

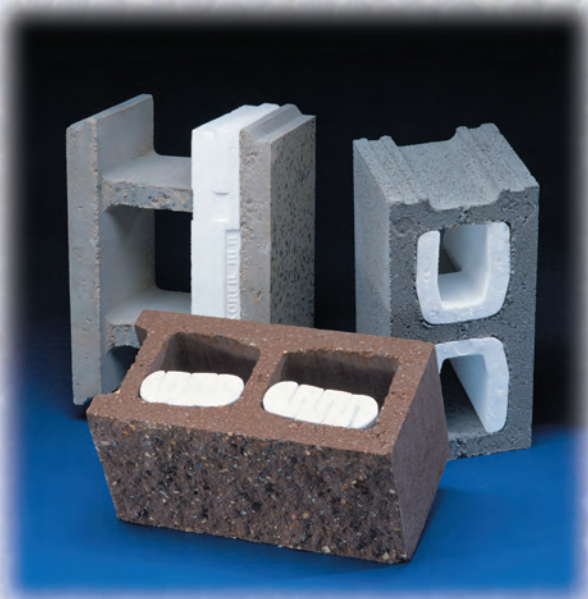
KORFIL ICON HI-R

CRIS
Korfil®

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.

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

Property	Value
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 ³	CORES EMPTY		CORES INSULATED	
	RT	U	RT	U
6 Inch - 2 Core Masonry Unit				
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
8 Inch - 2 Core Masonry Unit				
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
10 Inch - 2 Core Masonry Unit				
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
12 Inch - 2 Core Masonry Unit				
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
12 Inch Cavity Wall, 4 Inch Outer Wythe, 3/4 Inch Air Space, 8 Inch 2 Core Block				
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
8 Inch Wide Hi-R Wall System				
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
10 Inch Wide Hi-R Wall System				
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
12 Inch Wide Hi-R Wall System				
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
12 Inch Cavity Wall, 4 Inch Dense Outer Wythe, 3/4 Inch Air Space, 8 Inch Wide Hi-R Unit				
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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Protection is a concrete idea.

Concrete Block Insulating Systems

P.O. Box 1000
Freight House Road
West Brookfield, MA 01585-1000

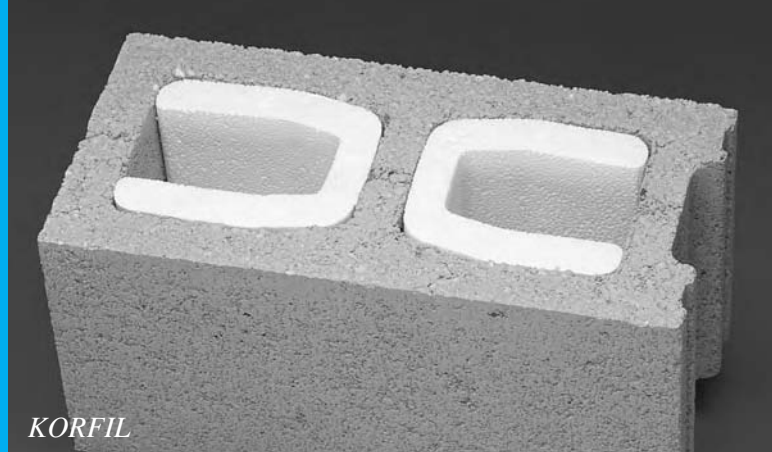
508.867.4241
800.628.8476
Fax: 508.867.5702

www.cbisinc.com
E-mail: korfil@cbisinc.com
Member of NCMA and EPSMA



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 at www.cbisinc.com



KORFIL

Korfil® Block Insulation

Description

Basic Use: KORFIL Inserts are individually molded of expandable polystyrene and designed to fit standard two (2) core masonry units of 6, 8, 10 and 12-inch widths for use in both single wythe and cavity wall construction. Inserts are preinstalled at the block plant prior to delivery on the job site. In addition to nearly doubling the insulating characteristics of a masonry wall, KORFIL Inserts:

- Eliminate the need for on-site labor to insulate masonry walls.
- Do not deteriorate in insulation R-value with moisture or aging.
- Allow space within the cores for the escape of moisture. This space also allows for easy installation of utilities within the wall.
- Can be handled by masons just as easily as uninsulated blocks.
- Are cost-competitive when compared to the various other methods used to insulate concrete blocks.
- Have no effect on the fire rating of conventional concrete block walls.
- Improve both the dewpoint and sound transmission resistance of ordinary concrete blocks.

