

RESIDENTIAL ADDITIONS



Prescriptive Certificate of Compliance:		CF-1R ADD
Residential Additions		(Page 1 of 8)
Site Address:	Enforcement Agency:	Date:

General Information			
Project Name		Climate Zone #	# of Stories
Building Type <input type="checkbox"/> Single Family <input type="checkbox"/> Multi Family		Circle the Front Orientation: N, E, S, W or Degrees _____	
Conditioned Floor Area of Addition (CFA):	New Addition Size: <input type="checkbox"/> Less than or equal to 100 ft ² <input type="checkbox"/> Less than or equal to 1000 ft ² <i>(Do not use this form for additions greater than 1000 ft²)</i>		

NOTE: For Alterations to an existing home, submit a completed CF-1R-ALT Form.
Exception: Existing HVAC systems that are replaced or altered to serve the addition may be included on the CF-1R -ADD Form.

PRESCRIPTIVE ENVELOPE REQUIREMENTS FOR ADDITIONS								
For standard wood and assemblies meeting the Cavity R-value only.								
<ul style="list-style-type: none"> For 100 ft² additions; the Proposed values must be equal or greater than the Standard column or when indicated when using Package D, "Pkg D". Enter values in the shaded Proposed Columns. For less than 1,000 ft² additions must comply with "Pkg D" requirements unless indicated in the Standard Column. To meet "Pkg D" minimum energy compliance requirements, see RCM Appendix B, Table 151-C or §152(b) in the RCM. Enter values in the shaded Proposed Columns. 								
Size of Addition	100 ft ² or less			Less than 1,000 ft ²				
Component	Standard	Proposed		Comment	Standard	Proposed	Comment	
Ceiling Insulation	R-19			Minimum	Pkg D		Table 151-C	
Wall Insulation	R-13			Minimum	R-13		Minimum	
Floor Insulation	R-13			Minimum	Pkg D		Table 151-C	
Fenestration	U-factor	SHGC	U-factor	SHGC	Enter Values From "Fenestration Proposed Areas" Page 2 of 5	U-factor	SHGC	Enter Values From "Fenestration Proposed Areas" Page 2 of 5
	0.40	Pkg D				0.40	Pkg D	
Maximum Glazing Area	50 ft ²	≥	ft ²	Enter Values From "Fenestration Proposed Areas" Page 2 of 5	Addition Alone ¹		ft ²	Enter Values From "Addition Allowed Fenestration Areas" Page 3 of 5
					For West-Facing Orientation ^{2,3}		ft ²	
Radiant Barrier	N/A				Pkg D	Table 151-C		
Roofing	N/A		See Roofing Products Below		Pkg D	See Roofing Products Below		

OPAQUE SURFACE DETAILS For the furred portioned of Mass Walls see Furring Strips Construction Table below.												
A	B	C		D	E	F			G	H	I	J
Tag/ ID ¹	Assembly Name or Type ²	Proposed <small>See Note</small>		Thickness, Spacing, or Other ³	U-factor ⁴	Standard			Values From JA4 Table			Proposed Assembly U-factor ⁹
		Framing Material and Size ²				JA4 Table Number ⁵	Framed Cavity R-value ⁶	Continuous Insulation R-Value ⁷	JA4 Assembly Row/Col ⁸			

Note: For furred assemblies, accounting for Continuous Insulation R-value, see Page JA4-3 and Equation 4-1. For calculating furred walls use the Mass and Furring Construction table below.



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1. For Tag/ID indicate the identification name that matches the building plans.
2. Indicate the Assembly Name or type: Roof/Ceiling, Walls, Floors, Slabs, Crawl Space, Doors and etc...Indicate in column G the Frame material and Size: For Wood, Metal, Metal Buildings, Mass, enter 2x4, 2x6, or etc... see JA4 for other possible frame type assemblies.
3. Enter the thickness for mass in inches or Spacing between framing members enter; 16"or 24"OC; or Other for all other assembly description such as Concrete Sandwich Panel, Spandrel Panel, Logs, Straw Bale Panel, and etc....
4. Based on the Climate Zone; enter the equivalent U-factor found in JA4 Table based on the R-Value from Table 151-C
5. Enter the Table number that closely resembles the proposed assembly.
6. Enter the R-value that is being installed in the wall cavity or between the framing; otherwise, enter "0".
7. Enter the Continuous Insulation R-value for the proposed assembly; otherwise, enter "0".
8. Enter the row and column of the U-factor value based on Column F Table Number and enter the Assembly U-factor in Column J.
9. The **Proposed** Assembly U-factor, Column J, must be equal to or less than the **Standard** U-factor in Column E to comply.

