

Project Name:

Date:

A. GENERAL INFORMATION

1	Project Name:		8	Date:	
2	Project Location:		9	Compliance Method:	
3	CA City:		10	Building Front Orientation (deg or cardinal):	
4	Zip Code:		11	Number of Dwelling Units:	
5	Climate Zone:		12	Fuel Type:	
6	Building Type	<input type="checkbox"/> Single Family <input type="checkbox"/> Multi Family	13	Total Conditioned Floor Area:	
7	Project Type:	<input type="checkbox"/> Newly Constructed Building <input type="checkbox"/> New Addition greater than 1,000 ft2	14	Slab Area:	

B. OPAQUE SURFACE DETAILS – Framed (Section 150.1(c)1)

1	2	3	4	5	6	7	8	9	10	11
Tag/ID	Assembly Type	Frame Type	Frame Depth	Frame Spacing	Appendix JA4 Reference	Cavity R-value	Continuous Insulation R-value	U-Factor	Required U-Factor from Package A	Comments

C. OPAQUE SURFACE DETAILS – Non-framed (Section 150.1(c)1)

1	2	3	4	5	6	7	8	9	10
Tag/ID	Assembly Type	Assembly Materials	Thickness	Interior or Core Insulation R-value	Continuous Insulation R-value	Appendix JA4 Reference	U-Factor	Required U-Factor from Package A	Comments

D. OPAQUE SURFACE DETAILS – Mass Walls (Section 150.1(c)1)

1	2	3	4	5	6		7		8	9	10		11	
					Interior Insulation		Exterior Insulation		Appendix JA4		Interior Insulation		Exterior Insulation	
Tag/ID	Walls Above Grade	Mass Type	Mass Thickness (inches)	Furring Strip Thickness (inches)	R-value	U-factor	R-value	U-factor	Table	Cell	Required R-value	Required U-factor	Required R-value	Required U-factor

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E. SLAB INSULATION (Table 150.1-A)

1	2	3	4	5	6
Floor Type	Proposed R-value	Proposed U-factor	Required Insulation R-value	Required Insulation U-factor	Comments

- Heated slab floors require mandatory slab insulation (see Table 110.8-A).

F. RADIANT BARRIER (Section 150.1(c)2)

A radiant barrier is required (for Climate Zones 2-15)

- To meet the prescriptive requirement, a minimum free ventilation area of not less than one square foot of vent area for each 300 ft2 of attic floor area with 30 percent upper vent.
- A minimum air space between the top surface of the radiant barrier and roof decking of not less than 1.5 inches at the center of the truss/rafter span.
- Radiant Barrier shall be installed to cover all gable end walls and other vertical surfaces in the attic.

G. ROOFING PRODUCTS (COOL ROOF) (Section 150.1(c)11)

1	2	3	4	5	6	7	8	9	10	11
Mass Roof 25 lb ft2 or greater	Roof Pitch	CRRC Product ID Number	Product Type	Proposed			Minimum Required			Comments
				Aged Solar Reflectance	Thermal Emittance	SRI	Aged Solar Reflectance	Thermal Emittance	SRI	

NOTES:

- Any roof area covered by building integrated photovoltaic panels and solar thermal panels are exempt from the above Cool Roof requirements.
- Liquid field applied coatings must comply with installation criteria from section 110.8(i)4.

H. FENESTRATION/GLAZING AREAS ALLOWED

1	2	3	4	5
Azimuth	Maximum Allowed	U-factor	SHGC	Comments

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I. FENESTRATION PROPOSED AREAS AND EFFICIENCIES

1	2	3	4	5	6	7	8	9	10	11	12
Fenestration Type	Frame Type	Azimuth	Proposed Non West Facing Area ft2	Proposed West Facing Area ft2	Total Proposed All Orientations	U-factor	Source	SHGC	Source	Exterior Shading Device	Comments
a	Total Proposed Fenestration Area										
b	Maximum Allowed Fenestration Area										
c	If exterior shading devices are used, what is the calculated value from WS-03										

J. HVAC SYSTEMS – HEATING/COOLING/DUCTS

1	2	3	4	5	6	7	8	9
Heating Equipment Type	Heating Efficiency	Cooling Equipment Type	Cooling Efficiency	Distribution System Type	Duct Location	Duct R-value	Thermostat Type	Comments

