CERTIFICATE OF COMPLIANCE	CF1R-ADD-01-E
Prescriptive Residential Additions 1,000 ft^2 or Less	(Page 1 of 6)
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
					Proposed					Required	
								Appendix JA4 Reference			
Tag/ID	Assembly Type	Frame Type	Frame Depth (inches)	Frame Spacing (inches)	Cavity R-value	Continuous Insulation R-value	U-Factor	Table	Cell	U-Factor	Comments

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.

C. Opaque Surface Details – Non-framed (Section 150.1(c)1)

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

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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CERTIFICATE OF COMPLIANCE	CF1R-ADD-01-E
Prescriptive Residential Additions 1,000 ft^2 or Less	(Page 2 of 6)
Project Name:	Date Prepared:

D. Opaque Surface Details – Mass Walls (Section 150.1(c)1)

01	02	03	04	05	06		07		08	09	10		11	
					Proposed						**Required**			
					Interior Insulation		Exterior Insulation		Appendix JA4 Reference		Interior Insulation		Exterior Insulation	
Tag/ID	Walls Above Grade	Mass Type	Mass Thickness (inches)	Furring Strip Thickness (inches)	R-value	U-factor	R-value	U-factor	Table	Cell	R-value	U-factor	R-value	U-factor

E. Slab Insulation (Table 150.1-A)

01	02	03	04	05	06
	Proposed		**Required**		
Floor Type	R-value	U-factor	Insulation R-value	Insulation U-factor	Comments

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)

- 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 one square foot of vent area for each 300 ft^2 of attic floor area with no less than 30 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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CERTIFICATE OF COMPLIANCE	CF1R-ADD-01-E
Prescriptive Residential Additions 1,000 ft^2 or Less	(Page 3 of 6)
Project Name:	Date Prepared:

G. Roofing Products (Cool Roof) (Section 150.1(c)11)

01	02	03	04	05	06	07	08	09	10	11	12	13
						Proposed				**Required**		
Tag/ID	Mass Roof 25 lb/ft^2 or greater	Roof Pitch	Method of compliance	Product Type	CRRC Product ID Number	Initial Solar Reflectance	Aged Solar Reflectance	Thermal Emittance	SRI (Optional)	Aged Solar Reflectance	Thermal Emittance	SRI (Optional)

~~NOTES~~Notes:

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

H. Fenestration/Glazing 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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CERTIFICATE OF COMPLIANCE	CF1R-ADD-01-E
Prescriptive Residential Additions 1,000 ft^2 or Less	(Page 4 of 6)
Project Name:	Date Prepared:

I. Fenestration Proposed Areas and Efficiencies

Note: If meeting Exception 1 to 150.1(c)3A, Installing ≤ 3ft^2 glass in door, it is assumed to meet the minimum required U-factor (0.32) & SHGC (0.25).
If meeting Exception 1 to 150.1(c)3A, Installing ≤ 3ft^2 tubular skylight, it is assumed to meet the minimum required U-factor (0.55) & SHGC (0.30).

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 or Roof	Number of Panes	Proposed Fenestration Area ft2	Proposed West Facing Fenestration Area ft2	Proposed U-factor	Source	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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CERTIFICATE OF COMPLIANCE	CF1R-ADD-01-E
Prescriptive Residential Additions 1,000 ft^2 or Less	(Page 5 of 6)
Project Name:	Date Prepared:

J. 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

K. 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	15
Water Heating System ID or Name	Water Heating System Type	Water Heater Type	# of Water Heaters in system	Water Heater Storage Volume (gal)	Fuel Type	Rated Input Type	Rated Input Value	Heating Efficiency Type	Heating Efficiency Value	Standby Loss (%)	Exterior Insul. R-Value	Back-Up Solar Savings Fraction	Central DHW System Distribution Type	Dwelling Unit DHW System Distribution Type

L. 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: Installing a New Space Conditioning System?	Comments

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CERTIFICATE OF COMPLIANCE	CF1R-ADD-01-E
Prescriptive Residential Additions 1,000 ft^2 or Less	(Page 6 of 6)

Project Name:	Date Prepared:

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:

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. 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.
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 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:

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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 (Package A). Completing these forms will require that you have the Reference Appendices for the 2016~~3~~ Building Energy Efficiency Standards (P400-2012-005), 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 WS-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 S~~s~~tandards (~~s~~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 multifamily.
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 existing appliances are electric and natural gas is not available in the building.

