

INSTRUCTOR GUIDE
& PARTICIPANT MATERIALS

Citizen Action Series

Expedient Flood Training



FEDERAL EMERGENCY MANAGEMENT AGENCY



U. S. ARMY CORPS OF ENGINEERS

Citizen Action Series

Expedient Flood Training

by:

Peter R. Jensen, CEM

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(414) 632-5751**

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**Expedient Flood Training
Instructor Guide**

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Expedient Flood Training Instructor Guide

Preface

This training program has a two-fold purpose. First, it may be used to train key personnel prior to a flood emergency on the basic procedures and methods utilized to construct a sandbag levee. And second, it may be used, and is primarily intended, to train an expedient citizen work force for flood control operations. Past experience has shown that by following a few of the basic procedures outlined in this program the efficiency of flood control operations can be greatly improved. This training is important for those working as part of an organized community flood control effort, as well as those people attempting an individual flood fight to save an isolated home or small business.

This program uses the experience gained from previous flood fights. For example, the importance of all flood control operations, from logistics to support, is stressed throughout the presentation. Information on basic management principles, such as a form of ICS, have also been included. Where sample organizational systems and terminology are presented in the program, it must be recognized that these merely represent one way, not “the” way of dealing with the situation. Wherever possible, the local Instructor is strongly encouraged to provide the training audience with the specifics related to that individual community and their flood control operations. If necessary, locally produced overheads and graphics may be substituted for those included in this program.

It must be remembered that the construction of sandbag flood control works is an extremely time consuming and labor intensive operation. Before this operation is considered and employed, other flood control means, such as clay dikes and box works, should be explored. Past experience has shown that sandbags are routinely used where other flood control devices would provide as good, if not better, protection faster and while using a smaller labor force.

Any community threatened by flood waters should have a flood control plan. Plan compliance is essential if the limited resources for the flood fight are to be used for the maximum effect. It must be stressed that planned response efforts are designed to benefit the greatest number of people and systems using any and all available resources.

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By using a well thought out planned response and a trained and well supervised work force, a flood control operation, although still difficult, can be made easier. It is hoped that the information presented in this package will assist anyone engaged in a flood fight to be more productive and hopefully successful in their efforts to reduce or lessen the damage from this devastating natural disaster.

Expedient Flood Training Instructor Guide

Instructor Qualifications & Information

This program is designed to be taught by any individual competent in the flood control field who is capable of making a presentation to a large audience. Prior to conducting this program, it is essential that the Instructor read and understand the Instructor Guide and have the necessary course materials.

Visuals for this program are available in a several formats. Black and white overhead paper masters have been included with this package for the field production of transparencies. For more formalized presentations, a set of 35 mm. color slides is available. Instructors should feel free to include locally produced visuals to illustrate local conditions or systems. The tailoring of this program to meet the individual needs of the community is encouraged and will make the presentation more meaningful to the participants.

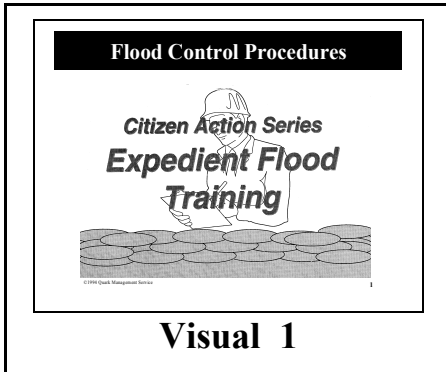
A reproduction master for a handout is included in the Appendix of the Instructor Guide. Although originally designed to be double side printed on folded 11 x 17 common bond, it may be printed either single sided or double sided on standard 8.5 x 11 copy paper, and stapled together. No matter what format is used, this handout provides a ready reference for the program participants and is an important part of the program. The instructor should obtain sufficient copies of this handout for distribution at all training programs.

Other supplies required to conduct this program in a safe and efficient manner include: an overhead or slide protector with spare bulb, extension cords, projection screen, and duct tape to secure loose cords. Optional supplies may include a portable sound system, locally produced handouts and directions, and a pointer. The instructor should be prepared to conduct this program under a variety of conditions, many of which may be difficult. For example, a training program may have to be held on the apparatus floor of a local fire house. Equipment, such as projection screens, may have to be improvised using white sheets or other devices. Some instructors have even conducted expedient training programs outdoors. No matter what conditions are encountered, the instructor must remember to always conduct themselves and the program in an efficient and professional manner.

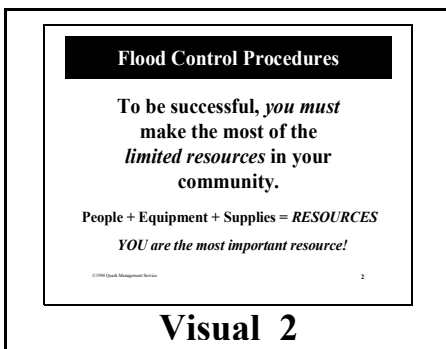
Expedient Flood Training Instructor Guide

This package is designed to be conducted in a 45 minutes, or less. The instructor must remember that this is an *expedient* training program. So called “war stories” have no place in this program. In many cases the participants will be anxious to begin work, particularly if their property is threatened. The instructor should point out that obtaining this training is important to the success of the flood fight and will improve the efficiency of the entire effort. The time spent in the training program will be recovered many fold due to the increased efficiency of the work force and more effective utilization of the available resources.

