



CERTIFICATE OF INSTALLATION		CF2R-ALT-05-E
Prescriptive Residential Alterations That Do Not Require HERS Field Verification		(Page 1 of 9)
Project Name:	Enforcement Agency:	Permit Number:
Dwelling Address:	City:	Zip Code:

This compliance document is only applicable to simple alterations that do not require HERS verification for compliance. When HERS verification is required, a CF1R-ALT-01 shall first be registered with a HERS Provider Data Registry.

Alterations to Space Conditioning Systems that are exempt from HERS verification requirements may use the CF1R-ALT-05 and CF2R-ALT-05 Compliance Documents. Possible exemptions from duct leakage testing include: less than 40 ft of ducts were added or replaced; or the existing duct system was insulated with asbestos; or the existing duct system was previously tested and passed by a HERS Rater. If space conditioning systems are altered and are not exempt from HERS verification, then a CF1R-ALT-02 must be completed and registered with a HERS Provider Data Registry.

Alterations that utilize close Cell Spray Polyurethane Foam (ccSPF) with a density of 1.5 to less than 2.5 pounds per cubic foot having an R-value greater than 5.8 per inch, or Open Cell Spray Polyurethane Foam (ocSPF) with a density of 0.4 to less than 1.5 pounds per cubic foot having an R-value of 3.6 per inch, shall complete and register a CF1R-ALT-01 with a HERS Provider Data Registry.

If more than one person has responsibility for installation of the items on this certificate, each person shall prepare and sign a certificate applicable to the portion of construction for which they are responsible. Alternatively, the person with chief responsibility for construction shall prepare and sign this certificate for the entire construction. All applicable Mandatory Measures shall be met. Temporary labels shall not be removed before verification by the building inspector.

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:				



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Insulation

The altered components shall comply with all applicable requirements in The Energy Efficiency Standards Sections 110.7, 110.8, 150.0; All joints, penetrations and other openings in the building envelope that are potential sources of air leakage shall be caulked, gasketed, weather stripped, or otherwise sealed to limit infiltration and exhalation.

B. Roof/Ceiling Insulation

01	02	03	04	05	06	07	08	09
I.D.	Manufacturer & Brand	Framing Material	Framing Size & Spacing	Insulation Type	ESR Number	Cavity Insulation R-value	Insulation Depth (inches)	Below Deck Insulation R-value

C. Wall Insulation

01	02	03	04	05	06	07	08	09	10
I.D.	Manufacturer & Brand	Framing Material	Framing Size & Spacing	Insulation Type	ESR Number	Cavity Insulation R-value	Insulation Depth (inches)	Exterior Wall Insulation R-value	Interior Wall Insulation R-value



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D. Mass Insulation

01	02	03	04	05	06	07	08
I.D.	Manufacturer & Brand	Location	Mass Thickness (inches)	Furring Strip Type/ Depth (inches)	Insulation Type	Exterior Insulation R-value	Interior Insulation R-value

E. Raised Floor Insulation

01	02	03	04	05	06	07	08	09	10
I.D.	Manufacturer & Brand	Framing Material	Framing Size & Spacing	Insulation Type	ESR Number	Cavity Insulation R-value	Insulation Depth (inches)	Exterior Floor Insulation R-value	Interior Floor Insulation R-value

F. Slab Floor/Perimeter Insulation

01	02	03	04	05	06	07	08
I.D.	Manufacturer & Brand	Floor Type	Insulation Type	Insulation Depth (inches)	Insulation R-Value	Vertical Insulation Length (inches)	Horizontal Insulation Length (feet)



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Roofing and Radiant Barrier

G. Radiant Barrier

01	Brand Name and Product Number	
02	Installation Type	
03	Total Attic Area (ft ²)	

H. Required Vent Area

01	Combined NFA of installed upper and lower vents (in ²)	
02	Minimum required combined NFA of upper and lower vents (in ²)	
03	NFA of installed upper vents (in ²)	
04	Minimum required NFA of upper vents (in ²)	

I. Roofing Products (Cool Roof) Installation Information

01	02	03	04	05	06	07	08
Roof Pitch	CRRC Product ID Number	Product Type	CRRC Listed Aged Solar Reflectance	Initial Solar Reflectance	Aged Solar Reflectance	Thermal Emittance	SRI



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J. Radiant Barrier and Attic Ventilation – Additional Requirements

Radiant Barrier

01	Radiant barrier must be installed on all vertical surfaces in the attic including gable ends.
02	The emittance of the radiant barrier shall be less than or equal to 0.05 as tested with ASTM C1371, or E408.
03	The product shall meet all requirements for California certified insulation materials [radiant barriers] of the Department of Consumer Affairs, Bureau of Home Furnishings and Thermal Insulation, as specified by CCR, Title 24, Part 12, Chapter 12-13, Standards for Insulating Material
04	When determining the Total Attic Area, the area over unconditioned spaces such as the garage is included when the attic spaces are connected.