9. Climate Zone: From Joint Appendix JA2.1.1.
10. Total Conditioned Floor Area: Enter the new conditioned floor area, in ft^2, 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 ft^2.
13. Project Scope: 300 ft^2 or less, greater than 300 up to 400 ft^2, greater than 400 up to 700 ft^2, greater than 700 up to 1000 ft^2, space heating system, space cooling system, space conditioning duct system, water heating, or fenestration.
14. Exceptions to Fenestration U-factor and SHGC: Installing less than or equal to 3 ft^2 glass in door, Installing less than or equal to 3 ft^2 tubular skylight, or Installing less than or equal to 16 ft^2 skylight

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B. Opaque Surface Details - Framed

Additions of 700 ft^2 or less require only R-13 wall insulation. Unless otherwise noted, all other requirements of Package A are required when using prescriptive compliance.

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.

   NOTE: Wall U-factor required for all climate zones is 0.0~~6~~5. This U-factor can be met by wood framed 2x4 walls with R-13 cavity + R5 continuous insulation (not interrupted by framing), R-15 cavity plus R-4 continuous insulation, or any combination of cavity and/or continuous insulation that results in a U-factor equal to or less than 0.065.

   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 Package A: 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. Furring Strips Thickness: If furring strips are required to meet the wall R-value or U-factor shown in columns 10 & 11, indicate the thickness of the furring strip (in inches). See Table 4.3.14 of Joint Appendix 4.
6. Proposed Interior Insulation R-value or U-factor: Enter either the R-value or U-factor of proposed insulation on the inside surface of the mass wall. See JA4 for guidance. Use the same descriptor (R-value or U-factor) throughout Table D.
7. Proposed Exterior Insulation R-value or U-factor: Enter either the R-value or U-factor of proposed insulation on the outside surface of the mass wall. See JA4 for guidance.
8. Appendix JA4 Table: Table number used to determine the R-value or U-factor (e.g., an ICF wall is 4.3.13).
9. Appendix JA4 Cell: Cell number used to determine the R-value or U-factor (e.g., an 8-inch thick ICF wall with 2 inches of EPS (R-15.4) is A6).

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10. Required Interior Insulation: The required R-value or U-factor (whichever descriptor was selected in column 6) for interior insulation will be completed based on the Table 150.1-A requirements for the wall type.
11. Required Exterior Insulation: The required R-value or U-factor (whichever descriptor was selected in column 7) for exterior insulation will be completed based on the Table 150.1-A requirements for the wall type.

E. Slab Insulation

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

1. Floor type: Types include slab-on-grade or raised slab.
   - Slab-on-grade floors require slab edge insulation in climate zone 16 only.
   - Raised slab must be insulated to R8 in climate zones 1, 2, 11, 13, 14 and 16, R-4 in climate zones 12 and 15, and no insulation is required in climate zones 3-10.
2. Proposed R-value: When required, insulation can be specified by either R-value or U-factor (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 ft^2 or less, (2) low-slope roofs (pitch 2:12 or less) in climate zones 1-12, 14 and 16; (3) steep slope roof (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/ft^2; 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. Mass Roof 25 lb/ft^2 or greater: Yes or No. 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 foot within a span of 12 feet. When roofs have multiple pitches the requirements are based on the pitch of 50% or more of the roof.
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.

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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 ft^2 of fenestration allowed.

