

DOCKETED

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CERTIFICATE OF INSTALLATION		CF2R-ENV-21-H
Quality Insulation Installation (QII) –Air Infiltration Sealing - Framing Stage		(Page 1 of 4)
Project Name:	Enforcement Agency:	Permit Number:
Dwelling Address:	City:	Zip Code:

A. Air Barrier Materials

01	A continuous sealed exterior air barrier is required in all thermal envelope assemblies to limit air movement between unconditioned/outside spaces and conditioned/inside spaces, and must comply using one of the following methods: <ol style="list-style-type: none"> Using individual materials that have an air permeance not exceeding 0.004 cfm/ft² under a pressure differential of 0.3 in. w.g. (1.57 pcf) (0.02 L/s.m² at 75 pa) when tested in accordance with ASTM E2178; or Using assemblies of materials and components that have an average air leakage not to exceed 0.04 cfm/ft² under a pressure differential of 0.3 in. w.g. (1.57 pcf) (0.2 L/s.m² at 75 pa) when tested in accordance with ASTM E2357, ASTM E1677, ASTM E1680, or ASTM E283; or Testing the complete building and demonstrating that the air leakage rate of the building envelope does not exceed 0.40 cfm/ft² at a pressure differential of 0.3 in. w.g. (1.57 pcf) (2.0 L/s.m² at 75 pa) in accordance with ASTM E779 or an equivalent approved method.
02	Method of Compliance
Note: SPF insulation is an acceptable air barrier and sealant when installed to a minimum thickness of 2 inches for closed cell and 5.5 inches for open cell, except where not allowed by manufacturer (e.g., flues, vents, can lights, etc.).	
The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.	

B. Raised Floor Adjacent to Unconditioned Space or Separate Dwelling Units

01	All gaps in the raised floor are sealed.
02	All chases are sealed at floor level using a sealed hard cover.
03	All holes (e.g., for plumbing and electrical wires) that penetrate the floor or bottom plates of walls are sealed.
04	Subfloor sheathing is glued or sealed at all panel edges to create a continuous air tight subfloor air barrier.
The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.	

C. Walls Adjacent to Unconditioned Space

01	All penetrations through the exterior wall air barrier are sealed to provide an air tight envelope to unconditioned spaces such as the outdoors, attic, garage, and crawlspace.
02	Exterior wall air barrier is sealed to the top plate and bottom plate in each stud bay.
03	All electrical boxes, including knockouts, that penetrate the air barrier to unconditioned space are sealed.
04	All openings in the top and bottom plate, including all interior and exterior walls, to unconditioned space are sealed; such as holes drilled for electrical and plumbing.
05	Exterior bottom plates (all stories) are sealed to the floor.
06	All gaps around windows and doors are sealed. The sealant used follows manufacturer specifications.
07	Rim joist gaps and openings are fully sealed.
08	Fan exhaust duct outlet/damper at the exterior wall are sealed.
09	Knee walls have solid and sealed blocking at the bottom, top, left and right sides to prevent air movement into insulation.
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D. Ceiling Air Barrier Adjacent to Unconditioned Space

01	There is a continuous air barrier at the ceiling level. All openings into walls, drops, chases or double walls are sealed.
02	All penetrations through the top plate of interior and exterior walls are sealed.
03	Fire sprinklers penetrating a ceiling air barrier shall be sealed to prevent air movement according to the manufacturer's instructions.
04	All fixtures cut into ceiling air barrier (e.g., HVAC registers, electrical boxes, fire alarm boxes, exhaust fan housing, and recessed lighting fixtures) are sealed to the surrounding dry wall. If it is not possible to seal the fixture directly, a secondary air barrier shall be created around the fixture.
05	All installed recessed lighting fixtures that penetrate the ceiling to unconditioned space are rated to be Insulation Contact and Airtight (IC and AT) which allow direct contact with insulation.
06	All dropped ceiling areas are covered with hard covers that are sealed to the framing, or else the bottom and sides of dropped ceiling areas are all insulated and sealed as ceilings and walls as required on the Certificate of Compliance.
07	All vertical chases (e.g., HVAC ducts and plumbing) and soffits are sealed at the ceiling level.
08	Chimneys and flues require sheet metal flashing at the ceiling level. The flashing shall be sealed to the chimney/flue with fire rated caulk. The flashing shall be sealed to the surrounding framing.
09	Framing locations where air may move down into the walls from the attic (e.g., double walls, pocket doors, architectural bump-outs, etc.) have a sealed hard cover to prevent air movement.
10	Attic access forms an airtight seal between the conditioned space and unconditioned space. Vertical attic access requires mechanical compression using screws or latches.
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E. Roof Air Barrier – Unvented Attics Adjacent to Unconditioned Space

01	There is a continuous air barrier at the roof deck and gable ends.
02	Chimneys and flues require sheet metal flashing at the roof deck. The flashing is sealed to the chimney/flue with fire rated caulk. The flashing is sealed to the surrounding framing.
03	All penetrations in the roof deck and gable ends for plumbing, electrical, etc. are sealed.
The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.	

