

### WHAT'S NEW IN THE CODE?

As of January 1, 2020, Title 24 will mandate new and updated energy efficiency regulations for residential construction in the State of California, including changes to lighting, mechanical ventilation systems, wall and attic insulation, and approaches to overall energy efficiency.

### KEY HIGHLIGHTS

- High performance attics and high performance walls will now be required *in addition to* PV solar. (Previous versions of the code allowed PV to be used as a limited trade-off.)
- Prescriptive options for attics have been simplified.
- The mandatory minimum insulation in 2x6 framed walls is R-20.
- Quality Insulation Installation (QII) is now a prescriptive requirement. Include QII in the contractor scope, as a HERS Rater will be inspecting the work.

### CODE REQUIREMENTS: HIGH PERFORMANCE ATTICS

#### Prescriptive Attic Options

		Climate Zone	HVAC Duct Insulation & Leakage	Radiant Barrier	R-30 at Ceiling* (Attic Floor)	R-38 at Ceiling* (Attic Floor)	Fiberglass Below Roof Deck Between Rafters*
Air Handler & Ducts in the Attic	Option B	1	R-6 or R-8, depending on CZ, all with <5% leakage			•	
		2		•		•	
		3, 5-7		•	•		
		10, 16				•	R-13
		4, 8, 9, 11-15				•	R-19
Air Handler & Ducts in Conditioned Space	Option C	1, 16	R-6, all with <5% leakage			•	
		2-10		•	•		
		11-15		•		•	

\* Option A (insulation above the roof deck) is available through the Performance Attic Options below

\*\* If fiberglass batts installed in attics are thicker than the surrounding framing, use full width.

#### Performance Attic Options

Any attic insulation not listed under "Prescriptive" must use Performance options (e.g., unvented attics, or attics with foam board above the roof deck).

Air Handler & Ducts in Attic (vented or unvented)	Compliance must be demonstrated via energy modeling with CBECC-RES software.	Mandatory minimum R-22 attic insulation
	Unvented attics must be air-sealed at roof deck, eaves, gables and penetrations. Gables to be insulated as exterior walls.	

### CODE REQUIREMENTS: HIGH PERFORMANCE WALLS

Climate Zones 1-5 and 8-16	Wall assemblies must not exceed a maximum U-factor <sup>†</sup> of 0.051
Climate Zones 6 & 7	Wall assemblies must not exceed a maximum U-factor <sup>†</sup> of 0.065

<sup>†</sup> U-factor = 1/R-value. U-factor for a wall includes the effects of framing, sheathing, cavity insulation, continuous insulation and interior & exterior finishes. Title 24 U-factor is calculated per Joint Appendix JA4.

**JM's broad portfolio of quality insulation products for use in High Performance Attics & Walls includes:**



**Fiberglass**



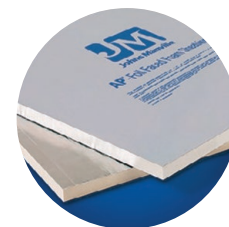
**Spray Foam**



**Blow-In**



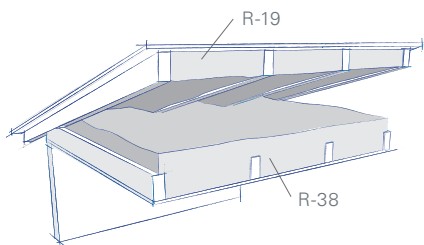
**Mineral Wool**



**Polyiso Sheathing**

With the broadest product offering in the insulation industry and more than 160 years of experience, Johns Manville is your expert building partner. Our building science knowledge and network of skilled contractors can help you meet or exceed new Title 24 requirements, providing more comfortable and energy efficient homes.