- Central gas furnaces have a minimum efficiency of 78% AFUE, heat pumps 7.7 HSPF. Any gas heating appliance sold in California will meet the minimum appliance efficiency standard and is allowed. Heat pumps and mini-split heat pumps are the only type of electric heating system allowed.
- Central cooling systems and heat pumps have a minimum efficiency of 13 SEER. Any cooling appliance sold in California will meet the minimum appliance efficiency standard and is allowed.
- The prescriptive requirements preclude the use of bypass ducts in association with zonally controlled systems. A HERS Rater shall verify that zonally controlled systems have no bypass ducts.

K. VENTILATION COOLING in Climate Zones 8-14 Section 150.1(c)12

1	2
Required 2 CFM per ft2 of Conditioned Floor Area	Minimum Attic Vent Free Area (column 1 / 375 CFM)

- Homeowners shall be provided a one-page fact sheet on the efficient operation of a whole house fan.

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L. WATER HEATING (Section 150.1(c)8)

List water heaters and boilers for both domestic hot water (DHW) heaters and hydronic space heating.

1	2	3	4	5	6	7	8	9	10	11	12
Indicate Section 150.1(c)8 Requirement (paragraph A, B, C or D)	Water Heating System Type	DHW Water-Heater Type	Fuel Type	Dwelling Unit Distribution Type	Number of Water Heaters In System	Water Heater Volume (gal)	Rated Input (Btuh)	Energy Factor or Recovery Efficiency	Standby Loss (percent)	Water Heater Tank Exterior Insulation	Back-Up Solar Savings Fraction

M. HERS VERIFICATION SUMMARY The enforcement agency should pay special attention to the HERS Measures specified in this checklist below. A registered Certificate of Verification for all the measures specified shall be submitted to the building inspector before final inspection.

Ducts

- Duct leakage testing required (Residential Appendix RA3.1)
- Heating and cooling systems are ductless, no HERS verification required
- System is zonally controlled. No bypass ducts are allowed, as confirmed by HERS verification

Refrigerant Charge

- Refrigerant Charge Testing is required (Residential Appendix RA3.2) in climate zones 2 and 8-15
- No cooling system installed

Central System Air Handlers

- Airflow and Fan Efficacy (Residential Appendix RA3.3) or System Design
- No cooling system installed
- Non-ducted cooling system

Certificate of Compliance - Residential Prescriptive Compliance Method	CF-1R-PRSC-NCB-01
<i>Newly Constructed Buildings and Additions Greater Than 1,000 ft²</i>	(Page 5 of 5)
Project Name:	Date:

N. DOCUMENTATION DECLARATION STATEMENTS

<ul style="list-style-type: none"> I certify that this Certificate of Compliance documentation is accurate and complete. 	
Name:	Signature:
Company :	Date:
Address:	If Applicable <input type="checkbox"/> CEA or <input type="checkbox"/> CEPE (Certification #):
City/State/Zip:	Phone:

Responsible Building Designer's Declaration Statement <ul style="list-style-type: none"> I am eligible under Division 3 of the California Business and Professions Code to accept responsibility for the building design identified on this Certificate of Compliance. I certify that the energy features and performance specifications for the building design identified on this Certificate of Compliance conform to the requirements of Title 24, Parts 1 and 6 of the California Code of Regulations. The building design features identified on this Certificate of Compliance are consistent with the information provided to document this building design on the other applicable compliance documentation, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application. 	
Name:	Signature:
Company:	Date:
Address:	License:
City/State/Zip:	Phone:

For assistance or questions regarding the Energy Standards, contact the Energy Hotline at: 1-800-772-3300.

Prescriptive CF-1R Instructions

Minimum requirements for prescriptive compliance can be found in Building Energy Efficiency Standards Section 150.1(c), and Table 150.1-A (Package A). Completing these forms will require that you have the Reference Appendices for the 2013 Building Energy Efficiency Standards, which contains the Joint Appendices used to determine climate zone and to complete the table for opaque surfaces. When the term CF-1R is used it means the CF-1R-PRSC-NCB-01. Worksheets are identified by their entire name and subsequently by only the worksheet number, such as WS-02.

Instructions for tables with column numbers and row letters are given separately.