F. Conditioned Space Above or Adjacent to Garage Air Barrier

01	All penetrations in the subfloor above the garage into conditioned space must follow the raised floor air barrier requirements.
02	Infiltration between the space above the garage and the subfloor is prevented by one of the following methods: <ul style="list-style-type: none"> Seal all edges of the garage ceiling (typically drywall) at the perimeter of the garage to create a continuous air tight surface between the garage and adjacent conditioned envelope. Seal all plumbing, electrical, and mechanical penetrations between the garage and adjacent conditioned space. For an open-web truss, airtight blocking is added on all four sides of the garage perimeter. Insulation can be placed on the garage ceiling. Seal the band joist above the wall at the garage to conditioned space transition. Seal all subfloor seams and penetrations between the garage and adjacent conditioned space. Insulation must be placed in contact with the subfloor below the conditioned space.
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G. Cantilevered Floor Air Barrier

01	Airtight blocking is installed between joists where the wall rim joist would have been located in the absence of a cantilever.
02	Exterior sheathing is installed to the bottom of the cantilever so that there is a continuous air and weather barrier for the cantilever. The cantilevered joist must be insulated to the same R-value as would be required for the subfloor prior to closing.
03	Any gaps, cracks or penetrations in the air barrier of the cantilever are sealed. Recessed can lights in the cantilever are IC and AT and properly sealed to the sheathing.
The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.	

H. Walls for Attached Porch, Attic, Double Wall Air Barrier

01	An exterior wall air barrier is required at the intersection of the porch and exterior wall when there is conditioned space on the other side. The exterior wall includes an air barrier where the attic attaches to the conditioned space.
02	Truss framing blocking is used at the top and bottom of each wall/roof section.
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QII - AIR INFILTRATION SEALING – FRAMING STAGE

CEC-CF2R-ENV-21-H (Revised 01/19)

CALIFORNIA ENERGY COMMISSION



CERTIFICATE OF INSTALLATION		CF2R-ENV-21-H
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I. Air Barriers in Multifamily Dwellings

01	Each dwelling unit must be sealed to stop air movement between dwelling units. Treat adjacent dwelling units as unconditioned space for air sealing.
02	All penetrations through the floor and ceiling of each dwelling unit are sealed, including electric and gas utilities, water pipes, drain pipes, fire protection service pipes, and communication wiring.
03	Elevator penthouse, mechanical penthouse, stairwell doors, roof access hatches, and plumbing stacks that separate conditioned and unconditioned space are all sealed.
04	Vertical chases for garbage chutes, elevator shafts, HVAC ducting and plumbing shall be treated as unconditioned space for sealing.
05	Common hallways shall be treated as unconditioned space for sealing.

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

J. Special Requirements for SIPs

01	SIPs are considered an air barrier when properly sealed at top, bottom, sides and all penetrations.
02	Air barrier is continuous across all surfaces, including between SIPs and non-SIP sections.

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

K. Special Requirements for ICF

01	ICF sections are considered an air barrier when properly sealed at top, bottom, sides and all penetrations.
02	Air barrier is continuous across all surfaces, including between ICF and non-ICF sections.

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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 understand that a HERS rater will check the installation to verify compliance and if such checking determines the installation fails to comply, I am required to offer any necessary corrective action at no charge to the building owner. 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:
Third Party Quality Control Program (TPQCP) Status:	Name of TPQCP (if applicable):	

CF2R-ENV-21 User Instructions

Quality Insulation Installation (QII) applies to the entire building (roof/ceiling, walls, and floor) for new construction and requires field verification by a third-party HERS Rater. For Alterations to existing buildings, compliance credit can only be taken when the “existing, plus addition, plus alteration” approach is used, but credit will only apply to the new surfaces in the new zone.

A. Air Barrier Materials

- Using the drop down menu, indicate which method is being used to comply with the continuous air barrier requirements [e.g., Method 1 (Individual Materials), Method 2 (Assemblies of Materials), Method 3 (Complete Building)].

B. Raised Floor Adjacent to Unconditioned Space or Separate Dwelling Unit

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C. Walls Adjacent to Unconditioned Space

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D. Ceiling Air Barrier Adjacent to Unconditioned Space

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E. Roof Air Barrier – Unvented Attics Adjacent to Unconditioned Space

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F. Conditioned Space Above or Adjacent to Garage Air Barrier

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

G. Cantilevered Floor Air Barrier

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

H. Walls for Attached Porch, Attic, Double Wall Air Barrier

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I. Air Barrier in Multifamily Dwellings

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J. Special Requirements for SIPs

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K. Special Requirements for ICF

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