

Sandbags:

a steadfast tool for flood fighting

Sandbagging is one of the most versatile of flood fighting tools and is a simple, effective way to prevent or reduce flood water damage.

Although sandbags do not guarantee a watertight seal, they are a proven deterrent to costly water damage.

Sandbags have been used to:

- prevent overtopping of levees.
- direct a river's current flow to specific areas.
- construct ring dikes around boils on levee back slopes, levee toes or behind levees.
- use as weight on back slopes of saturated levees.
- weigh down visquine and straw bales.
- build buttresses on back slopes and the toes of saturated levees.
- reduce seepage at closure structures.

Read this brochure to learn proper filling and placement methods aimed at increasing productivity of sandbagging operations. Included are hints, safety tips and correct procedures which will minimize work-related injuries and strain and will maximize essential time.

THE FIRST LINE OF DEFENSE

Sandbag construction is a centuries old technique that has changed little. Bags are made from different materials including treated burlap and plastic. They measure approximately 14 inches wide and 24 inches long.

Sandbags filled one-half to two-thirds full should generally be left untied. Tied bags, filled slightly fuller, have specific purposes: filling holes, holding visquine or straw bales in place, or forming barriers backed by supportive planks or aluminum sheet piles.

If access to the flood site is limited to boat, tractor or helicopter, then pallets and forklifts may be needed to load and off-load sandbags.

Unused empty bags can be stockpiled for emergency and will be serviceable for years if kept dry and properly stored.

FILL MATERIALS

Sand is by far the easiest material for filling and shaping sandbags and becomes heavier when saturated from rain or moisture.

In emergencies, other materials such as silt, clay, gravel or a mixture of these may be used, but none work as well as sand.

When vehicle access is cut off to the flood site, and you have no other choice, use the back side of the levee or an adjacent field to find whatever material is available to fill sandbags.

Here are pros and cons on use of other materials:

- Silty soils get soft when wet and are more difficult to shape, and finer particles leak through the weave in the material.
- Clay materials are difficult to shape and to bag.
- Coarse-grained gravels are pervious and are also difficult to shape but can be used for redirecting the main stream flow while allowing seepage through bags.

ALTERNATIVES

Other methods and remedies for flood fighting are as follows:

- Readily available, straw bales are an economical alternative. They range in size from 18 inches high by 30 inches long to 4 by 4 by 8 foot long blocks. Secure the bales by driving 4 to 10 foot stakes (or rebar) through the straw into the levee top, and weight down with filled sandbags. Water swells the straw, making the bales heavier and watertight.
- Concrete Jersey Barriers or Ecology Blocks can be used to divert water and can be cost effective solutions.
- Plastic sheeting can be used effectively by placing sand along a fold.

U.S. ARMY CORPS OF ENGINEERS

The U.S. Army Corps of Engineers is the nation's oldest engineering organization and one of its oldest military branches. It dates back to the Revolutionary War when, in 1775, George Washington appointed Col. Richard Gridley as Chief Engineer of the Continental Army.

The Corps' water resource program began in 1824 when Congress appropriated money for

improving river navigation. In the following decade, the involvement in civil works mushroomed, including new roads, railroads and bridges, and assistance to local communities during flood disasters.

Annually Congress sets aside funds for disaster response flood work. This gives the Corps the ability

SAFETY FIRST

Tip#1: Use proper lifting techniques to avoid injury and fatigue. Lift with your legs and bend at the knees to save your back.

Tip #2: Sandbags are treated to prevent deterioration when stored. Use work gloves and avoid contact with your eyes and mouth.

Tip #3: Stay in eye contact with heavy equipment operators and keep alert for truck backup alarms.

Tip#4: Flood waters can be polluted. Use rubber gloves and appropriate clothing if contact with water is unavoidable.

Tip#5: Wear adequate clothing in layers and watertight boots. Reflective material on outer clothing is essential for night work.

Tip#6: Rotate team members frequently to avoid fatigue.



Starting at the top, going clockwise: Watch for trucks and other heavy equipment frequently at flood sites; boots, clothing and other items are necessary for flood fighting; and heavy gloves are protection from treated burlap bags.



This classic shot shows conditions frequently are not even close to perfect. In the early '50s, flood fighters moved fast and furious to contain the swollen Snohomish River at Ebey island - a major flood event.

THE CORPS (continued from page 7)

to provide preparation, response and recovery measures concerned with flood fighting.

Public Law 84-99 today authorizes the Corps to engage in flood fighting and rescue operations if the emergency is beyond local and state capabilities. The Corps is there to perform a basic mandate as set down by the Corps' forefathers.

During a flood the corps has the authority to:

- inspect and, if necessary, strengthen flood control structures,
- make temporary levee raises,
- provide supplies and 24-hour technical assistance, and
- assist in the evacuation of people and livestock.

The Army Corps of Engineers conducts flood fight training every year which includes sandbagging techniques. The Corps' districts maintain a limited supply of sandbags and other flood fighting materials intended to augment the stocks of state and local jurisdictions during actual flood emergency situations.

Local jurisdictions should first use their supplies and then request additional sandbags from the state.

If the state supplies become depleted, then the Corps supplies are available for use when requested by state or local officials.

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US Army Corps
of Engineers
Northwestern Division



Sandbagging Techniques

Printed on recycled paper 2004.

The use of sandbags is a centuries old, tried and true method for flood fighting. See procedures and safety tips inside on efficient bagging operations.



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