Rainscreen Retrofit for Brick Walls

Flood Recovery • Hurricane Recovery • Restoration
Flood Resilient Retrofit

Guide to Wet Flood-Proofing

Revised 1/14/19
Note:
The retrofit approach described is not standard building practice. Consult your licensed contractor, building official and insurance inspector for acceptability of any repair method considered.

Overview
After a flood homeowners find that some of worst damage is “hidden” within the walls of their homes. The combination of trapped moisture and warm temperatures can lead to serious mold issues within a few short days. Given that mold can have severe negative health impacts on homeowners and their families, it’s important that any remediation/renovation efforts addresses the immediate existing mold AND minimizes the impact of water infiltration in the case of future flood events.

While elevating the building to prevent future flood damage is the best long-term approach it is cost-prohibitive. Creating a drainable, dryable wall with water tolerant materials is an economical way to reduce the impact of future floods and achieve a higher performing building enclosure. In addition to using materials that can simply be washed down after a flood event, a good system addresses concerns about moisture, structural strength, and thermal performance.

Key Concerns

Moisture Concerns
Keeping walls dry and helping them dry out after a flood is essential to flood resilient walls. A continuous, vented rainscreen air gap with Sure Cavity™ behind the exterior veneer is a best practice approach to preventing incidental moisture issues.

Addressing Mold
Mold is a serious health concern in flooded areas that requires proper personal protective equipment and mitigation. After the retrofit, apply a paint-based fungicide to walls, studs and insulation surfaces to kill mold and pre-treat for mold in future floods.

Structural Considerations
Flood water contaminated sheathing (OSB, gypsum) must be removed, but it is essential that the racking resistance is restored. Applying 2lb density closed cell spray foam in the stud cavity resists racking and provides water-tolerant insulation.
**Preparations**
Remove drywall and insulation to 8” above the waterline and sheathing to 4” above the water line.

Treat the stud cavity for mold and allow to completely dry.
**Weeps & Mortar**
Remove excess mortar squeezings / droppings from the back side of the wall and the brick ledge.

Clean out weep holes. If weeps aren’t present drill them through mortar joints at the lowest point in the wall to drain water from the rainscreen.

Leave brick ties in place - if brick ties are missing or in poor condition install MTI Retrofit Brick Ties (next page).

**Flashing**
If flashings are in good condition attempt to preserve them. If not, coat the brick ledge, bottom plate and lower 4” of the studs with a fluid applied flashing (such as PROSOCO Fast Flash®) to protect the wood framing and direct water to the weeps.
**Brick Ties**

If brick ties are missing or damaged use Retrofit Brick Tie™ to anchor the brick facade to the framing. Install Retrofit Brick Ties prior to the Sure Cavity™ rainscreen.

- From the interior drill a 2” deep, 3/8” diameter hole in mortar joint next to studs. Clean dust and debris from hole
- Fill mortar joint hole with anchoring epoxy
- Insert Retrofit Brick Tie in epoxy and fasten to stud
- Install Retrofit Brick Ties every 16” vertically on studs
Rainscreen

The Sure Cavity™ rainscreen maintains an air gap between the brick and the insulation from the top of the wall down to the flashing and weeps. The rainscreen & fabric are NOT barriers to water - they maintains a drainage path for water to exit. The closed cell spray foam insulation will act as the water resistive barrier.

Install the Sure Cavity™ rainscreen between the brick wall and the studs with the fabric facing you as you install it. The fabric “skirt” should be at the bottom, and the channels should run vertically (up and down).

On the lowest course of Sure Cavity back-wrap the fabric and install at the lowest point of the wall cavity.

On upper courses lap the fabric over the course below. The plastic can be butted, lapped or gapped up to 1/4”.

The best method of attachment will depend on the conditions present in your wall.

Note: Sure Cavity product literature indicates the fabric should face the weather. However, in interior retrofit applications the fabric separates the corrugated plastic from the spray foam.

Remember: the Sure Cavity’s function is to maintain an air gap between the brick and the interior spray foam.
Rainscreen (continued)

Hold the Sure Cavity™ in place using one of the following techniques:

- **Option A** Feed long sections of the Sure Cavity between the studs and brick wall, letting upper courses rest on the brick ties. Slit the fabric to drape around brick ties. Wedge pieces of rigid foam board between the Sure Cavity and studs to hold in place.

- **Option B** Using a scissors or utility knife, trim sections of Sure Cavity to span from one stud to the next. Position the Sure Cavity in the stud bay and use a scissors or utility knife to notch the Sure Cavity at the brick ties. Press the notched Sure Cavity around the brick ties to hold it in place.
Option C Using a scissors or utility knife, trim sections of Sure Cavity to be 4” wider than the stud cavity. Wrap the Sure Cavity inside the stud bay, and fasten the Sure Cavity to the studs with roofing nails or staples on both sides of the cavity.

Transitions

When the rainscreen meets existing sheathing use light gauge sheet metal or another sheet good to block spray foam from filling the gap at the transition.

Spray Foam

2lb closed-cell spray foam establishes a continuous water and air barrier, restores racking resistance and insulates the stud wall. Spray foam should always be applied by a qualified installer with proper personal protective equipment.

Spray at the intersection of the studs and Sure Cavity™ to reinforce brick ties, and then fill the stud cavity with 2 ½” spray foam. Approximately 1” of air space should remain.
**Finishing the Interior**

Consider the following measures to isolate and reduce damage in future floods:

- Use a water-resistant wainscoting up to 4” above the water line. (ie cement board, magnesium oxide board, gypsum without paper facing)
- Leave a 1/4” gap between the wainscoting and drywall to prevent wicking.
- Terminate the wainscoting 1” above the bottom plate and cover with a removable base board to drain the stud cavity in a future flood.
Frequently Asked Questions

**Will This Prevent My Home From Flooding In The Future?**
No. This approach minimizes the materials that have to be removed in a future flood. The Sure Cavity Rainscreen and closed cell insulation will not need to be removed.

**Can I Skip The Rainscreen And Just Spray Foam?**
No. An air gap is required behind brick veneers for drainage. Spray foam applied directly to the brick veneer leads to premature wear and damage to the brick and mortar.

**Is Sure Cavity Waterproof / A Water Resistive Barrier?**
No. Sure Cavity maintains a gap behind the brick for moisture to drain. The closed cell spray foam insulation will act as the water resistive barrier.

**Which Way Does The Fabric Face?**
In interior retrofit applications the fabric separates the corrugated plastic from the spray foam. The fabric faces you as you install the product.

**Do I Need To Be Concerned About Termites?**
Regardless of your repair approach, any home with wood-based construction needs to be on alert for possible termite intrusion. Though weep holes seem like an obvious area of concern, termites can squeeze through very small cracks, such as those in mortar joints or brick vents. Maintain as much distance between the soil and weep holes as possible and use chemical pest control as necessary. Constant vigilance against termites is required.

**Where Can I Purchase Sure Cavity And Retrofit Brick Ties?**
Call 800-879-3348 to place your order and have product shipped directly to you.

Videos & Additional Resources
mtidry.com/flood-remediation

Ordering & Technical Assistance
800-879-3348