PRESCRIPTIVE RESIDENTIAL ALTERATIONS

SAMPLE FORM – NOT VALID FOR SUBMISSION TO BUILDING DEPARTMENTS

CERTIFICATE OF COMPLIANCE

Note: This table completed by HERS Registry.

Project Name:	Enforcement Agency:
Dwelling Address:	Permit Number:
City and Zip Code:	Permit Application Date:

A. General Information

Note: If Kitchen Range Hood installation (new or replacement) is selected in A13, HERS verification and a CF2R/3R-MCH-32 is required.

01	Project Name:		02	Date Prepared:	
03	Project Location:		04	Building Front Orientation (deg or cardinal):	
05	CA City:		06	Number of Altered Dwelling Units:	
07	Zip Code:		08	Fuel Type:	
09	Climate Zone:		10	Total Conditioned Floor Area (ft^2):	
11	Building Type:		12	Slab Area (ft^2):	
13	Project Scope:				

B. Building Insulation Details – Framed (Section 150.2(b)1)

Note: Where insulation is installed above the roofing membrane, or above the layer used to seal the roof from water penetration, the insulation shall have a maximum water absorption of 0.3 percent by volume when tested according to American Society for Testing and Materials (ASTM) Standard C272.

01	02	03	04	05	06		07	08	09	10	11
					Proposed					**Required**	
Tag/ID	Assembly Type	Frame Type	Frame Depth (inches)	Frame Spacing (inches)	Cavity R-value	Continuous Insulation R-value	U-factor	Joint Appendix JA4 Reference		U-Factor or R-value	Comments
								Table	Cell		

PRESCRIPTIVE RESIDENTIAL ALTERATIONS

SAMPLE FORM – NOT VALID FOR SUBMISSION TO BUILDING DEPARTMENTS

C. Building Insulation Details – Nonframed

01	02	03	04	05	06	07	08	09	10	11
Tag/ID	Assembly Type	Assembly Materials	Thickness (inches)	**Proposed**					**Required**	Comments
				Core Insulation R-value	Continuous Insulation R-value	U-factor	Joint Appendix JA4 Reference		Required U-factor or R-value	
							Table	Cell		

D. Building Insulation Details – Mass Walls

Note: When insulation is added to the outside of a mass wall and/or when the inside is furred and insulated, the performance data may be adjusted using Equation 4-4 in the Joint Appendices.

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
		Proposed										**Required**			
	Above or Below Grade?	Mass Type	Mass Thickness (inches)	Mass Wall Joint Appendix JA4 Reference		Exterior Insulation		Interior Insulation		Insulation Layer Joint Appendix JA4 Reference		Exterior Insulation		Interior Insulation	
Tag/ID				Table	Cell	R-value	U-factor	R-value	U-factor	Table	Cell	R-value	U-factor	R-value	U-factor

E. Roof Replacement (Section 150.2(b)1I)

Notes:

- 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.

01	02	03	04	05	06	07	08	09	10	11	12	13	14
							Proposed				**Minimum Required**		
Tag/ ID	Method of Compliance	Roof Pitch	Exception	CRRC Product ID Number	Product Type	R-value Deck Insulation	Initial Solar Reflectance	Aged Solar Reflectance	Thermal Emittance	SRI (Optional)	Aged Solar Reflectance	Thermal Emittance	SRI (Optional)

PRESCRIPTIVE RESIDENTIAL ALTERATIONS

SAMPLE FORM – NOT VALID FOR SUBMISSION TO BUILDING DEPARTMENTS

F. Fenestration/Glazing Allowed Areas and Efficiencies (Section 150.2(b)1)

01	02	03	04		05		06		07
Alteration Type	Maximum Allowed Fenestration Area for All Orientations (ft^2)	Maximum Allowed West-Facing Fenestration Area Only (ft^2)	Existing Fenestration Area for All Orientations (ft^2)	Existing West-Facing Fenestration Area (ft^2)	Maximum Allowed U-factor (Windows)	Maximum Allowed U-factor (Skylights)	Maximum Allowed SHGC (Windows)	Maximum Allowed SHGC (Skylights)	Comments

PRESCRIPTIVE RESIDENTIAL ALTERATIONS

SAMPLE FORM – NOT VALID FOR SUBMISSION TO BUILDING DEPARTMENTS

G. Fenestration/Glazing Proposed Areas and Efficiencies – Add (Section 150.2(b)1A)

Note: Doors with greater than or equal to 25 percent glazed area are considered glazed doors and are treated as fenestration products.

