



FEMA



What is a Levee?

Levees and Levee Systems

The Federal Emergency Management Agency (FEMA) defines a levee as “a man-made structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water in order to reduce the risk from temporary flooding.” Levees reduce the risk of flooding, but do not eliminate the risk.

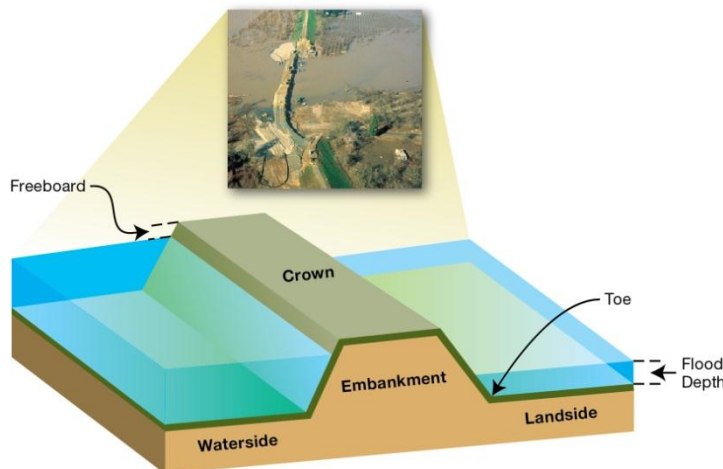
Levees and floodwalls are constructed from the earth, compacted soil or artificial materials, such as concrete or steel. To protect against erosion and scouring, earthen levees can be covered with grass and gravel or hard surfaces like stone, asphalt, or concrete.

Levee systems consist of levees, floodwalls, and associated structures, such as closure and drainage devices, which are constructed and operated in accordance with sound engineering practices. All of these elements work together to form a system for reducing flood risk.

Levees often have “interior drainage” systems that work in conjunction with the levees to take water from the landward side to the water side. An interior drainage system may include culverts, canals, ditches, storm sewers, and/or pumps.

Anatomy of a Levee

Levees and floodwalls are typically built parallel to a waterway, most often a river, in order to reduce the risk of flooding to the area behind it. Floodwalls, which are typically made of concrete or steel, are often constructed on a levee crown to increase the height of the levee, without increasing the base of the embankment. The diagram below shows the components of a typical levee.



FEMA has identified thousands of miles of levees impacting millions of people Nationwide. Living with levees is a shared responsibility, and it is important for levee owners, communities, and homeowners to understand what levees are and the risks associated with living and working near levee areas. Levees can and do fail, often with catastrophic results. Even the best flood protection system or structure cannot completely eliminate all risk of flooding.

LEVEE COMPONENTS:

Levee Crown: The flat surface at the top of a levee that is equal to or narrower than the base

Embankment: A mound of earth raised to retain or divert water

Freeboard: The height of a levee above the flood level it was designed to protect against, used as a safety measure to compensate for design uncertainty and unanticipated factors that could increase the size of a flood

Levee Toe: The edge of the levee where the base meets the natural ground

RiskMAP

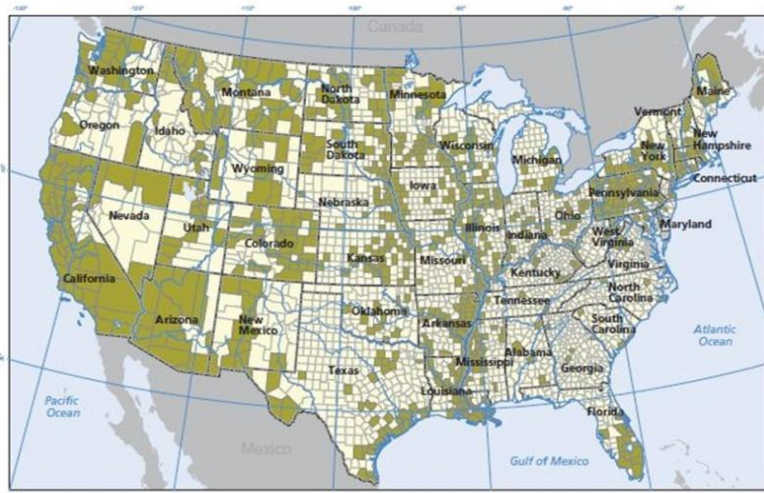
Increasing Resilience Together

Who Owns and Maintains the Nation's Levees?

While a small percentage of levees are built and/or maintained by the U.S. Army Corps of Engineers (USACE), the majority of levees are *not* owned or maintained by any Federal agency. Some levees are designed and built by the USACE, but with a local authority assuming ownership and maintenance responsibilities once the construction is complete. States, communities, and private levee owners maintain and operate the levees they own according to their specific design criteria.

Where are Levees Located?

Levees are located across the Nation, but certain states rely more extensively on them than others. FEMA estimates levees are located in nearly one-quarter of the Nation's counties, and 43 percent of the U.S. population lives in counties with levees. Home and business owners living and working in near levee areas are strongly encouraged to learn about the risk associated with them, and know the steps to take now to protect families, businesses, and communities from impacts associated with levee-related flooding. The green on the map below indicates areas across the U.S. where levees are located.



American Society of Civil Engineers

Be Prepared for a Flood

If you live in an area near a levee, it is essential to put the dangers of flooding into perspective. On average, over the last 30 years, flooding has resulted in more fatalities in the U.S. than any other weather-related incident. Living in a designated floodplain, an area with at least a one-percent chance of being flooded each year, the risk of damage to a home or business from flooding is two and a half times greater than damage from a fire. Those living or working behind a levee can take simple steps today to prepare for a flood, including evacuation, and protect their home or business.

Home and business owners can take the following actions to help prevent loss of life and property during a flood:

- Purchase flood insurance through the National Flood Insurance Program
- Determine if there is a flood warning system in their community
- Know evacuation routes
- Prepare an emergency kit
- Make a list of items to take in case of an evacuation
- Elevate items (e.g. electrical items) susceptible to flooding

Additional Information

You can contact your local government agencies, such as the public works department or flood control district, to stay informed about the status of levees and their locations in your community.

- For more information on levee systems and links to levee-related fact sheets, please visit: www.fema.gov/plan/prevent/fhm/lv_intro.shtm or <http://www.fema.gov/levees>.
- To see how levees work and how they can fail, visit http://www.floodsmart.gov/floodsmart/pages/flooding_flood_risks/levee_simulator.jsp.
- For more information on flood insurance for your home or business or to find an insurance agent, please visit the FloodSmart website at: www.FloodSmart.gov.
- For more information about what to do before, during, and after a flood, visit: www.fema.gov/hazard/flood/index.shtm.
- For more information on flood hazard mapping, please visit: www.fema.gov/plan/prevent/fhm/hm_main.shtm.