FURRING STRIPS CONSTRUCTION TABLE FOR MASS WALLS ONLY

A	B	C	D	E	F	G	H	I	J	K	L	M
Proposed Properties of Masonry and Concrete Walls From Reference Joint Appendix Table 4.3.5, 4.3.6, 4.3.7					Added Interior or Exterior Insulation in Furring Space from Reference Joint Appendix Table 4.3.13							
Mass Thickness ¹	Assembly Name or Type ²	JA4 Table Number ³	JA4 -Mass Cell Value ⁴	Mass U-Factor ⁵	Interior or Exterior of Insulation Layer	Frame Thickness	Frame Type Wood or Metal	Furring Cavity R-value ³	JA4 -Mass Cell Value ⁴	Effective R-value ⁵	Final Assembly U-factor ^{6,7}	Comment

1. Indicate the Mass Thickness from Reference Joint Appendix JA.
2. Indicate the Assembly Name or type: Roof/Ceiling, Walls, Floors, Slabs, Crawl Space, Doors and etc...Indicate the Frame type and Size: For Wood, Metal, Metal Buildings, Mass, enter 2x4, 2x6, or etc... see JA4 for other possible frame type assemblies.
3. Enter the Table number that closely resembles the proposed assembly.
4. Enter the row and column of the U-factor value.
5. Enter the Effective R-value listed in the JA4 Table Number.
6. The Final Assembly is calculated by using Equation 4-1 or Equation 4-4 of the Reference Joint Appendix JA4. Enter the value in Column L.
7. Insert the Final Assembly U-factor value back on to the Opaque Surface Details table in Column J.

FENESTRATION PROPOSED AREAS

Fenestration Type and Frame (Window, Glass Door or Skylight)	Orientation (North, East, South, West)	Proposed Area ¹ (ft ²)	Maximum U-factor ^{2, 3}	Maximum SHGC ^{2, 3, 4}	NFRC or Default Values ⁵
Total					

1. Fenestration area is the area of total glazed product (i.e. glass plus frame). Exception: When a door is less than 50% glass, the fenestration area may be the glass area plus a "2 inch frame" around the glass.
2. Enter value from Component Package D Requirements in Table 151-C.
3. Actual fenestration products installed and as indicated in CF-6R-ENV Form shall be equivalent to or have a lower U-factor and/or a lower SHGC value than that specified on the Fenestration Proposed Area table above.
4. Submit a completed WS-3R Form if a reduced SHGC is calculated with exterior shading.

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5. If applicable at this stage enter "NFRC" for NFRC Certified windows or CEC "Default" values found in Table 116-A or B.



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ADDITION ALLOWED FENESTRATION AREAS						
	A	B	C	D	E	F
	CFA of Addition ft ²	Allowed % of CFA ²	Allowed Area (A x B)	Area Removed ^{3, 4} ft ²	Allowed Area (C + D)	Proposed Area ⁵ (Table Above)
Total Fenestration Area ^{2, 3}						≥
West Fenestration Area ^{1, 2, 4} (Required In CZ's 2, 4 & 7 -15)						≥

1. The Proposed West Fenestration Area includes West-sloping skylight area and any other skylight area with a pitch less than 1:12.
 2. Enter 20% when no West orientation restriction or 15% when West fenestration is being installed in Climate Zones 2, 4, & 7-15.
 3. Fenestration area removed to make way for the addition. For additions less than 1,000 ft² the standards allows glazing removed during the remodel to be added to the glazing area allowance. The maximum allowed glazing area for the addition is CFA x (15% or 20%) + glass removed to make way for the addition.
 4. In climate zones 2, 4, 7-15, no more than 5% of the CFA is allowed for west-facing glazing plus west-facing glass area removed to make way for the addition. The maximum allowed west-facing glazing area is the CFA x 5% + west-facing glass removed to make way for the addition.
 5. To meet energy compliance, the Proposed Area must be less than or equal to the Allowed Area for BOTH the Total and West Fenestration Areas.

ROOFING PRODUCTS (COOL ROOFS) §151(f)12

Check applicable box below if the roof addition is exempt from the roofing product "Cool Roof" requirements. Note: If any one of the boxes are checked below, the Aged Solar Reflectance and Thermal Emittance requirements for roofing products in §118(i) are not applicable. Do not fill table below.