A. GENERAL INFORMATION

Project Name: Identifying information, such as owner's name.

Date: Date of document preparation.

Project Location: Legal street address of property or other applicable location identifying information.

Compliance Method: Prescriptive.

CA City: Legal city/town of property.

Building Front Orientation: Building front expressed in degrees, where North = 0, East = 90, South = 180, and West = 270. Indicate cardinal if it is a subdivision or multi-family project that will be built in multiple orientations. The standards (section 100.1) include the following additional details for determining orientation:

- Cardinal covers all orientations (for buildings that will be built in multiple orientations);
- North is oriented to within 45 degrees of true north, including 45 degrees east of north;
- East is oriented to within 45 degrees of true east, including 45 degrees south of east;
- South is oriented to within 45 degrees of true south, including 45 degrees west of south;
- West is oriented to within 45 degrees of true west, including 45 degrees south of west.

Newly Constructed Buildings and Additions Greater Than 1,000 ft²

Zip Code: 5-digit zip code for the project location (used to determine climate zone).

Number of Dwelling Units: 1 for single-family, 1 or more for multifamily.

Climate zone: From Joint Appendix JA2.1.1.

Fuel Type: Natural Gas, Liquefied Propane Gas, or Electricity. NOTE: prescriptive compliance only allows electricity if existing appliances are electric and natural gas is not available in the building.

Building Type: Single Family (includes duplex), or Multi Family (a building that shares common walls and common floors or ceilings).

Total Conditioned Floor Area: Enter the new conditioned floor area in ft², as measured from the outside of exterior walls. If the project is an addition, this form is used for additions that are greater than 1,000 ft².

Project Type: Newly constructed building or new addition greater than 1,000 ft².

Slab Area: Area of the first floor slab (if any) in ft².

B. OPAQUE SURFACE DETAILS – Framed

1. Tag/ID: A label (if any) from the plans, such as A1.4 or wall.
2. Assembly Type: Roof, Ceiling, Wall, Floor over crawlspace or floor over exterior.
3. Frame type: Wood or Metal.
4. Frame Depth: Nominal dimensions (in inches) of framing material such as 2x4 or 2x6.
5. Frame Spacing: 16 or 24 (inches on center).
6. Appendix JA4 Reference: enter the JA4 Table and cell (column/row) (e.g., 4.3.13 D6) used to determine the assembly U-factor. If an assembly is not available on JA4, attach a CF-1R-PRSC-WS-01 (Worksheet for EZ Frame) form. If multiple assemblies are needed to achieve a weighted average U-factor, attach a CF-1R-PRSC-WS-02 (Area Weighted Average Calculation Worksheet) form.
7. Cavity R-value: Cavity R-value: insulation installed between framing members. NOTE: Wall U-factor required for all climate zones is 0.065. This U-factors can be met by wood framed 2x4 walls with R-13 cavity + R5 continuous insulation, R-15 cavity plus R-4 continuous insulation, or any combination of cavity and/or continuous insulation that results in a U-factor equal to or less than 0.065.

Newly Constructed Buildings and Additions Greater Than 1,000 ft²

8. Continuous Insulation: R-value of rigid or continuous insulation (not interrupted by framing).
9. U-factor: The U-factor for the proposed assembly. Must be less than or equal to column 10 or have an attached WS-02 to show that a weighted U-factor for multiple assemblies will meet the maximum value in column 10.
10. Required U-factor: from Package A: Value required based on climate zone and assembly type.
11. Comments: Any notes regarding location, unique conditions, or attachments.

C. OPAQUE SURFACE DETAILS – Non-framed

1. Tag/ID: A label (if any) from the plans, for example, A1.4 or wall.
2. Assembly Type: Roof, Wall.
3. Assembly materials: SIP OSB, SIP I-Joist, see JA4 for guidance.
4. Thickness: Thickness in inches.
5. Interior or Core Insulation R-value: Insulation installed within the materials or on the inside. See Joint Appendix JA4 for guidance.
6. Continuous Insulation R-value: Insulation installed on the exterior. See Joint Appendix JA4 for guidance.
7. Appendix JA4 Reference: Table number, cell (column and row) (e.g., 4.3.2 A13). If assembly is not available on JA4, attach a WS-01.
8. U-factor: Proposed assembly U-factor from JA4 or WS-01. Must be less than or equal to column 9.
9. Required Assembly U-factor from Package A: Based on assembly type and climate zone.
10. Comments: Any notes regarding location, unique conditions, or attachments.

