

Dry Floodproofing: Making a Building Water-Tight

Permanent dry floodproofing of an existing building can be done by applying a long-lasting, waterproof sealant coating or membrane over the exterior sheathing, siding (if relatively flat) or brick veneer.

Penetrations in the walls also are sealed watertight, including central air-conditioning condensate drains, openings for telephone and electrical lines and any other channels through the walls. In addition, all doors and windows need watertight panels that can be closed to block flood water. (See Extension Service Publication No. 2743 on panel closures.)

Temporary dry floodproofing by wrapping with plastic is described in publication No. 2769.

Cost and Considerations

Permanent dry floodproofing of an existing building, though it may appear simple, is a complex procedure that should be done by professionals. It may be regulated and require permits. It is most suited to areas with clay soils, where floods are frequent, short in duration and less than 3 feet deep.

Permanent dry floodproofing to 3 feet, including commercially manufactured panels to cover windows and doors, costs about \$8 to \$12 per square foot of enclosed area. It does not reduce flood insurance premiums on your home, but may reduce premiums on a non-residential building.

Buildings on piers or pilings are easier to raise but are more difficult to dry floodproof than buildings on slab. In many cases elevating such structures would be less expensive than dry floodproofing them.

Dry floodproofing exposes exterior walls of the building to the unbalanced force of water. Properly constructed walls in good condition should be able to withstand the pressure of 3 feet of water. Buildings poorly constructed or suffering from decay or termite damage may not.

Depending on the duration of flooding and the ease with which water flows through the soil, a slab foundation may be exposed to buoyant (upward) force. In a flooded building, this is balanced by the weight of water above the slab. When flood water is excluded, the unbalanced buoyant force may cause damage.

Sealing brick veneer walls blocks the weep holes – the small gaps between bricks along the lowest course. The purpose of weep holes is to allow air circulation and drainage of water that leaks around windows and doors, migrates through the brick or condenses behind it. Since weep holes prevent moisture problems and are required by southern building codes, blocking them normally is not recommended. However, blocking weep holes may be a better choice than allowing the building to flood, which presents a greater chance for moisture problems.

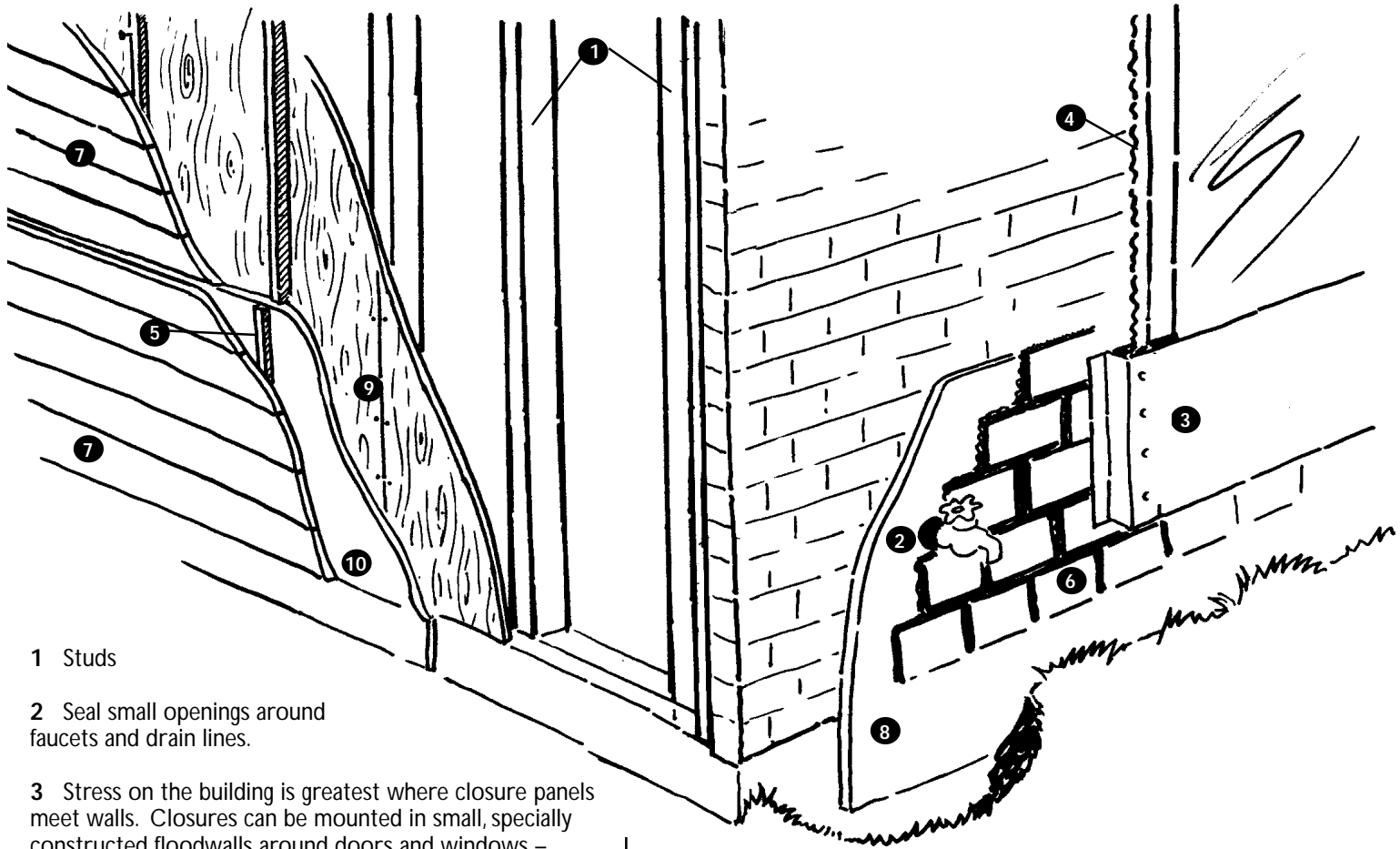
Ventilating the cavity between the brick and sheathing above the floodproofed level, caulking and flashing windows and doors and applying a clear sealant (or paint) above the floodproofed level may reduce the potential for moisture damage in exterior walls. It also may be possible to install drainage valves, which would be sealed during a flood, in place of the weep holes. Floodproofing the sheathing behind the brick or siding would allow drainage but is considerably more expensive, especially with brick veneer walls.

