



COMcheck-Ready R, U & Heat Capacity (HC) Values for ASTM C 90 Compliant 3-Web CMU Walls Insulated with Masonry Foam Insulation by cfiFOAM, Inc.

Use of Tables: The tables below list R, U and HC values for *generic* 8" and 12" wide ASTM C 90 compliant 3-web CMU walls, grouted at various horizontal & vertical centers to use with COMcheck™ for demonstrating energy code compliance. The R and U values reflect R-4.6/inch masonry foam insulation filling empty CMU cells. Mortar joints are 3/8" thick. Grout density is 140 pcf. Listed R and U values reflect series-parallel (*isothermal planes*) method calculations. Inside and outside air films are included.

Interpolation: R, U and HC values for *generic* 10" wide ASTM C 90 compliant 3-web CMU walls may be interpolated from the values listed 8" and 12" walls listed in the tables. Similarly, values for 95, 115 and 135 pcf density CMU walls may be interpolated from adjacent columns. Values for specific CMU may vary from these listed generic values; however, these *generic* values are sufficiently accurate for demonstrating energy code compliance. Values for specific CMU may be obtained from the source block producer.

R, U & HC Values for Single-Wythe 8-Inch 3-Web Concrete Masonry Wall Assemblies

85 pcf	None			72V			48V			40V			32V			24V			16V		
	R	U	HC	R	U	HC	R	U	HC	R	U	HC	R	U	HC	R	U	HC	R	U	HC
None	9.7	0.10	4.5	6.9	0.15	5.6	6.0	0.17	6.2	5.6	0.18	6.6	5.1	0.20	7.1	4.4	0.23	8.0	3.4	0.29	9.7
144H	8.1	0.12	5.1	6.1	0.16	6.2	5.5	0.18	6.7	5.1	0.20	7.0	4.7	0.21	7.5	4.1	0.24	8.4	3.3	0.30	10.0
120H	7.8	0.13	5.2	6.0	0.17	6.3	5.4	0.19	6.8	5.0	0.20	7.1	4.6	0.22	7.6	4.1	0.24	8.5	3.3	0.30	10.0
96H	7.4	0.14	5.4	5.7	0.17	6.5	5.2	0.19	7.0	4.9	0.20	7.3	4.6	0.22	7.7	4.0	0.25	8.6	3.3	0.30	10.1
48H	6.0	0.17	6.2	5.0	0.20	7.2	4.6	0.22	7.7	4.4	0.23	8.0	4.1	0.24	8.5	3.8	0.26	9.1	3.1	0.32	10.6
105 pcf	None			72V			48V			40V			32V			24V			16V		
	R	U	HC	R	U	HC	R	U	HC	R	U	HC	R	U	HC	R	U	HC	R	U	HC
None	7.4	0.14	5.5	5.6	0.18	6.6	5.0	0.20	7.1	4.7	0.21	7.4	4.3	0.23	7.9	3.7	0.27	8.7	3.0	0.33	10.3
144H	6.4	0.16	6.1	5.0	0.20	7.2	4.6	0.22	7.7	4.3	0.23	8.1	4.0	0.25	8.6	3.6	0.28	9.4	2.9	0.35	11.1
120H	6.2	0.16	6.2	4.9	0.20	7.3	4.5	0.22	7.8	4.2	0.24	8.2	3.9	0.25	8.7	3.5	0.29	9.5	2.9	0.35	11.1
96H	5.9	0.17	6.3	4.8	0.21	7.5	4.3	0.23	8.1	4.2	0.24	8.3	3.9	0.26	8.8	3.5	0.29	9.6	2.9	0.35	11.2
48H	5.0	0.20	7.1	4.2	0.24	8.3	3.9	0.26	8.8	3.8	0.26	9.0	3.5	0.29	9.5	3.2	0.31	10.2	2.7	0.37	11.6
125 pcf	None			72V			48V			40V			32V			24V			16V		
	R	U	HC	R	U	HC	R	U	HC	R	U	HC	R	U	HC	R	U	HC	R	U	HC
None	5.6	0.18	6.6	4.5	0.22	7.8	4.1	0.24	8.3	3.9	0.25	8.7	3.6	0.28	9.2	3.2	0.31	10.1	2.6	0.38	11.8
144H	5.0	0.20	7.2	4.1	0.24	8.3	3.8	0.26	8.8	3.6	0.28	9.2	3.4	0.30	9.6	3.1	0.32	10.5	2.6	0.38	12.1
120H	4.9	0.20	7.3	4.0	0.25	8.4	3.7	0.27	8.9	3.6	0.28	9.2	3.3	0.30	9.7	3.0	0.33	10.6	2.6	0.38	12.1
96H	4.7	0.21	7.5	3.9	0.26	8.6	3.6	0.28	9.1	3.5	0.29	9.4	3.3	0.30	9.8	3.0	0.33	10.7	2.5	0.40	12.3
48H	4.1	0.24	8.3	3.5	0.29	9.3	3.3	0.30	9.8	3.2	0.31	10.1	3.0	0.33	10.6	2.8	0.36	11.2	2.4	0.41	12.7

Interpolate R, U & HC Values for Single-Wythe 10-Inch 3-Web Concrete Masonry Wall Assemblies using these two tables.