Limitations: Expanded polystyrene products of any type should not be exposed to temperatures in excess of 184°F.

KORFIL Inserts are made from flame-retardant treated expandable polystyrene. Like all foamed plastics, good fire procedures must be followed during storage and installation. Inserts give off no toxic products of combustion, except carbon monoxide and carbon dioxide, concentrations of which are far less than those given off by equal volumes of wood products. Expandable polystyrene contains no fluorocarbons and no formaldehyde.

Composition and Materials: KORFIL Inserts are individually molded from expandable polystyrene in a minimum density of 1.3 lbs. per cu. ft. Inserts are packaged at the point of manufacture in heat-sealed, clear polyethylene bags.

Applicable Standards:

- ASTM C 578 Type X, replacing Federal Specifications HH-I-524C. Specification for Rigid Cellular Polystyrene Thermal Insulation.
- ASTM C 90 Standard Specification for Loadbearing Concrete Masonry Units.

Technical Data: The Thermal Properties tables show the thermal resistance (Rt), including inside and outside air surface resistances of .68 and .17 hr-ft²-°F/BTU, respectively, and the U-values for various densities of concrete masonry units. See Thermal Properties charts.

Physical Characteristics: See Physical Properties chart below.

PHYSICAL PROPERTIES

Property	Value
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.

Installation

Preparatory Work: None required. Inserts are placed in blocks prior to delivery to the job site. Inserts do not affect the handling of blocks so no added labor is involved.

Precautions: During storage and installation, good fire safety procedures should be followed. Care should be taken to make certain all broken or damaged inserts are replaced.

Thermal Properties:*

Standard 2 Core Masonry Units Insulated with KORFIL Block Insulation Inserts. U-values are based on conventional 3/8" Mortar Joint Construction, U-value units are BTU/HR/FT²/F°.

6 Inch — 2 Core Masonry Unit				
DENSITY OF BLOCK—LBS/FT ³	CORES EMPTY		CORES INSULATED	
	R _t	U	R _t	U
80	2.64	.38	6.45	.16
95	2.42	.41	5.39	.19
105	2.29	.44	4.76	.21
115	2.17	.46	4.21	.24
125	2.05	.49	3.69	.27
135	1.95	.51	3.25	.31

8 Inch — 2 Core Masonry Unit				
DENSITY OF BLOCK—LBS/FT ³	CORES EMPTY		CORES INSULATED	
	R _t	U	R _t	U
80	2.86	.35	7.74	.13
95	2.61	.38	6.55	.15
105	2.46	.41	5.83	.17
115	2.33	.43	5.17	.19
125	2.21	.45	4.56	.22
135	2.10	.48	4.01	.25

10 Inch — 2 Core Masonry Unit				
DENSITY OF BLOCK—LBS/FT ³	CORES EMPTY		CORES INSULATED	
	R _t	U	R _t	U
80	3.00	.33	8.52	.12
95	2.73	.37	7.25	.14
105	2.57	.39	6.48	.15
115	2.43	.41	5.76	.17
125	2.31	.43	5.09	.20
135	2.19	.46	4.48	.22

12 Inch — 2 Core Masonry Unit				
DENSITY OF BLOCK—LBS/FT ³	CORES EMPTY		CORES INSULATED	
	R _t	U	R _t	U
80	3.12	.32	9.38	.11
95	2.83	.35	8.09	.12
105	2.66	.38	7.27	.14
115	2.52	.40	6.51	.15
125	2.38	.42	5.78	.17
135	2.26	.44	5.11	.20

12 Inch Cavity Wall, 4 Inch Outer Wythe, 1/2 Air Space, 8 Inch 2 Core Block				
DENSITY OF BLOCK—LBS/FT ³	CORES EMPTY		CORES INSULATED	
	R _t	U	R _t	U
80	4.26	.23	9.14	.11
95	4.01	.25	7.95	.13
105	3.86	.26	7.23	.14
115	3.73	.27	6.57	.15
125	3.61	.28	5.96	.17
135	3.50	.29	5.41	.18

* 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 C 90. Additional information was obtained from NCMA Technical Publication TEK 6-2, 1988. A complete Engineering Report covering the values listed is available upon request.

Availability and Cost

Availability: KORFIL Inserts are manufactured under protection of a United States Patent. They are sold only to concrete block manufacturers. Contact a CBIS/KORFIL representative for order and delivery information. KORFIL Inserts are nonproprietary.