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This visual may be used during the program introduction. Handouts should be given to the participants as they arrive. At the appropriate time, call the participants to order, introduce yourself, and give credit to the course sponsor. A sign-in sheet may be passed around the room or other registration procedures may be covered. Advise the participants that this training program will not exceed 45 minutes and briefly explain the overall importance of this training session.



Emphasize to the participants that all resources are important. These resources include people (the most important resource), equipment, such as dump trucks, and supplies, such as sand and sandbags. Because all resources will be in short supply during the flood fight, they all take on greater importance. This is especially true of people. The flood fight must use whatever resources that are available in the most efficient manner.

Expedient Flood Training Instructor Guide

Flood Control Procedures

That means . . .

- *Follow the directions* your Team Leader or Supervisor
- Do things right the *first time* and avoid repeating errors
- Follow all safety precautions, *all of the time*
- *Take pride in your work* - you'll be glad you did!

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Visual 3

To improve the efficiency of the flood fight, remind the participants that they must:

• **Follow the directions of their team leader or supervisor. This allows for a coordinated and effective flood fight.**

• **All workers must strive to do the right thing, all of time. Remind the participants that while we are all human and mistakes will occur, it is important that everyone learn from their mistakes rather than repeat them.**

• **Emphasize that flood workers must follow all safety rules and take the appropriate individual safety precautions. An injury may shut down an entire operation, so safety has an added importance.**

• **Remind the participants to take pride in their work and do a good job. While there may be a prevalent feeling that their work is “good enough”, that may not be enough to keep back the flood waters. Good work is easy to take pride in and is efficient and effective!**

Expedient Flood Training Instructor Guide

Flood Control Procedures

The Basic Supplies. . .

- Sandbags (cloth or plastic) and sand
- Polyethylene (Poly) sheeting (the heaviest possible!)
- Lumber and planking
- Shovels, wheelbarrows, etc.
- Personnel - *Be Ready for Hard Work!*
- Drinking water, sanitation supplies, first aid kit

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Visual 4

The basic supplies required for an emergency sandbag levee are:

•**Sandbags -- Either cloth or plastic (both work well), and sand. Sandbags provide the mass to counter the force of the flood waters.**

•**Polyethylene -- Commonly called “Poly”. Poly provides the water barrier for sandbag levies. Always use the heaviest polyethylene sheeting that is available.**

•**Lumber and Planking -- Lumber may be needed for field construction projects and planking is valuable to make paths over muddy ground.**

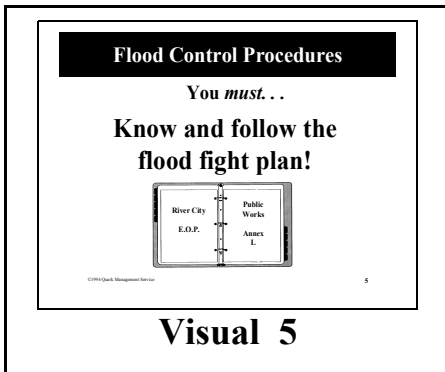
•**Shovels, Wheelbarrows, etc. --These items are the mainstay of any flood fight.**

•**People -- These are a basic necessity for any flood fight. People who are joining the flood fight should be ready for hard work and be physically fit enough for the task ahead.**

Instructor Note: Remind the participants that there are many jobs in a flood fight. Even if the participant is unable to handle heavy sandbags, there are still plenty of less demanding jobs.

•**Other basic supplies include drinking water, sanitation supplies, and a first aid kit.**

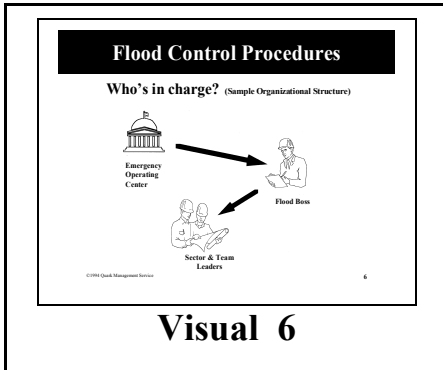
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The flood fight must be a team effort. It is important to follow the flood control plan so that everyone works together. Engaging in independent and uncoordinated actions may hinder the response effort. If you are going to work independently, learn how the community flood plan affects you.

Instructor Note: If possible, provide the telephone number of a local official where more information can be obtained on the local flood control plan.

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Instructor Note: This is an example of a common organizational structure. The visual and suggested script may be modified to reflect local operations and terminology.

To be effective, a community flood fight must be well managed and supervised. In most communities, this starts at the community Emergency Operating Center (EOC). This is where key local officials map out the flood fight and implement the local flood control plan.

A Flood Boss is in charge of all field operations. This person, usually with an engineering or public works background directs all field operations and reports to the EOC.

