

DOCKETED

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CERTIFICATE OF COMPLIANCE	CF1R-ADD-01-E
Prescriptive Residential Additions 1,000 ft ² or Less	(Page 1 of 7)
Project Name:	Date Prepared:

A. General Information			
01	Project Name:	02	Date Prepared:
03	Project Location:	04	Building Front Orientation (deg):
05	CA City:	06	Number of Dwelling Units with Additions:
07	Zip Code:	08	Fuel Type:
09	Climate Zone:	10	Total Conditioned Floor Area (ft ²) (Addition):
11	Building Type:	12	Slab Area (ft ²):
13	Project Scope:	14	Exceptions to Fenestration U-factor and SHGC 150.1(c)3A:

B. Opaque Surface Details – Framed (Section 150.2(a))											
01	02	03	04	05	06		07	08	09	10	11
Tag/ID	Assembly Type	Frame Type	Frame Depth (inches)	Frame Spacing (inches)	Proposed			Appendix JA4 Reference		Required U-Factor from Table 150.1-A or B	Comments
					Cavity R-value	Continuous Insulation R-value	U-Factor	Table	Cell		

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 ASTM Standard C272.
- Extensions of existing wood-framed walls may retain the dimensions of the existing walls and shall install cavity insulation of R-15 in a 2x4 framing and R-21 in a 2x6 framing.

C. Opaque Surface Details – Nonframed (Section 150.1(c)1)										
01	02	03	04	05	06	07	08	09	10	11
Tag/ID	Assembly Type	Assembly Materials	Thickness (inches)	Core Insulation R-value	Continuous Insulation R-value	U-Factor	Appendix JA4 Reference		Required U-Factor from Table 150.1-A or B	Comments
							Table	Cell		

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 ASTM Standard C272.



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D. Opaque Surface Details – Mass Walls (150.1(c)1Bii)															
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Tag/ID	Above or Below Grade?	Mass Type	Mass Thickness (inches)	Proposed						Required					
				Appendix JA4 Reference		Exterior Insulation		Interior Insulation		Appendix JA4 Reference		Exterior Insulation		Interior Insulation	
				Table	Cell	R-value	U-factor	R-value	U-factor	Table	Cell	R-value	U-factor	R-value	U-factor
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.															

E. Slab Insulation (Table 150.1-A)					
01	02	03	04	05	06
Floor Type	Proposed		Required		Comments
	R-value	U-factor	Insulation R-value	Insulation U-factor	
Note: Heated slab floors require mandatory slab insulation (see Table 110.8-A).					

F. Radiant Barrier (Section 150.1(c)2)	
01	02
Radiant Barrier installed below the roof deck and on all gable end walls	Comment
A radiant barrier is required (for Climate Zones 2-15) <ul style="list-style-type: none"> Radiant barriers shall meet specific eligibility and installation criteria to receive energy credit for compliance with the Building Energy Efficiency Standards for low-rise residential buildings. Refer to RA4.2.1 The emittance of the radiant barrier shall be less than or equal to 0.05 as tested in accordance with ASTM C1371 or ASTM E408. For Prescriptive Compliance the attic shall be ventilated to provide a minimum free ventilation area of not less than 1 ft² of vent area for each 300 ft² of attic floor area with a minimum of 40 percent to no more than 50 percent upper vents. Ridge vents or gable end vents are recommended to achieve the best performance. The material should be cut to allow for full airflow to the venting. 	



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G. Roofing Products (Cool Roof) (Section 150.1(c)11)												
01	02	03	04	05	06	07	08	09	10	11	12	13
Tag/ID	Exception	Roof Pitch	Method of Compliance	Product Type	CRRC Product ID Number	Proposed				Required		
						Initial Solar Reflectance	Aged Solar Reflectance	Thermal Emittance	SRI (Optional)	Aged Solar Reflectance	Thermal Emittance	SRI (Optional)

Notes:

- Exception 1: Any roof area covered by building integrated photovoltaic panels and solar thermal panels are exempt from the above Cool Roof requirements.
- Exception 2: Roof constructions with weight of 25 lb/ft² are also exempt
- Liquid field applied coatings must comply with installation criteria from section 110.8(i)4.

