

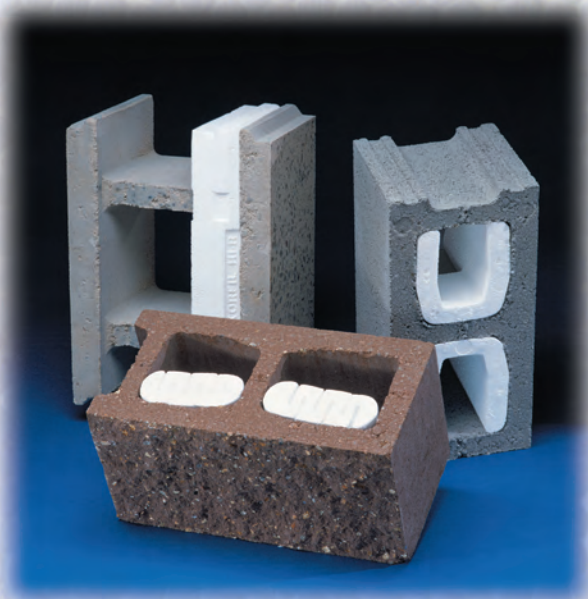
KORFIL ICON HI-R

**CRIS**  
**Korfil**<sup>®</sup>

*Protection is a concrete idea.*



## Pre-Insulated Masonry



## Conserves Energy



**STRUCTURAL TESTS VERIFY THAT INSERTS CAN BE LEFT IN PLACE IN GROUTED REINFORCED MASONRY CONSTRUCTION.**

**KORFIL**



CBIS / KORFIL Company Profile

*CBIS/KORFIL operates molding facilities in Massachusetts, Ohio and Utah to produce Expandable Polystyrene (EPS) Insulation Inserts that are sold only to Concrete Block Manufacturers. Our products are tested and have been code authorized for use in grouted reinforced Masonry construction. Our company is quality and customer focused to assure conformance to mandated Energy Codes.*

*You're invited to learn more about CBIS/Korfil, at [www.cbisinc.com](http://www.cbisinc.com).*

Korfil / Icon / Hi-R Insulation

**Description**

Both KORFIL and ICON Inserts are individually molded from EPS. They are designed to fit standard 2-core masonry units of 6, 8, 10 and 12-inch widths. The Hi-R Wall System is a specially designed concrete masonry unit and individually molded EPS insulation insert. The assembly provides a wall system capable of achieving higher thermal R values than conventional masonry, with little effect on structural integrity.

**Physical Properties of Expandable Polystyrene**  
Reference ASTM C578  
Standard Type X

<b>Property</b>	<b>Value</b>
Typical Density lbs./cu. ft.	1.3
Thermal Resistance (R) per inch of thickness at 75°	5.00
Water Vapor Permeance per inch of thickness	1.1
Water Absorption % Volume	<1.0
Flame Spread Rating*	<5.0

\* This numerical flame spread is not intended to reflect hazards presented by this or any other material under actual conditions.

**Applications and Advantages**

KORFIL, ICON and Hi-R Insulation Systems save labor costs. Because they arrive on the job already installed, there are no unloading and delivery to the wall costs as with on-site insulation.

**Other labor-saving advantages include**

- No waste or cleanup costs
- No theft or breakage from vandalism
- No lost time and rework if on-site inspection rejects the quality or method of insulation installation
- Work done by other trades is performed with little danger of damage to insulation
- Costs are firm – not estimated values
- Allows easy installation of pipes, conduits, etc.
- Improves dewpoint
- Improves sound resistance
- Eliminates concerns of shrinkage, toxic fumes and odors
- Improves the ability of blocks to resist 100 mph wind-driven rain
- Enables blocks to be easily handled; can be saw cut and moved unpalletized with fork lifts
- Can be used above or below grade
- Provides guaranteed consistent insulation value
- Permits excess moisture to escape



*Block plant installed*



*Structural compliant*



KORFIL



ICON



Hi-R Masonry Wall System  
Please see details on Page 4.

**KORFIL Brand U-Shaped In-Core Insulation**

**ICON Universal In-Core Insulation**

**KORFIL Brand Hi-R Insulation**

**Thermal Properties\***

Standard 2 Core Masonry Units Insulated with either KORFIL or ICON Block Insulation Inserts. U-values are based on conventional 3/8" Mortar Joint Construction, U-value units are Btu/hr/sq. ft./deg-F

DENSITY OF BLOCK - LBS/FT <sup>3</sup>	CORES EMPTY		CORES INSULATED	
	RT	U	RT	U
<b>6 Inch - 2 Core Masonry Unit</b>				
80	2.64	0.38	6.45	0.16
95	2.42	0.41	5.39	0.19
105	2.29	0.44	4.76	0.21
115	2.17	0.46	4.21	0.24
125	2.05	0.49	3.69	0.27
135	1.95	0.51	3.25	0.31
<b>8 Inch - 2 Core Masonry Unit</b>				
80	2.86	0.35	7.74	0.13
95	2.61	0.38	6.55	0.15
105	2.46	0.41	5.83	0.17
115	2.33	0.43	5.17	0.19
125	2.21	0.45	4.56	0.22
135	2.10	0.48	4.01	0.25
<b>10 Inch - 2 Core Masonry Unit</b>				
80	3.00	0.33	8.52	0.12
95	2.73	0.37	7.25	0.14
105	2.57	0.39	6.48	0.15
115	2.43	0.41	5.76	0.17
125	2.31	0.43	5.09	0.20
135	2.19	0.46	4.48	0.22
<b>12 Inch - 2 Core Masonry Unit</b>				
80	3.12	0.32	9.38	0.11
95	2.83	0.35	8.09	0.12
105	2.66	0.38	7.27	0.14
115	2.52	0.40	6.51	0.15
125	2.38	0.42	5.78	0.17
135	2.26	0.44	5.11	0.20
<b>12 Inch Cavity Wall, 4 Inch Outer Wythe, 3/4 Inch Air Space, 8 Inch 2 Core Block</b>				
80	4.26	0.23	9.14	0.11
95	4.01	0.25	7.95	0.13
105	3.86	0.26	7.23	0.14
115	3.73	0.27	6.57	0.15
125	3.61	0.28	5.96	0.17
135	3.50	0.29	5.41	0.18

