

RESIDENTIAL ALTERATIONS

CEC-CF1R-ALT-01-E (Revised 09/16)

CALIFORNIA ENERGY COMMISSION

**CERTIFICATE OF COMPLIANCE**

CF1R-ALT-01-E

Prescriptive Residential Alterations

(Page 1 of 3)

Project Permit No:

Date Prepared:

A. General Information

01	Project Address		02	Building Front Orientation (deg or cardinal):	
03	CA City:		04	Number of Altered Dwelling Units:	
05	Zip Code:		06	Building Type:	
07	Climate Zone:		08	Total Conditioned Floor Area (ft ²):	
09	Project Scope:				

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

01	02	03	04		05		06		07
Alteration Type	Max Allowed Fenestration Area For All Orientations (ft ²)	Max. 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

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

01	02	03	04	05	06	07	08	9	1	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	Source	Proposed SHGC	Source	Exterior Shading Device	Combined SHGC from CF1R-ENV-03	
15	Net Added West-facing Fenestration Area								24	Compliance Statement:				
16	Is Net Added Fenestration Area ≤ 0 for West-Facing Fenestration?								25	Proposed Fenestration U-factor (Skylights)				
17	Net Added Fenestration Area (all orientations)								26	Required Fenestration U-factor (Skylights)				
18	Is Net Added Fenestration Area ≤ 0 for All Orientations?								27	Compliance Statement:				
19	Proposed Fenestration U-factor (Windows)								28	Proposed Fenestration SHGC (Skylights)				
20	Required Fenestration U-factor (Windows)								29	Required Fenestration U-factor (Skylights)				
21	Compliance Statement:								30	Compliance Statement:				
22	Proposed Fenestration SHGC (Windows)													
23	Required Fenestration SHGC (Windows)													

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Project Permit No:

Date Prepared:

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

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	Source	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:												

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Project Permit No:

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:

- 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-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 may require that you have the Reference Appendices for the 2016 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 Address: Identifying information of the project location.
2. 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 or multi-family project 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.
3. CA City: Legal city/town of property.
4. Number of Altered Dwelling Units: 1 for single family, 1 or more for multi-family.
5. Zip Code: 5-digit zip code for the project location (used to determine climate zone).
6. Building Type: Single Family (includes duplex), or Multi-Family (a building that shares common walls and common floors or ceilings).
7. Climate Zone: From Joint Appendix JA2.1.1.
8. Total Conditioned Floor Area: Enter the new conditioned floor area in ft², as measured from the outside of exterior walls of the dwelling unit or building being altered.
9. Project Scope: Check all that apply – insulation, roof replacement > 50%, space heating system, space cooling system, duct system, water heating, adding fenestration/glazing, replacing fenestration/glazing, adding fenestration/glazing ≤ 75 ft² windows, replacing fenestration/glazing ≤ 75 ft² window, adding fenestration/glazing ≤ 16 ft² skylight and or replacing fenestration/glazing skylights.

B. 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%, this is calculated as Conditioned Floor Area x 0.20 = total ft² of fenestration allowed (20%). 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%. Additions of 1,000 ft² or less have alternate requirements. For example, the limit may be 120 ft² of fenestration or 25%. While west-facing fenestration may be limited, if there is no west fenestration the upper limit remains at 120 ft² or 25% (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 ≤ 75 ft² windows, replacing fenestration/glazing ≤ 75 ft² window, adding fenestration/glazing ≤ 16 ft² skylight and or replacing fenestration/glazing skylights.

2. Maximum Allowed Fenestration Area for All Orientations (ft²): The maximum total fenestration area is 20%. Depending on the type of fenestration and the alteration type, this field may show values such as 75 ft².
3. Maximum Allowed West-Facing Fenestration Area Only: Calculated value based on Conditioned Floor Area multiplied by 5%(Used in climate zones 2, 4, and 6-16)

NOTE: (1) If adding fenestration/glazing \leq 16 ft² 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 ft², of the existing fenestration/glazing.
Existing West-Facing Fenestration Area: Enter the area, in ft², 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 0.32. 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 0.25 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.

C. 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 50% or more glazing is counted as the entire door area. A door with less than 50% glazing can be counted as the entire door area or can be calculated as the actual glass area with a 2-inch (0.17 ft²) 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 (ft²): Enter the area, in ft², of the fenestration/glazing being removed.
7. Area Added (ft²): Enter the area, in ft², of the fenestration/glazing being added.
8. Net Added Area (ft²): The difference between the Area Added and the Area Removed.
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 skylights) have a higher U-factor than 0.32, 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: 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 SHGC: In climate zones 2, 4, 6-16 enter
 - (e) the NFRC-SHGC based on the proposed brand and type of fenestration using National Fenestration Rating Council (www.nfrc.com) certified values, or
 - (f) the default value Table 110.6-B, or
 - (g) the NA6.3 alternate default 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: 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 an 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 Manual, Section 3.5.5).

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 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.

D. 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 50% or more glazing is counted as the entire door area. A door with less than 50% glazing can be counted as the entire door area or can be calculated as the actual glass area with a 2-inch (0.17 ft²) 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 (ft²): Indicate the area (in ft²) of each exterior fenestration type, excluding west-facing fenestration.
8. Proposed West Facing Fenestration Area (ft²): In climate zones 2, 4, 6-16, indicate the area (in ft²) 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 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 skylights) have a higher U-factor than 0.32, 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: 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 NFRC-SHGC based on the proposed brand and type of fenestration using National Fenestration Rating Council (www.nfrc.com) certified values; or
 - (b) the default value 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 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: 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 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 an 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 Manual, Section 3.5.5).

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 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.

Signatures

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).