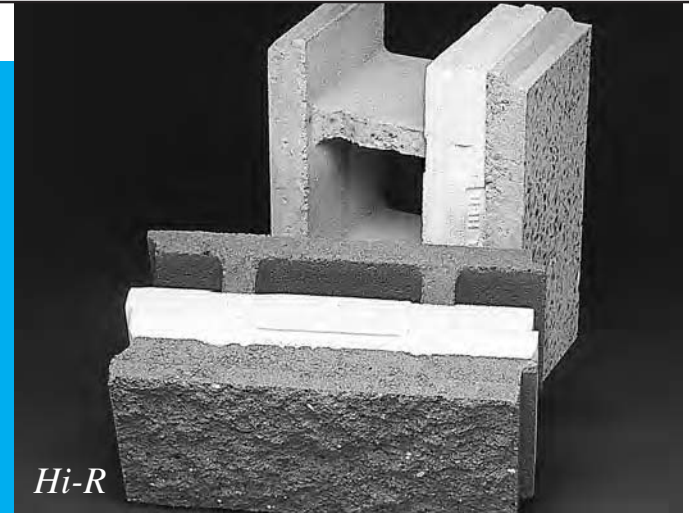




Protection is a concrete idea.

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](http://www.cbisinc.com)



## Hi-R® Masonry Wall System

### Description

**Basic Use:** The Hi-R Wall System is a specially designed concrete masonry unit and individually molded insulation insert. The block and the insulation are combined at the block manufacturing plant prior to delivery to the job site. The assembly provides a wall system capable of achieving higher thermal R-values than conventional masonry, with no effect on the structural integrity of masonry construction.

### Product Advantages: The Hi-R Wall System:

- Provides guaranteed consistent insulation value
- Permits excess moisture to escape
- Allows easy installation of pipes, conduits, etc.
- Improves dewpoint
- Improves sound resistance
- Eliminates concern of shrinkage, toxic fumes or odors
- Improves the ability of blocks to resist wind-driven rain
- Can be used above or below grade
- No lost time or rework if inspection rejects the quality of on-site workmanship
- Work by other trades is performed with little danger of damage to insulation
- The block itself can be used as a bond beam

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

**Hi-R 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: Masonry Units:** Plain Faced, as well as Decorative Faced; Units in 8, 10 and 12-inch

widths with nominal 8" x 16" face dimensions, conforming to ASTM C 90.

**Hi-R 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<sub>t</sub>), including inside and outside air surface resistances of .68 and .17 hr-ft<sup>2</sup>-°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:<sup>A</sup>

Preinsulated Hi-R Masonry Units. U-values are based on conventional 3/8" Mortar Joint Construction, U-value units are Btu/hr/sqft/degF

8 Inch wide Hi-R Wall System						
DENSITY OF BLOCK—LBS/FT <sup>3</sup>	Wall Type 1* R <sub>t</sub> U		Wall Type 2** R <sub>t</sub> U		Wall Type 3*** R <sub>t</sub> U	
	80	12.21	0.082	13.61	0.074	15.04
100	10.27	0.097	11.67	0.086	13.10	0.076
120	8.50	0.118	9.90	0.101	11.33	0.088

10 Inch wide Hi-R Wall System						
DENSITY OF BLOCK—LBS/FT <sup>3</sup>	Wall Type 1* R <sub>t</sub> U		Wall Type 2** R <sub>t</sub> U		Wall Type 3*** R <sub>t</sub> U	
	80	13.92	0.072	15.32	0.065	16.75
100	11.87	0.084	13.27	0.075	14.70	0.068
120	9.95	0.100	11.35	0.088	12.78	0.078

12 Inch wide Hi-R Wall System						
DENSITY OF BLOCK—LBS/FT <sup>3</sup>	Wall Type 1* R <sub>t</sub> U		Wall Type 2** R <sub>t</sub> U		Wall Type 3*** R <sub>t</sub> U	
	80	14.56	0.069	15.96	0.063	17.39
100	12.48	0.080	13.88	0.072	15.31	0.065
120	10.50	0.095	11.90	0.084	13.33	0.075

