

Table 1-2 Assembly 1 thermal modeling results

8" CMU Walls with Anchored Masonry, R-4.2/in - R-6/in Exterior Insulation					
Exterior Insulation Thickness	Nominal Insulation R-Value	Exterior Insulation (Without Penetrations)	3D Thermal Modeling Effective R-Value of Assembly		
			Masonry Ties @ 16" x 16" O.C.		
			Without Shelf Angle	+ Standoff Shelf Angle	+ Continuous Shelf Angle
Stainless Embedded Wire Tie (Ladder Eye-Wire) (0.02% Area)					
3"	12.6 - 18	15.9 - 21.3	14.9 - 19.3	13.1 - 16.2	9.5 - 10.9
4"	16.8 - 24	20.2 - 27.5	18.7 - 24.6	16.0 - 19.9	11.0 - 12.5
5"	21 - 30	24.4 - 33.4	22.4 - 29.7	18.8 - 23.4	12.3 - 13.9
Galvanized Embedded Wire Tie (0.02% Area)					
3"	12.6 - 18	15.9 - 21.3	13.2 - 16.4	11.8 - 14.1	8.8 - 9.9
4"	16.8 - 24	20.2 - 27.5	16.3 - 20.4	14.2 - 17.1	10.1 - 11.3
5"	21 - 30	24.4 - 33.4	19.3 - 24.2	16.5 - 19.8	11.3 - 12.6
Thermally Optimized Screw Tie - Stain. Hook (0.05% Area)					
3"	12.6 - 18	15.9 - 21.3	14.1 - 17.9	12.4 - 15.2	9.2 - 10.4
4"	16.8 - 24	20.2 - 27.5	17.4 - 22.2	15.1 - 18.4	10.5 - 11.9
5"	21 - 30	24.4 - 33.4	20.6 - 26.3	17.4 - 21.2	11.7 - 13.1
Thermally Optimized Screw Tie - Galv. Hook (0.05% Area)					
3"	12.6 - 18	15.9 - 21.3	14.0 - 17.8	12.4 - 15.1	9.2 - 10.4
4"	16.8 - 24	20.2 - 27.5	17.4 - 22.1	15.0 - 18.3	10.5 - 11.9
5"	21 - 30	24.4 - 33.4	20.5 - 26.2	17.4 - 21.2	11.7 - 13.1
Stainless 14ga Plate Tie (0.05% Area)					
3"	12.6 - 18	15.9 - 21.3	14.1 - 18.0	12.5 - 15.3	9.2 - 10.5
4"	16.8 - 24	20.2 - 27.5	17.7 - 22.8	15.3 - 18.7	10.7 - 12.0
5"	21 - 30	24.4 - 33.4	21.1 - 27.2	17.8 - 21.8	11.9 - 13.3
Galvanized 14ga Plate Tie (0.05% Area)					
3"	12.6 - 18	15.9 - 21.3	12.2 - 14.8	11.0 - 12.9	8.4 - 9.3
4"	16.8 - 24	20.2 - 27.5	14.8 - 17.9	13.0 - 15.3	9.5 - 10.5
5"	21 - 30	24.4 - 33.4	17.1 - 20.7	14.9 - 17.4	10.5 - 11.6

Table 1-3 Assembly 1 prescriptive energy code compliance values excerpted from Table i-1 of the Introduction Chapter

OPAQUE ABOVE-GRADE WALL - THERMAL ENVELOPE REQUIREMENTS												
Guide Assembly #	Classification	2012 SEC		2012 WSEC		2014 OEEEC		2012 IECC				
		All Other	Group R	All Other	Group R	All Other	Group R	All Other	Group R	All Other	Group R	
1A 1B	CMU (or Concrete) Wall with Anchored Masonry Veneer	Mass	Exterior: R-16ci ⁽¹⁾ U-0.057 (R-17.5)	Exterior: R-16ci ⁽¹⁾ U-0.057 (R-17.5)	R-9.5ci ⁽²⁾ U-0.104 ⁽²⁾ (R-9.6)	R-13.3ci ⁽²⁾ U-0.078 (R-12.8)	R-11.4ci U-0.150 ⁽²⁾ (R-6.7)	R-13.3ci U-0.090 ⁽²⁾ (R-11.1)	R-11.4ci U-0.078 (R-12.8)	R-13.3ci U-0.078 (R-12.8)	R-13.3ci U-0.078 (R-12.8)	R-15.2ci U-0.071 (R-14.1)

⁽¹⁾ When using interior insulation: R-13 + R-6 ci for wood studs or R-13 + R-10 ci for metal stud; when using exterior insulation R-16 ci
⁽²⁾ Provided at least 50% of block cores are filled with vermiculite (or equivalent fill insulation), and enclosing one of the following uses: gymnasium, auditorium, church chapel, arena, kennel manufacturing plant, indoor swimming pool, pump station, water and waste water treatment facility, storage facility, restroom/concessions, mechanical/electric structures, storage area, warehouse (storage and retail), and motor vehicle service facility. In Washington, where additional uses not listed (such as office, retail, etc.) are contained within the building, the exterior walls that enclose these areas may not utilize this exception.

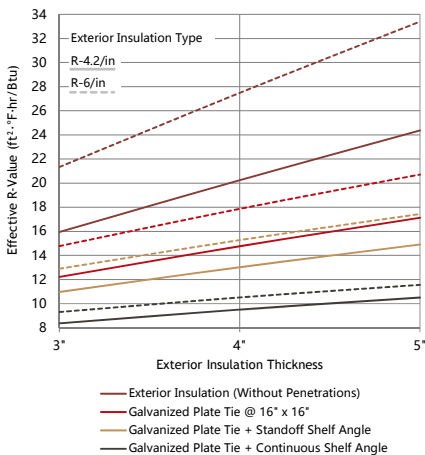


Fig. 1-14 Assembly 1 effective R-value comparison of galvanized steel tie and shelf angle options

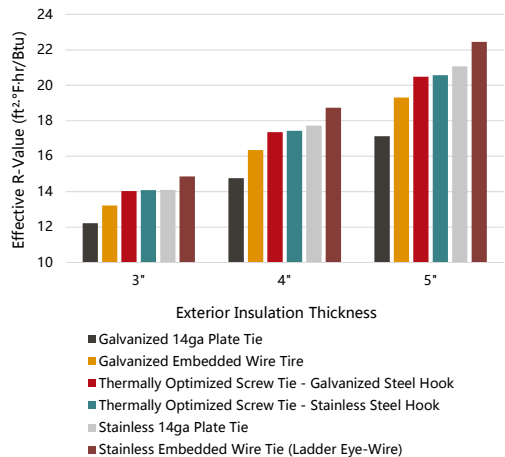


Fig. 1-15 Assembly 1 effective R-values for R-4.2/inch insulation, various tie types, and without shelf angle considerations