Prescriptive Certificate of Compliance: Residential		**CF-1R-ALT**
Residential Alterations		**(Page 1 of 7)**
Project Name:	**Climate Zone #**	**# of Stories**

General Information		
Site Address:	**Enforcement Agency:**	**Date:**
Building Type ☐ Single Family ☐ Multi Family	Circle the Front Orientation: N, E, S, W, or degrees _____	
Conditioned Floor Area (CFA): _____	Project Type: ☐ Alterations ☐ Envelope ☐ Fenestration ☐ Roof ☐ HVAC Replacement or Change Out ☐ Duct Replacement ☐ Water Heater	
NOTE: This form is not to be used for Newly Constructed Buildings or Additions		
Insulation Values For Opaque Surfaces *(for Furring use the Mass and Furring Strips Construction table below)*		
Assembly Alteration ☐ **Opening of framed cavity alone** – *Alterations that involve the opening of the framed cavity of a wall, ceiling, or floor must install the mandatory minimum insulation value per §150 for the altered assembly. Fill in Columns A –C and enter mandatory insulation value in Column H.* ☐ **Replacement of entire assembly** – *Replacement of an entire wall, ceiling, or floor assembly requires the installation of Component Package- D insulation values in Table 151-C. Fill in Columns A – J.*		

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
Proposed See Note				**Standard**	Values From JA4 Table				
Tag/ ID[1]	Assembly Name or Type[2]	Framing Material and Size[2]	Thickness, Spacing, or Other[3]	U-factor[4]	JA4 Table Number[5]	Framed Cavity R-value[6]	Continuous Insulation R-Value[7]	JA4 Assembly Row/Col[8]	Proposed Assembly U-factor[9]

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.

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-B, C, or D
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

Prescriptive Certificate of Compliance: Residential		**CF-1R-ALT**
Residential Alterations		**(Page 2 of 7)**
Project Name:	**Climate Zone #**	**# of Stories**

Mass and Furring Strips Construction (footnotes)

1. Indicate the type of assembly to include; Hollow Unit Masonry Walls, Solid Unit Masonry, Solid Concrete Walls, Etc. Additional assemblies can be found Reference Joint Appendix JA4.
2. This is the U-Factor based on the thickness of the assembly in inches.
3. The R-value of the insulation to be added on the interior or exterior of the assembly.
4. The Calculated R-Value is the R-value of the furred out section of the assembly.
5.-6.The Final Assembly is calculated using Equation 4-2 or Equation 4-4of the Reference Joint Appendix JA4. The equation is the inverse of Column D added to Column I. Column K is the inverse from column J.
7. Insert the calculated U-factor value on to the Opaque Surface Details in Column J

FENESTRATION PROPOSED AREAS

☐ **Replacing window alone** – *Replacement windows shall meet the U-Factor and SHGC Value requirements of Component Package D in Table 151-C. The Total Fenestration and West-facing Area requirements are not applicable.*

☐ **Adding 50ft^2 or less of window area** – *Newly installed windows shall meet the U-Factor and SHGC Value requirements of Component Package D in Table 151-C.*

☐ **Adding more than 50ft^2 of window area** – *Newly installed windows shall meet the U-Factor and SHGC Value and the Fenestration Area requirements of Component Package D in Table 151-C. Complete the Altered Fenestration Allowed Area Table on Page 2 of the CF-1R-ALT*

Fenestration Type and Frame (Window, Glass Door or Skylight)	Orientation (North, East, South, West)	PropsedArea[1] (ft^2)	Maximum U-factor[2, 3]	Maximum SHGC[2, 3, 4]	NFRC or Default Value[5]

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 CF-1R ALT Form.
4. Submit a completed WS-3R Form if a reduced SHGC is calculated with exterior shading.
5.If applicable at this stage enter "NFRC" for NFRC Certified windows or are CEC "Default" values found in Table 116-A or B.

ALTERED FENESTRATION ALLOWED AREAS *(Complete if more than 50ft^2 of fenestration is added)*

	A	B	C	D	E	F		G
	CFA of Entire Dwelling	Allowed % of CFA[2, 3]	Existing Fenestration Area[4]	Area Removed[5]	Fenestration Area Added[6]	Allowed Area (A x B)		Proposed Area[1, 4] (E-D) + C
Total Fenestration Area[2] (ft^2)							≥	
West Fenestration Area[1,3] (Required In CZ's 2, 4 & 7 -15)							≥	

Prescriptive Certificate of Compliance: Residential		**CF-1R-ALT**
Residential Alterations		**(Page 3 of 7)**
Project Name:	**Climate Zone #**	**# of Stories**

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. Note that the maximum allowed fenestration can only be 5% of the CFA as indicated in Column F. Column G must be equal to or less than Column F.
3. In climate zones 2, 4, 7-15, no more than 5% of the CFA is allowed for west-facing glazing.
4. Existing Fenestration area must be counted toward the maximum allowed 15% or 20% of the whole building and calculated in Column G. The Proposed Area must be less than or equal to Column F.
5. Enter the fenestration removed as part of the alteration if any in column D.
6. Enter the Fenestration area that is being added as part of the alteration.

Prescriptive Certificate of Compliance: Residential		**CF-1R-ALT**
Residential Alterations		**(Page 4 of 7)**
Project Name:	**Climate Zone #**	**# of Stories**

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

When the area of exterior roof surface to be replaced exceeds more than 50% of the existing roof area, or more than 1,000 ft^2, whichever is less, the new roofing area must meet the roofing product "Cool Roof" requirements of §152(b)1Hi, 152(b)1Hii, or 152(b)1Hiii.

