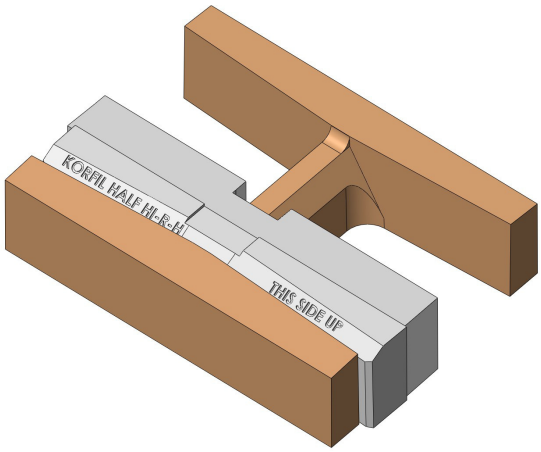
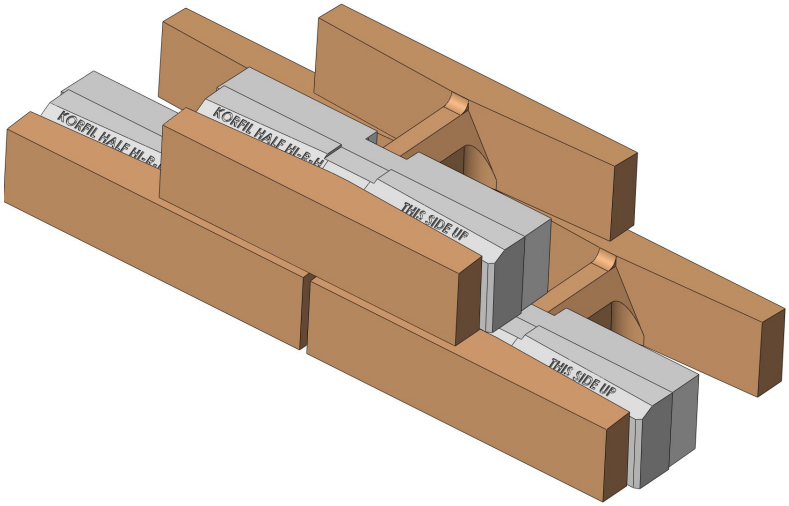
Barnes & Cone
ARCHITECTURAL MASONRY
Manufacturers of Concrete Masonry Since 1926

Introducing Spec-Brik Hi-R H

For over a decade Spec-Brik concrete masonry units have provided a cost effective structural masonry alternative to clay masonry. All of the Spec-Brik walls shown in this document can now be manufactured in Spec-Brik Hi-R H Pre-Insulated Masonry, which can achieve thermal values of R-15.



The web of Spec-Brik Hi-R H exceeds the minimum web, as well as all other ASTM C90 requirements. Insulation inserts are placed in the cmu at the factory. High-density EPS insulation is inserted into the notch molded into the web. The EPS insulation inserts are longer and taller than the block so when the mason builds the wall, insulation covers both the vertical and horizontal mortar joints.



Walls built of Spec-Brik Hi-R H make a fully grouted barrier wall. The large open space behind the insert facilitates efficient placement of reinforcement and grout. Conduit for electrical needs is positioned within the core area just like a typical block wall.

Spec-Brik Hi-R H represents the best of old and new masonry technology. Masonry buildings built 100 years ago commonly were constructed of several wythes of solid masonry units tied together. This "mass wall" was simpler to design and build as most of the intricacies we design into our systems today were not necessary. Spec-Brik Hi-R H combines the traditional solid mass wall technology with insulation inserts, high strength manufacturing techniques and state of the art engineering.

Thermal Values

Barnes & Cone manufactures Spec-Brik Hi-R H in 12" cmu widths using a 115 pcf mix design. We developed this modified light weight mix design to achieve a high thermal value while still maintaining a fine tight texture similar to clay brick.

Spec-Brik Hi-R H uses the widest insulation insert, molded to the highest density of any of the Korfil products to date. A 12 x 4 x 16 Spec-Brik Hi-R H achieves an R-15 using our new 115 pcf mix design. These R-values are certified to comply with ASHRAE 90.1 and the National Concrete Masonry Association's "Thermal Catalog of Concrete Masonry Assemblies." The certification is stamped by a professional engineer.

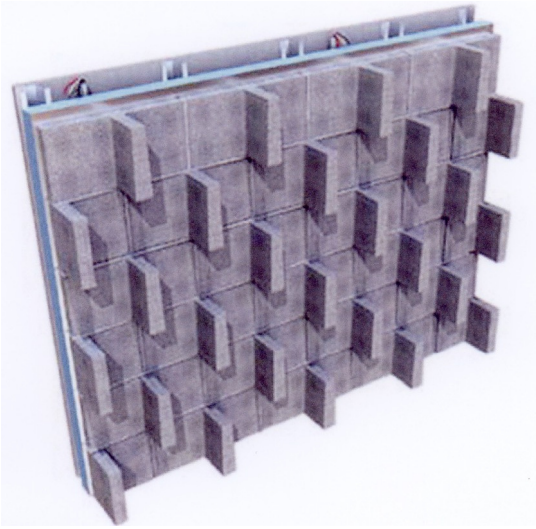
Table 5.5-5 in ASHRAE 90.1 recognizes that mass walls are almost 40% more efficient than steel framed walls. If you use the U-Factor option in the mass wall section of COMcheck, you will find Spec-Brik Hi-R H is an extremely powerful tool for compliance.