The directions of the Flood Boss are implemented by the Sector and Team Leaders. The Sector Leader is placed in charge of all operations within a given stretch of the flood control operation. Usually these segments are one mile long, but may be modified to meet local needs. A Team Leader is responsible for an individual flood control operation, such as filling sandbags. This person reports to the Sector Leader on a regular basis.

Expedient Flood Training Instructor Guide

Flood Control Procedures

Who's in charge? (Sample Organizational Structure)

The diagram illustrates a sample organizational structure for flood control. At the top is the 'Emergency Operating Center', represented by a building icon. An arrow points from the Emergency Operating Center to the 'Flood Boss', represented by a person icon. Another arrow points from the Flood Boss to the 'Sector & Team Leaders', represented by two person icons. The diagram is titled 'Who's in charge? (Sample Organizational Structure)' and includes a copyright notice for '©2001 Quik Management Services' and the number '6'.

Visual 6 (Con't)

When a person reports for work, they will normally check in and be assigned a task and a team leader. The Team Leader is the immediate supervisor for individual flood workers.

Flood Control Procedures

Know your Team Leader!

Your Team Leader will direct your efforts.
When you check in, you will be assigned to a work team. If you have to leave or need to take a break, notify your Team Leader.

This person is responsible for your safety.

Visual 7

Your Team Leader is an important person. It is their job to coordinate the first level of field activities. One of the most important responsibilities of the Team Leader is safety. Be sure you always know your Team Leader. A space on your handout has spaces provided to record the name of your team leader.

Instructor Note: Point out the appropriate space(s) on the handout.

If you should have to leave the work team for any reason or need to take a break, let your Team Leader know your whereabouts.

Expedient Flood Training Instructor Guide

Flood Control Procedures

Basic Operations

- Supply and Transportation
- Sandbag Filling
- Gang Lines
- Laying Bags & Stretching Poly
- Flood Patrols
- Support Services (Food, First Aid, etc.)

No matter what task you are assigned or volunteer for, all are *important duties*.

Visual 8

A flood fight generally consists of six basic operations. Each category will be covered in greater detail during this presentation. It is important to remember that all functions are essential to the success of the flood fight. Any support that can be given to the flood fight is important to the overall success of the operation.

Flood Control Procedures

Supply and Transportation

- Heavy Equipment Operators
- Truck Drivers
- Warehouse Operations
- Bus Drivers
- Others

Logistics can make or break the flood fight!

Visual 9

Supply and Transportation is the first functional area. Volunteers who may serve in this area include: heavy equipment operators, truck drivers, people familiar with warehouse operations including fork lift drivers, school bus drivers to transport volunteers, and others. Without supplies and materials in the right place at the right time, the flood fight will grind to a halt.

Expedient Flood Training Instructor Guide

Flood Control Procedures

Sandbag Filling

- 100's or 1,000's of bags may be required!
- Mostly filled by hand, shovel, and hard work
- Follow the "system" used to fill bags

Remember...They can't lay 'em until you make 'em!

Visual 10

When people visualize a flood fight, the first thing they think of is sandbags. Generally, thousands and sometimes millions of sandbags will be used. The empty sandbags arrive at the work site and must be filled, usually by hand and shovel. The filling of sandbags can become a bottleneck. Participants should be encouraged to follow whatever system is in use to fill sandbags, whether it is mechanical or by hand.

Flood Control Procedures

A Good Idea!

Shovel sand into cones

Place bag over mouth of cone

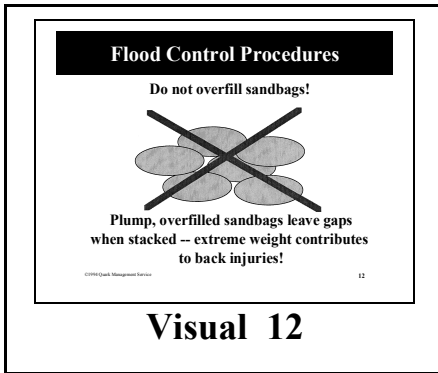
Wood Framing

Visual 11

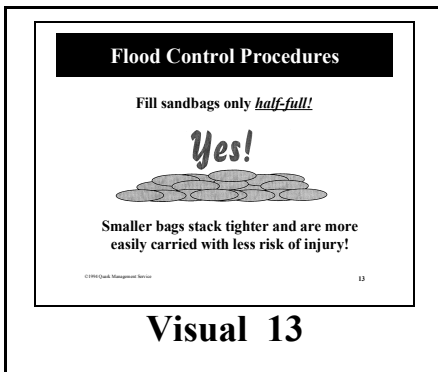
One innovative way to fill sandbags is to build a filling station. This device can easily double or triple the output of sandbags with the same labor force. The tops of traffic cones are cut off and inverted in a rack. Sand is then shoveled into the cones and funneled into the bag held below.

Instructor Note: A set of plans for the construction of this sandbag filling station are found in the Appendix of the Instructor Guide.

