaust duct sizing requirements.
	Water Heating
▲	Efficiency, size and Type of Water Heating/Boiler equipment (i.e. storage, instantaneous, etc.)
▲	Distribution Type (i.e. recirculating, standard, pipe insulation credit, etc.) and a description of the requirements and how they will be met on the project.
▲	Pipe Insulation Values – List where insulation is to be installed and required value
▲	Lighting
▲	Electrical Plans that show all lighting in the building and that they are high efficacy lighting (i.e. fluorescent, LED (must be certified to CEC)) or the plans identify the device controlling the lighting (dimmer switch, occupant sensor, etc.) and that they satisfy the applicable exceptions to the high efficacy requirements.
	<b>ALL Special Features</b> are listed on the plans and include a description of how they are to be met (i.e. <b>Thermal Mass, Radiant Barrier, Cool Roof</b> )
	<b>ALL HERS Measures</b> listed on the plans. Each measure must include a short description of each HERS measure and a not that the installing contractor is required to test and fill out a CF-6R. That independent testing by a third party HERS rater is required including a CF-4R form for each HERS measure listed. [i.e. <b>Duct Leakage, Refrigerant Charge, Airflow (Fan Flow) and Watt Draw</b> ]
	Documentation Author list all the forms required for final (ex. CF-6R, CF-4R, MF-1R): CF-6R: CF-4R: Additional:

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### 2.2.4 Special Features Inspection Checklist

This listing shall **stand out and command the attention** of anyone reviewing the CF-1R to emphasize the importance of verifying these Special Features and the aspects of these features that were modeled to achieve compliance or the energy use results reported. This

listing in the Certificate of Compliance shall include any special features of the building that affect the building’s compliance with the standards. The use of certain non-default values shall also be included in this list. ~~These special default values are indicated in the subsequent text.~~ Statements in this section shall use the special feature statements listed in Appendix **BE** of this manual, unless other text is approved.

This is a free format section for the CF-1R report to note any special features about the building that are needed to verify compliance. The following is an example of the type of information to include in the special features and modeling section of the CF-1R.

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*Table R2-42 – CF-1R Report – SPECIAL FEATURES INSPECTION CHECKLIST: (Example Listing)*

High mass building features	High-mass building features are described in the THERMAL MASS FOR HIGH MASS DESIGN table of compliance form CF-1R.
Non-standard Ventilation Height Difference	Non-standard ventilation height difference must be verified according to the rules in Residential ACM Chapter 3 under Building Zone Information.
Higher U-factors are specified than the vintage defaults.	Field verification of U-factors as specified is required.
Non-NAECA large storage gas water heater	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.

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### 2.2.5 HERS Required Verification

This listing shall **stand out and command the attention** of anyone reviewing this form to emphasize the importance of HERS Required Verification and to call attention to the building features that require such verification and testing.

All items in the *Hers Required Verification* listings shall also report that the installer and HERS rater shall both provide the appropriate CF-6R and CF-4R documentation, respectively, for proper installation, testing, and test results for the features that require verification by a HERS rater. The installer shall document and sign the CF-6R to verify compliance with design and installation specifications. The HERS rater shall document and sign the CF-4R to confirm the use of proper testing procedures and protocol to report test results, and to report field verification of installation consistent with the design specifications needed to achieve these special compliance efficiency credits.

The following table is an example of the type of information to be included:

**Table R2-3.2 – CF-1R Report – HERS REQUIRED VERIFICATION**

This house is using reduced duct leakage to comply and shall have diagnostic site testing of duct leakage performed by a certified HERS rater under the supervision of a CEC-approved HERS provider. The results of the diagnostic testing shall be reported on a CF-4R form and list the target and measured CFM duct leakage at 25 pascals.
This house has tight construction with reduced infiltration and a target blower door test range between 586 and 1250 CFM at 50 pascals. The blower door test shall be performed using the ASTM <i>Standard Test Method for Determining Air Leakage Rate by Fan Pressurization</i> , ASTM E 779-03.
This house is using an HVAC system with all ducts and the air handler located within the conditioned space. This results in a higher distribution efficiency rating due to elimination of conduction losses (losses due to leakage are not changed) and shall be visually confirmed by a certified HERS rater under the supervision of a CEC-approved HERS provider. This verification shall be reported on a CF-4R form.
WARNING: If this house tests below 586 CFM at 50 pascals, the house shall either be provided with a ventilation opening that will increase the tested infiltration to at least 586 CFM at 50 pascals (SLA = 1.5) OR mechanical supply ventilation shall be provided that can maintain the house at a pressure of at least -5 pascals relative the outside average air pressure while other continuous ventilation fans are operating. Note also that the Commission considers an SLA≤1.5 to be “unusually tight” per the California Mechanical Code.

2.2.6 Compliance Statement and Signatures

The CF-1R also requires a signature block, as required by §10-103(a)1 of the Administrative Regulations (Title 24, Part 1). The following is an example of the type information to be included with the compliance statement and signature block.

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**Table R2-3.4 – CF-1R Report – COMPLIANCE STATEMENT**

This certificate of compliance lists the building features and performance specifications needed to comply with the Energy Standards in Title 24, Parts 1 and 6, of the California Code of Regulations, and the Administrative regulations to implement them. This certificate has been signed by the individual with overall design responsibility.	
Designer or Owner (per Business & Professions Code) Name _____ Title/Firm _____ Address _____ City & Zip Code _____ Telephone _____ License Number _____ Signature/Date _____	Documentation Author Name _____ Title/Firm _____ Address _____ City & Zip Code _____ Telephone _____ Signature/Date _____
Enforcement Agency Name _____ Title _____ Agency _____ City _____ Telephone _____ Signature/Date _____	