D. OPAQUE SURFACE DETAILS – Mass Walls

1. Tag/ID: A label (if any) from the plans, for example, A1.4 or wall.
2. Walls Above Grade: Yes or No.
3. Mass Type: ICF, Masonry. See JA4 for guidance.
4. Mass Thickness: Thickness (in inches) of mass.
5. Furring Strips Thickness: If furring strips are required to meet the required wall R-value or U-factor shown in columns 10 and 11, indicate the thickness of the furring strip (in inches). See Table 4.3.14 of Joint Appendix 4.
6. Interior Insulation R-value or U-factor: Enter either the R-value or U-factor of proposed insulation on the inside surface of the mass wall. See column 10 for the required insulation value for the wall type selected. See JA4 for guidance. Use the same descriptor (R-value or U-factor) throughout Table D.

Newly Constructed Buildings and Additions Greater Than 1,000 ft²

7. Exterior Insulation R-value or U-factor: Enter either the R-value or U-factor of proposed insulation on the outside surface of the mass wall. See column 11 for the required insulation value for the wall type selected. See JA4 for guidance.
8. Appendix JA4 Table: Table number used to determine the R-value or U-factor (e.g., an ICF wall is 4.3.13).
9. Appendix JA4 Cell: Cell number used to determine the R-value or U-factor (e.g., an 8-inch thick ICF wall with 2 inches of EPS (R-15.4) is A6).
10. Interior Insulation: The required R-value or U-factor (whichever descriptor was selected in column 6) for interior insulation will be completed based on the Table 150.1-A requirements for the wall type.
11. Exterior Insulation: The required R-value or U-factor (whichever descriptor was selected in column 7) for exterior insulation will be completed based on the Table 150.1-A requirements for the wall type.

E. SLAB INSULATION

Slab edge performance specifications and installation criteria are found in Sections 150.0(l) and 150.1(c)1D (Table 150.1-A). Requirements vary by climate zone and slab conditions.

1. Floor type: Types include slab-on-grade or raised slab.
 - Slab-on-grade floors require slab edge insulation in climate zone 16 only.
 - Raised slab must be insulated to R8 in climate zones 1, 2, 11, 13, 14 and 16, R-4 in climate zones 12 and 15, and no insulation is required in climate zones 3-10.
2. Proposed R-value: When required, insulation can be specified by either R-value or U-factor. If specifying an R-value complete column 2.
3. Proposed U-Factor: When required, specify the U-factor of proposed insulation in column 3.
4. Required Insulation R-value: Whichever descriptor was used (R-value or U-factor) in column 2 or 3 will be used to specify the value required, which will vary by climate zone and type of slab. Values are from Table 150.1-A.
5. Required Insulation U-factor: Whichever descriptor was used (R-value or U-factor) in column 2 or 3 will be used to specify the value required, which will vary by climate zone and type of slab. Values are from Table 150.1-A.
6. Comments: Any notes regarding location, unique conditions, or attachments.

NOTE: A suggestion is provided to highlight that there is a mandatory slab edge insulation requirement for heated slab floors. Since mandatory requirements are not listed on the Certificate of Compliance, this is provided for information purposes only. The specific requirements are in Sections 110.8(g) and Table 110.8-A.

Newly Constructed Buildings and Additions Greater Than 1,000 ft²**F. RADIANT BARRIER**

Radiant barrier performance specifications and installation criteria are found in Sections 110.8(j) and 150.1(c)2, and in Residential Appendix RA4.2.1.

Radiant barriers are required by Package A in climate zones 2-15.

G. ROOFING PRODUCTS - COOL ROOF

Roofing requirements are found in Sections 110.8(i) and 150.1(c)11. Depending on the climate zone and roof slope, a cool roof (defined as a minimum aged solar reflectance and thermal emittance, or a minimum SRI) may be required by Package A.