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One of the most common errors is to overfill sandbags. Plump, overfilled sandbags do not lay flat and create openings that encourage water flow through the emergency levee. Furthermore, a full sandbag may weigh up to 130 lbs.



A properly filled sandbag is only half-full. This allows the bag to lay flat and creates a more stable structure. A properly filled sandbag weighs about 40 lbs. making it easier to handle and move. The top of the sandbag is not tied or stitched shut.

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Flood Control Procedures

Gang Lines

- Used to pass or move materials
- Should be kept as short as possible
- Pass materials horizontally to reduce bending and possible muscle strains
- Follow the rhythm and *don't rush!*

You're the conduit to the front lines!

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Visual 14

Gang lines are used to pass materials. Due to the manpower that is required, gang lines should always be kept as short as possible. Maximum effectiveness is obtained by passing all materials horizontally without bending. This also helps reduce the possibility of back injuries and muscle strains. The gang line will develop its own rhythm and it is important not rush the movement of materials. Hurried actions often result in drops and can rapidly tire out the work force.

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Flood Control Procedures

Laying Bags & Stretching Poly

- No place for sloppy work
- It's easy to do right, but may be difficult to fix
- Watch your footing and avoid muscle strains
- Be prepared for emergency evacuations

This is where *you* make it
or break it!

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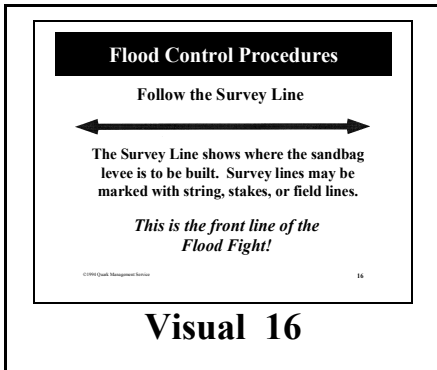
Visual 15

Laying sandbags and stretching Poly are the front line of the flood fight. There is no room in this important activity for hasty or sloppy work as errors may be difficult, if not impossible, to fix. Because footing at the sandbag levee maybe uneven or muddy, it is important to always watch your footing and avoiding bending while lifting. When you lift a sandbag, lift with your legs, not your back.

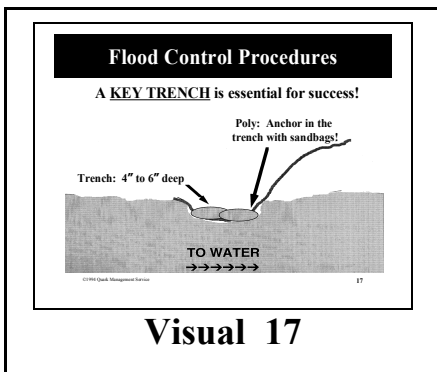
Instructor Note: Demonstrate the proper lifting technique for the group.

Rapidly rising waters may create dangerous situations. You should always be prepared for an emergency evacuation to high ground.

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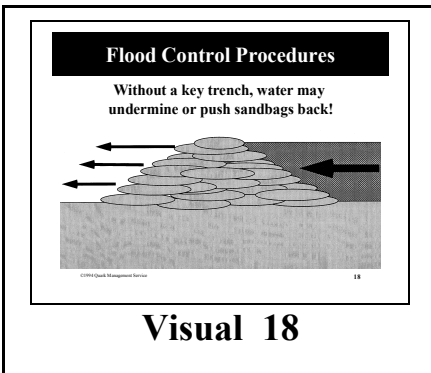


The sandbag levee requires exact placement. A survey line may be used to indicate the proper placement of the emergency levee. This line may be marked with wooden stakes, string lines, or field lines using powdered lime or flour. A good improvised marking tool is a fertilizer spreader filled with flour.

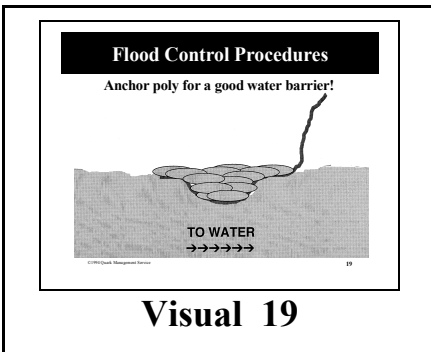


A key trench is essential for success. The key trench is an excavation 4 to 6 inches deep and between 18 and 24 inches (two sandbags) wide. The key trench provides an anchor for the emergency levee. Key trenches may be dug by hand, or more commonly are excavated with a small backhoe. Poly is placed in the key trench and anchored with several sandbags. Be sure that the poly is placed on the water side of the levee.

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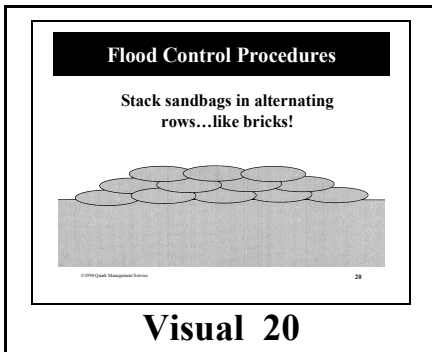


Without a properly constructed key trench, the tremendous force of the flood waters may push the sandbag levee back. This is particularly true if the levee is built on slippery ground. The key trench and poly also helps to prevent water from seeping under the emergency sandbag levee and undermining the structure.