Cost: Specific price information is available only through local block manufacturers.

Warranty: KORFIL products are warranted to meet published specifications at the time of delivery. For further information, contact a CBIS/KORFIL representative.

Maintenance: No maintenance is necessary.

Technical Services: Support is provided by full-time, technically-trained CBIS/KORFIL sales representatives and technical service personnel, backed by a central research and development department and technical service staff.

For further information, contact CBIS/KORFIL, Inc.

KORFIL is a registered trademark of CONCRETE BLOCK INSULATING SYSTEMS, INC.

We hope the information given here will be helpful. It is based on data and knowledge considered to be true and accurate and is offered for the user's consideration, investigation and verification. Nothing contained herein constitutes a representation but we do not warrant the results to be obtained. Please read all statements, recommendations or suggestions in conjunction with our Conditions of Sale which apply to all goods supplied by us. No statement, recommendation or suggestion is intended for any use which would infringe any patent or copyright.



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Concrete Block Insulating Systems
P.O. Box 1000
Freight House Road
West Brookfield, MA 01585-1000

508.867.4241
800.628.8476
Fax: 508.867.5702

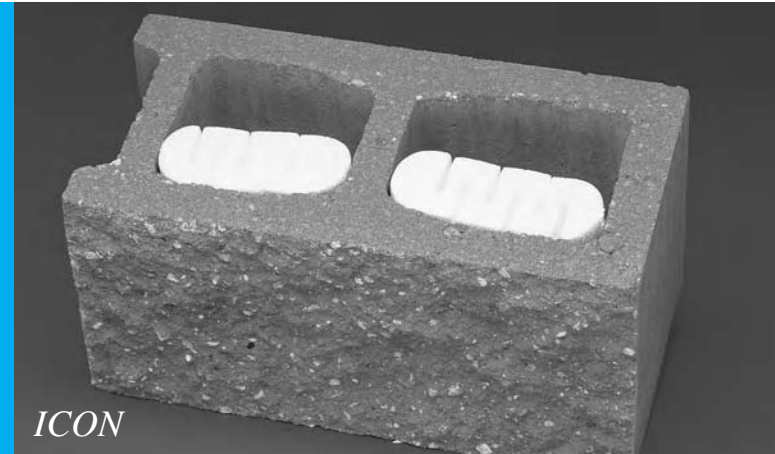
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You're invited to learn more at www.cbisinc.com



ICON® Universal Inserts for Concrete Masonry Units

Description

Basic Use: ICON Inserts are molded from expandable polystyrene. The design of the insert allows it to compress so it will fit the cores of all masonry units with just one size. Inserts are placed in the cores of the block at the block plant. By placing inserts in blocks, there is a significant improvement in the thermal efficiency of masonry walls.

Product Advantages: ICON Insulated Blocks:

- Eliminate the need for on-site labor to insulate masonry walls.
- Insulation R-value does not deteriorate with moisture or aging.
- Allow space within the cores for the escape of moisture. This space also allows for easy installation of utilities within the wall.
- Can be handled by masons just as easily as uninsulated blocks.
- Are cost-competitive when compared to the various other methods used to insulate concrete blocks.
- Have no effect on the fire rating of conventional concrete block walls.
- Improve both the dewpoint and sound transmission resistance of ordinary concrete blocks.

Limitations: Expanded polystyrene products of any type should not be exposed to temperatures in excess of 184°F.

ICON Inserts are made from flame-retardant treated expandable polystyrene. Like all foamed plastics, good fire procedures must be followed during storage and installation. Inserts give off no toxic products of combustion, except carbon monoxide and carbon dioxide, concentrations of which are far less than those given off by equal volumes of wood products. Expandable polystyrene contains no fluorocarbons and no formaldehyde.

Composition and Materials: ICON Inserts are individually molded from expandable polystyrene in a minimum density of 1.3 lbs. per cu. ft. Inserts are packaged at the point of manufacture in heat-sealed, clear polyethylene bags.

Applicable Standards:

- ASTM C 578, Type X, replacing Federal Specifications HH-I-524C. Specification for Rigid Cellular Polystyrene Thermal Insulation.
- ASTM C 90 Standard Specification for Loadbearing Concrete Masonry Units.

Technical Data: The Thermal Properties tables show the thermal resistance (R_t), including inside and outside air surface resistances of .68 and .17 hr-ft²-°F/BTU, respectively, and the U-values for various densities of concrete masonry units. See Thermal Properties charts.