Lower Vents

05	Lower vents are within one foot of the eave.
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Upper Vents

06	Upper vents are within three feet of the ridge
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Vent Area

07	The NFA of upper vents must be within required NFA range of upper vents Note: per Exception to R806.2 of the CBC Title 24, Part 2, Vol. 2.5, if the net free ventilating area is less than 1:150, then the upper ventilation must be at least 40% and no more than 50%. Part 2 contains additional requirements that must be met if the area is less than 1:150.
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The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.

K. Roofing Products (Cool Roof) Additional Requirements

01	Any roof area covered by building integrated photovoltaic panels and solar thermal panels are exempt from the above Cool Roof requirements.
02	Liquid field applied coatings must comply with installation criteria from section 110.8(i)4.
03	Mass roof 25 lb/ft ² or greater: Mass roofs are not required to have a cool roof even if the climate zone specifies minimum performance requirements.

The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.



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Fenestration

L. Fenestration/Glazing											
01	02	03	04	05	06	07	08	09	10	11	12
Tag/ID	Manufacturer/ Brand	Fenestration Area (ft ²)	Orientatio n	Chromogenic	U-factor	U-factor Source	SHGC	SHGC Source	Fenestration Type	Exterior Shading Devices (Describe)	Comments/Special Features

M. Fenestration/Glazing – Additional Requirements	
01	For existing buildings the U-factor and SHGC values should be the same or better than the required Energy Commission prescriptive requirements.
02	Temporary labels should not be removed until verified by the building inspector.
03	The fenestration product manufacturer's installation specifications shall be followed when installing these products. The space between the fenestration product and rough opening shall be completely filled with insulation. If batt insulation is used, it is cut to size and placed properly around the fenestration product.
The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.	



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Mechanical and Plumbing

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

Alterations to Space Conditioning Systems shall be exempt from HERS verification requirements as prerequisite for use of the CF1R-ALT-05 and CF2R-ALT-05 Compliance Documents. If new space conditioning systems are installed or existing systems are altered and are not exempt from HERS verification, then a CF1R-ALT-02 shall be completed and registered with a HERS Provider Data Registry. In each row below for each dwelling unit in the building, check the box that indicates the exemption from HERS verification compliance:

- a: space conditioning system was not altered;
- b: less than 40 ft of ducts were added or replaced;
- c: (exempt from duct leakage testing) if: the existing duct system was insulated with asbestos;
- d: (exempt from duct leakage testing) if: the existing duct system was previously tested and passed by a HERS Rater.

01	02	03	04			
Dwelling Unit Name	SC System Identification or Name	SC System Location or Area Served	Exemption from HERS Verification			
			<input type="checkbox"/> a	<input type="checkbox"/> b	<input type="checkbox"/> c	<input type="checkbox"/> d
			<input type="checkbox"/> a	<input type="checkbox"/> b	<input type="checkbox"/> c	<input type="checkbox"/> d
			<input type="checkbox"/> a	<input type="checkbox"/> b	<input type="checkbox"/> c	<input type="checkbox"/> d
			<input type="checkbox"/> a	<input type="checkbox"/> b	<input type="checkbox"/> c	<input type="checkbox"/> d
			<input type="checkbox"/> a	<input type="checkbox"/> b	<input type="checkbox"/> c	<input type="checkbox"/> d
			<input type="checkbox"/> a	<input type="checkbox"/> b	<input type="checkbox"/> c	<input type="checkbox"/> d
			<input type="checkbox"/> a	<input type="checkbox"/> b	<input type="checkbox"/> c	<input type="checkbox"/> d
			<input type="checkbox"/> a	<input type="checkbox"/> b	<input type="checkbox"/> c	<input type="checkbox"/> d
			<input type="checkbox"/> a	<input type="checkbox"/> b	<input type="checkbox"/> c	<input type="checkbox"/> d
			<input type="checkbox"/> a	<input type="checkbox"/> b	<input type="checkbox"/> c	<input type="checkbox"/> d
			<input type="checkbox"/> a	<input type="checkbox"/> b	<input type="checkbox"/> c	<input type="checkbox"/> d
			<input type="checkbox"/> a	<input type="checkbox"/> b	<input type="checkbox"/> c	<input type="checkbox"/> d
			<input type="checkbox"/> a	<input type="checkbox"/> b	<input type="checkbox"/> c	<input type="checkbox"/> d