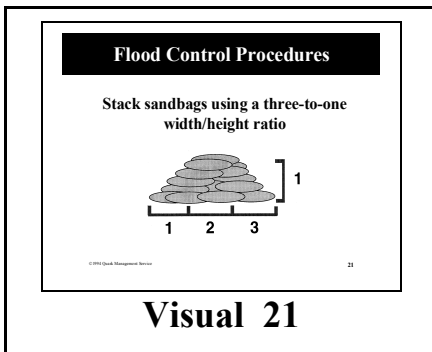
To create a good water barrier, the poly must be anchored in the key trench. The poly should be carefully unfolded and placed in the trench towards the water side of the works. Sandbags can then be placed on the poly to securely anchor it in the trench and make a sound water barrier.

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Visual 20

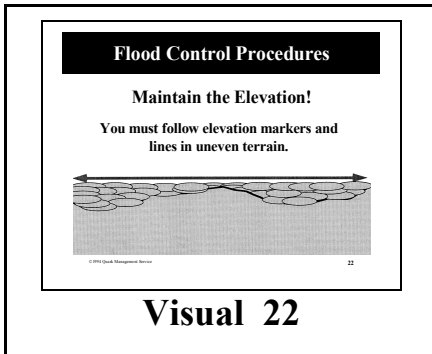
Sandbags are stacked in alternating rows, like a mason would lay bricks. The alternating joints provide structural strength. Do not stack sandbags vertically! The open top of the partially filled bag is adjusted and given a quarter fold during placement. This is accomplished by taking one corner of the bag and folding it down to the opposite side of the filled bag. A triangular shape is formed in the process. The next bag is laid on top of this fabric tab to help lock the bags in place. After placement, bags should be tamped in place to eliminate gaps and form a tight seal.



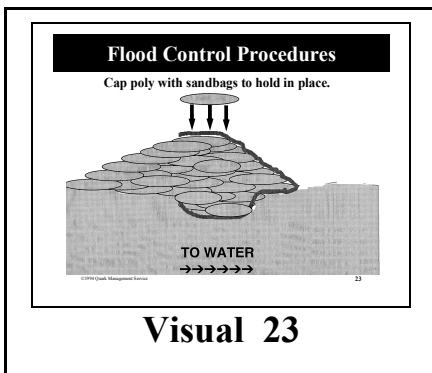
Visual 21

Sandbags are stacked in a pyramidal structure using a three to one ratio. For every foot in height, there should be three feet in width. This provides the best structural integrity for the emergency levee.

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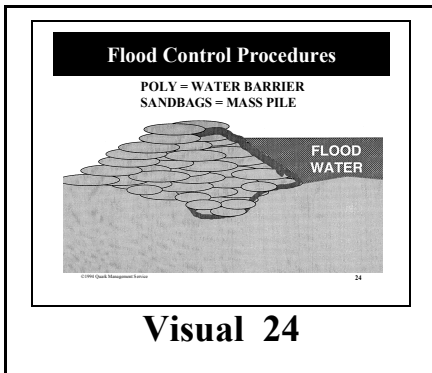


It is important to maintain the proper elevation of the emergency levee. This is particularly true in uneven terrain. Sandbag teams should adhere to elevation markers which have been established by the engineers and survey team.

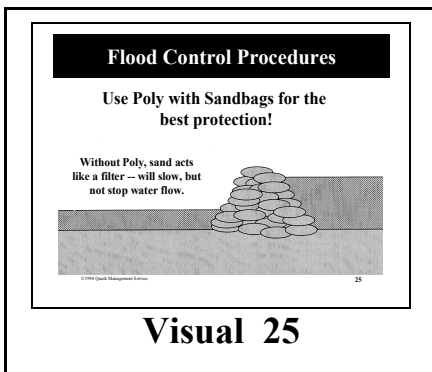


Once the proper elevation has been obtained, the poly must be capped in place. The poly should be snugged up on the water side and draped over the top of the emergency levee. Several sandbags are then placed on top of the poly to secure it.

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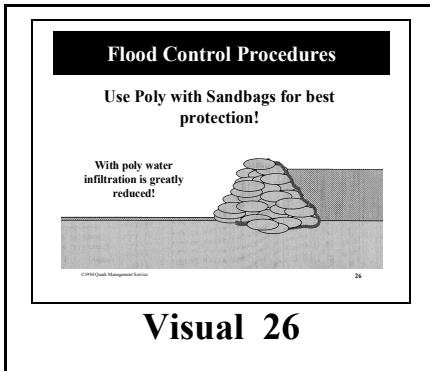


The combination of poly and sandbags create an effective emergency levee. The poly serves as a water barrier while the sandbags create a heavy mass to hold back the force of the flood water.