For additions that are $1000ft^2$ or less, but greater than $700ft^2$, the limit of total fenestration is the greater of $175ft^2$ or 20% of the CFA of the addition.
For additions that are $700ft^2$ or less, but greater than $400ft^2$, the limit of total fenestration is the greater of $120ft^2$ or 25% of the CFA of the addition.
For additions that are $400ft^2$ or less, the limit of total fenestration is the greater of $75ft^2$ or 30% of the CFA of the addition.
For additions that are $1000ft^2$ or less, when west-facing fenestration is limited (in climate zones 2, 4, and 6-16), it is limited to either $70ft^2$ (for additions greater than $700ft^2$) or $60ft^2$ (for additions that are $700ft^2$ or less).

1. Addition Type: Based on "Project Scope." The addition's area in square feet—whether ≤300, >300 to ≤400, >400 to ≤700, or >700 to ≤1,000.

(2. through 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 ft^2, 25% for additions greater than 400 ft^2 but no greater than 700 ft^2, and 20% for additions greater than 700 ft^2.
3. Maximum Calculated Allowed ft^2: The maximum total fenestration area is $75ft^2$ for additions up to 400 ft^2, $120ft^2$ for additions greater than 400 ft^2 but no greater than 700 ft^2, and 175 ft^2 for additions of greater than 700 ft^2.

Maximum allowed west-facing area is the greater of the values in column 4 or 5:

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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 700ft^2.
5. Maximum Calculated Allowed ft^2: The maximum west-facing fenestration area (in climate zones 2, 4, and 6-16) is 60ft^2 for additions no greater than 700ft^2, and 70ft^2 for additions of greater than 700 ft^2.

Addition CFA:	**≤ 400 ft^2**		**> 400 to ≤ 700 ft^2**		**> 700 to ≤ 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	-	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 0.32 for all climate zones.
7. Maximum Allowed U-factor (Skylights): Maximum area-weighted average of 0.32 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 0.25 for climate zones 2, 4, and 6-16; otherwise N/A.
9. Maximum Allowed SHGC (Skylights): Maximum area-weighted average of 0.25 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 (ft^2): 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 square feet) of each exterior fenestration type, including west-facing fenestration.
8. Proposed West Facing Fenestration Area ft^2: 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 square feet) 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

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(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 0.32, first complete a CF1R-ENV-02-E to calculate the area-weighted average U-factor, which must be 0.32 or less, and attach it to the CF1R-ADD-01-E.

NOTES:
(1) For the exceptions - up to 3 ft^2 of tubular skylights and up to 16 ft^2 of skylight area, enter 0.55.
(2) For the exception – up to 3 ft^2 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~~0~~.

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 (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 0.25 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 0.25 or less, and attach it to the CF1R-ADD-01-E.

    NOTES:
    (1) For the exceptions - up to 3 ft^2 of tubular skylights and up to 16 ft^2 of skylight area, enter 0.30.
    (2) For the exception – up to 3 ft^2 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 column 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. 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.

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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 (ft^2): Total dwelling unit conditioned floor area in 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.

K. Water Heating Systems for Additions

Water heating compliance for an addition is described in Section 150.2(a). When a water heater is added as part of an addition in a single dwelling, a gas or propane water heater, with a storage tank of 60 gallons maximum or instantaneous, can be used. Electric water heaters can only be used if gas or propane is not available. ~~and no recirculation pump can be used.~~