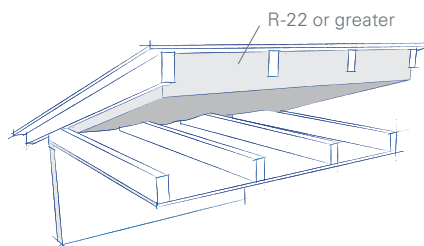
## JM SOLUTIONS: HIGH PERFORMANCE ATTICS



### Prescriptive Path – Vented Attic

Option B (Zones 4, 8-16)

R-19 or R-13 JM Formaldehyde-Free™ Fiberglass Batts installed below roof deck at rafters **-and-** R-30 or R-38 JM Climate Pro® Blow-in installed at ceiling (attic floor)



### Performance Path – Unvented Attic

R-30+ JM Formaldehyde-Free™ Fiberglass Batts  
**-or-** R-22+ JM Corbond® Spray Foam (SPF)  
 (insulates and airseals in one step) installed only at the underside of the roof deck

**Note:** Greater insulation values may allow for savings due to tradeoffs elsewhere in the design

#### Benefits of Unvented Attics:

- Reduced air leakage rates throughout the attic
- Reduced energy loss from leaky ductwork
- Extended life and reduced size of HVAC system

## JM SOLUTIONS: HIGH PERFORMANCE WALLS

Exterior Cladding	Wall Framing	Cavity Insulation	Continuous Insulation	U-factor
3-Coat Stucco or Siding	2x4, 16" o.c.	R-13 JM Fiberglass -or- JM Corbond Open-Cell (oc) SPF	1.5" JM AP Foil (R-9.3)	0.050
		R-15 JM Fiberglass or Mineral Wool	2" CladStone (R-8.6)	0.050
		3.1" JM Corbond III Closed-Cell (cc) SPF (R-21)	0.625" JM AP Foil (R-3.5)	0.051
		R-13 JM Fiberglass -or- JM Corbond oc SPF	0.75" JM AP Foil (R-5)	0.063
	2x6, 16" o.c.	R-21 JM Fiberglass -or- R-20 JM Corbond III oc SPF	0.75" JM AP Foil (R-5)	0.048
		2" JM Corbond III cc SPF + R-13 JM Fiberglass (Cavity Total R-27)	0.5" JM AP Foil (R-2.7)	0.048
		3.4" JM Corbond III cc SPF (R-24)	None	0.065
	2x6 Advanced Framing†	R-21 JM Fiberglass -or- 5.5" JM Corbond III oc SPF (R-20)	0.625" JM AP Foil (R-3.5)	0.051
		R-23 JM Fiberglass (Spider or BIBS) -or- 3.25" JM Corbond III cc SPF	0.5" JM AP Foil (R-2.7)	0.050
		4.1" JM Corbond III cc SPF (R-29)	None	0.050
		R-21 JM Fiberglass -or- R-20 JM Corbond III oc SPF	None	0.061
1-Coat Stucco Over R-4 EPS Foam Board	2x4 16" o.c.	R-15 JM Fiberglass or Mineral Wool		0.065
	2x6, 16" o.c.	3" JM Corbond III cc SPF (R-21)		0.051
		1.5" JM Corbond III cc SPF + R-13 JM Fiberglass (Cavity Total R-23.5)		0.048
	2x6 Advanced Framing†	R-21 JM Fiberglass -or- 5.5" JM Corbond III oc SPF (R-20) -or- 1.5" JM Corbond III cc SPF + JM R-13 Fiberglass (Cavity Total R-23.5)		0.045

†Advanced framing (AWS) is a building method that maximizes the insulated portion of the wall and eliminates redundant or unnecessary wood components. Title 24 defines the requirements for AWS in Joint Appendix 4, section JA4.1.6. The basics of AWS are 24" o.c. framing, single top plates, 2-stud corners, reduced header size, reduced T-wall connections, and stacked framing across stories.



Climate Zones 1-5 and 8-16



Climate Zones 6-7

**For additional solutions or more information, contact your local JM rep, call the Product Information Center at 800-654-3103 or visit [www.JM.com](http://www.JM.com).**