H. Fenestration/Glazing Allowed Areas and Efficiencies (Section 150.2(a)1)									
01	02	03	04	05	06	07	08	09	10
Addition Type ft ²	Maximum Allowed Fenestration Area for All Orientations ft ²		Maximum Allowed West-Facing Fenestration Area Only ft ²		Maximum Allowed U-factor (Windows)	Maximum Allowed U-factor (Skylights)	Maximum Allowed SHGC (Windows)	Maximum Allowed SHGC (Skylights)	Comments
	The Greater		The Greater						
	Maximum Calculated based on Allowed %	Maximum Calculated Allowed ft ²	Maximum Calculated based on Allowed %	Maximum Calculated Allowed ft ²					



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I. Fenestration Proposed Areas and EfficienciesNote: If meeting Exception 1 to 150.1(c)3A, Installing $\leq 3\text{ft}^2$ glass in door, it is assumed to meet the minimum required U-factor (0.30) & SHGC (0.23).If meeting Exception 1 to 150.1(c)3A, Installing $\leq 3\text{ft}^2$ tubular skylight, it is assumed to meet the minimum required U-factor (0.55) & SHGC (0.30).

Doors with greater than or equal to 25 percent glazing 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) (N, S, E)	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	Total Proposed Fenestration Area												
16	Maximum Allowed Fenestration Area												
17	Compliance Statement:												
18	Total Proposed West-Facing Fenestration Area												
19	Maximum Allowed West-Facing 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:												



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Project Name:

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J. Opaque Swinging Doors to Exterior

01	02	03	04	05	06	07
Tag/ID	Area	Proposed U-factor	Proposed U-factor Source	Required Maximum U-factor	Weighted Average (Yes/No)	Comments

Notes:

- Any door with 25 percent or more glass is counted as a fenestration product in Tables H and I.
- Do not include fire-rated doors between garage or unconditioned space and conditioned space.
- If using weighted average to achieve required maximum U-factor, attach CF1R-ENV-02-E.

K. Space Conditioning (SC) Systems – Heating/Cooling – Single Family Dwelling (Section 150.2(b) or (Section 150.1(c)7)

01	02	03
Dwelling Unit Name	Dwelling Unit Total CFA = Sum of Existing + Addition (ft ²)	Comments

L. Water Heating Systems (Section 150.1(c)8)

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

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Water Heating System ID or Name	Water Heating System Type	System Option (from §150.1(c)8)	# of Dwelling Units in System	# of Recir Loops	Water Heater Type	Volume	Fuel Type	# of Water Heaters in System	Rated Input (Range)	Minimum Solar Savings Fraction	Additional PV Capacity	Tank Location	Distribution Type



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Options:

Single Family & Multifamily with Individual Water Heaters

1. Gas or propane instantaneous.
2. 55 gallons or less storage tank with 75,000 Btu or less rated input. Distribution either compact hot water distribution (HERS) or drain water heat recovery (HERS).
3. Greater than 55 gallons storage tank with 75,000 Btu or less rated input.
4. Heat pump water heater. Installed in conditioned space or garage. Either:
 - A. Compact hot water distribution basic and drain water heat recovery (HERS), or
 - B. If climate zone 8-15, a PV system 0.3 kWdc larger than system required, or If climate zone 1 or 16, a PV system 1.1 kWdc larger than system required
5. Tier 3 heat water heater (as rated by Northwest Energy Efficiency Alliance (NEEA)). Installed in conditioned space or garage. If climate zone 1 or 16 either:
 - A. A PV system that is 0.3 kWdc larger than required, or
 - C. Compact hot water distribution basic.

Multifamily with Central Water Heating

- A. Gas or propane water heating system, a recirculation system, and 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.
- B. Gas or propane water heating system, a recirculation system, a minimum solar savings fraction of 0.15 in Climate Zones 1 through 9 or a minimum solar savings fraction of 0.30 in Climate Zones 10 through 16, and a drain water heat recovery system.