Exceptions include (1) low-slope roofs (pitch 2:12 or less) in climate zones 1-12, 14 and 16; (2) steep slope roof (pitch greater than 2:12) in climate zones 1-9 and 16; (3) roof constructions that have thermal mass over the roof membrane with at least 25 lb/ft²; and (4) any roof area covered by building integrated photovoltaic panels and solar thermal panels (the area of roof not covered by photovoltaic panels would still need to meet any applicable cool roof requirements).

1. Mass roof 25 lb ft² or greater: Mass roofs are not required to have a cool roof even if the climate zone specifies minimum performance requirements.
2. Roof Pitch: Expressed as 4:12, for example, which means the roof rises 4 foot within a span of 12 feet. When roofs have multiple pitches the requirements are based on the pitch of 50% or more of the roof.
3. The CRRC Product ID Number is obtained from the Cool Roof Rating Council's Rated Product Directory at www.coolroofs.org/products/search.php. Products are listed by manufacturer, brand, type of installation, roofing material, and color, as well as product performance.
4. Product type: See Cool Roof Rating Council's directory. Generally product types include single-ply roof, wood shingles, asphalt roof, metal roof, tile roof.
5. Proposed Aged Solar Reflectance: Value is from the Cool Roof Rating Council's Rated Product Directory. If the aged value is not available, calculate the SRI using the initial solar reflectance on CF-1R-PRSC-WS-04 (Cool Roof and SRI Worksheet).
6. Proposed Thermal Emittance: From the product specifications. Skip this value if using a calculated SRI.
7. Proposed SRI: It is optional to meet either the SRI or the solar reflectance/thermal emittance. To calculate the SRI value use calculation from <http://www.energy.ca.gov/title24/>. Enter the resulting value in the SRI Column above and attach a copy of the WS-04.

Newly Constructed Buildings and Additions Greater Than 1,000 ft²

8. Minimum Required Aged Solar Reflectance: Based on climate zone and roof slope.
9. Minimum Required Thermal Emittance: Based on climate zone and roof slope.
10. Minimum SRI: Based on climate zone and roof slope.
11. Comments: Any notes regarding location, unique conditions, or attachments, such as an SRI worksheet.

If the cool roofing requirements will be met by a liquid field applied coating, Section 110.8(i)4 requires the coating be applied across the entire roof surface and meet the dry mil thickness or coverage recommended by the manufacturer.

H. FENESTRATION/GLAZING AREAS ALLOWED

1. Azimuth: Orientation. This will either be all orientations or west when the west-facing area is limited to 5 percent.
2. Maximum Allowed: Calculated value based on conditioned floor area times 0.05 for west-facing fenestration (if limited) and 0.20 for all orientations. The maximum total glazing area is 20 percent, of which a maximum of 5 percent can face west in climate zones 2, 4, and 6-16.
3. U-factor: Maximum U-factor from Package A. This field will always be 0.32. See notes for exceptions when completing Table I.
4. SHGC: Maximum SHGC from Package A. This field will either be 0.25 or N/A, depending on the climate zone. N/A means there is no maximum SHGC required in this climate zone. See notes for exceptions when completing Table I in climate zones requiring a maximum SHGC.
5. Comments: Any notes regarding location, unique conditions, or attachments.

I. FENESTRATION PROPOSED AREAS AND EFFICIENCIES

1. Fenestration type: Window, glass door, skylight, or glass block.
2. Frame type: Vinyl, wood, metal, metal thermal break, clad, fiberglass, or none.
3. Azimuth: Orientation can be North, East, South, West, or in degrees. If documentation is for a building that may be built in any direction (cardinal) in a climate zone that limits west-facing fenestration, complete this section assuming the side of the building with the most fenestration faces west.
4. Proposed Non West-facing Area (ft²): Combine all windows with the same U-factor and SHGC that are on the same orientation (unless meeting one of the exceptions, which are listed separately).
5. Proposed West-facing Area (ft²): Combine all windows with the same U-factor and SHGC that are on the same orientation (unless meeting one of the exceptions, which are listed separately). West orientation includes any vertical fenestration oriented to within 45 degrees of true west, including 45 degrees south of west, any skylights oriented west, and skylights facing any direction with a pitch of less than 1:12.

Newly Constructed Buildings and Additions Greater Than 1,000 ft²

NOTE: Doors with glazing are counted in one of two ways. A door with 50% or more glazing is counted as the entire door area. A door with less than 50% glazing can be counted as the entire door area or can be calculated as the actual glass area with a 2-inch (0.17 ft²) frame all around.