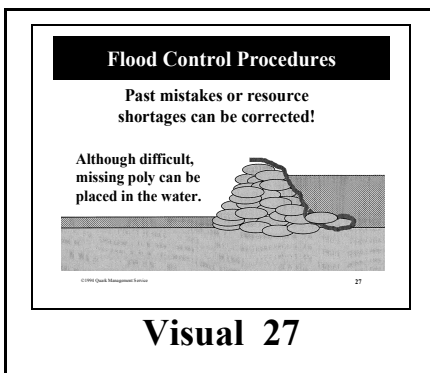
Unfortunately, many sandbag levees are constructed without poly. Without poly, water can filter through the porous sandbags. This increases the need for pumps, which are generally in very short supply.

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Visual 26

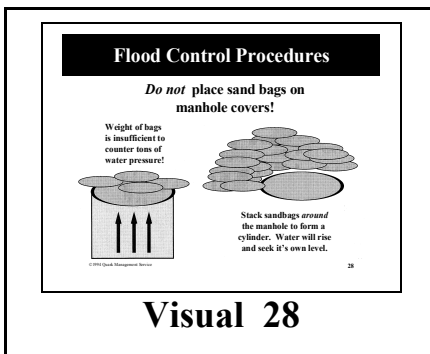
When poly is used with sandbags, water infiltration is greatly reduced. This makes a very effective emergency flood levee.



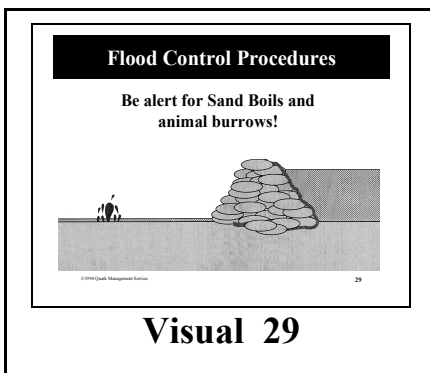
Visual 27

Although difficult, missing poly can be placed in the wet. The poly should be opened and anchored with sandbags on the water side of the levee. It may then be draped over the levee and capped in place. While this method is not as effective as poly properly anchored in a key trench, it will significantly reduce the water infiltration through the sandbag levee.

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Manholes, sewers, and utility channels may transverse the emergency levee and allow the flow of water behind the emergency flood works. Sandbags should not be placed on manhole covers in an attempt to stem the water flow. The tremendous water pressure will blast past any such attempts. Instead, the manhole should be ringed with sandbags. If available, a section of road culvert may be placed on-end over the manhole and bags placed around it. The water will rise and the seek its own level in the sandbag ring.



Another problem are sand boils and animal burrows that can serve as water conduits under the emergency flood works. Sand boils occur when a near surface sand seam acts as a water conduit and transverses the emergency flood work. A sand boil occurs when the water bubbles up on the dry side of the levee, similar to the action of an artesian well.

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Flood Control Procedures

For "Clean" Sand Boils...

- Report the sand boil to your Team Leader
- Periodically monitor the status of the sand boil
- No further corrective action is required at this time

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Visual 30

A clean sand boil has a clear water flow. These are generally not a problem and should be expected during any flood flight. If a sand boil is discovered, it should be reported to your Team Leader or supervisor. The boil will require periodic monitoring, but usually no further action is required.

Flood Control Procedures

"Dirty" Sand Boils

A Sand Boil is classified as "dirty" if bits of sand and soil are present in the water flow. *Dirty Sand Boils are potentially dangerous!*

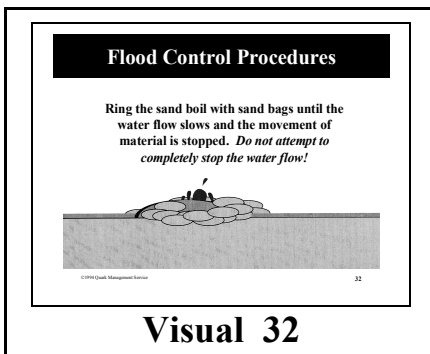
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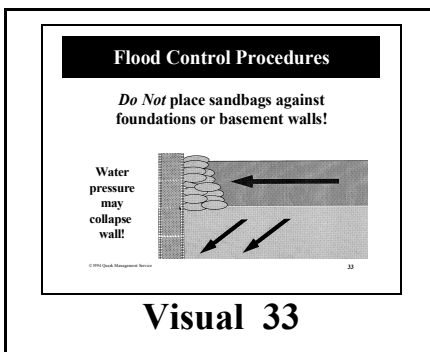
Visual 31

A dirty sand boil can be a problem. The water flow from a dirty sand boil contains bits of sand and soil. This indicates that material is moving with water and erosion is taking place. This erosion can lead to serious problems.

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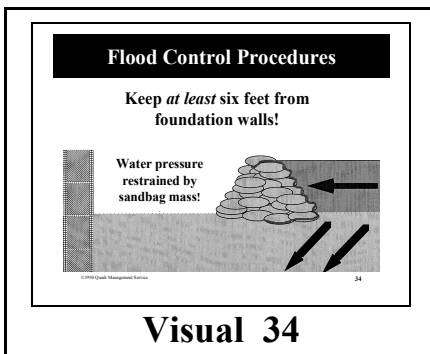


To combat a dirty sand boil, ring the area of seepage with sandbags until the water flow slows and becomes free of sand and soil. No attempt should be made to completely stop the water flow. Previously dirty sand boils must be monitored.