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Tag/ID	Fenestration Type	Frame Type	Dynamic Glazing	Orientation N, S, W, E	Number of Panes	Proposed Fenestration Area (ft^2)	Proposed West Facing Fenestration Area (ft^2)	Proposed U-factor	Proposed U-factor Source	Proposed SHGC	Proposed SHGC Source	Exterior Shading Device	Combined SHGC from CF1R-ENV-03
15	Existing + Proposed Fenestration Area												
16	Maximum Allowed Fenestration Area												
17	Compliance Statement:												
18	Existing + Proposed West-Facing Fenestration Area												
19	Maximum Allowed West Fenestration Area												
20	Compliance Statement:												
21	Proposed Fenestration U-factor (Windows)												
22	Required Fenestration U-factor (Windows)												
23	Compliance Statement:												
24	Proposed Fenestration SHGC (Windows)												
25	Required Fenestration SHGC (Windows)												
26	Compliance Statement:												
27	Proposed Fenestration U-factor (Skylights)												
28	Required Fenestration U-factor (Skylights)												
29	Compliance Statement:												
30	Proposed Fenestration SHGC (Skylights)												
31	Required Fenestration SHGC (Skylights)												
32	Compliance Statement:												

PRESCRIPTIVE RESIDENTIAL ALTERATIONS

SAMPLE FORM – NOT VALID FOR SUBMISSION TO BUILDING DEPARTMENTS

H. Fenestration/Glazing Proposed Areas and Efficiencies – Replace (Section 150.2(b)1B)

Note: Doors with greater than or equal to 25 percent glazed area are considered glazed doors and are treated as fenestration products.

01	02	03	04	05	06	07	08	9	10	11	12	13	14
Tag/ ID	Fenestration Type	Frame Type	Dynamic Glazing	Orientation N, S, W, E	Area Removed (ft^2)	Area Added (ft^2)	Net Added Area (ft^2)	Proposed U-factor	Proposed U-factor Source	Proposed SHGC	Proposed SHGC Source	Exterior Shading Device	Combined SHGC from CF1R-ENV-03

15	Net Added West-facing Fenestration Area	
16	Is Net Added Fenestration Area ≤ 0 for West-Facing Fenestration?	
17	Net Added Fenestration Area (all orientations)	
18	Is Net Added Fenestration Area ≤ 0 for All Orientations?	
19	Proposed Fenestration U-factor (Windows)	
20	Required Fenestration U-factor (Windows)	
21	Compliance Statement:	
22	Proposed Fenestration SHGC (Windows)	
23	Required Fenestration SHGC (Windows)	
24	Compliance Statement:	
25	Proposed Fenestration U-factor (Skylights)	
26	Required Fenestration U-factor (Skylights)	
27	Compliance Statement:	
28	Proposed Fenestration SHGC (Skylights)	
29	Required Fenestration U-factor (Skylights)	
30	Compliance Statement:	

I. Space Conditioning (SC) Systems - Heating/Cooling (Section 150.2(b))

01	02	03
Dwelling Unit Name	Dwelling Unit Total CFA (ft^2)	Comments

SAMPLE FORM – NOT VALID FOR SUBMISSION TO BUILDING DEPARTMENTS

J. Water Heating Systems (Section 150.2(b)1H)

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

Options:

a. Gas or propane water heating system; or
b. A single heat pump water heater. The storage tank shall not be located outdoors and shall be placed on an incompressible, rigid insulated surface with a minimum thermal resistance of R-10. The water heater shall be installed with a communication interface that meets either the requirements of Section 110.12(a) or has a ANSI/CTA-2045-B communication port; or
c. A single heat pump water heater that meets the requirements of NEEA Advanced Water Heater Specification Tier 3 or higher; or
d. If no natural gas is connected to the existing water heater location, a consumer electric water heater

01	Is natural gas connected to the existing water heater?					
02	03	04	05	06	07	08
Water Heating System ID or Name	Water Heating System Type	System Option (from §150.2(b)1Hiii)	Water Heater Type	Volume	Fuel Type	# of Water Heaters in System

PRESCRIPTIVE RESIDENTIAL ALTERATIONS

SAMPLE FORM – NOT VALID FOR SUBMISSION TO BUILDING DEPARTMENTS

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name:	Documentation Author Signature:
Company:	Date Signed:
Address:	CEA/ HERS Certification Identification (if applicable):
City/State/Zip:	Phone:

RESPONSIBLE PERSON'S DECLARATION STATEMENT

2. I certify the following under penalty of perjury, under the laws of the State of California:
   1. The information provided on this Certificate of Compliance is true and correct.
   2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
   3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
   4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
   5. I understand that a registered copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections, and I will take the necessary steps to accomplish this requirement.
   6. I understand that a registered copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy, and I will take the necessary steps to accomplish these requirements.