Physical Characteristics: See Physical Properties chart below.

PHYSICAL PROPERTIES

Property	Value
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.

Installation

Preparatory Work: None required. Inserts are placed in blocks prior to delivery to the job site. Inserts do not affect the handling of blocks so no added labor is involved.

Precautions: During storage and installation, good fire safety procedures should be followed. Care should be taken to make certain all broken or damaged inserts are replaced.

Thermal Properties:*

Standard 2 Core Masonry Units Insulated with ICON Universal Inserts. U-values are based on conventional 3/8" Mortar Joint Construction, U-value units are Btu/hr/sqft/degF.

6 Inch — 2 Core Masonry Unit				
DENSITY OF BLOCK—LBS/FT ³	CORES EMPTY		CORES INSULATED	
	R _t	U	R _t	U
80	2.64	.38	6.45	.16
95	2.42	.41	5.39	.19
105	2.29	.44	4.76	.21
115	2.17	.46	4.21	.24
125	2.05	.49	3.69	.27
135	1.95	.51	3.25	.31

8 Inch — 2 Core Masonry Unit				
DENSITY OF BLOCK—LBS/FT ³	CORES EMPTY		CORES INSULATED	
	R _t	U	R _t	U
80	2.86	.35	7.74	.13
95	2.61	.38	6.55	.15
105	2.46	.41	5.83	.17
115	2.33	.43	5.17	.19
125	2.21	.45	4.56	.22
135	2.10	.48	4.01	.25

10 Inch — 2 Core Masonry Unit				
DENSITY OF BLOCK—LBS/FT ³	CORES EMPTY		CORES INSULATED	
	R _t	U	R _t	U
80	3.00	.33	8.52	.12
95	2.73	.37	7.25	.14
105	2.57	.39	6.48	.15
115	2.43	.41	5.76	.17
125	2.31	.43	5.09	.20
135	2.19	.46	4.48	.22

12 Inch — 2 Core Masonry Unit				
DENSITY OF BLOCK—LBS/FT ³	CORES EMPTY		CORES INSULATED	
	R _t	U	R _t	U
80	3.12	.32	9.38	.11
95	2.83	.35	8.09	.12
105	2.66	.38	7.27	.14
115	2.52	.40	6.51	.15
125	2.38	.42	5.78	.17
135	2.26	.44	5.11	.20

12 Inch Cavity Wall, 4 Inch Outer Wythe, 1/2 Air Space, 8 Inch 2 Core Block				
DENSITY OF BLOCK—LBS/FT ³	CORES EMPTY		CORES INSULATED	
	R _t	U	R _t	U
80	4.26	.23	9.14	.11
95	4.01	.25	7.95	.13
105	3.86	.26	7.23	.14
115	3.73	.27	6.57	.15
125	3.61	.28	5.96	.17
135	3.50	.29	5.41	.18

* 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 C 90. Additional information was obtained from NCMA Technical Publication TEK 6-2A, 1996. A complete Engineering Report covering the values listed is available upon request.

Availability and Cost

Availability: ICON Universal Inserts are manufactured under protection of a United States Patent. They are sold only to concrete block manufacturers. Contact a CBIS/KORFIL representative for order and delivery information. ICON Inserts are nonproprietary.

Cost: Specific price information is available only through local block manufacturers.

Warranty: ICON Inserts are warranted to meet published specifications at the time of delivery. For further information, contact a CBIS/KORFIL representative.

Maintenance: No maintenance is necessary.

Technical Services: Support is provided by full-time, technically-trained CBIS/KORFIL sales representatives and technical service personnel, backed by a central research and development department and technical service staff.

For further information, contact CBIS/KORFIL, Inc.

ICON is a registered trademark of CONCRETE BLOCK INSULATING SYSTEMS, INC.

We hope the information given here will be helpful. It is based on data and knowledge considered to be true and accurate and is offered for the user's consideration, investigation and verification. Nothing contained herein constitutes a representation but we do not warrant the results to be obtained. Please read all statements, recommendations or suggestions in conjunction with our Conditions of Sale which apply to all goods supplied by us. No statement, recommendation or suggestion is intended for any use which would infringe any patent or copyright.



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Concrete Block Insulating Systems
P.O. Box 1000
Freight House Road
West Brookfield, MA 01585-1000

508.867.4241
800.628.8476
Fax: 508.867.5702

www.cbisinc.com
E-mail: korfil@cbisinc.com
Member of NCMA, SPI and EPSMA