

Chapter 8 – Thermal Performance

Table 8-6 3 5/8-inch steel stud-framed wall thermal modeling results

3 5/8" Steel Stud-Framed Wall with Anchored Masonry Veneer, R-15 Batt Insulation, R-4.2/in - R-6/in Exterior Insulation					
Tie Type	Exterior Insulation Thickness	Nominal Insulation R-value (Cavity + Exterior Insulation)	3D Thermal Modeling Effective R-Value of System (ft ² ·°F·hr/Btu)		
			Without Penetrations (Through Exterior Insulation)	With Masonry Tie Penetrations @ 16" x 16" o.c.	
				Stainless-Steel Tie and/or Hook	Galvanized-Steel Tie and/or Hook
Plate Tie (14ga)	2"	15.0 + 8.4–12.0	19.4–22.9	17.7–20.3	15.7–17.4
	3"	15.0 + 12.6–18.0	23.4–29.0	20.9–24.9	18.0–20.6
	4"	15.0 + 16.8–24.0	27.7–35.2	24.4–29.6	20.6–23.7
Thermally Optimized Screw Tie	2"	15.0 + 8.4–12.0	19.4–22.9	17.0–19.3	16.9–19.2
	3"	15.0 + 12.6–18.0	23.4–29.0	19.9–23.4	19.8–23.3
	4"	15.0 + 16.8–24.0	27.7–35.2	23.1–27.5	23.0–27.4

Table 8-7 Concrete floor line thermal modeling results with 3 5/8-inch steel stud-framed wall above and below

Concrete Slab Edge with Anchored Masonry				
Exterior Insulation Thickness	Nominal Exterior Insulation R-Value	3D Thermal Modeling Effective R-Value of System (ft ² ·°F·hr/Btu)		
		Exterior Insulation (Without Penetrations)	Standoff Shelf Angle	Continuous Shelf Angle
2"	8.4 – 12.0	12.4–16.2	6.6–6.8	2.8
3"	12.6–18.0	16.8–22.3	7.2–7.3	2.9
4"	16.8–24.0	21.3–28.7	7.6–8.2	3.1