M. Space Conditioning Systems and Water Heating Systems in Multifamily Dwelling Units

01	02	03	04	05	06
Dwelling Unit Name	Dwelling Unit Total CFA = Sum of Existing + Addition (ft ²)	Central Water Heating System Identification or Name	Dwelling Unit Water Heating System Identification or Name	Dwelling Unit: Alteration to Existing or Installing a New Space Conditioning System?	Comments



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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:	Signature Date:
Address:	CEA/ HERS Certification Identification (if applicable):
City/State/Zip:	Phone:
RESPONSIBLE PERSON'S DECLARATION STATEMENT	
I certify the following under penalty of perjury, under the laws of the State of California:	
<ol style="list-style-type: none"> The information provided on this Certificate of Compliance is true and correct. 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). That 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. 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. I will ensure 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. 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. 	
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-ADD-01-E User Instructions

Minimum requirements for prescriptive addition compliance can be found in Building Energy Efficiency Standards Section 150.2(a), and Table 150.1-A. Completing these compliance documents will require that you have the Reference Appendices for the 2019 Building Energy Efficiency Standards, which contain the Joint Appendices used to determine climate zone and to complete the section for opaque surfaces. When the term CF1R is used it means the CF1R-ADD-01. Worksheets are identified by their entire name and subsequently by only the worksheet number, such as CF1R-ENV-02.

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

If any part of the addition does not comply, prescriptive compliance fails, in which case the performance (or computer) compliance approach may be used in an attempt to achieve compliance. Only the new construction is required to meet the requirements specified in this documentation. If any alterations to the existing building are occurring, those are documented on one or more of the CF1R-ALT forms.

A. General Information

1. Project Name: Identifying information, such as owner's name.
2. Date Prepared: 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. The Standards (Section 100.1) include the following additional details for determining orientation:
 - 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.
5. CA City: Legal city/town of property.
6. Number of Dwelling Units with Additions: 1 for single family, 1 or more for multi-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.

NOTE: Prescriptive compliance only allows electricity if natural gas is not connected to the building.

9. Climate Zone: From Joint Appendix JA2.1.1.1.
10. Total Conditioned Floor Area: Enter the new conditioned floor area, in ft², as measured from the outside of exterior walls of the addition.
11. Building Type: Single Family (includes duplex), or Multi Family (a building that shares common walls and common floors or ceilings).
12. Slab Area: Area of the first floor slab of the addition (if any) in ft².
13. Project Scope: Select all that apply: Addition < 300 ft², Addition > 300 to < 400 ft², Addition > 400 to < 700 ft², Addition > 700 to < 1000 ft², ADU Addition < 300 ft², ADU Addition > 300 to < 400 ft², ADU Addition > 400 to < 700 ft², ADU Addition > 700 to < 1000 ft², space heating system, space cooling system, space conditioning duct system, water heating, or fenestration, kitchen remodel.
14. Exceptions to Fenestration U-factor and SHGC: Installing less than or equal to 3 ft² glass in door, Installing less than or equal to 3 ft² tubular skylight, Installing less than or equal to 16 ft² skylight, or NA.

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, or 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, 24, or 48 (inches on center).
6. Proposed Cavity R-value: Insulation installed between framing members.
Proposed Continuous Insulation: R-value of rigid or continuous insulation (not interrupted by framing). See Table 4.3.4. of the Reference Appendices for metal frame construction.
7. Proposed U-factor: The U-factor for the proposed assembly must be less than or equal to Column 10 or have an attached Area Weighted Average Calculation Worksheet (CF1R-ENV-01-E) to show that a weighted U-factor for multiple assemblies will meet the maximum value in Column 10.
8. Appendix JA4 Table: Table number used to determine the R-value or U-factor (e.g., an attic assembly is 4.2.1).
9. 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 Package A or from Section 150.2. 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, SIP Single 2x, SIP Double 2x.
4. Thickness: Thickness in inches.
5. Proposed Core Insulation R-value: Insulation installed within the materials or on the inside. See Joint Appendix JA4 for guidance.
6. Proposed Continuous Insulation R-value: Insulation installed on the exterior. See Joint Appendix JA4 for guidance.
7. Proposed U-factor: Proposed assembly U-factor from JA4 or CF1R-ENV-02-E. 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., a SIP wall is 4.3.2).
9. Appendix JA4 Cell: Cell number used to determine the R-value or U-factor (e.g., a 4.5-inch thick OSB wall with R-18 core insulation and no continuous insulation is A5).
10. Required U-factor from Table 150.1-A or B: Based on assembly type and climate zone.
11. 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: Clay Brick, Clay Hollow Unit, CMU Light Weight, CMU Medium Weight, CMU Normal Weight, Concrete, ICF. See JA4 for guidance.
4. Mass Thickness: Thickness (in inches) of mass.
5. Appendix JA4 Reference Table: Table number used to determine the R-value or U-factor (e.g., an ICF wall is 4.3.13).
6. Appendix JA4 Reference 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 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 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 JA4 for guidance. Use the same descriptor (R-value or U-factor) throughout Table D.
11. Appendix JA4 Table: Table number used to determine the R-value or U-factor (e.g., an ICF wall is 4.3.13).
12. 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).
- 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. 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 (use the same descriptor throughout Table E). When 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: 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: 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: 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.