**Thermal Properties of the Hi-R Wall System**

DENSITY OF CONCRETE USED IN BLOCK, LBS. PER CU. FT.		80	100	120
<b>8 Inch Wide Hi-R Wall System</b>				
Type of wall**				
1	U	0.082	0.097	0.118
	R	12.21	10.27	8.50
2	U	0.074	0.086	0.101
	R	13.61	11.67	9.90
3	U	0.067	0.076	0.088
	R	15.04	13.10	11.33
<b>10 Inch Wide Hi-R Wall System</b>				
Type of wall**				
1	U	0.072	0.084	0.100
	R	13.92	11.87	9.95
2	U	0.065	0.075	0.088
	R	15.32	13.27	11.35
3	U	0.060	0.068	0.078
	R	16.75	14.70	12.78
<b>12 Inch Wide Hi-R Wall System</b>				
Type of wall**				
1	U	0.069	0.080	0.095
	R	14.56	12.48	10.50
2	U	0.063	0.072	0.084
	R	15.96	13.88	11.90
3	U	0.058	0.065	0.075
	R	17.39	15.31	13.33
<b>12 Inch Cavity Wall, 4 Inch Dense Outer Wythe, 3/4 Inch Air Space, 8 Inch Wide Hi-R Unit</b>				
Type of wall**				
1	U	0.073	0.086	0.101
	R	13.62	11.68	9.91
2	U	0.067	0.077	0.088
	R	15.02	13.08	11.31
3	U	0.061	0.069	0.079
	R	16.45	14.51	12.74

\* The R- and U-values presented are based upon the ASHRAE Series-Parallel Isothermal Planes method as detailed in the ASHRAE Handbook of Fundamentals, 1993 Edition, Chapter 22, page 22.4. Physical block dimensions were obtained from ASTM C90-06a. Additional information was obtained from NCMA Technical Publication TEK 6-2A, 1996. A complete Engineering Report covering the values listed is available upon request.

\*\*1. Hi-R Wall System only. 2. Hi-R Wall System, 1/2 inch gypsum board on furring strips. 3. Hi-R Wall System, 1/2 inch foil-backed gypsum board on furring strips. A third party thermal analysis was completed making use of the Hot Box Test Data from three accredited laboratory services. A complete Engineering Report dated November 20, 1996, Addendum added November 1, 2002, is available upon request. It covers the thermal values of the Hi-R Masonry Wall Systems. (U-Values listed are Btu/hr/sq.ft./deg-F)

**Meeting Federal and State Mandated Energy Efficiency Standards and Codes with CBIS Inserts.**

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) published Standard 90.1, "Energy Efficient Design of New Buildings Except Low-Rise Residential Buildings," in 1989. The Standard includes significant reductions in required R-values for thermal mass walls, such as concrete masonry, based on the energy savings from mass construction. The R-values required by Standard 90.1 are based on equivalent energy performance.

Since it was published in 1989, Standard 90.1 has been incorporated into the BOCA National Building Code, the SBCCI Standard Building Code, and the CABO Model Energy Code.

The International Energy Conservation Code (IECC) has been designed to be compatible with the entire family of International Codes published by the International Code Council (ICC). One should check how this International Energy Conservation Code will impact each state's thermal requirements for both residential and commercial construction.

**Specifications for KORFIL and ICON Insulated Concrete Masonry Units and the KORFIL Hi-R Wall System**

**1. Description**

*In writing specifications, please select, as applicable, the products shown in brackets: Insulation shall be [KORFIL Block Insulation] [KORFIL Hi-R Insulation] [ICON Universal Inserts], as produced by Concrete Block Insulating Systems, Inc. The expanded polystyrene shall be individually molded to have a minimum density of 1.3 P.C.F., and shall conform to ASTM C578 Standard Type X.*

**2. Scope**

The walls to be insulated shall be as noted and shown on drawings and schedules.

**3. Installation**

Inserts shall be installed in the cores of blocks at the Block Producer's Plant so that blocks with inserts already installed are delivered to the job site. Inserts shall be properly installed in accordance with the manufacturer's specifications to allow blocks to be handled without danger of insert dislodgment.

**4. General Requirements**

Expanded Polystyrene Insulation, like all foamed plastic, is classified as combustible. During storage and installation, observe good fire safety practices. Blocks containing damaged or mutilated inserts will not be accepted.



*Hi-R masonry wall system with vertical and horizontal steel in place*

*The information herein is presented in good faith. It is based on our best knowledge, and we believe it to be true and accurate. This publication is intended for use by those qualified and competent to evaluate the significance and limitations of its contents. Readers are cautioned that we disclaim any and all responsibility for the accuracy of the sources other than work performed and information developed by Concrete Block Insulating Systems, Inc.*

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