Responsible Designer Name:	Responsible Designer Signature:
Company :	Date Signed:
Address:	License:
City/State/Zip:	Phone:

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

CF1R-ALT-01-E User Instructions

Minimum requirements for prescriptive alteration compliance can be found in Building Energy Efficiency Standards Section 150.2(b)1.

Completing these forms will require that you have the Reference Appendices for the 2022 Building Energy Efficiency Standards. This document contains the Joint Appendices which are used to determine climate zone and to complete the section for opaque surfaces. When the term CF1R is used it means the CF1R-ALT-01.

Instructions for sections with column numbers and row numbers are given separately.

If any part of the alteration does not comply, prescriptive compliance fails, in which case the performance compliance approach must be used in an attempt to achieve compliance.

A. General Information

1. Project Name: Identifying information, such as owner's name.
2. Date: Date of document preparation.
3. Project Location: Legal street address of property or other applicable identifying information.
4. 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 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.
5. CA City: Legal city/town of property.
6. Number of Altered Dwelling Units: 1 for single family.
7. Zip Code: 5-digit zip code for the project location (used to determine climate zone).
8. Fuel Type: Natural Gas, Liquefied Propane Gas, or Electricity.
9. Climate Zone: From Reference Appendices, Joint Appendix, JA2.1.1.
10. Total Conditioned Floor Area: Enter the new conditioned floor area in square feet (ft^2), as measured from the outside of exterior walls of the dwelling unit or building being altered.
11. Building Type: Single Family (includes duplex).

12. Slab Area: Area of the first floor slab (if any) in square feet (ft^2).
13. Project Scope: Check all that apply – insulation, roof replacement > 50%, kitchen remodel, space heating system, space cooling system, duct system, water heating, adding fenestration/glazing, replacing fenestration/glazing, adding fenestration/glazing less than or equal to 75 ft^2 windows, replacing fenestration/glazing less than or equal to 75 ft^2 window, adding fenestration/glazing less than or equal to 16 ft^2 skylight and or replacing fenestration/glazing skylights

(2) building with at least R-38 ceiling insulation, (3) buildings with a radiant barrier in the attic, where the radiant barrier is not installed directly above spaced sheathing, meeting the requirements of Section 150.1(c)2, (4) buildings that have no ducts in attic in Climate Zones 2, 4, 9, 10, 12, and 14, or (5) R-2 or greater insulation above or below the roof deck.

B. Building Insulation Details - Framed (Section 150.2(b)1)

1. Tag/ID: A label (if any) from the plans, such as A1.4 or wall.
2. Assembly Type: Ceiling, Wall, Floor.
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. Proposed Cavity R-value: Insulation installed between framing.
   NOTE: Section 110.8(d) specifies that if adding insulation to an existing attic, the resulting attic insulation must total R-30. However, the amount of insulation required is limited to the amount of room available for insulation without conflicting with Building Code Section 1203.2.
   Proposed Continuous Insulation R-value: Insulation installed on the exterior. See Reference Appendices, Joint Appendix, JA4 for guidance.
7. Proposed U-factor: The U-factor for the entire wall, roof, or floor assembly.
8. Joint Appendix JA4 Table: Table number used to determine the R-value or U-factor (e.g., an attic assembly is 4.2.1).
9. Joint Appendix JA4 Cell: Cell number used to determine the R-value or U-factor (e.g., an R-38 ceiling with 24-inch on center framing is A21).
10. Required U-factor: From mandatory requirements in Sections 110.0 and 150.0.
11. Comments: Any notes regarding location or unique conditions.

C. Building Insulation Details – Non-framed

1. Tag/ID: A label (if any) from the plans, such as A1.4 or wall.
2. Assembly Type: Roof or Wall.
3. Assembly Material: SIP OSB, SIP I-Joist, SIP Single 2x, SIP Double 2x, see JA4 for guidance.
4. Thickness: Thickness in inches.
5. Proposed Core Insulation R-value: Insulation installed within the materials or on the inside. See Reference Appendices, Joint Appendix, JA4 for guidance.