F. Radiant Barrier

1. Radiant Barrier installed below the roof deck and on all gable end walls: Yes or No. Radiant barriers are required in climate zones 2-15.
2. Comments: Any notes regarding location, unique conditions, or attachments.

NOTE: 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.

G. Roofing Products (Cool Roof)

Roofing requirements are found in Section 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.

NOTE: Exceptions include (1) additions of 300 ft² or less, (2) low-slope roofs (pitch 2:12 or less) in climate zones 1-12, 14 and 16; (3) steep-slope roofs (pitch greater than 2:12) in climate zones 1-9 and 16; (4) roof constructions that have thermal mass over the roof membrane with at least 25 lb/ft²; and (5) 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. Tag/ID: A label (if any) from the plans, such as R1.
2. Exception: User selects from 1, 2, or None. Mass roofs are not required to have a cool roof even if the climate zone specifies minimum performance requirements.
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. Method of Compliance: Indicate if the method of compliance is going to be based on Aged Solar Reflectance and Thermal Emittance or is it going to be based on the Solar Reflectance Index (SRI).
5. Product Type: See Cool Roof Rating Council's directory. Generally, product types include single-ply roof, wood shingles, asphalt roof, metal roof, tile roof.
6. The CRRC Product ID Number is obtained from the Cool Roof Rating Council's Rated Product Directory at www.coolroofs.org/products/results. Products are listed by manufacturer, brand, type of installation, roofing material, and color, as well as product performance.
7. Proposed Initial Solar Reflectance: Based on the product chosen from the Cool Roof Rating Council's Rated Product Directory. If using default assumption indicate NA since the Aged Solar Reflectance is available.
8. 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 calculated Aged Solar Reflectance using the Solar Reflectance Index (SRI) Calculation worksheet located on the California Energy Commission website 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

9. Proposed Thermal Emittance: From the product specification default value. If using a calculated SRI, enter the thermal emittance used to calculate SRI.
10. Proposed 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 http://energy.ca.gov/title24/2013standards/documents/solar_reflectance/.
11. Required Aged Solar Reflectance: Based on climate zone and roof slope.
12. Required Thermal Emittance: Based on climate zone and roof slope.
13. Required SRI: Based on climate zone and roof slope.

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 Allowed Areas and Efficiencies

Fenestration areas are expressed in square feet, not square inches.

The climate zone and size of the addition will affect the area of fenestration (also known as glazing) allowed. If limited to 20%, for example, this is calculated as Conditioned Floor Area (CFA) of the addition x 0.20 = Total ft² of fenestration allowed.