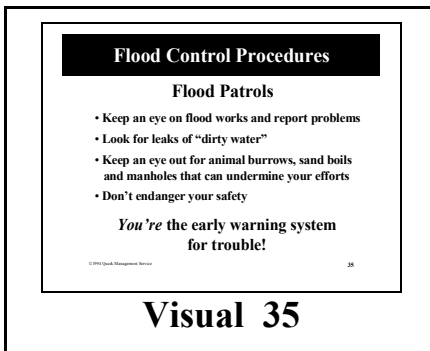


A particular problem in individual flood fights is the placement of sandbags against foundation and basement walls. This action may cause more damage to the structure than the flood waters. The tremendous water pressure exerted on the foundation can easily collapse walls and flood the building.

Expedient Flood Training Instructor Guide



Flood works and sandbag levees should be kept *at least 6 feet* from foundation and basement walls (and preferably more). This allows the sandbag levee to restrain the surface water forces and the distance from the foundation allows the existing soils to absorb some of the subterranean pressures.



Flood Patrols are another function of the flood fight. These teams, usually groups of three, patrol the flood works and keep an eye out for developing problems. They should look for and report leaks and sand boils, particular those of dirty water, and manholes or utility conduits that may have been missed and require sandbagging. Three person teams are used for safety. If a problem develops or a person is hurt, one member can go for help while the second person remains with the sick or injured worker.

Expedient Flood Training Instructor Guide

Flood Control Procedures

Support Services

- Workers must eat and drink
- All food and water supplies must be kept healthy
- Minor cuts and scrapes can be expected
- Prompt and proper first aid can prevent major medical problems

*You're helping to keep
them working!*

© 1997 Dams Management System

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Visual 36

The value of support services are often underrated, yet they are critical to the success of the flood fight. Workers must be fed and beverages (both hot and cold) are always welcome. Food service workers must pay particular attention to cleanliness and proper food handling techniques. An outbreak of food poisoning can stop a flood fight dead in its tracks. Volunteers with a medical background or first aid training may be asked to deal with the minor cuts, scrapes, and blisters that can be expected. Prompt and proper first aid for minor injuries can prevent the development of more serious medical problems, such as infections.

Expedient Flood Training Instructor Guide

Flood Control Procedures

Special Precautions

- Use extreme caution around electrical equipment
- Always lift with your legs - not your back
- Properly care for all wounds and injuries (tetanus shots)
- Stop immediately if you feel dizzy, have chest pain, shortness of breath, or pain down your left arm - seek medical care at once!

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Visual 37

All flood workers should follow these basic safety steps:

•Extreme caution should be used while using or working around electrical equipment. You need not come into direct contact with an electrical wire in wet conditions to receive a lethal shock.

•Always lift with your legs, not your back. Back injuries can be prevented by using the proper lifting techniques.

•All wounds, no matter how minor, should receive attention. Medical authorities may recommend tetanus shots.

•Anyone who feels dizzy, has chest pain, shortness of breath, or pain down the left arm should stop all work immediately and seek medical care.

Expedient Flood Training Instructor Guide

Flood Control Procedures

Special Precautions

- Dress appropriately and in layers
- Drink plenty of fluids and eat regularly
- Don't walk behind construction equipment
- Always have an emergency escape route
- Travel in groups of three - when necessary
- Use extreme care when walking in flooded areas

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Visual 38

• **Emergency workers should dress appropriately for the weather and wear several layers of clothing. A plastic garbage bag may be used to carry or store extra or wet clothing.**

• **Workers should drink plenty of fluids and eat regularly. The body needs plenty of resources to maintain the high level activity encountered in a flood fight.**

• **Don't walk behind construction equipment. The driver's rear vision contains blind spots that may not show your presence.**

• **Flood works have been known to fail or be overtopped, despite all efforts. Everyone should have an emergency escape route to high ground.**

• **If you must travel, try to stay in groups of three.**

• **Use extreme care when walking in flooded areas. The flood waters may hide dangers, such as missing manhole covers.**

Expedient Flood Training Instructor Guide

Flood Control Procedures

Special Precautions

- Be careful of cave-ins, especially around foundation walls.
- Report broken gas lines immediately!
- Follow the directions of your Team Leader or supervisor
- Always wash your hands before eating
- *Use common sense!!!*

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Visual 39

•Use caution around foundation walls, your added weight on the soil may cause a cave-in.

•Be alert for broken gas mains and lines. Report all gas leaks immediately.

•Follow the directions of your Team Leader or supervisor. If you have questions regarding a particular activity, ask you Team Leader or Supervisor.

•Always wash your hands before eating.

•Use common sense in all your actions!

Flood Control Procedures

Don't believe it...

Don't spread or contribute to rumors. Local officials will release *reliable information* to the press.