6. Proposed Continuous Insulation R-value: Insulation installed on the exterior. See Reference Appendices, Joint Appendix, JA4 for guidance.
7. Proposed U-factor: Assembly U-factor from Reference Appendices, Joint Appendix, JA4 or CF1R-ENV-02. Must be less than or equal to Column 10.
8. Appendix JA4 Table: Table number used to determine the R-value or U-factor (e.g., an Insulating Concrete Form (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 Insulating Concrete Form (ICF) wall with 2 inches of Expanded Polystyrene (EPS) (R-15.4) is A6).
10. Required U-factor from Table 150.1-A: Based on assembly type and climate zone.
11. Comments: Any notes regarding location, unique conditions, or attachments.

D. Building Insulation 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: Clay Brick, Clay Hollow Unit, Concrete Masonry Unit (CMU) Light Weight, Concrete Masonry Unit (CMU) Medium Weight, Concrete Masonry Unit (CMU) Normal Weight, Concrete, Insulating Concrete Form (ICF). See Reference Appendices, Joint Appendix, JA4 for guidance.
4. Mass Thickness: Thickness (in inches) of mass.
5. Mass Wall Joint Appendix JA4 Reference Table: Table number used to determine the R-value or U-factor (e.g., an Insulating Concrete Form (ICF) wall is 4.3.13).
6. Mass Wall Joint Appendix JA4 Reference Cell: Cell number used to determine the R-value or U-factor (e.g., an 8-inch thick Insulating Concrete Form (ICF) wall with 2 inches of Expanded Polystyrene (EPS) (R-15.4) is C1).

7-8. Proposed Exterior Insulation R-value or U-factor: Enter the R-value or U-factor of proposed insulation on the outside surface of the mass wall. See Reference Appendices, Joint Appendix, JA4 for guidance. Use the same descriptor (R-value or U-factor) throughout Table D.

9-10. Proposed Interior Insulation R-value or U-factor: Enter the R-value or U-factor of proposed insulation on the inside surface of the mass wall. See Reference Appendices, Joint Appendix, JA4 for guidance. Use the same descriptor (R-value or U-factor) throughout Table D.

11. Insulation Layer Joint Appendix JA4 Table: Table number used to determine the R-value or U-factor (e.g., an Insulating Concrete Form (ICF) wall is 4.3.13).

12. Insulation Layer Joint Appendix JA4 Cell: Cell number used to determine the R-value or U-factor (e.g., an 8-inch thick Insulating Concrete Form (ICF) wall with 2 inches of Expanded Polystyrene (EPS) (R-15.4) is A6).

13-14. Required Exterior Insulation R-value or U-factor: The required R-value or U-factor (whichever descriptor was selected in Column 7 or 8) for exterior insulation will be completed based on the Table 150.1-A requirements for the wall type.

15-16. Required Interior Insulation R-value or U-factor: The required R-value or U-factor (whichever descriptor was selected in Column 9 or 10) for interior insulation will be completed based on the Table 150.1-A requirements for the wall type.

E. Roof Replacement (Section 150.2(b)1I)

When 50% or more of the roof is being replaced the roofing requirements are triggered. Any areas of roof covered by building integrated photovoltaic panels and solar thermal panels are exempt; however, the area of roof not covered by photovoltaic panels would still need to meet any applicable cool roof requirements. Additionally, there are many alternatives/exceptions when a cool roof is required.

When the roof is steep-sloped (pitch greater than or equal to 2:12) the roof requirements include a cool roof in climate zones 4 and 8-15. The minimum requirement is 0.20 Aged Solar Reflectance, 0.75 Thermal Emittance, or a minimum SRI of 16.

1. Tag/ID: A label, if any, from the plans, for example R-1.
2. Method of Compliance: Indicate if the method of compliance is going to be based on Aged Solar Reflectance and Thermal Emittance, the Solar Reflectance Index (SRI), or an Exception.
3. Roof Pitch: Expressed as 4:12, for example, which means the roof rises 4 feet 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.
4. Exception: If meeting one of the exceptions. Indicate which exception is, or will be, met.

