



California Building Envelope Solutions

August 24 - 25, 2016

Proven Experience with JM

- 158 Years
- Berkshire Hathaway
- Insulation Experts

Products



JM
Expertise



Installation





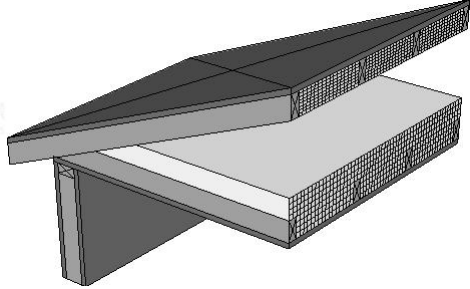






Innovation

Challenges

2016 Title 24 New Requirements

- Attics
 - Ducts in attic
 - High Performance Attics (HPA)
 - Insulation @ attic floor & roof deck & radiant barrier
 - Unvented Attics (UVA) – Performance option
 - Ducts in conditioned space
 - Insulation @ attic floor & radiant barrier
- High Performance Walls (HPW)
 - Cavity & continuous insulation needed (mostly)
 - Factor in framing

Attic Solutions

Product	Perf.	Cost	Labor	
Fiber glass – vented		\$		
UVA with fiber glass batts		\$		
Spray foam		\$\$\$		

Wall Systems

Framing options

- 2x4 wood studs, 16" o.c.
 - 25% framing
- 2x6 wood studs, 16" o.c.
 - 25% framing
- Advanced wall system (from JA-4)
 - 24" o.c.
 - Single top plates, 2-stud corners
 - Stacked studs
 - Ladder or T-framing for interior partitions
 - Reduced cripples, reduced headers

Wall Systems

Cavity insulation

Product Type	Thickness	R-values
Fiber glass batts	3½", 5½"	13, 15 19, 21
JM Spider® Plus	3½", 5½"	14 - 23
JM Corbond® oc SPF	3½", 5½"	13.3, 20.9
JM Corbond III®	3"+	21+ (R-7/inch)

**JM Corbond III + Spider Plus or batts =
effective hybrid option**



Wall Systems

Continuous insulation

- AP™ Foil-Faced Foam Sheathing
 - Taped for WRB & air barrier
 - Can resist lateral wind loads
 - Thicknesses up to 4½” available
- JM Corbond III® can be exterior CI if fully sheathed



Thickness	R-values
½”, ⅝”, ¾”, 0.85”	2.7, 3.5, 4.4, 5.0
1”, 1½”, 1.65”	6.0, 9.3, 10.0

Wall Construction in CA

Framing

- 2x4 wood studs, 16" o.c. = 38%
- 2x4 & 2x6 wood studs (~1/2 use 24" o.c.)

Cavity insulation (FG batts 94%)

- R-13 only = 38%
- R-13 + R-19 = 56%
- R-15 = 4%, R-19 only = 2%

Stucco

- 3-coat = 46%
- 1-coat = 52% (over R-4 EPS board)

HPW Solutions

Good



\$

Better



+



\$\$

Best



\$\$

Cavity Insulation + Continuous Insulation = T 24 Compliance



Summary

Many insulation options for attics & walls

- Attics
 - Vented or unvented, driven by HVAC & duct location, and Performance vs. Prescriptive compliance
 - Fiber glass batts, JM Spider, spray foam all can work
 - Unvented attics (UVA) must be air sealed
- Walls
 - Framing + cavity insulation + continuous insulation
 - Fiber glass, JM Spider Plus, spray foam & AP Foil sheathing are all essential elements
 - Air sealing is critical

JM is your complete source for the best design for your homes

Paths to compliance - walls

3-coat Stucco (7/8")					
Insulation Systems	Cavity R-value	AP Foil R-value	Wall Framing Systems		
			2x4 16" o.c.	2x6 16" o.c.	2x6 AWS
Batts	13	9.3	0.050		
	15	9.3	0.047		
	15	4.4			
	19 (18)	5		0.051	
	19 (18)	4.4			0.051
	21	4.4		0.051	
	21	3.3			0.049
Spider Plus or BIBS	15	9.3	0.047		
	23	4.4		0.049	
	23	2.7			0.050
ocSPF	13.0	9.3	0.050		
	20.4	5		0.049	
	20.4	3.3			0.051
Corbond III	21.7	6	0.049		
	21	4.4		0.051	
	24	3		0.051	
	29	0			0.051

Paths to compliance - walls

One-coat Stucco (3/8" over R-4 EPS)					
Insulation Systems	Cavity R-value	Continuous Insulation	Wall Framing Systems		
Insulation Systems	Cavity R-value	AP Foil R-value	2x4 16" o.c.	2x6 16" o.c.	2x6 AWS
Batts	15	0			
	19 (18)	0			0.045
	21	0		0.051	0.045
Spider Plus or BIBS	15	0			
	23	0		0.049	0.043
ocSPF	20.4	0			0.047
Corbond III	17	0			0.051
	21	0		0.051	
Hybrid Systems					
1" Corbond III + Spider Plus	25.8	0		0.048	0.041
1.5" Corbond III + Spider Plus	27.2	0		0.046	0.04
2" Corbond III + Spider Plus	28.6	0		0.045	0.039



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Paths to compliance - walls

3-coat Stucco (7/8")					
Insulation Systems	Cavity R-value	AP Foil R-value	Wall Framing Systems		
			2x4 16" o.c.	2x6 16" o.c.	2x6 AWS
Hybrid Systems					
1" Corbond III + Spider Plus	17.5	9.3	0.045		
1" Corbond III + Spider Plus	25.8	3.3		0.050	
	25.8	2.7			0.048
1.5" Corbond III + Spider Plus	18.8	9.3	0.044		
1.5" Corbond III + Spider Plus	27.2	3.3		0.043	
	27.2	0			
2" Corbond III + Spider Plus	20.2	6	0.050		
2" Corbond III + Spider Plus	28.6	2.7		0.051	
	28.6	0			
Hybrid Systems w/ Batts					
1" Corbond III + comp. R-13	17.2	9.3	0.045		
1" Corbond III + comp. R-11	15.9	9.3	0.046		
1" Corbond III + comp. R-19	22.2	4.4		0.050	0.046
1.5" Corbond III + comp. R-11	18.3	9.3	0.044		
1.5" Corbond III + comp. R-19	24.7	3.3		0.051	0.046
1.5" Corbond III + R-13	23.5	4.4		0.049	0.044
1.5" Corbond III + R-15	25.5	3.3		0.050	0.045
2" Corbond III + R-13	27	3.3		0.049	0.043
2" Corbond III + R-15	29	2.7		0.051	0.044

Paths to compliance - attics

Insulation Systems	Attic floor	Roof cavity	Above deck CI	2x4 truss 24" o.c.
Unvented Attics				
R-30 Batts under roof deck		30.0		0.032
R-38 Batts under roof deck		38.0		0.025
R-22 ocSPF		22.0		0.043
R-30 ocSPF		30.0		0.032
R-22 Corbond III (3.14")		22		0.043
Batts + R-panel (1.7")		13	9.7	0.043
Batts + R-panel (1½")		15	8.6	0.041
R-panel (4") or Nailboard only			23.6	0.039
Hybrid Unvented Attics				
3½" ocSPF + R-15 MF batts		28		0.034
1" Corbond III + Spider Plus		24.5		0.039
1" Corbond III + R-15 MF batts		22		0.043
ocSPF + R-panel (1")		17	5.7	0.043
ocSPF + R-panel (1½")		14	8.6	0.043
ocSPF + R-panel (2")		13	11.4	0.039