6. Total Proposed All Orientations: Add columns 4 and 5 at rows A and B. The total allowed fenestration area is 20% for all climate zones. If the climate zone has a 5% west-facing limit, then both limits are applied to the building's total fenestration area.
7. U-factor: Enter (a) the NFRC U-factor based on the proposed brand and type of fenestration using National Fenestration Rating Council (www.nfrc.org) certified values, (b) the default value from Table 110.6-A, or (c) the weighted average U-factor calculated on form CF-1R-PRSC-WS-02, Area Weighted Average Calculation Worksheet. For the exceptions, up to 3 ft² of tubular skylights and up to 3 ft² of glazing in a door enter N/A, and for up to 16 ft² of skylight, enter 0.55. If any products (other than the exceptions) have a higher U-factor than 0.32, first complete a WS-02 to calculate a weighted average U-factor and attach it to the CF-1R-PRSC-NCB-01.

NOTE: Dynamic glazing is a glazing system that changes its performance U-factor and SHGC based on the physical environment. Dynamic glazing includes chromogenic glazing or integrated shading systems (this does not include internally or externally mounted shading devices). If using dynamic glazing, use the lowest tested U-factor and SHGC in Columns 8 and 10.

8. Source: NFRC, Default or WS-02. The source of the U-factor data for the fenestration product.
9. SHGC: In climate zones 2, 4 and 6-16, enter the SHGC from (a) NFRC-rated certification information, (b) default table 110.6-B, or (c) the weighted average SHGC calculated on form WS-02. For the exceptions, up to 3 ft² of tubular skylights and up to 3 ft² of glazing in a door enter N/A, and for up to 16 ft² of skylight, enter 0.30. If any products (other than the exceptions) have a higher SHGC than required by Package A, first complete a form WS-02 to calculate a weighted average SHGC and attach it to the CF-1R.
10. Source: NFRC, Default or WS-02. The source of the SHGC data for the fenestration product.
11. Exterior Shading Device: If exterior shading devices are used to meet the SHGC requirement, indicate the type of device (from Table S-1 of CF-1R-PRSC-WS-03 Solar Heat Gain Coefficient Worksheet) and attach a WS-03.

If using an overhang for south-facing glazing, the glazing must be fully shaded at solar noon on August 21 and substantially exposed to direct sunlight at solar noon on December 21 (see Residential Manual, Section 3.____).

12. Comments: Optional field to describe conditions.

Newly Constructed Buildings and Additions Greater Than 1,000 ft²

- a. Total Proposed Fenestration Area: Total each of columns 4, 5 and add values for column 6. Compliance requires that columns 5 and 6 do not exceed the corresponding columns in B (maximum allowed).
- b. Maximum Allowed Fenestration Area: Auto-complete from Table H. CFA x 0.20, 0.05 (in specific zones), and total of columns 4-6.
- c. If exterior shading devices are used to meet the prescriptive SHGC requirements (as indicated by a value in column 11), indicate the SHGC calculated on form WS-03 and attach the form.

J: HVAC SYSTEMS – HEATING/COOLING/DUCTS

1. Heating system type: Indicate heating system type as furnace, central heat pump, boiler, hydronic, wood heat, wall furnace, room heat pump, or electric resistance if it meets the exception. An exception to Section 150.1(c)6 allows electric resistance heating only when it is supplemental to another system, as indicated by a capacity of < 2 KW or 7,000 Btu/hr, and a time-limiting control device that allows it to be operated for 30-minutes at a time.
2. Heating efficiency: For central gas heating systems, the minimum efficiency required by the appliance efficiency standards is 78% AFUE. Heat pumps have an HSPF of 7.7 or higher. Other appliance types will have different efficiency levels (e.g., a gas wall furnace may have a minimum requirement of 73% AFUE or lower, depending on the size and type). Any gas heating appliance (or heat pump) sold in California is acceptable. The only electric heating appliance allowed is a heat pump.
3. Cooling System Type: Indicate cooling system type or specify “no cooling system installed.” Categories include central air split system, central air package system, heat pump, room air or room heat pump, mini-split heat pump, or no cooling.
4. Cooling efficiency: For central cooling systems, the minimum efficiency required by the appliance efficiency standards is 13 SEER. Other appliance types will have different efficiency levels (e.g., a room air conditioner may have a minimum requirement of 9 EER (when an appliance standard is an EER this is considered equivalent to an SEER). Any cooling appliance sold in California is acceptable.
5. Distribution system type: This could be ducted, radiant floor, piping, or ductless.
6. Duct location: If the system has ducts, indicate where they will be installed. Locations include attic, garage, conditioned space, radiant floor.
7. Duct R-value: This value is from Package A. Ducted systems in Climate Zones 1-10 and 12-13 require R-6 duct insulation, and in climate zones 11 and 14-16 ducted systems require R-8 duct insulation. If ducts are installed in conditioned space (which must be field verified), this field will be N/A. If system is ductless this field will be N/A.
8. Thermostat type: Select a setback thermostat or an Energy Management System (EMS) for most systems, or N/A if exempt. Controls for most systems can be by a device that allows a person to program up to 4 temperature setpoints within 24 hours. See Section P.1 for more information and for a list of systems that do not have to meet the setback thermostat requirements.
9. Comments: Include any comments here.

