



# Protecting Your Business From Flooding

FEDERAL EMERGENCY MANAGEMENT AGENCY

## ARE YOU AT RISK?

If you aren't sure whether your business is at risk from flooding, check with your local floodplain manager, building official, city engineer, or planning and zoning administrator. They can tell you whether you are in a flood hazard area, and they can also tell you how to protect your business from flooding.

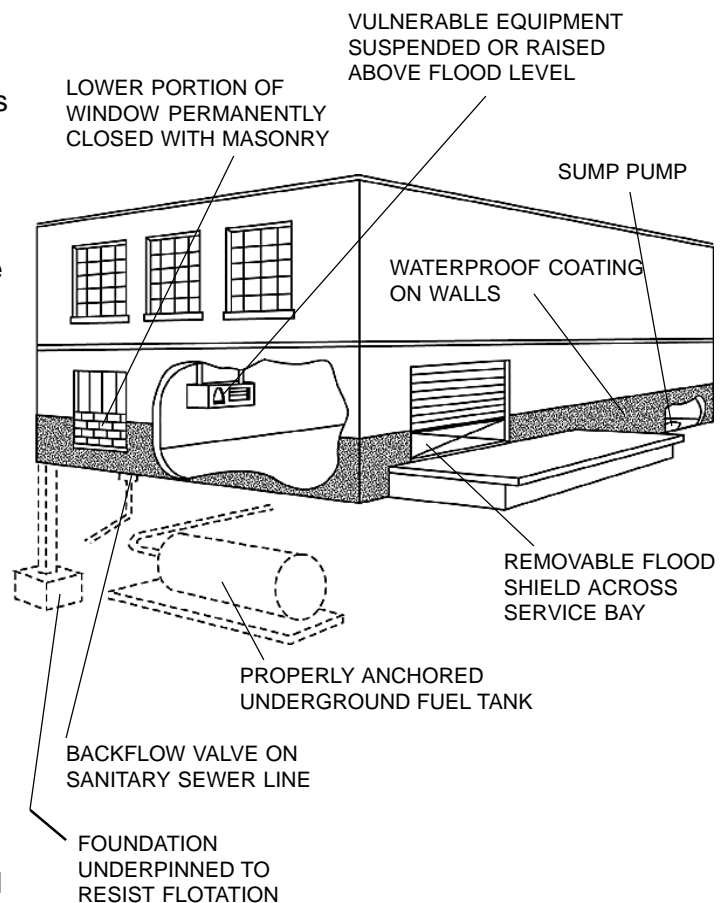
## WHAT YOU CAN DO

Protecting your business from flooding can involve a variety of actions, from inspecting and maintaining your buildings to installing protective devices. Most of these actions, especially those that affect the structure of your buildings or their utility systems, should be carried out by qualified maintenance staff or professional contractors licensed to work in your state, county, or city. One example of flood protection is using dry floodproofing techniques to protect buildings in flood hazard areas.

## DRY FLOODPROOF YOUR BUILDING

One way to protect a building and its contents from flood damage is to seal the building so that flood waters cannot enter. This method, referred to as "dry floodproofing," encompasses a variety of measures (some of which are covered by separate fact sheets – see back of this sheet):

- applying a waterproof coating or membrane to the exterior walls of the building
- installing watertight shields over doors, windows, and other openings
- anchoring the building as necessary so that it can resist flotation
- installing backflow valves in sanitary and storm sewer lines
- raising utility system components, machinery, and other pieces of equipment so that they are above the expected flood level
- anchoring fuel tanks and other storage tanks to prevent flotation
- installing a sump pump and foundation drain system
- strengthening walls so that they can withstand the pressures of flood waters and the impacts of floodborne debris



# Protecting Your Business From Disasters

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## Dry Floodproof Your Building

### TIPS

Keep these points in mind when you dry floodproof a building:

- ✓ Dry floodproofing is appropriate primarily for slab-on-grade buildings with concrete or solid masonry walls. Concrete and masonry are easier to seal, more resistant to flood damage, and stronger than other conventional construction materials.
- ✓ If you dry floodproof a “substantially damaged” or “substantially improved” building (as defined by the National Flood Insurance Program regulations) or a newly constructed building, and if the building’s lowest floor (including any basement) is below the Base Flood Elevation (BFE) shown on the Flood Insurance Rate Map (FIRM) for your community, your dry floodproofing must be certified as providing protection from the BFE. To obtain this certification, you must floodproof your building to a height at least 1 foot above the elevation of the BFE. Check with your local floodplain manager or building official for more information.
- ✓ The height of your dry floodproofing should not exceed 3 feet. The pressures exerted by deeper water can cause walls to buckle or collapse. Before you use dry floodproofing to protect against greater flood depths, have a structural engineer evaluate the strength of your walls.
- ✓ If your dry floodproofing measures require human intervention, such as placing shields over doors and windows before flood waters arrive, you should have an operations and maintenance plan that describes all the actions that must be taken and lists the persons who are responsible. Your plan must also include a schedule of periodic maintenance that states how often the dry floodproofing measures will be inspected and who will perform the inspections.

### ESTIMATED COST

The cost of individual dry floodproofing measures will vary with the size, condition, and use of your building; the dry floodproofing height; and the extent to which you use contractors and engineers.

### OTHER SOURCES OF INFORMATION

*Install Sewer Backflow Valves*, Protecting Your Property from Flooding, FEMA Hazard Mitigation Fact Sheet, 1998

*Anchor Fuel Tanks*, Protecting Your Property from Flooding, FEMA Hazard Mitigation Fact Sheet, 1998

*Non-Residential Floodproofing – Requirements and Certification for Buildings Located in Special Flood Hazard Areas*, FEMA Technical Bulletin 3-93, April 1993

*Floodproofing Non-Residential Structures*, FEMA 102, 1986

To obtain copies of FEMA documents, call FEMA Publications at 1-800-480-2520. Information is also available on the World Wide Web at <http://www.fema.gov>.