

For Additional Information

The Association of State Floodplain Managers (ASFPM) and the US Army Corps of Engineers (USACE) both have professional committees dedicated to the advancement of nonstructural flood risk adaptive measures for the reduction in property damages and life loss. The committees have expertise in engineering, architecture, community planning, economics, and plan formulation.

For additional information regarding nonstructural flood risk adaptive measures contact:



ASFPM Nonstructural Flood Proofing Committee

Contact the Committee Co-Chairs
 Email: perotinma@cdmsmith.com
 Email: floodfighter@q.com
 Website: www.floods.org/index.asp



USACE Nonstructural Nonstructural Committee

Contact the Committee Chair: 530-302-3729
 Email: nnc@usace.army.mil
 Website: <https://www.usace.army.mil/Missions/Civil-Works/Project-Planning/nnc/>

The ASFPM and USACE committees provide support to nonstructural mitigation through educational outreach utilizing workshops, conferences, classrooms, and webinars. Presentations can be developed for specific needs and topics or for general knowledge.

Both committees are experienced at developing scopes of work, performing field assessments, conducting plan formulation, and determining economically feasible plans for implementation to reduce flood risk.



Risks Beyond the Floodwaters

Flooding across the United States continues to increase at an alarming rate. And with flooding comes loss of life and excessive property damage. Future flooding may result in certain services which you have become accustomed to, not being available during or immediately after a flood event.



Critical Facilities are represented by those lifesaving services such as fire, rescue, police, hospitals, and others, which when becoming inoperable due to a flood event, exacerbate the detrimental affects of the flood and the severity of impacts on the local population. The area of impact may extend beyond the projected area of flooding. In other words, if a fire station becomes inoperable during a flood event, those services are diminished and residents may be placed at risk from other threats to their safety.

Critical Infrastructure is represented by ground, rail and air transportation, as well as communication towers, utility systems, water supply and water treatment plants. If critical infrastructure fails during a flood event, then the severity of impacts is likely transferred to the local population.

Any facility or infrastructure whose function may be defined as critical, should, at a minimum, be protected to a 0.2% annual chance exceedance (500-year) flood event.



Nonstructural Flood Risk Management

Flooding across the United States is causing an estimated \$10 Billion a year on average in property damage. Major storm events such as Sandy (2012), Irene (2011), Nashville (2010), Katrina (2005), and the Mississippi River (1993) have contributed to more costly disasters. With increasing population, potential climate change, and limitations on federal funding, the future outlook is more of the same in devastating flood events.



This pamphlet focuses on the abatement of flood risk through implementation of nonstructural mitigation measures. As flooding becomes more of a reality for communities and homeowners across the country, there has become an increased desire to address individual flood risk through nonstructural flood risk management techniques.

This pamphlet defines the various nonstructural flood risk management techniques, the differences between physical and nonphysical measures, and provides contact information for two substantial resources for consideration when contemplating nonstructural mitigation.



What is Nonstructural Flood Risk Management?

Nonstructural flood risk management measures are proven methods and techniques implemented for reducing flood risk and flood damages by adapting to the natural characteristics of flooding within the unobstructed floodplain. Because of their adaptive characteristics to flood risk, these measures support the National Flood Insurance Program (NFIP) and generally cause no adverse effects to the floodplain, flood stages, flood velocities, flood duration, or the existing environment.



Nonstructural flood risk management can be categorized as a set of physical or nonphysical measures utilized to mitigate potential life loss as well as property damages. Physical nonstructural measures are applied on a structure by structure basis. Nonphysical nonstructural measures are floodplain management activities which address flood risk through regulation, programs, and best management practices.



Physical Nonstructural Measures

Acquisition/Buyout. The structure and the land that it occupies is purchased. Structures may be demolished, or based upon condition, may be auctioned and removed to a location outside of the floodplain. Due to the inherent flood risk, the land is no longer available for development.

Relocation. The structure is removed from the floodplain and transported to a new location entirely outside of the floodplain to be reoccupied. Evacuation of the floodplain results in significant reductions in flood risk.

Elevation. The structure is lifted to a new design water surface elevation typically above the base flood. This

technique can be performed using fill material, extended foundation walls, piers, posts, piles, and columns.

Basement Removal with Utility Addition. Remove basement by filling with sand or pea gravel. Construct an adjoining addition above the base flood elevation to contain utilities (furnace, water heater, washer/dryer, water softener) removed from the basement.

Wet Flood Proofing. With use of water resistant materials, floodwaters are allowed to enter a structure during a flood event. Potentially applicable to residential, commercial and industrial structures.

Dry Flood Proofing. Floodwaters are prevented from entering a structure. Typical structures can only be dry flood proofed up to 3-feet in elevation. This measure may require flood barriers at openings, and a sump pump with interior drainage to provide overall flood risk reduction.

Berms and Floodwalls. These techniques are generally applicable on a small-scale basis for individual or small grouping of structures. USACE requires specific design and construction standards for their programs.

Nonphysical Nonstructural Measures

Floodplain Mapping. A significant tool in addressing flood risk, this measure can be used for portraying the extent of flood boundaries or as an inundation map illustrating the depth of flooding. Maps are vital for regulating land uses as well as flood warning and evacuation activities.

Flood Warning System. When properly installed and calibrated, this measure provides essential time for the at-risk population to implement emergency measures to protect valuables and to evacuate the projected impact area.

Evacuation Plans. When used in conjunction with flood warning systems, this measure is effective in avoiding life loss. This measure should consider vertical evacuation as well as the traditional lateral evacuation.



Flood Emergency Preparedness Plans. This measures identifies potential flood hazards and vulnerabilities, and encourages local officials to develop plans to prepare for, respond to, and recover from flood events.

Land Use Regulations/Zoning/Building Codes. These measures are implemented through local, regional, and state entities, and used by municipalities to control and direct the development of property within their jurisdictional boundaries away from flood risk.

Risk Communication. Educational tools such as hand-outs, workshops, and presentations to be communicated by government entities to floodplain occupants in an effort to advise the public on how to reduce the consequences associated with flooding.