1. Addition Type: Based on "Project Scope." The addition's area in ft²—whether ≤ 300 , >300 to ≤ 400 , >400 to ≤ 700 , or >700 to $\leq 1,000$.
 2. - 9. These fields will be completed based on conditioned floor area of the addition and/or climate zone. The values in these fields will be entered into Section I.)
- Maximum allowed fenestration area for all orientations is the greater of the values in Column 2 or 3:
2. Maximum Calculated based on Allowed %: The addition's CFA multiplied by the allowed %. The maximum total fenestration area is 30% for additions up to 400 ft², 25% for additions greater than 400 ft² but no greater than 700 ft², and 20% for additions greater than 700 ft².
 3. Maximum Calculated Allowed ft²: The maximum total fenestration area is 75ft² for additions up to 400 ft², 120ft² for additions greater than 400 ft² but no greater than 700 ft², and 175 ft² for additions of greater than 700 ft².
- Maximum allowed west-facing area is the greater of the values in Column 4 or 5:
4. Maximum Calculated based on Allowed %: The maximum west-facing fenestration area (in climate zones 2, 4, and 6-16) is 5% for additions greater than 700 ft².
 5. Maximum Calculated Allowed ft²: The maximum west-facing fenestration area (in climate zones 2, 4, and 6-16) is 60 ft² for additions no greater than 700 ft², and 70 ft² for additions of greater than 700 ft².

Addition CFA:	≤ 400 ft ²		> 400 to ≤ 700 ft ²		> 700 to $\leq 1,000$ ft ²	
	The Greater Of:		The Greater Of:		The Greater Of:	
Orientation	Percentage	Area (ft ²)	Percentage	Area (ft ²)	Percentage	Area (ft ²)
West-facing (CZs 2, 4, 6-16)	-	60	-	60	5%	70
All Orientations	30%	75	25%	120	20%	175

NOTE: West includes any vertical fenestration oriented to within 45 degrees of true west (in either direction), including 45 degrees north of west, any skylights oriented west, and skylights facing any direction with a pitch of less than 1:12.

6. Maximum Allowed U-factor (Windows): Maximum area-weighted average of 0.3 for all climate zones.

7. Maximum Allowed U-factor (Skylights): Maximum area-weighted average of 0.3 for all climate zones, unless meeting one of the Exceptions to 150.1(c)3A. If meeting one of the Exceptions, this field will be 0.55.
8. Maximum Allowed SHGC (Windows): Maximum area-weighted average of 0.23 for climate zones 2, 4, and 6-16; otherwise N/A.
9. Maximum Allowed SHGC (Skylights): Maximum area-weighted average of 0.23 for all climate zones, unless meeting one of the Exceptions to 150.1(c)3A. If meeting one of the Exceptions, this field will be 0.30.
10. Comments: Any notes regarding location, unique conditions, or attachments.

I. Fenestration/Glazing Proposed Areas and Efficiencies

1. Tag/ID: Provide a name or designator for each unique type of fenestration surface. This designator should be used consistently throughout the plan set (elevations, finish schedules, etc.) such as Window-1, Skylight-1, etc. to identify each surface. It should also be consistently used on the other forms in the compliance documentation.
2. Fenestration Type: Indicate the type of fenestration construction e.g., Fixed Window, Operable Window, Skylight, Tubular Skylight, or Glass in Door.
NOTE: Doors with glazing are counted in one of two ways. The entire area of a door with 50% or more glazing is considered fenestration. A door with less than 50% glazing can be considered as all fenestration, or can be calculated as the actual glass area with a 2-inch (0.17 ft) frame all around.
3. Frame Type: Metal, metal thermal break, or non-metal.
4. Dynamic Glazing: Indicate whether the fenestration has an integrated shading device, chromogenic glazing, or none for no dynamic glazing. Chromogenic glazing shall be considered separately from other fenestration types.
5. Orientation: Orientation can be North, East, South, or West. If documentation is for a building that may be built in any direction, in a climate zone that limits west-facing fenestration, complete this section assuming the side of the building with the most fenestration faces west.
NOTE: West includes any vertical fenestration oriented to within 45 degrees of true west, excluding 45 degrees south of west; any skylights oriented west; and skylights facing any direction with a pitch of less than 1:12.
6. Number of Panes: Indicate the number of panes for each Tag/ID; is it a single, double, or triple pane window?
7. Proposed Fenestration Area (ft²): The size of any windows, doors with glass, or skylights within the floor area of the addition (combine windows with the same characteristics). Indicate the area (in ft²) of each exterior fenestration type, including west-facing fenestration.
8. Proposed West Facing Fenestration Area ft²: In climate zones 2, 4, and 6-16, enter the size of any west-facing windows, doors with glass, or skylights within the floor area of the addition. Indicate the area (in ft²) of each exterior west-facing fenestration type separately.
9. Proposed 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; 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 the exceptions noted below) have a higher U-factor than 0.3, first complete a CF1R-ENV-02-E to calculate the area-weighted average U-factor, which must be 0.3 or less, and attach it to the CF1R-ADD-01-E.