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

☐ Cool Roofs Not Required in Climate Zones 1-12, 14, and 16 with a Low Sloped. Less or 2:12 pitch.
☐ Cool Roofs Not Required in Climate Zones 1 through 9 and 16 with a Steep-Sloped Roofs (pitch greater than 2:12) and product unit weight less than 5lb/ft^2.

Alternatives to §152(b)1Hi and §152(b)Hii, Steep-slope roof *(pitch > 2:12)*

- ☐ Insulation with a thermal resistance of at least 0.85 hr·ft^2·°F/Btu or at least a 3/4 inch air-space is added to the roof deck over an attic; or
- ☐ Existing ducts in the attic are insulated and sealed according to §151(f)10; or
- ☐ In climate zones 10, 12 and 13, with 1 ft^2 of free ventilation area of attic ventilation for every 150 ft^2 of attic floor area, and where at least 30 percent of the free ventilation area is within 2 feet vertical distance of the roof ridge; or
- ☐ Building has at least R-30 ceiling insulation; or
- ☐ Building has radiant barrier in the attic meeting the requirements of §151(f)2; or
- ☐ Building has no ducts in the attic; or
- ☐ In climate zones 10, 11, 13 and 14, R-3 or greater roof deck insulation above vented attic.

Exception to §152(b)1Hiii, Low-slope roof *(pitch ≤ 2:12)*

- ☐ Building has no ducts in the attic.

Other Exceptions

☐ Roofing area covered by building integrated; photovoltaic panels and solar thermal panels are exempt from the below Cool Roof criteria.
☐ Roof constructions that have thermal mass over the roof membrane with at least 25 lb/ft^2 is exempt from the below 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 ≤ 2:12	Roof Slope > 2:12	Product Weight < 5lb/ft^2	Product Weight ≥ 5lb/ft^2	Product Type[2]	Aged Solar Reflectance[3,4]		Thermal Emittance	SRI[5]
	☐	☐	☐	☐		☐[4]			
	☐	☐	☐	☐		☐[4]			
	☐	☐	☐	☐		☐[4]			
	☐	☐	☐	☐		☐[4]			
	☐	☐	☐	☐		☐[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 acopy of the SRI- Worksheet to the CF-1R.

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 _____

Prescriptive Certificate of Compliance: Residential		**CF-1R-ALT**
Residential Alterations		**(Page 5 of 7)**
Project Name:	**Climate Zone #**	**# of Stories**

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 Page 4 of the CF-1R-ALT 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 Page 4 of the CF-1R-ALT 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 gas or propane fired. 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 external 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.*

NEW ROOF ASSEMBLY - Radiant Barrier
The radiant barrier requirement of §151(f)2 does not apply to roof alterations.

Slab Edge (Perimeter) Insulation ☐ **YES** ☐ **NO**
YES: In Climate Zone 16 in Component Packages D, R-7 insulation is required.

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

Raised Slab Insulation ☐ **YES** ☐ **NO**
YES: In Climate Zones 1, 2, 11, 13, 14 & 16, R-8 insulation is required; in Climate Zones 12 & 15, R-4 is required under component Package D.

Prescriptive Certificate of Compliance: Residential		**CF-1R-ALT**
Residential Alterations		**(Page 6 of 7)**
Project Name:	**Climate Zone #**	**# of Stories**

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.*

☐ **YES** ☐ **NO** **YES**: In Climate Zones 2 and 9-16, if more than 40 linear feet of new or replacement ducts are installed in unconditioned space, the ducts are to be sealed per §152(b)1Dii and the newly installed ducts are to be insulated per §151(f)10.

☐ **EXCEPTION: Existing duct systems that are extended, which are constructed, insulated or sealed with asbestos.**

☐ **YES** ☐ **NO** **YES**: In Climate Zones 2 and 9-16, if the existing space-conditioning system (HVAC equipment and ducting) is replaced, the ducts are to be sealed per §152(b)1Di.

☐ **YES** ☐ **NO** **YES**: In Climate Zones 2 and 9-16, if the existing HVAC equipment is replaced (including the replacement of the air handler, outdoor condensing unit of a split system, cooling or heating coil, or the furnace heat exchanger) the ducts are to be sealed per §152(b)1E.

☐ **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.**

☐ **EXCEPTION: Duct systems with less than 40 linear feet in unconditioned space.**

☐ **EXCEPTION: Existing duct systems constructed, insulated or sealed with asbestos.**

Refrigerant Charge - Split System *HERS verification is required for this measure.*

☐ **YES** ☐ **NO** **YES**: In Climate Zones 2 and 8-15, when the existing HVAC equipment is replaced (including the replacement of the air handler, outdoor condensing unit of a split system A/C or heat pump, cooling or heating coil, or the furnace heat exchanger) a refrigerant charge measurement shall be verified per §152(b)1F.

Central Fan Integrated (CFI) Ventilation System and Fan Watt Draw
The ventilation requirements of §150(o) do not apply to existing residential homes.

Ducted Split Systems - Air Conditioners and Heat Pumps: Airflow *HERS verification is required for this measure.*

☐ **YES** ☐ **NO** **YES**: In Climate Zones 10 through 15, when the existing space-conditioning system (HVAC equipment and ducting) is replaced, the airflow and fan watt draw shall be verified per §152(b)1Ci to meet the requirements of §151(f)7B.

Documentation Author's Declaration Statement

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

Name:	Signature:
Company:	Date:
Address:	If Applicable ☐ CEA or ☐ CEPE (Certification #):
City/State/Zip:	Phone:

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.

Prescriptive Certificate of Compliance: Residential		**CF-1R-ALT**
Residential Alterations		**(Page 7 of 7)**
Project Name:	**Climate Zone #**	**# of Stories**

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.