   NOTE: Exceptions and alternatives for steep slope roofs:

   (a) Mass roof 25 pounds per square foot (lbs/ft^2) or greater (uncommon situation such as sod roof);
   (b) Roof has ceiling assemblies with a U-factor less than or equal to 0.025 or R-38 insulation;
   (c) Roof has a radiant barrier not installed directly above spaced sheathing meeting 150.1(c)2;
   (d) In Climate Zones 2, 4, 9, 10, 12 and 14 no ducts are installed in the attic; or
   (e) R-2 continuous insulation above or below the roof deck.

   In climate zones 4 and 6-15, when there is a low-sloped roof (pitch less than 2:12) the cool roof requirements are for a minimum Aged Solar Reflectance of 0.63, a minimum 0.75 Thermal Emittance, or a minimum SRI of 75.

   NOTE: Exceptions and alternatives for low slope roofs:

   (a) Mass roof 25 pounds per square foot (lbs/ft^2) or greater (uncommon situation such as sod roof);
   (b) No ducts are installed in the attic; or
   (c) Roof deck installation trade off—by installing roof deck insulation, a lower aged solar reflectance is required: In Climate Zones 6 and 7 R-2 (0.60), R-4 (0.55), R-6 (0.50), R-8 (0.45), R-10 (no requirement); In Climate Zones 2, 4 and 8-15 R-16 (0.60), R-18 (0.55), R-20 (0.50), R-24 (no requirement).

   NOTE: If one of the exceptions above has been selected then the rest of Section E is not required.
5. The CRRC Product ID Number is obtained from the Cool Roof Rating Council's Rated Product Directory at https://coolroofs.org/directory/. Products are listed by manufacturer, brand, type of installation, roofing material, and color, as well as product performance.
6. Product Type: See Cool Roof Rating Council's directory at https://coolroofs.org/directory. Generally, product types include single-ply roof, wood shingles, asphalt roof, metal roof, tile roof.
7. R-value Deck Insulation: If one of the exceptions selected includes adding roof deck insulation, indicate the R-value of insulation.

8. Proposed Initial Solar Reflectance: Based on the product chosen from the Cool Roof Rating Council's Rated Product Directory at https://coolroofs.org/directory. If using default assumption indicate NA since the Aged Solar Reflectance is available.
9. Proposed Aged Solar Reflectance: Value is from the Cool Roof Rating Council's Rated Product Directory at https://coolroofs.org/directory. If the aged value is not available, calculate the calculated Aged Solar Reflectance using the Solar Reflectance Index (SRI) Calculation worksheet located on the California Energy Commission website at https://www.energy.ca.gov/rules-and-regulations/building-energy-efficiency or the aging equation $\rho_{aged}=[0.2+\beta[\rho_{initial}-0.2]$, where $\rho_{initial}$ = the initial solar reflectance and soiling resistance β is listed by product type below.

VALUES OF SOILING RESISTANCE β BY PRODUCT TYPE

Product Type	CRRC Product Category	β
Field-Applied Coating	Field-Applied Coating	0.65
Other	Not A Field-Applied Coating	0.70

10. Proposed Thermal Emittance: From the product specification default value. If using a calculated Solar Reflectance Index (SRI) place the Thermal Emittance used to calculate SRI.
11. Proposed Solar Reflectance Index (SRI): It is optional to meet the SRI but if chosen to do so, use the Solar Reflectance Index (SRI) Calculation Worksheet found on the California Energy Commission website at https://www.energy.ca.gov/rules-and-regulations/building-energy-efficiency.
12. Minimum Required Aged Solar Reflectance: Based on climate zone and roof slope.
13. Minimum Required Thermal Emittance: Based on climate zone and roof slope.
14. Minimum Required Solar Reflectance Index (SRI): Based on climate zone and roof slope.

NOTE: 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.

F. Fenestration/Glazing Allowed Areas and Efficiencies (Section 150.2(b)1)

The climate zone and scope of the alteration will affect the amount of fenestration (also known as glazing) allowed. If limited to 20 percent, this is calculated as Conditioned Floor Area x 0.20 = total square footage (ft^2) of fenestration allowed (20 percent). Fenestration areas are expressed in feet, not inches. When west-facing fenestration is limited (in climate zones 2, 4, and 6-16), it is limited to a maximum of 5 percent. Additions of 1,000 square feet (ft^2) or less have alternate requirements. For example, the limit may be 120 square feet (ft^2) of fenestration or 25 percent. While

west-facing fenestration may be limited, if there is no west fenestration the upper limit remains at 120 square feet (ft^2) or 25 percent (or the values shown in columns 2 and 3).