Newly Constructed Buildings and Additions Greater Than 1,000 ft²**K. VENTILATION COOLING**

In climate zones 8-14, a whole house fan is required to provide ventilation. The requirement is found in Section 150.1(c)12.

1. Required 2 CFM per ft² of conditioned floor area: auto complete.
2. Minimum attic free vent area: Calculate the attic vent free area: auto complete column 1 divided by 375 CFM.

L. WATER HEATING SYSTEMS

1. Standards requirement being met (A, B, C (central water heating), or D) from Section 150.1(c)8 (see Section P.2 for more detailed information on these requirements):
 - A. One gas or propane storage water heater, up to 75,000 Btu/hour input (typically 50 gallons or less). Distribution system is either standard (no recirculating system) or a demand recirculation system with manual controls.
 - B. One gas or propane instantaneous (tankless) water heater. Distribution system is either standard (no recirculating system) or a demand recirculation system with manual controls.
 - C. A central gas or propane water-heating system that has includes a recirculating system with specific controls and a solar water heating system (the size of which varies by climate zone).
 - D. If natural gas is not available, an electric-resistance storage or instantaneous water heater with additional criteria that it be located inside the conditioned space, has no recirculation pumps, and has a solar water-heating system.
2. Water heating system type: DHW, hydronic, combined hydronic, central. DHW is for domestic hot water, hydronic or combined hydronic are when a boiler or tankless water heater will provide space conditioning (hydronic) or both space conditioning and domestic hot water (combined hydronic), or central if a central water heater will serve multiple dwelling units in a multi-family building.
3. DHW Water Heater Type: Storage, tankless, instantaneous, heat pump, boiler.
4. Fuel Type: Gas, LP (propane), electric (special conditions apply, see M.1.D and Q.4.D).
5. Dwelling Unit Distribution Type: This may be standard (meets mandatory requirements), or a recirculating system. Requirements vary as to which type of recirculating system is allowed. In individual dwelling units with gas or propane water heating the only allowable recirculating system is demand with manual controls. If the system serves multiple dwelling units, see 1.C above.
6. Number of water heaters in system: In single-family dwelling units, this value is 1. For multifamily it can vary from 1 per dwelling unit to 1 central system serving multiple dwelling units.
7. Water heater volume (gal): tank capacity in gallons. For most water heaters, this will be 50 gallons or less. Any storage water heater with an input of 75,000 Btu is allowed. If tankless or instantaneous, enter 0.

Newly Constructed Buildings and Additions Greater Than 1,000 ft²

8. Rated input (Btuh): Storage gas water heaters must be 75,000 Btuh or less. Tankless gas water heaters must be 200,000 Btuh or less.
9. Standby Loss (percent): Applies only to boilers or large water heaters used for hydronic or combined hydronic systems.
10. Energy Factor or recovery efficiency: From product literature or a California Energy Commission directory.
11. External tank insulation: Indicate the blanket R-value. If a water heater does not exceed the federal minimum standard, an external R-12 wrap is required. The federal minimum Energy Factors are 0.575 for 50 gallons, 0.594 for 40 gallons, and 0.613 for 30 gallons.
12. Back-up solar savings fraction: If compliance requires a back-up solar system, indicate the solar contribution (e.g., 0.30). The system size requirements are shown below in Q.4. External calculations are required.

