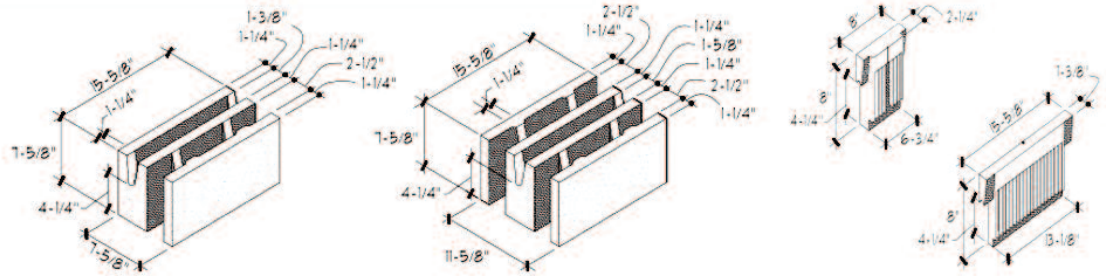
Day&Campbell Limited
Rich in history ... building for the future

Manufactures and distributor of
Omni Block
AN INSULATED CONCRETE BLOCK



STRETCHER - 8 x 8 x 16 | STRETCHER - 12 x 8 x 16 | INSULATION INSERTS

Table 1 - U-Factors (Btu/hrft²°F) and R-Values (hrft²°F/Btu) of Concrete Masonry Walls [A]

Nominal Wythe Thickness in. (mm)	Concrete Density pcf	Standard CMU Cores Empty U	Standard CMU Cores Empty R	100% Solid Grouted [B] U	100% Solid Grouted [B] R
8 in. (203 mm)	85	0.402	2.5	0.525	1.9
	95	0.427	2.3	0.559	1.8
	105	0.452	2.2	0.592	1.7
	115	0.479	2.1	0.623	1.6
	125	0.507	2.0	0.654	1.5
	135	0.537	1.9	0.684	1.5
12 in. (305 mm)	85	0.390	2.6	0.441	2.3
	95	0.411	2.4	0.466	2.1
	105	0.433	2.3	0.490	2.0
	115	0.455	2.2	0.515	1.9
	125	0.478	2.1	0.539	1.9
	135	0.503	2.0	0.564	1.8

[A] (hrft²°F/Btu) (0.176) = m²K/W. Mortar joints are 3/8 in. (9.5 mm) thick, with face shell mortar bedding. Unit dimensions based on *Standard Specification for Loadbearing Concrete Masonry Units,* ASTM C 90. Surface air films are included.

[B] Grout density is 140 pcf (2,243 kg/m³). Lightweight grouts, which will provide higher R-values, may be available and used.

Table 1 Source: Abbreviated NCMA TEK 6-2B

Table 2 - U-Factors (Btu/hrft²°F) and R-Values (hrft²°F/Btu) of Omni Block Walls [A]

Stretcher Unit Cores Empty [C] U	Stretcher Unit Cores Empty [C] R	Cores With EPS Inserts [D,E] U	Cores With EPS Inserts [D,E] R	Interior Cores Solid Grouted [F] U	Interior Cores Solid Grouted [F] R
0.123	8.2	0.047	21.2	0.077	13.1
0.133	7.5	0.049	20.6	0.081	12.4
0.139	7.2	0.049	20.2	0.083	12.1
0.146	6.8	0.050	19.9	0.085	11.7
0.153	6.5	0.051	19.6	0.088	11.4
0.161	6.2	0.052	19.3	0.090	11.1
0.102	9.8	0.032	31.0	0.044	22.9
0.110	9.1	0.033	30.3	0.045	22.1
0.115	8.7	0.033	29.9	0.046	21.8
0.121	8.3	0.034	29.5	0.047	21.4
0.126	7.9	0.034	29.2	0.048	21.0
0.133	7.5	0.035	28.8	0.048	20.6

[C] 8 in. unit has an additional face shell and reduced cross-web conductance. Resulting formula: (hrft²°F/Btu)(1.50)+(hrft²°F/Btu)(1.76).
12 in. unit has two additional face shells and reduced cross-web conductance. Resulting formula: (hrft²°F/Btu)(2.00)+(hrft²°F/Btu)(1.772).

[D] Values apply when all cores are filled completely.

[E] Average continuous insulation correction factor is 10% less than total insert R-value.

[F] 8 in. exterior core insulated in combination with solid grout interior cores.
12 in. middle and exterior cores insulated in combination with solid grout interior cores.
See complete analysis for detailed formulae.

