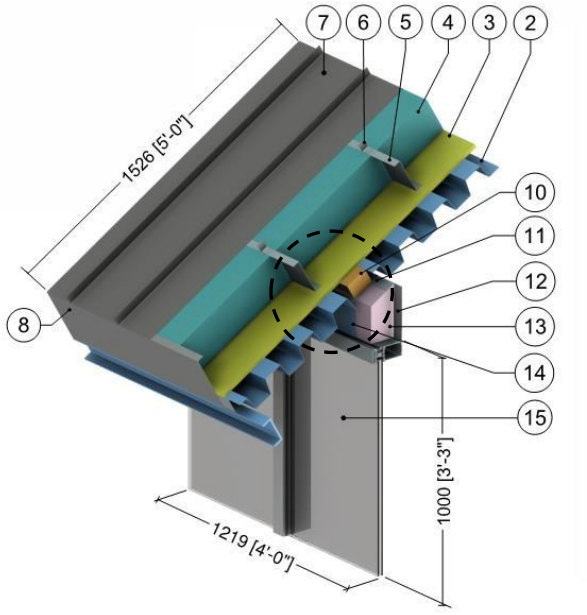
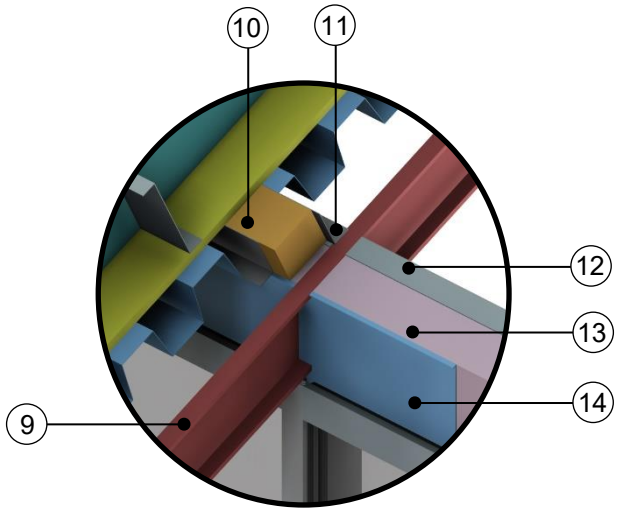
Detail 10.2.5

Exterior Insulated Sloped Metal Roof with Metal Sub-Girts (24" o.c.) Supporting Standing Seam Metal Roof and Curtain Wall – Roof to Wall Intersection with Through Wall Structural Beam and Thermally Broken Structural Metal Deck





Through Beam and Thermally Broken Metal Deck

ID	Component	Thickness Inches (mm)	Conductivity Btu·in / ft²·hr·°F (W/m K)	Nominal Resistance hr·ft²·°F/Btu (m²K/W)	Density lb/ft³ (kg/m³)	Specific Heat Btu/lb·°F (J/kg K)
1	Interior Films[1]	-	-	R-0.6 to R-1.1 (0.12 RSI to 0.20 RSI)	-	-
2	Steel Deck	1/16" (1.6)	347 (50)	-	489 (7830)	0.12 (500)
3	Roof Sheathing	1/2" (13)	1.1 (0.16)	R-0.5 (0.08 RSI)	50 (800)	0.26 (1090)
4	Rigid Roof Insulation	7" (183)	0.2 (0.03)	R-35 (6.16 RSI)	1.8 (28)	0.29 (1220)
5	Sub-Girt with 1 ½" Flange @ 24" (610) o.c.	16 gauge	430 (62)	-	489 (7830)	0.12 (500)
6	Roof Clips (1 1/2" x 1 1/2")	16 gauge	430 (62)	-	489 (7830)	0.12 (500)
7	Metal Roof	24 gauge	430 (62)	-	489 (7830)	0.12 (500)
8	Roof Closure Panel	16 gauge	430 (62)	-	489 (7830)	0.12 (500)
9	Steel Beam (W410)	-	347 (50)	-	489 (7830)	0.12 (500)
10	Continuous Spray Foam Insulation	4" (100)	0.17 (0.024)	R-24 (4.23 RSI)	2.8 (39)	0.35 (1470)
11	Stiffening Brackets	16 gauge	430 (62)	-	489 (7830)	0.12 (500)
12	Interior Closure Panel	12 gauge	430 (62)	-	489 (7830)	0.12 (500)
13	Fiberglass Insulation	4 1/2" (118)	0.24 (0.034)	R-19 (3.35 RSI)	4 (64)	0.20 (850)
14	Exterior Closure Panel	12 gauge	430 (62)	-	489 (7830)	0.12 (500)
15	Aluminum Curtain Wall Vision System: thermally broken frame, double glazed IGU U_{COG} = 0.32 BTU/hr·ft²·°F (1.82 W/m²K) [2]					
16	Exterior Film[1]	-	-	R-0.2 (0.03 RSI)	-	-

[1] Value selected from table 1, p. 26.1 of 2009 ASHRAE Handbook – Fundamentals depending on surface orientation
[2] The thermal conductivity of air spaces within framing was found using ISO 100077-2