

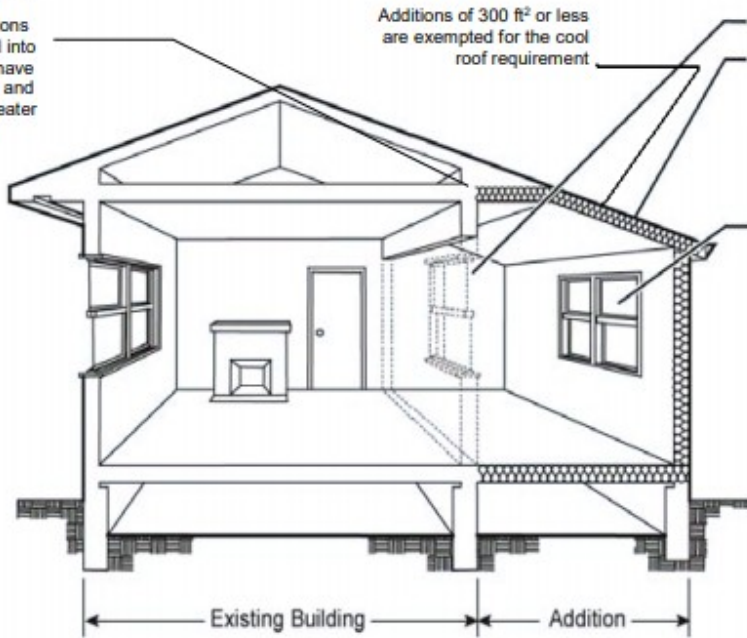


**2022 CALIFORNIA ENERGY CODE
RESIDENTIAL PRESCRIPTIVE REQUIREMENTS FOR ADDITION & ALTERATIONS**

❖ Prescriptive Requirements for Additions < 1000 ft²

Figure 9-3: Prescriptive Addition Envelope Requirements

To provide consistency with existing wall alignment, extensions of the existing wall into the addition shall have R-15 for 2x4 walls and R-21 for 2x6 or greater walls.



Removed wall and window not included in the calculation.

Insulation requirements from Prescriptive table; unless addition is 700 ft² or less, then meet mandatory minimum roof/ceiling insulation

Fenestration area is limited based on the size of the addition:

- For additions ≤ 400 ft²: 75 ft² or 30% of CFA – whichever is greater -- for total glazing area; and 60 ft² for west-facing glazing.
- For additions > 400 ft² and ≤ 700 ft²: 120 ft² or 25% of CFA – whichever is greater -- for total glazing area; and 60 ft² for west-facing glazing.
- For additions > 700 ft²: 175 ft² or 20% of CFA – whichever is greater -- for total glazing area; and 70 ft² or 5% of CFA – whichever is greater - for west-facing glazing.

TABLE 1

A ≤ 400 ft²	400 ft² < A ≤ 700 ft²	700 ft² < A ≤ 1000 ft²
<ul style="list-style-type: none"> • 75 ft² fenestration OR 30% of addition's CFA* • Max west-facing fenestration 60 ft² 	<ul style="list-style-type: none"> • 120 ft² fenestration OR 25% of addition's CFA* • Max west-facing fenestration 60 ft² 	<ul style="list-style-type: none"> • 175 ft² fenestration OR 20% of addition's CFA* • Max west-facing fenestration 70 ft² OR 5%*

*whichever is greater
CFA: Conditioned Floor Area

TABLE 2

Component	A ≤ 700 ft²		700 ft² < A ≤ 1000 ft²	
	Standard	Code Ref.	Standard	Code Ref.
Ceiling Insulation	R-38 min.	150.2(a)1Bi.a Table 150.1-A	Option B: R-38 min. Option C: R-30 min.	See Table 3 150.2(a)1A Table 150.1-A
Rafter Roof Insulations	Not Required	150.2(a)1Bi Table 150.1-A	Option B: R-19 min.	See Table 3 150.2(a)1A Table 150.1-A
Minimum Insulation in (N) Wall as Extension of (E) Wall	R-15 (2x4) R-21 (2x6)	150.2(a)1B	R-15 (2x4) R-19 (2x6)	150.2(a)1A
(N) Wall Insulation	U-factor ≤ 0.048 R21+R5 (2x6) R19+R7 (2x6) R-15+R-10 (2x4)	Table 150.1-A	U-factor ≤ 0.048 R21+R5 (2x6) R19+R7 (2x6) R-15+R-10 (2x4)	Table 150.1-A