- Roofing compliance Not Required in Climate Zones 1-12, 14, and 16 with a Low-Sloped. Less or 2:12 pitch.
- Roofing compliance Not Required in Climate Zones 1 through 9 and 16 with a Steep-Sloped. Roofs pitch greater than 2:12 and product weight less than 5lb/ft².
- Roofing area covered by building integrated; photovoltaic panels and solar thermal panels are exempt from the above Cool Roof criteria
- Roof constructions that have thermal mass over the roof membrane with at least 25 lb/ft² is exempt from the above Cool Roof criteria.

Note: If no CRRC-1 label is available, this compliance method cannot be used, use the Performance Approach to show compliance, otherwise, check the applicable box below if Exempt from the Roofing Products "Cool Roof" Requirement:

CRRC Product ID Number ¹	Roof Slope		Product Weight		Product Type ²	Aged Solar Reflectance ^{3,4}	Thermal Emittance	SRI ⁵
	≤ 2:12	> 2:12	< 5lb/ft ²	≥ 5lb/ft ²				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/> ⁴		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/> ⁴		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/> ⁴		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/> ⁴		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/> ⁴		

1. The CRRC Product ID Number can be obtained from the Cool Roof Rating Council's Rated Product Directory at www.coolroofs.org/products/search.php.
2. Indicate the type of product is being used for the roof top, i.e. single-ply roof, asphalt roof, metal roof, etc.
3. If the Aged Reflectance is not available in the Cool Roof Rating Council's Rated Product Directory then use the Initial Reflectance value from the same directory and use the equation $(0.2 + 0.7(\rho_{initial} - 0.2))$ to obtain a calculated aged value. Where ρ is the Initial Solar Reflectance.
4. Check box if the Aged Reflectance is a calculated value using the equation above.
5. Calculate the SRI value by using the SRI- Worksheet at <http://www.energy.ca.gov/title24/> and enter the resulting value in the SRI Column above and attach a copy of the SRI- Worksheet to the CF-1R.

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To apply **Liquid Field Applied Coatings**, the coating must be applied across the entire roof surface and meet the dry mil thickness or coverage recommended by the coatings manufacturer and meet minimum performance requirements listed in §118(i)4. Select the applicable coating:

 Aluminum-Pigmented Asphalt Roof Coating

 Cement-Based Roof Coating

 Other _____

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HVAC SYSTEMS - HEATING

Heating Equipment Type and Capacity ^{1,2,3}	Minimum Efficiency (AFUE or HSPF)	Distribution Type and Location ⁴	Duct or Piping Insulation R-Value	Thermostat Type	Configuration (Central, Split, Space, Package or Hydronic)

1. Indicate Heating Type (Central Furnace, Wall Furnace, Heat pump, Boiler, Electric Resistance, etc.)

2. Electric resistance heating is allowed only in Component Package C, or except where electric heating is supplemental (i.e., if total capacity ≤ 2 KW or 7,000 Btu/hr electric heating is controlled by a time-limiting device not exceeding 30 minutes). See §151(b)3 exception.

3. Refer to the HERS Verification section on Pages 3 and 4 of the CF-1R-ADD Form for additional requirements and check applicable boxes.

4. Indicate Type or Location (Ducts, Hydronic in Floor, Radiators, etc.)

HVAC SYSTEMS - COOLING

Cooling Equipment Type and Capacity ^{1,2}	Minimum Efficiency (SEER/EER or COP)	Distribution Type and Location ³	Duct or Piping Insulation R-Value	Thermostat Type	Configuration (Central, Split, Space, Package or Hydronic)

1. Indicate Cooling Type (A/C, Heat pump, Evap. Cooling, etc.)

2. Refer to the HERS Verification section on Pages 3 and 4 of the CF-1R-ADD Form for additional requirements and check applicable boxes.

3. Indicate Type or Location (Ducts, Hydronic in Floor, Radiators, etc.)

WATER HEATING

List water heaters and boilers for both domestic hot water (DHW) heaters and hydronic space heating. Individual dwelling DHW heaters must be storage gas or propane fired, non-recirculating, and may not exceed 50 gallons. If no natural gas is connected to the building, an electric storage DHW heater less than 50 gallons with an energy factor greater than 0.90 may be used. Hot water pipe insulation from the DHW heater to the kitchen(s) and on all underground hot water pipes is required in all component packages in all climate zones.

Water Heater Type/Fuel Type ¹	Distribution Type (Standard, Recirculating) ²	Number In System	Tank Capacity (gal)	Energy Factor or Thermal Efficiency	External Tank Insulation R-Value ³

1. Indicate Type (Storage Gas, Heat Pump, Instantaneous, etc.)

2. Recirculating systems serving multiple dwelling units shall meet the recirculation requirements of §150(n). The Prescriptive requirements do not allow the installation of a recirculating water heating system for single dwelling units.