1. Alteration Type: Auto-filled with the project scope in A13: adding fenestration/glazing, replacing fenestration/glazing, adding fenestration/glazing less than or equal to 75 square feet (ft^2) windows, replacing fenestration/glazing less than or equal to 75 square feet (ft^2) window, adding fenestration/glazing less than or equal to 16 square feet (ft^2) skylight and or replacing fenestration/glazing skylights.
2. Maximum Allowed Fenestration Area for All Orientations (ft^2): The maximum total fenestration area is 20 percent. Depending on the type of fenestration and the alteration type, this field may show values such as 75 square feet (ft^2).
3. Maximum Allowed West-Facing Fenestration Area Only: Calculated value based on Conditioned Floor Area multiplied by 5 percent (Used in climate zones 2, 4, and 6-16)
   NOTE: (1) If adding fenestration/glazing less than or equal to 16 square feet (ft^2) skylight, enter NA
   (2) West includes any vertical fenestration oriented to within 45 degrees of true west, including 45 degrees south of west. For skylights, west also includes any skylight area facing any direction with a pitch of less than 1:12
4. Existing Fenestration Area for All Orientations: Enter the area, in square feet (ft^2), of the existing fenestration/glazing.

Existing West-Facing Fenestration Area: Enter the area, in square feet (ft^2), of the existing west-facing fenestration/glazing. If project has no existing west-facing fenestration then enter "0".

5. Maximum Allowed U-factor: Maximum U-factor from Package A or Table 150.1-A. This field will almost always be 0.30. For skylights this will be 0.55.
6. Maximum Allowed SHGC: Maximum SHGC from Package A or Table 150.1-A. This field will almost always be either 0.23 or N/A, depending on climate zone. N/A means there is no maximum SHGC required in this climate zone. For skylights this will be 0.30.
7. Comments: Note any special location or comment here.

G. Fenestration/Glazing Proposed Areas and Efficiencies – Add (Section 150.2(b)1A)

1. Tag/ID: A label (if any) from the plans, such as W1.
2. Fenestration Type: Indicate the type of fenestration construction (e.g., Fixed Window, Operable Window, or Skylight).
   NOTE: Doors with glazing are counted in one of two ways. A door with 25 percent or more glazing is counted as the entire door area. A door with less than 25 percent glazing can be counted as the entire door area or can be calculated as the actual glass area with a 2-inch frame all around.
3. Frame type: Metal, metal thermal break, or non-metal.
4. Dynamic Glazing: Indicate if the fenestration has integrated shading device, chromogenic glazing, or none for no dynamic glazing. Chromogenic glazing shall be considered separately from other fenestration types.
5. Orientation (North, East, South, West). In climate zones where the West-facing glazing is limited, list west-facing individually. The definitions in the Energy Standards include these specific details:

- 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 north of west.

NOTE: Skylights in a roof pitch greater than 1:12 can be included as facing the same orientation as that portion of the roof angle. If the skylight is in a roof with a pitch less than 1:12, the skylight is assumed to face west.

6. Number of Panes: Indicate the number of panes for each Tag/ID; is it single, double, or triple pane window?
7. Proposed Fenestration Area (ft^2): Indicate the area in square feet (ft^2) of each exterior fenestration type, excluding west-facing fenestration.
8. Proposed West Facing Fenestration Area (ft^2): In climate zones 2, 4, 6-16, indicate the area (in ft^2) of each exterior west-facing fenestration type separately.
   NOTE: Skylights installed in a roof with pitch less than 1:12 are considered to face west.
9. Proposed U-factor: Enter
   (a) the National Fenestration Rating Council (NFRC) U-factor based on the proposed brand and type of fenestration using NFRC certified values at https://search.nfrc.org/search/Searchdefault.aspx; or
   (b) the default value from Table 110.6-A; or
   (c) the NA6.2 alternate default U-factor (for non-rated site-built fenestration only); or
   (d) the Area-weighted Average from CF1R-ENV-02.