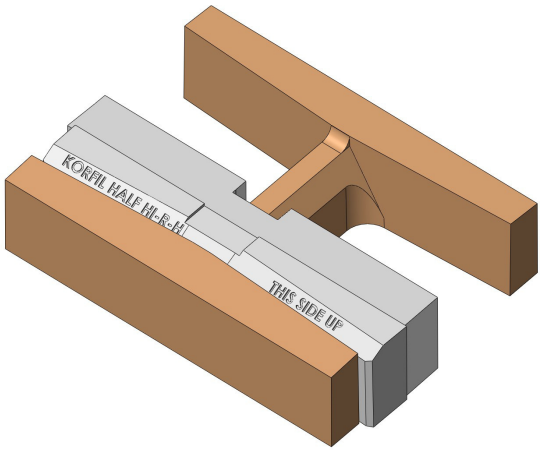
Solid 12" thick masonry walls have a high heat-retention capacity. The mass of the Spec-Brik Hi-R H wall is exposed within the insulated portion of the building where the mass performs best at balancing variations in daily temperatures.

Concrete masonry contributes to healthy indoor air quality. Mold growth requires moisture, oxygen and an organic food source such as paper and wood building materials. Concrete masonry is not a food source for mold and if there is a water event such as a burst water pipe, concrete masonry does not have to be replaced, as dry wall products so often do.

Moisture Protection

ASTM C90, the "Standard Specification for Loadbearing Concrete Masonry Units" now recognizes cmu with partial webs (NCMA TEK 2-5B). One of the reasons behind this recent change was to increase mason efficiency. The drawing shown below represents a 1 web block wall with one faceshell cut off. When these walls are grouted there are fewer obstructions inside the core area to slow down the flow of grout. This significantly increases the speed a mason can grout walls and makes it practical to fill 100% of the open core area.





Spec-Brik Hi-R H uses this same approach to help masons completely fill the open area behind the insert. This solid section of concrete behind the insulation insert acts a barrier for both moisture and air penetration. When you consider that ASHRAE eliminates the air barrier requirement for fully grouted cmu walls, it's easy to understand why these walls resist moisture penetration so well.

A Spec-Brik Hi-R H wall has three lines of defense against moisture penetrating to the interior space.

1. The masonry unit and mortar use integral water-repellents.
2. The wall is solid grouted; the entire space behind the insert is filled with masonry grout.
3. After the wall is built and cleaned, a clear water-proof coating is applied to the exterior.

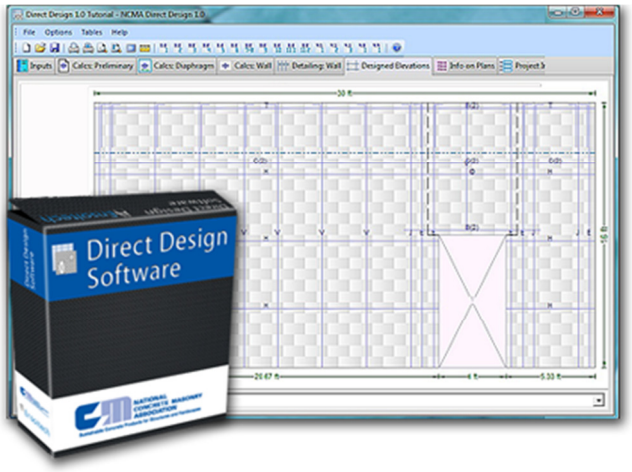
A solid wall like Spec-Brik Hi-R H is a simpler wall to design and build as there is no in-wall flashing, weep-holes, drip-edge, end-dams or termination bar. Elimination of these materials, plus the cost to install them, helps offset the cost of the insert and solid grout

Finish

One wythe of a Spec-Brik Hi-R H System can simultaneously provide structure, thermal, fire, moisture protection plus serve as the both the exterior and interior wall finish.

The Spec-Brik Hi-R H System can eliminate multiple layers in a building envelope, and the multiple trades required to install the layers. Building owners benefit from low annual maintenance costs as both the exterior and interior have a hard durable finish with the impact resistance of 12 inches of solid grouted high strength masonry.

Barnes & Cone is a member of the Concrete Products Group and we have developed technical tools to assist with energy code compliance and structural design. If you do not have copies of these publications, please contact our office.



Because Spec-Brik Hi-R H is an ASTM C90 Loadbearing Concrete Masonry Unit, the system can be structurally designed using current design software like Direct Design. Direct Design is an inexpensive, state of the art, structural masonry design program made possible by a grant from the National Concrete Masonry Education & Research Foundation. The software is fast, prints fully detailed wall elevations, and displays the full text of every calculation so the user can verify every step. Fully functioning 30-day free trails are available at http://directdesignsoftware.com/

Later in 2018, Direct Design Software will be able to interact with Revit. Buildings can be drawn in Revit, and then exported into Direct Design. After the structural masonry design is completed, the file will be integrated back into the Revit model of the building.

Barnes & Cone is offering free structural design webinars to demonstrate the new code changes. Jason Thompson, Vice President of Engineering at The National Concrete Masonry Association, presents the structural changes to the code using the 3rd edition of Direct Design Software. There is no charge for the webinar, all you need is a good internet connection in your office, a date that is convenient for you, and about 1 ½ hours of your time.

Dave Nickerson introduced Korfil U-Shape Pre-Insulated Block to the Concrete Masonry Industry in 1971.
While Spec-Brik Hi-R H is Dave's latest invention, we continue to offer Korfil's entire family of products:
Korfil Hi-R H (8" high), Korfil Hi-R (8" high), Korfil Hi-R (4" high), Korfil U-Shape and Korfil Icon.

Whether you are an engineer interested in a structural design webinar or an architect who would like assistance with budgets, samples or energy code compliance, we would be happy to help.

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