Sealing a building so water will not enter is called dry floodproofing. The interior spaces, equipment and contents of the building stay dry.

Tips

- Do not dry floodproof a building more than 3 feet up the walls without an engineer's verification of adequate wall strength.
- Do not dry floodproof a building in poor structural condition.
- Avoid using sealant coatings or membranes susceptible to termite damage; use care that you don't create hidden paths for termites.
- Sealants must be able to withstand either exposure to sunlight or being sealed in an airtight, dark cavity and must be stable in extremes of temperature.
- Prevent rain leaks and take measures to reduce moisture penetration above the floodproofing. Frequently look for signs of excess moisture along baseboards. Do not use vinyl wallpaper, oil-based paint or other vapor retarders on the interior sides of the floodproofed walls.
- Either use automatic closures and maintain them annually or be sure you have the time and know-how to install non-automatic closures.
- Install valves in sewer lines to prevent back-flow.
- Have one or more sump areas and pumps to discharge water that may leak or seep in.
- Have an evacuation plan. Structural failure or over-topping can result in sudden and forceful entry of flood water. Plan in advance when you will abandon a flood fight and save yourself and your family.

Sealing Two Types of Exterior Walls



1 Studs

2 Seal small openings around faucets and drain lines.

3 Stress on the building is greatest where closure panels meet walls. Closures can be mounted in small, specially constructed floodwalls around doors and windows – rather than directly on the building.

4 Eliminate rain leaks around window frames and apply clear sealant above the level of floodproofing.

5 Use furring strips when installing siding over the self-healing membrane.

6 Use brick tile (pavers) or stucco to improve aesthetics without having to lengthen faucets. If using a full-size brick veneer, pour additional foundation and tie it to the slab, leaving no gaps.

7 Siding

8 Seal brick walls by coating them with asphaltic material, a waterproof polymer product, fibrous coating or waterproof film. Bring sealant down along the slab and several inches below ground level; concrete is porous. Be sure termites can't penetrate the sealant or between sealant and slab.

9 Sheathing

10 A waterproof membrane, shown applied on the sheathing, can be applied over the siding if there is no sheathing. Waterproof roofing film has been used. This self-healing membrane will seal itself around nails or fasteners used to reinstall the siding or new exterior finish.

Additional flood protection and recovery information is available from parish offices of the Louisiana Cooperative Extension Service or from our website at

www.louisianafloods.org

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Pat Skinner, *Disaster Programs Coordinator*

Claudette Reichel, Ed.D., *Specialist (Housing)*

David Bankston, Ph.D., *Specialist (Engineering)*

Gene Baker, P.E., *Associate Vice Chancellor (Information Technology)*

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Louisiana State University Agricultural Center, William B. Richardson, Chancellor
Louisiana Cooperative Extension Service, Jack L. Bagent, Vice Chancellor and Director

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