   If any products (other than skylights) have a higher U-factor than 0.30, first complete a CF1R-ENV-02 to calculate the Area-Weighted Average U-factor, and attach it to the CF1R-ALT-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 9 and 11.
10. Source: National Fenestration Rating Council (NFRC), Table 100.6-A and 110.6-B, Equations NA6-1 and NA6-2, or Area-Weighted Average Worksheet (CF1R-ENV-02). The source of the U-factor data for the fenestration product.
11. Proposed SHGC: In climate zones 2, 4, 6-16 enter
    (a) the National Fenestration Rating Council (NFRC)- solar heat gain coefficient (SHGC) based on the proposed brand and type of fenestration using NFRC certified values at https://search.nfrc.org/search/Searchdefault.aspx; or
    (b) the default value Table 110.6-B; or
    (c) the NA6.3 alternate default solar heat gain coefficient (SHGC) (for non-rated site-built fenestration only); or
    (d) the Area-weighted Average from CF1R-ENV-02.

    If any products (other than skylights) have a higher solar heat gain coefficient (SHGC) than required by Package A, first complete a form CF1R-ENV-02 to calculate the Area-Weighted Average SHGC and attach it to the CF1R-ALT-01.

12. Source: National Fenestration Rating Council (NFRC), Table 100.6-A and 110.6-B, Equations NA6-1 and NA6-2, or Area-Weighted Average Worksheet (CF1R-ENV-02). The source of the solar heat gain coefficient (SHGC) data for the fenestration product.
13. Exterior Shading Device: If exterior shading devices are used to meet the solar heat gain coefficient (SHGC) requirement, indicate the type of device (from Table S-1 of CF1R-ENV-03 Solar Heat Gain Coefficient Worksheet) and attach an ENV-03.
    NOTES:(1) An exterior shading device is not used for products with a National Fenestration Rating Council (NFRC) rated U-factor and solar heat gain coefficient (SHGC) based on a factory integrated shading device.
    (2) Chromogenic glazing shall be considered separately from other fenestration.
    (3) 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 Compliance Manual, Section 3.5.5).
14. Combined SHGC from CF1R-ENV-03: If exterior shading devices are combined with the solar heat gain coefficient (SHGC) value of the fenestration to meet the prescriptive SHGC requirements (as indicated by a value in Column E. 13), indicate the SHGC calculated on compliance document CF1R-ENV-03 and attach the one for each window with an exterior shading device.
15.-32. Automatically completed entries; no user input required.

H. Fenestration/Glazing Proposed Areas and Efficiencies – Replace (Section 150.2(b)1B)

1. Tag/ID: A label (if any) from the plans, such as W1.
2. Fenestration Type: Indicate the type of fenestration construction (e.g., Fixed Window, Operable Window, or Skylight).

   NOTE: Doors with glazing are counted in one of two ways. A door with 25 percent or more glazing is counted as the entire door area. A door with less than 25 percent glazing can be counted as the entire door area or can be calculated as the actual glass area with a 2-inch frame all around.

3. Frame type: Metal, metal thermal break, or non-metal.
4. Dynamic Glazing: Indicate if the fenestration has integrated shading device, chromogenic glazing, or none for no dynamic Glazing. Chromogenic glazing shall be considered separately from other fenestration types.
5. Orientation (North, East, South, West). In climate zones where the West-facing glazing is limited, list west-facing individually. The definitions in the Energy Standards include these specific details:
   - 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 north of west.

NOTE: Skylights in a roof pitch greater than 1:12 can be included as facing the same orientation as that portion of the roof angle. If the skylight is in a roof with a pitch less than 1:12, the skylight is assumed to face west.

6. Area Removed (ft^2): Enter the area, in square feet (ft^2), of the fenestration/glazing being removed.
7. Area Added (ft^2): Enter the area, in square feet (ft^2), of the fenestration/glazing being added.
8. Net Added Area (ft^2): The difference between the Area Added and the Area Removed.
9. Proposed U-factor: Enter
   (a) the National Fenestration Rating Council (NFRC) U-factor based on the proposed brand and type of fenestration using NFRC certified values at https://search.nfrc.org/search/Searchdefault.aspx, or
   (b) the default value from Table 110.6-A; or
   (c) the NA6.2 alternate default U-factor (for non-rated site-built fenestration only); or
   (d) the Area-Weighted Average from CF1R-ENV-02.

If any products (other than skylights) have a higher U-factor than 0.30, first complete a CF1R-ENV-02 to calculate the Area-Weighted Average U-factor and attach it to the CF1R-ALT-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 9 and 11.