R, U & HC Values for Single-Wythe 12-inch 3-Web Concrete Masonry Wall Assemblies

85 pcf	None			72V			48V			40V			32V			24V			16V		
	R	U	HC	R	U	HC	R	U	HC	R	U	HC	R	U	HC	R	U	HC	R	U	HC
None	16.0	0.06	5.3	10.1	0.10	7.4	8.5	0.12	8.4	7.8	0.13	9.0	6.9	0.14	10.0	5.8	0.17	11.5	4.4	0.23	14.6
144H	12.4	0.08	6.3	8.7	0.12	8.3	7.6	0.13	9.2	7.0	0.14	9.8	6.3	0.16	10.7	5.4	0.19	12.2	4.2	0.24	15.2
120H	11.8	0.08	6.5	8.4	0.12	8.5	7.4	0.14	9.4	6.8	0.15	10.0	6.2	0.16	10.9	5.3	0.19	12.4	4.2	0.24	15.2
96H	11.1	0.09	6.8	8.0	0.13	8.8	7.1	0.14	9.8	6.6	0.15	10.3	6.0	0.17	11.1	5.2	0.19	12.6	4.1	0.24	15.4
48H	8.5	0.12	8.4	6.7	0.15	10.1	6.0	0.17	11.1	5.8	0.17	11.5	5.3	0.19	12.4	4.8	0.21	13.5	3.9	0.26	16.1
105 pcf	None			72V			48V			40V			32V			24V			16V		
	R	U	HC	R	U	HC	R	U	HC	R	U	HC	R	U	HC	R	U	HC	R	U	HC
None	12.1	0.08	6.5	8.3	0.12	8.5	7.1	0.14	9.4	6.6	0.15	10.0	5.9	0.17	10.9	5.0	0.20	12.3	3.9	0.26	15.3
144H	9.8	0.10	7.5	7.2	0.14	9.5	6.4	0.16	10.4	6.0	0.17	11.1	5.5	0.18	11.9	4.7	0.21	13.4	3.7	0.27	16.4
120H	9.5	0.11	7.7	7.1	0.14	9.7	6.3	0.16	10.6	5.9	0.17	11.3	5.4	0.19	12.1	4.7	0.21	13.6	3.7	0.27	16.4
96H	9.0	0.11	8.0	6.7	0.15	10.1	6.0	0.17	11.0	5.7	0.18	11.5	5.3	0.19	12.3	4.6	0.22	13.8	3.7	0.27	16.6
48H	7.1	0.14	9.4	5.8	0.17	11.4	5.3	0.19	12.3	5.0	0.20	12.8	4.7	0.21	13.6	4.2	0.24	14.7	3.5	0.28	17.4
125 pcf	None			72V			48V			40V			32V			24V			16V		
	R	U	HC	R	U	HC	R	U	HC	R	U	HC	R	U	HC	R	U	HC	R	U	HC
None	9.0	0.11	7.8	6.6	0.15	9.9	5.9	0.17	10.9	5.5	0.18	11.5	5.0	0.20	12.4	4.4	0.23	14.0	3.5	0.29	17.1
144H	7.6	0.13	8.8	6.0	0.17	10.8	5.4	0.19	11.7	5.1	0.20	12.3	4.7	0.21	13.2	4.1	0.24	14.7	3.3	0.30	17.7
120H	7.4	0.14	9.0	5.8	0.17	10.9	5.3	0.19	11.9	5.0	0.20	12.5	4.6	0.22	13.4	4.1	0.25	14.9	3.3	0.30	17.7
96H	7.1	0.14	9.3	5.6	0.18	11.3	5.1	0.20	12.3	4.9	0.20	12.8	4.5	0.22	13.6	4.0	0.25	15.1	3.3	0.30	17.9
48H	5.9	0.17	10.9	4.9	0.20	12.6	4.5	0.22	13.6	4.4	0.23	14.0	4.1	0.24	14.9	3.7	0.27	16.0	3.2	0.31	18.6

Energy Conservation Codes DO NOT prohibit using integral masonry foam insulation in CMU construction. The Prescriptive Compliance path is presented in Section 502 of the 2009 IECC. Section 502.2.3 clarifies that insulation filling the cells of CMU walls is not considered cavity insulation per Table 502.2 (1). The insulating value of foam insulation filling the CMU's is taken into account using the U-factor Table, Table 502.1.2. The U-values shown in these tables are for use with COMcheck™ in lieu of the default U-value representing granular loose-fill insulation. Neither the COMcheck™ compliance path, nor the Total Building Performance path of Section 507 prohibits using masonry foam insulation in the core-cells of CMU wall construction. **NCMA TEK 6-4B (2012)** provides additional guidance for architects and engineers who choose to demonstrate energy conservation code compliance by taking advantage of the “trade-offs” available to those who choose to use COMcheck™ compliance software. COMcheck™ software is available for downloading free of charge from: <http://www.energycodes.gov/comcheck/download.stm>.

Core Foam Masonry Foam Insulation® is not associated with and is a different product from the Core Fill-500™ products manufactured by Tailored Chemical Products, Inc.

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