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O. Installed Water Heating Systems (Section 150.2(b)1G)														
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
Dwelling Unit Name	Water Heating System Identification or Name	Water Heating System Location or Area Served	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

P. Installed Water Heater Manufacturer Information		
01	02	03
Water Heating System ID or Name	Manufacturer	Model Number



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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT		
1. I certify that this Certificate of Installation documentation is accurate and complete.		
Documentation Author Name:	Documentation Author Signature:	
Documentation Author Company Name:	Date Signed:	
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 Installation is true and correct. I am either: a) a responsible person eligible under Division 3 of the Business and Professions Code in the applicable classification to accept responsibility for the system design, construction, or installation of features, materials, components, or manufactured devices for the scope of work identified on this Certificate of Installation, and attest to the declarations in this statement, or b) I am an authorized representative of the responsible person and attest to the declarations in this statement on the responsible person's behalf. The constructed or installed features, materials, components or manufactured devices (the installation) identified on this Certificate of Installation conforms to all applicable codes and regulations and the installation conforms to the requirements given on the Certificate of Compliance, plans, and specifications approved by the enforcement agency. I will ensure that a registered copy of this Certificate of Installation shall be posted or 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 Installation is required to be included with the documentation the builder provides to the building owner at occupancy. 		
Responsible Builder/Installer Name:	Responsible Builder/Installer Signature:	
Company Name: (Installing Subcontractor or General Contractor or Builder/Owner)	Position With Company (Title):	
Address:	CSLB License:	
City/State/Zip:	Phone	Date Signed:

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

CF2R-ALT-05-E User Instructions

NOTE: If more space is needed, print a duplicate page and fill in.

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

Completing these documents will require that you have the Reference Appendices for the 2019 Building Energy Efficiency Standards (P400-2018-020). This document contains the Joint Appendices which are used to determine climate zone. When the term CF2R is used it means the CF2R-ALT-05. Worksheets are identified by their entire name and subsequently by only the worksheet number, such as ENV-02.

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

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

A. General Information

1. Project Name: Identifying information, such as owner's name.
2. Date Prepared: Date of document preparation.
3. Project Location: Legal street address of property or other applicable identifying information.
4. Building Front Orientation: Building front orientation 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.
5. CA City: Legal city/town of property.
6. Number of Dwelling Units: 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 natural gas is not connected to the building, or if the conditions of Section 150.2(b)1 are met.

9. Climate zone: From Joint Appendix JA2.1.1.
10. Total Conditioned Floor Area: Enter the new conditioned floor area in ft², as measured from the outside of exterior walls of the dwelling unit or building being altered.
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 (if any) in ft².
13. Project Scope: Insulation, Roof Replacement, Fenestration/Glazing, Heating System, Cooling System, Duct System, and/or Water Heating System alteration.

B. Roof/Ceiling Insulation

1. I.D.: A label from the plans (e.g., A1.4 or Roof) documenting the location of the installed insulation.
2. Manufacturer & Brand: Indicate the manufacturer and brand of the product being installed.
3. Framing Material: Wood or Metal.
4. Framing Size & Spacing: Indicate the framing size and spacing (e.g., 2x4 @ 16 in O.C.); enter N/A if not applicable.
5. Insulation Type: List the type of insulation used, such as: Batt, Loose Fill, or SPF.
6. ESR Number: If using a non-standard R-value for SPF insulation, complete an ICC Evaluation Service Report and record the ESR number.
7. Cavity Insulation R-value: Indicate the cavity insulation R-value.
8. Insulation Depth: Indicate, in inches, the amount of insulation installed.
9. Below Deck Insulation R-Value: Indicate the R-value of the continuous insulation, having no framing penetration, installed below the roof deck.