10. Source: National Fenestration Rating Council (NFRC), Table 110.6-A and 110.6-B, Equations NA6-1 and NA6-2, or Area-weighted Average Worksheet (ENV-02). The source of the U-factor data for the fenestration product.
11. Proposed Solar Heat Gain Coefficient (SHGC): In climate zones 2, 4, 6-16 enter
    (e) the National Fenestration Rating Council (NFRC)- solar heat gain coefficient (SHGC) based on the proposed brand and type of fenestration using NFRC certified values at https://search.nfrc.org/search/Searchdefault.aspx, or
    (f) the default value Table 110.6-B, or
    (g) the NA6.3 alternate default solar heat gain coefficient (SHGC) (for non-rated site-built fenestration only), or
    (h) the Area-weighted Average from CF1R-ENV-02.

If any products (other than skylights) have a higher SHGC than required by Package A, first complete a form CF1R-ENV-02 to calculate the area-weighted average SHGC and attach it to the CF1R-ALT-01.

12. Source: National Fenestration Rating Council (NFRC), Table 110.6-A and 110.6-B, Equations NA6-1 and NA6-2, or Area-weighted Average Worksheet (ENV-02). The source of the SHGC data for the fenestration product.
13. Exterior Shading Device: If exterior shading devices are used to meet the SHGC requirement, indicate the type of device (from Table S-1 of CF1R-ENV-03 Solar Heat Gain Coefficient Worksheet) and attach an ENV-03.

    NOTES: (1) An exterior shading device is not used for products with a National Fenestration Rating Council (NFRC) rated U-factor and SHGC based on a factory integrated shading device.
    (2) Chromogenic glazing shall be considered separately from other fenestration.
    (3) 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 Compliance Manual, Section 3.5.5).

14. Combined Solar Heat Gain Coefficient (SHGC) from CF1R-ENV-03: If exterior shading devices are combined with the SHGC value of the fenestration to meet the prescriptive SHGC requirements (as indicated by a value in column F. 13), indicate the SHGC calculated on compliance document CF1R-ENV-03 and attach the form for each window with an exterior shading device.

15.-30. Automatically completed entries; no user input required.

I. Space Conditioning (SC) Systems – Heating/Cooling (Section 150.2(b))

Requirements of the standards apply to a heating and cooling system alteration based on the type of alteration and the system type (Section 150.2(b)1). A completely new system will meet all mandatory and prescriptive requirements, which vary by climate zone (based on Section 150.2(b)1C).

NOTE: Computer performance compliance can be used to trade-off any requirements that are not mandatory.] When parts of a system are replaced, it may trigger some of the same requirements that apply to new systems and duct alterations. A Certificate of Compliance for Alterations to Space Conditioning Systems (CF1R-ALT-02) is required for each dwelling unit with a space conditioning system alteration.

1. Dwelling Unit Name: Name of dwelling unit or any other identifying name.
2. Dwelling Unit Total CFA (ft^2): Conditioned Floor Area in square feet (ft^2), as measured from the outside of exterior walls of the dwelling unit or building being altered.
3. Comments: Any notes regarding location or unique conditions.

J. Water Heating Systems (Section 150.2(b)1H)

Water heating compliance for an alteration is described in Section 150.2(b)1H.

1. Is the existing water heater electric resistance? Yes or No

2. Water Heating System Identification or Name: Provide a unique name for each unique water heating system type in the building. If the same water heating system type is used in more than one location in the building, it is sufficient to list the unique water heating system type only once.
3. Water Heating System Type: Domestic Hot Water (DHW), Hydronic, or Combined Hydronic. DHW is for domestic hot water, hydronic is a water heating system used for space heating only; combined hydronic are when the water heater will provide both space conditioning and domestic hot water.
4. System option:
    1. A natural gas or propane water heating system.
    2. A single heat pump water heater, storage tank shall not be located outdoors and placed on an incompressible, rigid insulated surface with a minimum thermal resistance of R-10
    3. A single Tier 3 heater (as rated by Northwest Energy Efficiency Alliance (NEEA).
    4. If the existing water heater is electric resistance, a consumer electric water heater
5. Water heater Type: Consumer instantaneous, consumer storage, NEEA Tier 3 or higher heat pump water heater
6. Volume (gal): Tank capacity in gallons. For instantaneous water heaters, enter N/A.
7. Fuel Type: Gas, Propane. heat pump, electricity.
8. Number of water heaters in system: No more than 1 per dwelling unit allowed.

Documentation Declaration Statements

1. The person who prepared the CF1R will sign and complete the fields for their name, company (if applicable), address, phone number, certification information (if applicable), date and signature.
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.