THE BRICK INDUSTRY ASSOCIATION

Brick Note

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Clay Brick v. Fly Ash "Brick"

These days marketers promoting everything from household cleaners to building materials claim their products are "green" and "environmentally friendly." Although easily made, these claims are difficult to back up with fact-based or empirical data. Such is the case with brick made of coal fly ash, which has been promoted as the next best thing. Claims that fly ash brick (FAB) is more environmentally friendly than and performs as well as clay brick cannot be substantiated. There currently is no evidence to back assertions about the quality of fly ash brick – no scientific studies, no track record of in-place durability, no concrete evidence of performance. In fact, fly ash brick has yet to be produced in the United States; claims about its performance are grossly premature.

Clay brick, however, has a performance history that spans thousands of years. Proof of clay brick's quality exists in structures throughout the world that have maintained their integrity and beauty over centuries.

The Brick Industry Association embraces innovation and advancement in manufacturing and product composition when the evidence is clear that changes enhance and improve performance. However, numerous assertions regarding fly ash brick and how it compares to clay brick must be clarified, including:

Claims that fly ash "brick" performance is comparable to clay brick are invalid. The FAB prototype has no American Society for Testing (ASTM) standards, and claims that fly ash brick performance is similar to ASTM C216 (Standard Specification for Facing Brick) are unfounded. The ASTM standard only applies to fired clay or shale, and it does not address innate performance characteristics of clay brick, such as color-retention, fire resistance, sound absorption, thermal mass and impact resistance—attributes that have already been tested extensively in the real world. Field-tested performance data for fly ash "brick" on these types of performance attributes, however, does not exist.

Statements made recently regarding the amount of energy used to produce clay brick are misleading and outdated. For decades, the brick industry has made tremendous strides in lowering the amount of energy used to make clay brick. The standard now is 1239 BTU per pound, or at most 5823 BTU per brick—substantially less than the amount claimed by FAB proponents. Also, when calculating energy used to create real brick, the longevity of the product must be considered.

"Life cycle cost is a very important factor, and the durability of materials unquestionably has a high value. With brick, it's an extremely durable product, and the long-term maintenance that's needed is low," said David Hess, AIA and Senior Associate at Pelli, Clarke Pelli, while discussing The Solaire, New York City's first LEED® Gold residential structure. Alternative building materials may use less energy during manufacturing, but they do not conserve energy long term if they are replaced many times over as compared to the life-span of brick. Additionally, fly ash "brick" is a waste byproduct of coal-burning power plants—a process frequently unaccounted for in claims about the energy used to make fly ash "brick."

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Assertions that fly ash brick will maintain its long-term aesthetic appeal are based on pure speculation. Only comprehensive testing and the development of ASTM standards specific to fly ash brick will determine whether characteristics such as color and texture will hold up long-term. Proponents state that the addition of mineral oxide pigments will help fly ash brick maintain its color. However, in-the-field experience with non-fired masonry units using mineral oxide pigments indicates that such units fade and lose color over time. However, the sustainability of clay brick's color and texture has been demonstrated time and again to last for centuries.

THE DIFFERENCES BETWEEN CLAY BRICK AND FLY ASH "BRICK"

ATTRIBUTES	CLAY FACE BRICK	FLY ASH "BRICK"
ASTM Standard	ASTM C216, ASTM C652	None
Documented Performance Attributes		
One Hour Fire Rating	Yes	No
Impact resistance requirements for hurricane zones in Florida Building Code	Yes	No
100 year service life	Yes	No
Proven color retention	Yes	No
Available in a variety of shapes and sizes	Yes	No
Available in thousands of colors	Yes	No
Proven cleaning process	Yes	No
Accepted by building codes	Yes	No
Manufacturing Process		
Sourced from natural, abundant ingredients	Yes	No
Readily available materials	Yes	No
Proven manufacturing technology	Yes	No
Third party certification for Green Building Ratings Systems	Yes	No

About the Brick Industry Association

The Brick Industry Association (BIA) is the national trade association representing distributors and manufacturers of clay brick and suppliers of related products and services. The association has been the nationally recognized authority on clay brick construction since its founding in 1934, and it represents the industry in all model building code forums and national standards committees. BIA is involved in a broad range of activities that appeal to architects, builders, and consumers, including *Technical Notes on Brick Construction, Brick In Architecture, Brick In Home Building*, Builder Notes, national awards competitions, educational seminars, and numerous other programs. BIA also advocates the industry's regulatory and legislative interests at the federal and state levels and educates municipal and planning officials about the benefits of brick at the local level. Along with the headquarters office that covers the entire country, BIA is comprised of regions that manage programs in the Midwest/Northeast, Southeast, and Southwest.

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