

# Builder Notes

## HOW BRICK CAN HELP YOU BUILD GREEN, ENERGY-EFFICIENT HOMES THAT YOUR CUSTOMERS WANT

### THE ABILITY TO MEASURE A HOME'S ENERGY EFFICIENCY IS IMPORTANT TO YOUR BOTTOM LINE

In 2008, the National Association of Home Builders introduced the National Green Building Standard. In November 2009, Booz Allen Hamilton's "U.S. Green Jobs Study" forecasted that LEED™-related spending will generate \$12.5 billion in gross domestic product between 2009 and 2013. Now, the U.S. Department of Energy has targeted the month of October 2010 as the deadline for developing a national rating standard that institutions can use in providing preferred financing for energy-efficient, healthy homes. With this confluence of events, it's clear that sustainability and energy efficiency are going to be very important to you and your customers if they aren't already.

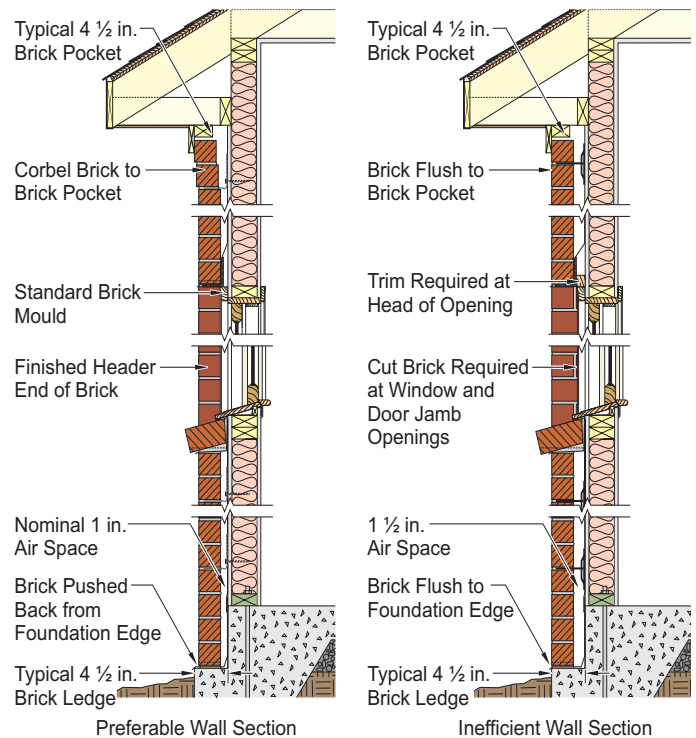
### GENUINE CLAY BRICK IS AN ENERGY-EFFICIENT PRODUCT THAT YOUR CUSTOMERS WANT

Most builders and their customers know that genuine clay brick is an outstanding building material. According to Ducker Worldwide, homeowners consider brick as the ideal and preferred material for exterior cladding more often than any other exterior cladding material. Because of its thermal mass properties, brick has the inherent ability to absorb and retain heat to release at a later date, resulting in less energy required to heat and cool homes. Unlike other materials, brick is supremely durable, and the National Institute for Standards and Technology (NIST) allots brick masonry a 100-year life. Brick is made from natural materials free of volatile organic compounds, which result in better occupant health, comfort, and well-being. With its combination of qualities, clay brick is the most sustainable green building material made. The question for builders then is how can you provide green products that your customers want in an efficient, cost-effective manner so you can be a profitable, green builder?

### BIAS'S RECOMMENDED BEST PRACTICES CAN MAKE IT EASIER TO SOLIDIFY YOURSELF AS A GREEN BUILDER

#### Appropriate Planning Will Increase Efficiency with Each Brick Delivery

**Pay Attention to Material Storage:** Placing brick and sand directly on the ground when it is delivered to the jobsite can be quite costly over time. There is no way to get all the sand that is sitting directly on the earth back up and into the mixer, which is why it is common to order an extra ton or two to allow for waste. Also, brick and sand piles in direct contact with the ground can wick up salts and other minerals that can later contribute to efflorescence - stains can be costly to remove. Therefore, some attention must be given to onsite material storage. Placing materials on tarps, plastic, or up on pallets can optimize material usage.