NOTES: (1) For the exceptions - up to 3 ft² of tubular skylights and up to 16 ft² of skylight area, enter 0.55.
(2) For the exception – up to 3 ft² of glass in door, enter 0.32.
(3) 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: The source of the U-factor data for the fenestration product—indicate whether NFRC, Tables 110.6-A and 110.6-B, Equations NA6-1 and NA6-2, or Area-weighted Average Worksheet (CF1R-ENV-02).
11. Proposed SHGC: In climate zones 2, 4, and 6-16, enter
 - (a) the NFRC SHGC based on the proposed brand and type of fenestration using National Fenestration Rating Council (www.nfrc.org) certified values, or
 - (b) the default value from Table 110.6-B, or
 - (c) the NA6.3 alternate default SHGC (for non-rated site-built fenestration only), or
 - (d) the Area-weighted Average from CF1R-ENV-02.

If any products (other than the exceptions noted below) have a higher SHGC than 0.23 in a climate zone with a maximum SHGC value, first complete a CF1R-ENV-02-E to calculate the area-weighted average SHGC, which must be 0.23 or less, and attach it to the CF1R-ADD-01-E.

NOTES: (1) For the exceptions - up to 3 ft² of tubular skylights and up to 16 ft² of skylight area, enter 0.30.

(2) For the exception – up to 3 ft² of glass in door, enter 0.25.

12. Source: The source of the SHGC data for the fenestration product—indicate whether NFRC, Tables 110.6-A and 110.6-B, Equations NA6-1 and NA6-2, or Area-weighted Average Worksheet (ENV-02).

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-E Solar Heat Gain Coefficient Worksheet) and attach the CF1R-ENV-03-E.

NOTES: (1) An exterior shading device is not used for products with an NFRC rated U-factor and SHGC based on a factory integrated shading device.

(2) Chromogenic glazing shall be considered separately from other fenestration.

14. Combined 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 in I. 13), indicate the SHGC calculated on form CF1R-ENV-03 and attach the form for each window with an exterior shading device.

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

J. Opaque Swinging Doors to Exterior

1. Tag/ID: Provide a name or designator for each unique door. This designator should be used consistently throughout the plan set (elevations, door schedules, etc.)
2. Area: Calculated area (in sq.ft.) for each unique door.
2. Proposed U-factor: Enter the proposed U-factor. If value is greater than 0.20, column 06 will autocomplete as Yes.
3. Source: NFRC or Reference Joint Appendix Table 4.5.1s 110.6-A and 110.6-B, Equations NA6-1 and NA6-2, or Area-Weighted Average Worksheet (CF1R-ENV-02).
4. Required Maximum U-factor. This field will always be 0.20.
5. Weighted Average: If column 03 is greater than 0.20 U-factor, attach form CF1R-ENV-02-E:
6. Comments: Any notes regarding location, unique conditions, or attachments.

K. Space Conditioning Systems – Heating/Cooling – Single Family Dwelling

If an existing space system will condition an addition, the prescriptive requirements do not apply to that system (Exception 4 to Section 150.2(a)). The enforcement agencies may require verification that the capacity of the existing heating system is adequate to meet the added load of the additional conditioned floor area. Since there is no health and safety code requirement to provide cooling, the enforcement agency will not ask for verification that the capacity of the existing system is adequate to meet the added load of the additional conditioned floor area.

If a new system is installed complete a Certificate of Compliance for Alterations to Space Conditioning Systems (CF1R-ALT-02).

1. Dwelling Unit Name: Name of dwelling unit or any other identifying name.
2. Dwelling Unit Total CFA – Sum of Existing Plus Addition (ft²): Total dwelling unit conditioned floor area in ft², 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.

L. Water Heating Systems for Additions

Water heating compliance for an addition is described in Section 150.2(a)1D. When a water heater is added as part of an addition in a single dwelling the Prescriptive Standards allow five options under Section 150.1(c)8.