C. Wall Insulation

1. I.D.: A label from the plans (e.g., A1.4 or Wall1) documenting the location of the installed insulation.
2. Manufacturer & Brand: Indicate the manufacturer and brand of the product being installed.
3. Framing Material: Wood or Metal.
4. Framing Size & Spacing: Indicate the framing size and spacing (e.g., 2x4 @ 16 in O.C.); enter N/A if not applicable.
5. Insulation Type: List the type of insulation used, such as batt, loose fill, or SPF.
6. ESR Number: If using a non-standard R-value for SPF insulation, complete an ICC Evaluation Service Report and record the ESR number.
7. Cavity Insulation R-value: Indicate the cavity insulation R-value.
8. Insulation Depth: Indicate, in inches, the amount of insulation installed.
9. Exterior Wall Insulation R-Value: Indicate the R-value of the continuous insulation, having no framing penetration, installed on the outside of the wall.
10. Interior Wall Insulation R-Value: Indicate the R-value of the continuous insulation, having no framing penetration, installed on the inside of the wall.

D. Mass Insulation

1. I.D.: A label from the plans (e.g., A1.4 or Wall1) documenting the location of the installed insulation.
2. Manufacturer & Brand: Indicate the manufacturer and brand of the product being installed.
3. Location: Indicate the location of the insulation, such as: Above Grade, Below Grade, Wall, or Roof.
4. Mass Thickness: Indicate the thickness of the mass, in inches, the insulation is applied to.
5. Furring Strip Type/Depth: Indicate the type, and thickness, of furring material installed (e.g., wood/1.0 inch thick).
6. Insulation Type: List the type of insulation used, such as: SPF, EPS, or EPDM.
7. Exterior Insulation R-Value: Indicate the R-value of the continuous insulation, having no framing penetration, installed on the outside of the assembly.
8. Interior Insulation R-Value: Indicate the R-value of the continuous insulation, having no framing penetration, installed on the inside of the assembly.

E. Raised Floor Insulation

1. I.D.: A label from the plans (e.g., A1.4 or Floor1) documenting the location of the installed insulation.
2. Manufacturer & Brand: Indicate the manufacturer and brand of the product being installed.
3. Framing Material: Wood or Metal.
4. Framing Size & Spacing: Indicate the framing size and spacing (e.g., 2x4 @ 16 in O.C.); enter N/A if not applicable.
5. Insulation Type: List the type of insulation used, such as: Batt, Loose Fill, or SPF.
6. ESR Number: If using a non-standard R-value for SPF insulation, complete an ICC Evaluation Service Report and record the ESR number.

7. Cavity Insulation R-value: Indicate the cavity insulation R-value.
8. Insulation Depth: Indicate, in inches, the amount of insulation installed.
9. Exterior Floor Insulation R-Value: Indicate the R-value of the continuous insulation, having no framing penetration, installed on the outside of the floor.
10. Interior Floor Insulation R-Value: Indicate the R-value of the continuous insulation, having no framing penetration, installed on the inside of the floor.

F. Slab Floor/Perimeter Insulation

1. I.D.: A label from the plans (e.g., A1.4 or Slab Floor1) documenting the location of the installed insulation.
2. Manufacturer & Brand: Indicate the manufacturer and brand of the product being installed.
3. Floor Type: Indicate the type of floor the insulation is being applied to, such as: Heated Slab or Slab on Grade.
4. Insulation Type: List the type of insulation used, such as: EPDM, Polyisocyanurate, or Polystyrene.
5. Insulation Depth: Indicate, in inches, the depth of insulation installed.
6. Insulation R-Value: Indicate the insulation R-value being installed vertically and horizontally (if applicable).
7. Vertical Insulation Length: Indicate, in inches, the length of the insulation being installed.
8. Horizontal Insulation Length: Indicate, in feet, the length of the insulation being installed from the outside edge of the vertical insulation to the center of the slab.

G. Radiant Barrier

1. Brand Name and Product Number: Indicate the brand name and product number of the product used.
2. Installation Type: Indicate the installation type from the following list:
 - i. Attached to underside of roof deck;
 - ii. Attached to bottom of truss/rafters;
 - iii. Attached between truss/rafters;
 - iv. Draped over top of truss/rafters;
 - v. Attached to underside of roof deck with air space; or
 - vi. Attached to underside of roof deck with baffle.

NOTE: One of these six installation methods must be used; no other methods are allowed.

3. Total Attic Area (ft²): Provide the total attic area over conditioned space. When determining the total attic area, the area over unconditioned spaces such as garage is included when the attic spaces are connected. At least one square foot of net free venting area is required for each 300 square feet of attic (1:300).