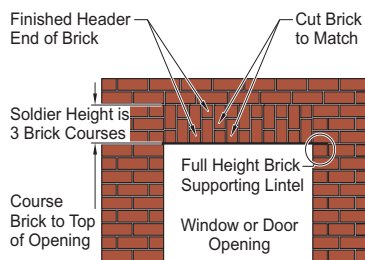


Oversized Brick on 4 1/2 in. Brick Ledge

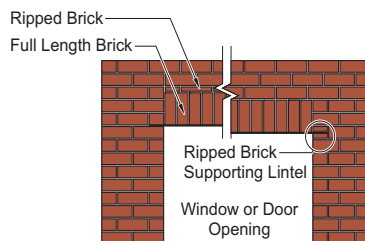
Figure 1

**Increase the Use of Modular Dimensions:** Substantial effort goes into designing commercial structures with modular dimensions. Laying out a building in such a way is more than an aesthetic issue; it saves materials as well. Consequently, similar thought should be given to controlling waste in residential settings. For example, while there are a limited number of odd-sized windows in some homes, the majority of the windows on each successive floor level of most homes are of similar dimension. If windows are carefully placed at the same height on all sides of the home, the mason can use the tops of windows as a benchmark to help course off the story poles. This careful placement will eliminate the need to cut brick or rips on the lintel over the openings, cutting down on waste and providing a more professional looking installation.

**Consider Different-Sized Units:** Many builders are now using non-standard units to clad their homes. For example, oversized units have a nominal 3-inch width or setting bed. If these thinner oversized bricks are used on a house where a conventional 4 1/2-inch brick ledge and a 4 1/2-inch brick pocket are already in place,



Preferable Opening Detail



Inefficient Opening Details

Figure 2

then the Preferable Wall Section shown in Figure 1 provides the fastest, easiest method for a professional installation. Proper technique means the setline for the brick should be pushed back from the edge of the brick ledge until there is a nominal 1-inch air space between the brick and the exterior sheathing. This allows the thinner oversized brick units to ‘catch’ the trim around window and door openings without requiring a brick return at the jamb. If oversized brick are not pushed back but laid conventionally to the edge of the brick ledge in the foundation as shown in the Inefficient Wall Section in Figure 1, a brick return to the window or door is required

to fill the void between the back of the veneer and the brick molding. Masons typically construct the return using small 1-inch pieces of clipped brick. For the top of the wall, the brick can be corbeled for the last few courses.

When oversized brick are used around window and door openings, the brick coursing should be initially set so that the brick ‘course out’ at the top of openings to support the lintels on full-height brick units as shown in the Preferable Opening Detail of Figure 2. If this is not done, ripped brick or large mortar joints may result under the lintel as shown in the Inefficient Opening Detail of Figure 2. If a vertical brick detail above openings is desired, the Preferable Opening Detail of Figure 2 shows how to achieve this without using small brick pieces as shown in Inefficient Opening Detail in Figure 2. This approach will certainly cut down on waste, contribute to a more professional looking installation, and be a faster and easier way for the mason to use oversized brick.

#### Encourage Mason Contractors to Supply Labor and Materials:

Remember when seven modular brick per square foot of wall surface and seven bags of mortar would do the job? There can be little incentive on the mason’s part to give attention to conserving materials if you the builder are supplying them. Masonry contractors who are contracted to supply both labor and materials are generally more motivated to optimize the use of all the components in a veneer.

#### Recycled Materials that are Included with Brick Masonry Can Enhance Your Position as a Green Builder

The emphasis on environmental stewardship and energy efficiency is more important than ever before. With nearly 8,000 pounds of waste typically thrown in a landfill during the construction of a 2,000 square foot home, using products that incorporate recycled content is crucial.

Brick can play a significant role in your efforts. Because fired clay units are inert, brick can incorporate many materials, including pre-consumer recycled content and soil that would have otherwise been considered waste. In addition, the packaging of brick – a few bands and wooden strips – is 100% recyclable, as are the brick themselves. Finally, because of the product’s renowned durability, reclaimed brick are commonly used in new construction. While other building materials can be melted down, reshaped, or repurposed in some way, what other material than brick can be placed in usage for more than 100 years, taken down, and then reused as is just as it was designed to do originally? At the same time, other materials related to brick can also incorporate recycled material.

- Mortar and grout, which comprise about 18% of a brick’s wall surface, can include recycled materials such as fly ash
- Flashings can be made from recycled metal or plastic
- Mortar deflection devices can incorporate recycled plastic
- Wall ties can be made of recycled metal



#### Extend Brick’s Use to the Ground with Clay Pavers

Clay pavers, set in a flexible base, are able to contribute to permeability of surface water back into our underground water supply. To support the health of vegetation and to help replenish existing fresh water supplies, some municipalities strictly limit the size of the footprint that new construction can consume on a given lot size. This footprint includes the house itself, as well as patios, sidewalks, and driveways consisting of impervious materials. Realizing the contribution that a flexible clay paving system offers to the environment, some municipalities will allow a builder to increase the size of the home allowable, if some or all of the flatwork is permeable. In addition, most clay pavers reflect heat very well and reduce the heat island effect.

#### SUMMARY

Unlike other wall cladding materials in use today, brick is the one proven product with excellent performance attributes that your customers want. By following these best practices, builders can strengthen their reputation as a high-quality, green builder while saving time, money and resources. Consider clay brick – the most sustainable, green building material made – on your next project.



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