1. 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. In order for one water heating system type to be considered the same as another, it must have the same description in Columns 2 through 12.
2. Water Heating System Type: Domestic Hot Water (DHW), Hydronic, Combined Hydronic, or Central. 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.
3. System option:
 - (1) A single gas or propane instantaneous water heater with an input of 200,000 Btu per hour or less and no storage tank.
 - (2) A single gas or propane storage type water heater with an input of 75,000 Btu per hour or less, rated volume less than or equal to 55 gallons and that meets the requirements of Sections 110.1 and 110.3. The dwelling unit shall have installed fenestration products with a weighted average U-factor of 0.24 or less and either:
 - A. A compact hot water distribution system that is field verified as specified in the Reference Appendix RA4.4.16; or

- B. A drain water heat recovery system that is field verified as specified in the Reference Appendix RA3.6.9.
- (3) A single gas or propane storage type water heater (small storage or consumer storage) with an input of 75,000 Btu per hour or less, rated volume greater than 55 gallons.
- (4) A heat pump water heater located in the garage or conditioned space, and either:
- C. A compact hot water distribution system as specified in the Reference Appendix RA4.4.6, and a drain water heat recovery system that is field verified as specified in the Reference Appendix RA3.6.9; or
- D. In climate zones 2-15, a PV system with 0.3 kWdc capacity larger than the PV requirements; or
- E. In climate zones 1 or 16, a PV system with 1.1 kWdc capacity larger than the PV requirements.
- (5) A single NEEA Tier 3 heat pump water heater located in the garage or conditioned space, and:
- A. In climate zones 1 or 16, a PV system with 0.3 kWdc capacity larger than the PV requirements, and
- B. In climate zones 1 or 16, a compact hot water distribution system as specified in the Reference Appendix RA4.4.6.
4. # of Dwelling Units: Enter a whole number for how many dwelling units are in the building.
5. # of Recirculation loops: User entry based on number of dwelling units
6. Water heater Type: Tankless, storage, heat pump.
7. Volume (gal): Tank capacity in gallons. For instantaneous water heaters, enter N/A.
8. Fuel Type: Gas, Propane. heat pump.
9. Number of water heaters: No more than 1 per dwelling unit allowed.
10. Rated Input (Range): Select the maximum input rating
11. Minimum Solar Savings Fraction: Field is auto filled based on which system option was chosen.
12. Additional PV Capacity: Auto entered. If the option selected requires added solar capacity, it is entered here.
13. Tank Location: List based on which system option was chosen.
14. Distribution Type: Pick Standard, Demand Recirculation – Manual Control, Demand Recirculation – Sensor Control.

M. Space Conditioning and Water Heating in Multifamily Dwelling Units

If an existing space system will condition an addition, the prescriptive requirements do not apply to that system (Exception 4 to Section 150.2(a)). The enforcement agencies may require verification that the capacity of the existing heating system is adequate to meet the added load of the additional conditioned floor area. Since there is no health and safety code requirement to provide cooling, the enforcement agency will not ask for verification that the capacity of the existing system is adequate to meet the added load of the additional conditioned floor area. If a new space conditioning system is installed complete a Certificate of Compliance for Alterations to Space Conditioning Systems (CF1R-ALT-02)

- Dwelling Unit Name: Enter one unique name for each of the number of dwelling units with additions as identified in Section A field 06.
- Dwelling Unit Total CFA – Sum of Existing Plus Addition (ft²): Total dwelling unit conditioned floor area in ft², as measured from the outside of exterior walls of the dwelling unit or building being altered.
- Central Water Heating System Identification or Name: Enter the central DHW system names from L. 01.
- Dwelling Unit Water Heating System Identification or Name: Note the applicable water heating system name(s). If more than one water heating system type is needed in the dwelling unit, add another row of data for the dwelling unit and enter the additional water heating system name.
- Dwelling Unit - Installing a New Space Conditioning System?: If a new Space Conditioning system is planned to be installed, then enter yes, otherwise enter no.
- Comments: Any notes regarding location or unique conditions.

Documentation Declaration Statements

- 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 (may be electronic).
- 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).

Registration

The CF1R must be registered with a HERS provider prior to submitting for a building permit.