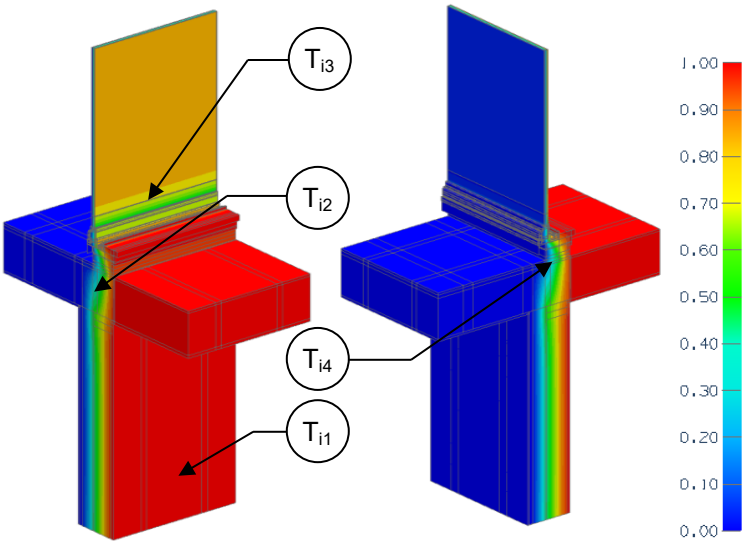
Detail 8.2.3

Exterior and Interior Insulated 2x6 Wood Stud (16" o.c.) Wall Assembly with Wood Strapping Supporting Fiber Cement Board and R-19 Batt Insulation in Stud Cavity – Cantilevered Wood Joist Balcony Intersection



View from Interior View from Exterior

Thermal Performance Indicators

Assembly 1D (Nominal) R-Value	R_{1D}	R-21.6 (3.80 RSI) + exterior insulation
Transmittance / Resistance without Anomaly	U_w, R_w, U_g,	"clear wall" U- and R-value w = wood framed wall without balcony g = glazed sliding door
Transmittance / Resistance	U, R	U and R-values for the overall assembly
Surface Temperature Index[1]	T_i	0 = exterior temperature 1 = interior temperature
Linear Transmittance	ψ	Incremental increase in transmittance per linear length of balcony

[1]Assumptions and limitations for surface temperatures identified in ASHRAE 1365-RP

Nominal (1D) vs. Assembly Performance Indicators

Base Assembly – Wall

Exterior Insulation 1D R-Value (RSI)	R_{1D} ft²·hr·°F / Btu (m² K / W)	R_w ft²·hr·°F / Btu (m² K / W)	U_w Btu/ft² ·hr ·°F (W/m² K)
R-10 (1.76)	R-31.6 (5.56)	R-29.2 (5.14)	0.034 (0.19)
R-15 (2.64)	R-36.6 (6.44)	R-33.7 (5.93)	0.030 (0.17)

Base Assembly – Sliding Door

$U_{centre\ of\ glass}$ Btu/ft² ·hr ·°F (W/m² K)	U_g Btu/ft² ·hr ·°F (W/m² K)
0.321 (1.82)	0.323 (1.83)

Balcony Transition Linear Transmittance

Exterior Insulation 1D R-Value (RSI)	R ft²·hr·°F / Btu (m² K / W)	U Btu/ft² ·hr ·°F (W/m² K)	ψ Btu/ft ·hr·°F (W/m K)
R-10 (1.76)	R-5.9 (1.04)	0.170 (0.97)	0.072 (0.125)
R-15 (2.64)	R-6.0 (1.06)	0.166 (0.95)	0.067 (0.115)

Temperature Indices

	R10	R15	
T_{i1}	0.34	0.43	Min T on sheathing, between studs and at fasteners
T_{i2}	0.45	0.54	Max T on sheathing, below floor header beam
T_{i3}	0.49	0.49	Min T on frame, at edge of glass
T_{i4}	0.31	0.34	Min T on rim joist, between floor joists