H. Required Vent Area

1. Combined NFA of installed upper and lower vents (in²): Indicate the total combined NFA of installed upper and lower vents in square inches.
2. Minimum required combined NFA of upper and lower vents (in²): Total attic area divided by 300 and multiplied by 144.
3. NFA of installed upper vents (in²): Indicate the total NFA of installed upper vents in square inches.
4. Minimum required NFA of upper vents (in²): Table H item 1 (combined NFA of installed upper and lower vents) multiplied by 0.3.

I. Roofing Products (Cool Roof) Installation Information

1. Roof Pitch: Indicate whether the roof pitch is $< 2:12$ or $\geq 2:12$
2. CRRC Product ID Number: If a cool roof is installed, obtain the Product ID Number from the Cool Roof Rating Council's (CRRC) product packaging label or rated products directory (<http://coolroofs.org/products/results>).
3. Product Type: Indicate the product type being used.
4. CRRC Listed Aged Solar Reflectance: State whether the 3-year aged solar reflectance value of the product used is listed on the CRRC product packaging label or rated products directory—Yes or No.
5. Installed Initial Solar Reflectance: Indicate the initial solar reflectance value of the product used; obtained from the CRRC product packaging label or rated products directory.
6. Aged Solar Reflectance: Indicate the aged solar reflectance value of the product used; obtained from the CRRC product packaging label or rated product directory.

NOTE: If the 3-year aged value is not available then use the equation in Section 110.8(i)2 of the Energy Standards to calculate the 3-year aged solar reflectance. One can also use the "Calculated Aged Solar Reflectance" from the Solar Reflectance Index (SRI) Calculator" available at the California Energy Commission's website

7. Thermal Emittance: Indicate the thermal emittance value of the product used; obtained from the CRRC product packaging label or rated products directory. This can be either the initial or aged value.
8. SRI: If applicable, obtain the value of the product used from the CRRC rated products directory, or the "Solar Reflectance Index (SRI) Calculator" available at the California Energy Commission's website.

J. Radiant Barrier and Attic Ventilation – Additional Requirements

This section contains additional requirements for Radiant Barriers, Lower Vents, Upper Vents, and Vent Area.

K. Roofing Products (Cool Roof) – Additional Requirements

This section contains additional requirements for Roofing Products. Other exceptions apply for additions and/or alterations.

L. Fenestration/Glazing

1. Tag/ID: The labeling format used in the plans - ensure each unique type is used consistently throughout the plan set (elevations, finish schedules, etc.) to identify each matching fenestration product, such as: Window-1, Skylight-1 etc. It should also be consistently used on the other forms in the same compliance documentation.
2. Manufacturer/Brand: Provide the manufacturer and brand name which identifies the fenestration product being installed.
3. Fenestration Area (ft²): Indicate the total installed surface area (ft²) of the fenestration.
4. Orientation: Indicate the orientation of the same like fenestration. Use different lines if the orientation of the same fenestration varies. Enter N, S, E, or W.
5. Chromogenic: Is the glazing product chromogenic? Yes or No
6. U-factor: Indicate the specified U-factor of the fenestration product(s) being installed. Do not mix different types on the same line.
7. U-factor Source: NFRC, CEC Default, NA6 Alternative, or Area-weighted Average Worksheet (ENV-02). Enter the appropriate temporary label certificate identified as NFRC, CEC Default, NA6, or Area-weighted Average Worksheet (ENV-02). All windows installed must have a label certificate which identifies the window's efficiencies. NFRC rated products have a temporary label that can be looked up in the NFRC product directory at: <http://search.nfrc.org/search/searchDefault.aspx>.
8. SHGC: Indicate the specified SHGC of the fenestration product(s) being installed. Do not mix different types on the same line.

9. SHGC Source: NFRC, CEC Default, NA6 Alternative, or Area-weighted Average Worksheet (ENV-02). Enter the appropriate temporary label certificate identified as NFRC, CEC Default, NA6, or Area-weighted Average Worksheet (ENV-02). All windows installed must have a label certificate which identifies the window's efficiencies. NFRC rated products have a temporary label that can be looked up in the NFRC product directory at: <http://search.nfrc.org/search/searchDefault.aspx>.
10. Fenestration Type: Provide a description of the window type, for instance, the frame material, coatings, whether it is operable or fixed.
11. Exterior Shading Devices: If exterior shading devices are installed in conjunction with fenestration then indicate the type used (e.g. sunscreens, vertical roller or shades, retractable or drop arm or operable awnings, or roll down blinds or slats); or if an overhang is, or will be installed.
12. Comments/Special Features: Additional information for the field inspector.

