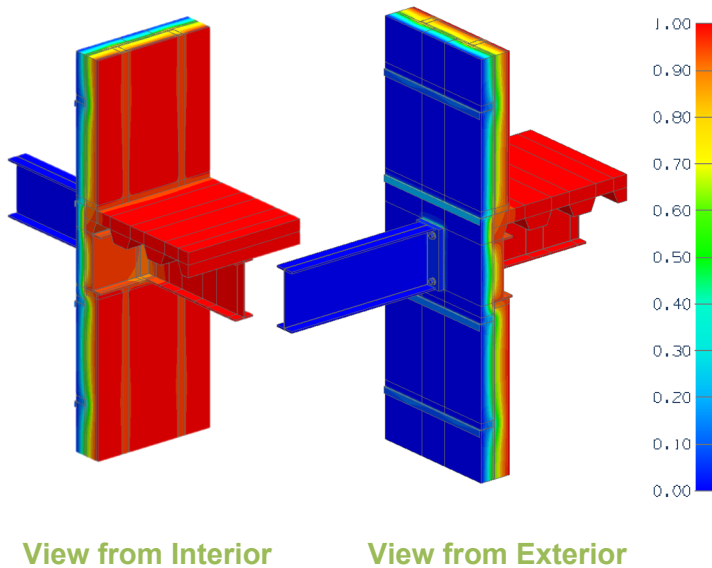


Detail 10

Exterior and Interior Insulated 3 5/8" x 1 5/8" Steel Stud (16" o.c.) Wall Assembly with Horizontal Z-girts (24" o.c.) Supporting Metal Cladding – Structural Steel Floor Intersection with Beam Thermal Break



Thermal Performance Indicators

Assembly 1D (Nominal) R-Value	R_{1D}	R-14.3 (2.52 RSI) + exterior insulation
Transmittance / Resistance without Anomaly	U_o , R_o	"clear wall" U- and R-value without slab or beam
Transmittance / Resistance ¹	U_s , R_s , U_t , R_t	U and R-values for s = steel stud wall + slab t = combined wall + slab + beam
Surface Temperature Index	T_i	0 = exterior temperature 1 = interior temperature
Linear Transmittance	ψ	Incremental increase in transmittance per linear length of floor slab
Point Transmittance	χ	Incremental increase in transmittance for beam penetration

¹Note, assembly U- and R-values are based on model dimensions (see accompanying data sheet). Overall assembly U- and R-Values for other assembly dimensions can be calculated using the linear transmittance

Nominal (1D) vs. Assembly Performance Indicators

Base Assembly – Wall

Wall Exterior Insulation 1D R-Value (RSI)	R_{1D} ft ² ·hr·°F / Btu (m ² K / W)	R_o ft ² ·hr·°F / Btu (m ² K / W)	U_o Btu/ft ² ·hr ·°F (W/m ² K)
R-15 (2.64)	R-29.3 (5.16)	R-18.5 (3.25)	0.054 (0.31)

Slab Linear Transmittance

Wall Exterior Insulation 1D R-Value (RSI)	R_s ft ² ·hr·°F / Btu (m ² K / W)	U_s Btu/ft ² ·hr ·°F (W/m ² K)	ψ Btu/ft hr °F (W/m K)
R-15 (2.64)	R-15.6 (2.75)	0.064 (0.36)	0.083 (0.143)

Beam Point Transmittance

Scenarios				R_t ft ² ·hr·°F / Btu (m ² K / W)	U_t Btu/ft ² ·hr ·°F (W/m ² K)	χ Btu/hr °F (W/K)
Armatherm Thickness	Bolt Type	Washer	Bushing			
1" (25mm)	Steel	Steel	None	R-7.3 (1.28)	0.138 (0.78)	1.56 (0.83)
		FRR	FRR	R-8.6 (1.51)	0.117 (0.66)	1.11 (0.59)
	Stainless Steel	Stainless	None	R-8.4 (1.48)	0.119 (0.68)	1.16 (0.62)
		FRR	FRR	R-9.2 (1.61)	0.109 (0.62)	0.95 (0.50)
2" (51mm)	Steel	Steel	None	R-8.0 (1.41)	0.125 (0.71)	1.29 (0.68)
		FRR	FRR	R-9.4 (1.65)	0.107 (0.61)	0.90 (0.48)
	Stainless Steel	Stainless	None	R-9.6 (1.69)	0.104 (0.59)	0.84 (0.45)
		FRR	FRR	R-10.2 (1.79)	0.098 (0.56)	0.72 (0.38)