12 inch Cavity Wall, 4 inch Dense Outer Wythe, 3/4 inch Air Space, 8 inch wide Hi-R Unit						
DENSITY OF BLOCK—LBS/FT <sup>3</sup>	Wall Type 1* R <sub>t</sub> U		Wall Type 2** R <sub>t</sub> U		Wall Type 3*** R <sub>t</sub> U	
	80	13.62	0.073	15.02	0.067	16.45
100	11.68	0.086	13.08	0.077	14.51	0.069
120	9.91	0.101	11.31	0.088	12.74	0.079

\* Hi-R Wall System only.

\*\* Hi-R Wall System, 1/2 inch gypsum board on furring strips.

\*\*\* Hi-R Wall System, 1/2 inch foil-backed gypsum board on furring strips.

### Availability and Cost

**Availability:** The **Hi-R Masonry Wall System** is manufactured under protection of a United States Patent. It is sold only to concrete block manufacturers. Contact a CBIS/KORFIL representative for order and delivery information. The **Hi-R Masonry Wall System** is nonproprietary.

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

**Warranty:** **Hi-R 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.

<sup>A</sup> 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, including Addendum Added Nov. 1, 2002, is available upon request. It covers the thermal values of the Hi-R Masonry Wall Systems.

For further information, contact CBIS/KORFIL, Inc.

**Hi-R** 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.

**CBIS**  
**Korfil**



*Protection is a concrete idea.*

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## Thermal Properties of Hi-R®

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, including Addendum Added Nov. 1, 2002, is available upon request. It covers the thermal values of the Hi-R Masonry Wall Systems.

### 8-Inch Wide Hi-R Wall System

DENSITY OF BLOCK—LBS/FT <sup>3</sup>	Wall Type 1*		Wall Type 2**		Wall Type 3***	
	R <sub>t</sub>	U	R <sub>t</sub>	U	R <sub>t</sub>	U
80	12.21	0.082	13.61	0.074	15.04	0.067
100	10.27	0.097	11.67	0.086	13.10	0.076
120	8.50	0.118	9.90	0.101	11.33	0.088

### 10-Inch Wide Hi-R Wall System

DENSITY OF BLOCK—LBS/FT <sup>3</sup>	Wall Type 1*		Wall Type 2**		Wall Type 3***	
	R <sub>t</sub>	U	R <sub>t</sub>	U	R <sub>t</sub>	U
80	13.92	0.072	15.32	0.065	16.75	0.060
100	11.87	0.084	13.27	0.075	14.70	0.068
120	9.95	0.100	11.35	0.088	12.78	0.078

### 12-Inch Wide Hi-R Wall System

DENSITY OF BLOCK—LBS/FT <sup>3</sup>	Wall Type 1*		Wall Type 2**		Wall Type 3***	
	R <sub>t</sub>	U	R <sub>t</sub>	U	R <sub>t</sub>	U
80	14.56	0.069	15.96	0.063	17.39	0.058
100	12.48	0.080	13.88	0.072	15.31	0.065
120	10.50	0.095	11.90	0.084	13.33	0.075

### 12-Inch Cavity Wall, 4-Inch Dense Outer Wythe, 3/4-Inch Air Space, 8-Inch Wide Hi-R Unit

DENSITY OF BLOCK—LBS/FT <sup>3</sup>	Wall Type 1*		Wall Type 2**		Wall Type 3***	
	R <sub>t</sub>	U	R <sub>t</sub>	U	R <sub>t</sub>	U
80	13.62	0.073	15.02	0.067	16.45	0.061
100	11.68	0.086	13.08	0.077	14.51	0.069
120	9.91	0.101	11.31	0.088	12.74	0.079

\* Hi-R Wall System only.

\*\* Hi-R Wall System, ½ inch gypsum board on furring strips.

\*\*\* Hi-R Wall System, ½ inch foil-backed gypsum board on furring strips.