M. Fenestration/Glazing – Additional Requirements

This section contains additional requirements for Fenestration/Glazing.

N. Space Conditioning (SC) Systems – Heating/Cooling

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

When parts of a system are replaced, it may trigger some of the same requirements that apply to new systems and duct alterations. A Certificate of Compliance for Alterations to Space Conditioning Systems (CF1R-ALT-02) is required for each dwelling unit with a space conditioning system alteration.

1. Dwelling Unit Name: Name of dwelling unit or any other identifying name.
2. SC System Identification or Name: Name of the space conditioning (SC) system or any other identifying name.
3. SC System Location or Area Served: Zone, or area, served by the space conditioning (SC) system.
4. Exemption from HERS Verification: Section 150.2(b)1E
 - a. Space Conditioning (SC) System was not altered.
 - b. Duct systems with less than 40 linear feet in unconditioned spaces as determined by visual inspection.
 - c. Existing duct systems constructed, insulated, or sealed with asbestos.
 - d. Duct systems that have been documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Residential Appendix RA3.1.

O. Installed Water Heating System

Water heating compliance for an alteration is described in Section 150.2(b). For a single dwelling a gas or propane water heater that meets the requirements of 150.2(b)1H can be used. If no natural gas is connected to the building, an electric water heater with an energy factor greater than or equal to the minimal energy factor required under the Appliance Efficiency Regulation, or an electric resistance storage type water heater with a storage capacity of less than 60 gallons can be used. If there is no natural gas connected to the building, an electric water heater may be replaced with another electric water heater. However, changing from gas to electric is not allowed. Multi-family central systems must use certified equipment as defined under Section 110.1 and 110.3.

NOTE: If the proposed installation does not meet the requirements allowed specifically for alterations, then use the computer performance approach to show compliance.

1. Dwelling Unit Name: Name of dwelling unit or any other identifying name.
2. Water Heating System Identification or Name: Name of the Water Heating System or any other identifying name.
3. Water Heating System Location or Area Served: Zone, or area, served by the Water Heating System.
4. 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 is when the water heater will provide both space conditioning and domestic hot water.
5. 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.
6. Number of Water Heaters in System: In single-family and multi-family with water heaters in each dwelling unit the value is 1. For multi-family central systems serving multiple dwelling units enter the total number of water heaters.
7. Water Heater Storage Volume: Tank capacity in gallons. For individual water heaters for a dwelling unit this will be 80 gallons or less. If instantaneous, enter N/A. For multi-family central systems enter the total storage volume.
8. Fuel Type: Gas, Propane, Electric (only if natural gas is not connected to the building, or if conditions of Section 150.2(b)1Giic or 150.2(b)1Giid are met).
9. Rated Input Type: Enter the equipment input rating type. Btuh for gas or propane fired units, and kW for electric fired systems.
10. Rated Input Value: Enter the numeric value of the rated input.
11. Heating Efficiency Type: Energy Factor, AFUE, Thermal Efficiency, or Uniform Energy Factor. From product literature or a California Energy Commission directory.
12. Heating Efficiency Value: Enter the value from product literature or California Energy Commission directory
13. Standby Loss (%): Applies only to large storage water heaters; enter N/A for small storage, instantaneous, or heat pump water heaters.
14. Exterior Insulation R-Value: Enter the R-value if exterior insulation on the storage tank is installed.
15. 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.

P. Installed Water Heater Manufacturer Information

This table reports the manufacturer information of the installed water heater(s). Require one line for each installed water heater.

1. Water Heating System ID or Name: Name of the water heating system or any other identifying name.
2. Manufacturer: Provide the manufacturer's name which identifies the water heater being installed.
3. Model Number: Provide the model number which identifies the water heater being installed.

Documentation Declaration Statements

1. The person who prepared the CF2R will sign and complete the fields for their name, company (if applicable), address, phone number, certification information (if applicable), date and signature.
2. The person who is assuming responsibility for the project being built to comply with Title 24, Part 6, will complete the fields for their name, company (if applicable), address, phone number, license number (if applicable), date and signature.