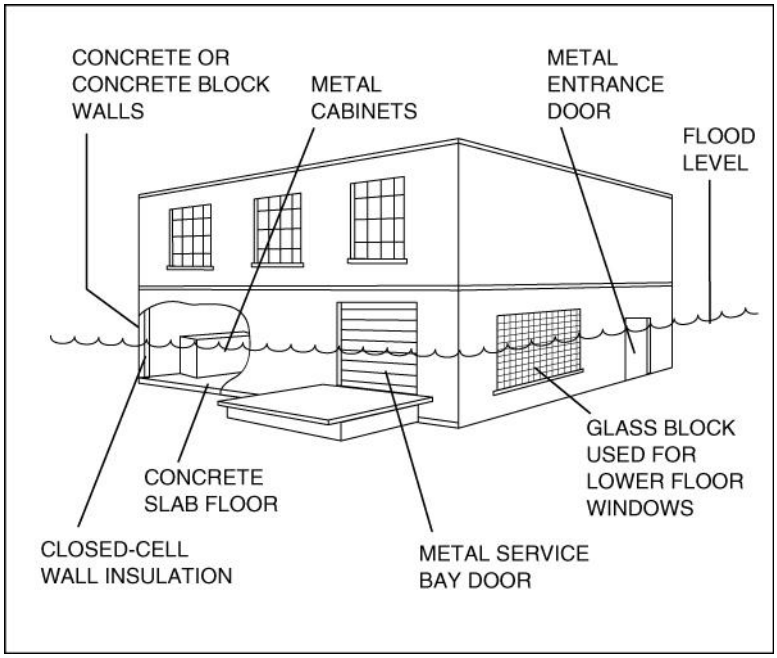
Build with Flood Damage Resistant Materials

FEMA

PROTECTING YOUR PROPERTY FROM FLOODING

If your property is in a flood hazard area, you can reduce the damage caused by flood waters and make cleanup easier by using flood damage resistant building materials. Building materials are considered flood resistant if they can withstand direct contact with flood waters for at least 72 hours without being significantly damaged. "Significant damage" means any damage that requires more than low cost, cosmetic repair (such as painting). As shown in the figure, flood damage resistant materials should be used for walls, floors, and other parts of a building that are below the base flood elevation (BFE). Both FEMA and the U.S. Army Corps of Engineers have published lists of these materials (see "Other Sources of Information" section). Commonly available flood damage resistant materials include the following:



Flooring Materials

- concrete, concrete tile, and pre-cast concrete
- latex or bituminous, ceramic, clay, terrazzo, vinyl, and rubber sheets and tiles
- pressure-treated (PT) or decay resistant lumber
- PT wood and cold-formed steel

Wall and Ceiling Materials

- brick, metal, concrete, concrete block, porcelain, slate, glass block, stone, and ceramic and clay tile
- cement board, cold-formed steel, and reinforced concrete
- polyester epoxy paint
- PT and decay resistant lumber
- PT and marine grade plywood
- foam and closed-cell insulation
- decay resistant wood

Other

- hollow metal doors, cabinets, foam or closed-cell insulation

BENEFITS OF UTILIZING THIS MITIGATION STRATEGY

- Helps to prevent damage to a structure and make cleanup easier

TIPS

Keep these points in mind when you build with flood damage resistant materials:

- ✓ Remember that as long as your structure remains exposed to flooding, it will likely be damaged, even when you use flood damage resistant materials. Some amount of cleanup and cosmetic repair will usually be necessary. Although using flood damage resistant materials can reduce the amount and severity of water damage, it does not protect your buildings from other flood hazards, such as the impact of floodborne debris.
- ✓ All hardware used in areas below the flood level should be made of stainless or galvanized steel.
- ✓ Flood insurance will not pay a claim for damaged finishing materials below the BFE, even if those materials are considered flood damage resistant.
- ✓ If your property is in a coastal flood hazard area, installing flood damage resistant materials in areas below the BFE may create an obstruction, in violation of National Flood Insurance Program (NFIP) regulations. Check with your local building official or floodplain manager before making any modifications to your buildings.
- ✓ Areas of a structure that are below the BFE should be used only for parking, storage, and access.
- ✓ Flood damage resistant materials are also required by the International Building Code (IBC). See your local building code official for additional information.

ESTIMATED COST

The cost of using flood damage resistant materials will vary, depending on the size of the project you undertake. Your local building official and contractors can provide cost estimates for materials and installation.

OTHER SOURCES OF INFORMATION

FEMA Technical Bulletin 2-93, *Flood-Resistant Materials Requirements for Buildings Located in Special Flood Hazard Areas*, April 1993, http://www.fema.gov/library/viewRecord.do?id=1580. (New TB-2 will be available in Spring 2008.)

FEMA Technical Bulletin 3-93, *Non-Residential Floodproofing - Requirements and Certification for Buildings Located in Special Flood Hazard Areas*, April 1993, http://www.fema.gov/library/viewRecord.do?id=1716.

Flood Resistant Design and Construction, ASCE/SEI 24-05, American Society of Civil Engineers (ASCE), https://www.asce.org/bookstore/book.cfm?book=5661 or http://pubs.asce.org/books/standards.

Floodproofing Regulations, EP 1165-2-314, U.S. Army Corps of Engineers, December 15, 1995, http://www.usace.army.mil/publications/eng-pamphlets/ep1165-2-314/toc.htm.

International Residential Code® (IRC®), Chapter 5, “Floors”; Chapter 6, “Wall Construction,” 2006.

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