M. HERS MEASURES

1. Duct Leakage Testing: All duct systems must meet maximum duct leakage requirements. Typically the maximum leakage is 6% but varies for when the duct leakage test is performed and the type of building (single family, townhouse, multifamily). The only exception is if the heating and cooling systems are ductless.
2. Bypass Ducts: The prescriptive requirements preclude the use of bypass ducts in association with zonally controlled systems. A HERS Rater will verify that zonally controlled systems have no bypass ducts.
3. Refrigerant Charge: Some type of refrigerant charge verification or Charge Indicator Display is required in climate zones 2 and 8-15 for most common systems such as ducted split and packaged systems, and mini-split systems. See Section 150.1(c)7A. or Reference Residential Appendix RA3.2. If a building is built in climate zones 1, 3-17 or 16, or has no cooling system, no refrigerant charge verification is required.
4. Central System Air Handlers: Unless a building has no cooling system or has a non-ducted cooling system, the system must meet mandatory and prescriptive requirements for an airflow greater than 350 CFM per ton of nominal cooling capacity, and a fan efficacy less than or equal to 0.58 W/CFM. See 150.0(m)13, 150.1(c)10, and Reference Residential Appendix RA3.

N. DOCUMENTATION DECLARATION STATEMENTS

1. The person who prepared the CF-1R will sign and complete the fields for their name, company (if applicable), address, phone number, certification information (if applicable), date and signature (may be electronic).
2. The person who is assuming responsibility for the project being built to comply with Title 24, Part 6, will complete the fields for their name, company (if applicable), address, phone number, license number (if applicable), date and signature (may be electronic).

O. REGISTRATION

Newly Constructed Buildings and Additions Greater Than 1,000 ft²

The CF-1R must be registered with a HERS provider prior to submitting for a building permit. See _____.

P. STANDARDS REFERENCES

1. Thermostats

- a. Thermostat requirements are found in Section 110.2(c) with special requirements for heat pumps in Section 110.2(b). Controls for most systems can be by a central energy management control system (“EMS”) or a setback thermostat with a mechanism allowing a person to program up to 4 temperature setpoints within 24 hours (“setback”).

EXCEPTIONS: If the heating system type is a gravity gas wall, floor or room heater, non-central electric heater, fireplace or decorative gas appliance, or wood stove, a setback thermostat or energy management control system is not required.

If the cooling system type is a room air conditioner or room air conditioner heat pump setback thermostat or energy management control system is not required.

2. Water Heaters:

Section 150.1(c) allows a limited number of conditions for water heating. If conditions other than these are proposed, the prescriptive compliance approach cannot be used:

- A. 150.1(c)8A one gas or propane storage water heater, up to 75,000 Btu/hour input (typically 50 gallons or less), with either no recirculating system or a demand recirculation system with manual controls. If the Energy Factor is less than or equal to the federal minimum, it must have an R-12 external wrap. See D. below.
- B. 150.1(c)8B one gas or propane instantaneous (tankless) water heater with an input of 200,000 Btu per hour or less, no storage tank, and either no recirculating system or a demand recirculation system with manual controls. .
- C. 150.1(c)8C a central water-heating system that has includes the following components (1) gas or propane water heaters, boilers or other water heating equipment, (2) a water heating recirculation loop that meets the requirements of Section 110.3(c)2 and Section 110.3(c)5 equipped with automatic controls for the recirculation pump based on measurement of hot water demand and hot water return temperature, and if more than 8 dwelling units, two recirculation loops each serving half of the building; (3) a solar water-heating system with a minimum solar savings fraction of 0.20 in climate zones 1 through 9 or a minimum solar savings fraction of 0.35 in climate zones 10 through 16 (installation criteria is in Reference Residential Appendix RA4).

Newly Constructed Buildings and Additions Greater Than 1,000 ft²

- D. 150.1(c)8D if natural gas is not available, an electric-resistance storage or instantaneous water heater with addition criteria that it be located inside the conditioned space, it has no recirculation pumps, and has a solar water-heating system with a minimum solar savings fraction of 0.50 (installation criteria is in Reference Residential Appendix RA4).