1. Water Heating System Identification or Name: Enter a unique name for the Water Heating System.
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. Water Heater Type: For non-central systems only Small Storage or Small Instantaneous are allowed. For central systems pick from Large Storage, Small Storage, Heat Pump, Boiler, Large Instantaneous, Small Instantaneous, or Indirect.
4. Number of Water Heaters in System: In single-family and multi-family with water heaters in each dwelling units the value is 1. For multi-family central systems serving multiple dwelling units enter the total number of water heaters.
5. Water Heater Volume (gal): Tank capacity in gallons. For individual water heaters for a dwelling unit this will be 60 gallons or less. If instantaneous, enter n/a. For multi-family central systems enter the total storage volume.
6. Fuel Type: Gas, Propane, or Electric (only if natural gas is not available)
7. Rated Input Type: Enter the equipment input rating type, for gas or propane fired system the units are Btuh, for electric fired system the units are kW.
8. Rated Input Value: Enter the numeric value of rated input.
9. Heating Efficiency Type: Energy Factor, AFUE, or Thermal Efficiency. From product literature or a California Energy Commission directory.
10. Heating Efficiency Value: Enter the value from product literature or a California Energy Commission directory
11. Standby Loss (percent): Applies only to large storage water heaters. Enter n/a for small storage or instantaneous water heaters.
12. Exterior Insulation R-Value: Enter the R-value if exterior insulation on the storage tank is installed
13. Back-up Solar Savings Fraction: If compliance requires a back-up solar system, indicate the solar contribution (e.g., 0.30). External calculations are required.
14. Central DHW System Distribution Type: For multi-family buildings using a central distribution system a demand recirculation system with at least two distribution loops must be installed. This requirement applies to any building with eight or more units. If the system is non-central or project has individual units enter n/a.
15. Dwelling Unit DHW System Distribution Type: For a Central DHW this field shall be Standard. If non-central then pick from Standard, Demand Recirculation – Manual Control, Demand Recirculation – Sensor Control. Non-central electric water heater must be Standard, no recirculation system shall be installed.

L. 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)

1. Dwelling Unit Name: Enter one unique name for each of the number of dwelling units with additions as identified in Section A field 06.
2. Dwelling Unit Total CFA – Sum of Existing Plus Addition (ft^2): 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. Central Water Heating System Identification or Name: Enter the central DHW system names from K. 01.
4. Dwelling Unit Water Heating System Identification or Name: Note the applicable water heating system name(s) that were entered in section K or L. 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.
5. 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.
6. Comments: Any notes regarding location or unique conditions.

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

Registration

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

1. **References**Water Heaters:

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

Single Dwelling Unit

A. A single gas or propane instantaneous water heater with an input of 200,000 Btu per hour or less and no storage tank, and that meets the requirements of Sections 110.1 and 110.3.

B. A single gas or propane storage type water heater with an input of 105,000 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 meet all of the requirements for Quality Insulation Installation (QII) as specified in the Reference Appendix RA3.5.

C. A single gas or propane storage type water heater with an input of 105,000 Btu per hour or less, rate volume of more than 55 gallons, and that meets the requirements of Sections 110.1 and 110.3.

Central System

D. All water heaters installed mustcomply with Sections 110.1 and 110.3. The distribution system shall be equipped with a demand recirculation control allowing pump operation to be based on measurement of hot water demand and hot water return temperature. The system shall have at least two loops. Buildings with 8 or less units do not have to comply with the demand recirculation requirement.

~~A. 150.1(c)8A one gas or propane storage water heater, up to 75,000 Btu/hour input (typically 50 gallons or less), with either no recirculating system or a demand recirculation system with manual controls. If the Energy Factor is less than or equal to the federal minimum, it must have an R-12 external wrap. See D. below.~~

~~B. 150.1(c)8B one gas or propane instantaneous (tankless) water heater with an input of 200,000 Btu per hour or less, no storage tank, and either no recirculating system, or a demand recirculation system with manual controls. .~~

~~C. 150.1(c)8C a central water-heating system that includes the following components (1) gas or propane water heaters, boilers or other water heating equipment, (2) a water heating recirculation loop that meets the requirements of Section 110.3(c)2 and Section 110.3(c)5 equipped with automatic controls for the recirculation pump based on measurement of hot water demand and hot water return temperature, and if more than 8 dwelling units, two recirculation loops each serving half of the building; (3) a solar water-heating system with a minimum solar savings fraction of 0.20 in climate zones 1 through 9 or a minimum solar savings fraction of 0.35 in climate zones 10 through 16 (installation criteria is in Reference Residential Appendix RA4).~~

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

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