3. The water heating tank and pipes shall be insulated to meet the requirements of §150(j).

SPECIAL FEATURES The enforcement agency should pay special attention to the Special Features specified in this checklist below. These items may require written justification and documentation and special verification. Applicable special features shall be marked with a YES and be specified within the plans.

Radiant Barrier (Roof)

YES NO Required in Climate Zones 2, 4, and 8-15 for additions larger than 100 ft².

Slab Edge (Perimeter) Insulation

YES NO In Climate Zone 16 under Component Package D, R-7 insulation is required.

Heated Slab Insulation

YES NO Slab edge insulation required for heated slabs in all Climate Zones. See details in Table 118-A of the standards.

Raised Slab Insulation



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<input type="checkbox"/> YES	<input type="checkbox"/> NO	In Climate Zones 1, 2, 11, 13, 14 & 16 R-8 insulation is required, and in Climate Zones 12 & 15 R-4 insulation is required under Component Package D.
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Thermal Mass - To obtain Compliance Credit for the installation of thermal mass, use the Performance Approach.

HERS VERIFICATION SUMMARY - The enforcement agency should pay special attention to the HERS Measures specified in this checklist below. A completed and signed CF-4R Form for all the measures specified shall be submitted to the building inspector before final inspection.

Duct Sealing & Testing *HERS verification is required for this measure.*

<input type="checkbox"/> YES	<input type="checkbox"/> NO	In all Climate Zones, if a new space-conditioning system (HVAC equipment and ducting) is installed to serve the addition alone, the ducts are to be sealed and tested per §151(f)10.
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<input type="checkbox"/> YES	<input type="checkbox"/> NO	In Climate Zones 2 and 9-16, if more than 40 linear feet of new or replacement ducts are installed in unconditioned space to serve the addition, the ducts are to be sealed and tested per §152(b)1D. <input type="checkbox"/> EXCEPTION: Existing duct systems that are extended, which are constructed, insulated or sealed with asbestos.
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<input type="checkbox"/> YES	<input type="checkbox"/> NO	In Climate Zones 2 and 9-16, if the existing HVAC equipment is replaced (including replacement of the air handler, outdoor condensing unit of a split system, cooling or heating coil, or the furnace heat exchanger) and will serve the addition, the ducts are to be sealed and tested per §152(b)1E. <input type="checkbox"/> EXCEPTION: Duct systems that are documented to have been previously sealed confirmed through HERS verification in accordance with procedures in the Reference Residential Appendix RA3. <input type="checkbox"/> EXCEPTION: Duct systems with less than 40 linear feet in unconditioned space. <input type="checkbox"/> EXCEPTION: Existing duct systems constructed, insulated or sealed with asbestos.
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Refrigerant Charge - Split System *HERS verification is required for this measure.*

<input type="checkbox"/> YES	<input type="checkbox"/> NO	In Climate Zones 2 and 8-15, if a newly ducted split A/C or heat pump is installed to serve the addition alone, a refrigerant charge measurement shall be verified per §151(f)7A.
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<input type="checkbox"/> YES	<input type="checkbox"/> NO	In Climate Zones 2 and 8-15, if the existing HVAC equipment is replaced (including replacement of the air handler, outdoor condensing unit of a split system, cooling or heating coil, or the furnace heat exchanger) and will serve the addition, a refrigerant charge measurement shall be verified per §152(b)1F.
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Central Fan Integrated Ventilation System – Airflow and Fan Watt Draw - do not apply for additions 1,000 ft² or less.

Ducted Split Systems - Air Conditioners and Heat Pumps: Airflow and Fan Watt Draw *HERS verification is required.*

<input type="checkbox"/> YES	<input type="checkbox"/> NO	In Climate Zones 10 through 15, if a new space-conditioning system (HVAC equipment and ducting) is installed to serve the addition alone, the airflow and fan watt draw shall be verified per §151(f)7B.
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<input type="checkbox"/> YES	<input type="checkbox"/> NO	In Climate Zones 10 through 15, if the existing space-conditioning system (HVAC equipment and ducting) is replaced and will serve the addition, the airflow and fan watt draw shall be verified per §152(b)1F.
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Documentation Author's Declaration Statement

- I certify that this Certificate of Compliance documentation is accurate and complete.

Name:	Signature:
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Company:	Date:
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Address:	If Applicable <input type="checkbox"/> CEA or <input type="checkbox"/> CEPE (Certification #):
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City/State/Zip:	Phone:
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Responsible Building Designer's Declaration Statement

- 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 forms, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.

Name:	Signature:
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CEC- CF-1R ADD (Revised 03/10)



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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.