Floor Insulation	U-Factor \leq 0.037 R-19 for Raised Floor	Table 150.1-A	U-Factor \leq 0.037 R-19 for Raised Floor	Table 150.1-A
Fenestration	U-Factor \leq 0.3 SHGC \leq 0.23	Table 150.1-A	U-Factor \leq 0.3 SHGC \leq 0.23	Table 150.1-A
Maximum Glazing Area	See Table 1	150.2(a)1Biv	See Table 1	150.2(a)1Aii
Radiant Barrier	Required	150.2(a)1Bii	Option B: Not Required Option C: Required	Table 150.1-A
Quality Insulation Installation (QII)	Not Required	150.2(a)1Bv	Required	150.2(a)1Aiv

❖ [Roof and Ceiling Requirements for Prescriptive Additions \(700 ft² < A \$\leq\$ 1000 ft²\)](#)

TABLE 3	Option B	Option C
Roof Deck Insulations ^{1,2}	R19 with air space. No radiant barrier required	Not Required. Radiant barrier is required. (Note: This attic requires ducts & HVAC system in conditioned space)
Ceiling Insulation	R38 min.	R30 min.
Duct Location	Attic/unconditioned space, with maximum 5% duct leakage	Conditioned Space, with maximum 5% duct leakage, HERS Required
Duct Insulation	R-8 min.	R-6 min.
<p>1. Roof deck insulation should be installed flush with the roof deck. Above deck insulation is applied as continuous insulation. Below deck insulation is installed in the cavities between trusses.</p> <p>2. A designed air space may exist between the roof deck and the finishing roof material (such as roof tiles), triggering lower required insulation values.</p>		

❖ **Prescriptive Fenestration Requirements for Alterations**
 (Area of whole window, including frame)

TABLE 4

<p style="text-align: center;">Replace Existing Only* (No Increase in Fenestration Area)</p> <ul style="list-style-type: none"> ❖ Vertical fen. $\leq 75 \text{ ft}^2$ U-factor ≤ 0.40 SHGC ≤ 0.35 ❖ Vertical fen. $> 75 \text{ ft}^2$ U-factor ≤ 0.30 SHGC ≤ 0.23 ❖ Skylights U-factor ≤ 0.55 SHGC ≤ 0.30 	<p style="text-align: center;">Added Fenestration $1 \text{ ft}^2 < \text{Area} \leq 75 \text{ ft}^2$</p> <ul style="list-style-type: none"> ❖ U-factor ≤ 0.30 ❖ SHGC ≤ 0.23 <p>Total and west-facing area requirements do NOT apply</p> <p>Alterations that add ≤ 16 sf new skylight area with a max U-factor of 0.55 and a max SHGC of 0.30 area do NOT need to meet the total fenestration area and west-facing fenestration area required</p>	<p style="text-align: center;">Added Fenestration $\text{Area} \geq 75 \text{ ft}^2$</p> <ul style="list-style-type: none"> ❖ U-factor ≤ 0.30 ❖ SHGC ≤ 0.23 ❖ Total area $\leq 20\%$ ❖ West Facing Area $\leq 5\%$
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*Applies even if a single window (including frame) is being replaced.

❖ **Prescriptive Requirements for Envelope Alterations**

TABLE 5

Envelope Alteration Type	Applicable Mandatory Measures
Adding ceiling insulation to an existing roof, or a new roof on an existing building	Ceiling w/ attic and roof rafters: R-49 min. (U-factor ≤ 0.020) with air sealing
Adding exterior framed wall insulation	2x4 framing: R-13 min. 2x6 framing: R-20 min. Exception: Existing walls already insulated to R-11
Adding raised floor insulation	R-19 min. Exception: Floors over controlled ventilation or unvented crawlspaces in compliance with CEnC section 150.0(d) requirements.