Table 2 Source: Tom Norris (Architect/ICC Certified)

Table 3 - Thermal Resistance of EPS Foam Insulation

EPS Type	Minimum Density (pcf) [G]	R-Value Per Inch of Thickness (F°•ft²•h/Btu)
II	135	4.00

[G] pcf = 16.02 kg/m³, 1°F ft²hr/Btu=0.176m²K/W, 1°F=1.8°C+32

Table 3 Source: ICC ESR-1498 per ASTM C 578

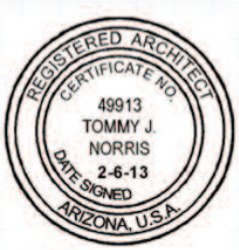
DISCLAIMER

The information presented in this report/analysis is to assist architects, designers, professional builders, and professional engineers when utilizing the Omni Block Insulated Concrete Block System. While the material is presented in good faith and beleived to be reliable, it does not constitute a part of, or terms and conditions of sale. No engineering data, design information or other material contained herein shall be deemed to constitute a warranty, expressed or implied, that said information is correct or that the products described are fit for a particular purpose of design application.

PREVAILING CODE

The information presented in this report/analysis is not intended to supercede any building codes.

Omni Block is patented US 6,513293 and US Pat. Pend. 61581959



EXPIRES 9-30-2015

Test Data Summary

Complete test results available at omniblock.com > support > testing

ASTM C 90-06 Standard Specification for Load-bearing Concrete Masonry Units

Unit Strength Method per Section 1.4.B.2.b of Specifications for Masonry Structures
(ACI 530.1-05 / ASCE 6-05 / TMS 602-05)
Net Area Compressive Strength 8x8x16 tested at 2890 psi
Net Area Compressive Strength when Type M or S mortar is used: 2050 psi
Both values can be compared directly to the specified compressive strength of masonry f'_m
If these values exceed f'_m compliance has been documented

ASTM C 140 Standard Test Methods for Sampling and Testing

Physical Property	Required Values	Tested Values
Minimum Faceshell Thickness (t_{ls})	1.25 min.	1.30 in.
Minimum Web Thickness (t_w)	1.00 min.	1.56 in.
Equivalent Web Thickness	2.25 min.	2.40 in.
Equivalent Thickness	-----	4.42 in.
Variance from Specification Dimensions	.125 max.	.112 in.
Gross Cross-Sectional Area	-----	119.9 in^2
Percent Solid	-----	57.7 %

ASTM E 90 Sound Transmission

Outdoor / Indoor Transmission Class (OITC) tested 42

ACI 216.1-97 / TMS 0216.1-97 Std Method for Determining Fire Resistance of Masonry Assemblies

The calculated fire rating resulted in 2.7 hours

ASTM C 578-95 Standard Specification for Preformed Cellular Polystyrene Thermal Insulation

The tested material met all the required values for all tests as identified in ASTM Standard C 578

ASTM C 518 Thermal Transmission Properties by Means of Heat Flow Meter Apparatus

The average R value of 3.914 exceeds the minimum of 3.60 at 75° F mean temperature for TYPE I material

ASTM Standard D 1621 Compressive Properties of Rigid Cellular Plastics

The average values of 15.62 psi and 16.65 psi for the two inserts exceed the minimum of 10.0 psi for TYPE I material

ASTM Standard C 203 Breaking Load and Flexural Properties of Block-Type Insulation

The average value of 32.92 psi flexural strength exceeds the minimum requirement of 25.0 psi for TYPE I material

ASTM Standard D 2863 Oxygen Index

The average tested value passed the minimum requirement for TYPE I material

ASTM E 96-95 Water Vapor Transmission of Materials

TYPE I maximum permeability per C 578 is 5.0 perms / The average value of 4.836 meets this requirement

ASTM C 272-91 Water Absorption for Core Materials of Structural Sandwich Constructions

TYPE I allowable increase in volume per ASTM C 578 is 4.0% max. The average value of 1.67 meets this requirement

ASTM D 2126-94 Response of Rigid Cellular Plastics to Thermal and Humid Aging

TYPE I allowable change in dimensions per ASTM C 578 is 2% max. The tested material meets this requirement

ASHRAE / IES Standard 90.1 Envelope System Performance

The equivalent R value of 24.6 was attained for the 8" insulated concrete block system

Day & Campbell Limited
Rich in history ... building for the future

tel: (905) 385-5315 | toll: (800) 263-6787 | fax: (905) 385-8029
1074 Upper Wellington Street, Hamilton, Ontario L9A 3S6