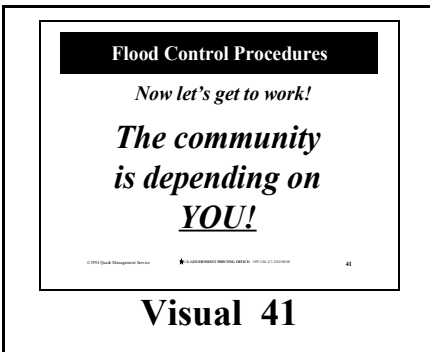
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Visual 40

One final note. During any emergency, rumors will be present. Don't contribute to the problems created by unfounded rumors by repeating stories or contributing to them. Your local officials will release official and reliable information to the press and keep you informed.

Expedient Flood Training Instructor Guide



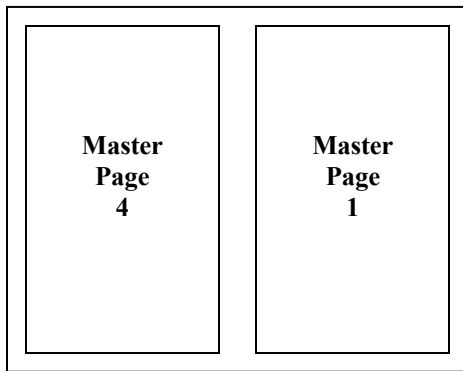
This concludes the program. The instructor is encouraged to take and answer questions from the audience.

Appendix 1

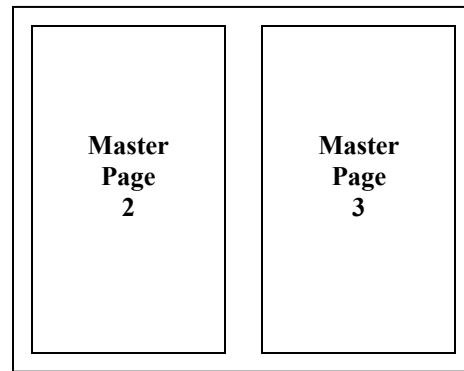
Handout Masters

Printing instructions

The four following masters are designed to be printed on 8.5 X 17 paper, and then folded for final distribution. A space has been provided on the back page (page 4) to list the sponsor of the training program, or any other local information that is desired. This printing method has proven to be the most effective and eliminates the problem of orphaned pages.



Face Side 11 x 17 Format
Layout Design



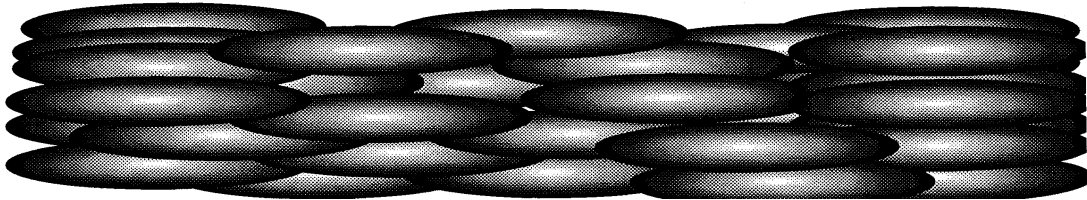
Interior Side 11 x 17 Format
Layout Design

However, in an emergency, these masters may be reproduced on standard 8.5 x 11 copy paper and stapled for distribution.

Citizen Action Series



***Expedient Flood
Training***



Work Assignment: _____

Team Leader: _____

Team Leader: _____

Team Leader: _____

Team Leader: _____

Emergency Evacuation Procedure: _____

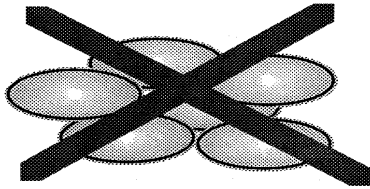
Important Phone Numbers: _____

**Expedient Flood Training
Instructor Guide**

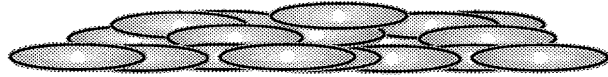
Master Page 1

Key points

Filling Sandbags --

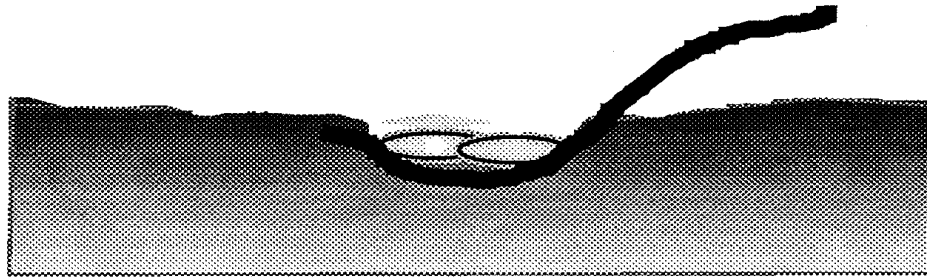


Yes!



Do not overfill sandbags – fill bags only half-full for better stacking!

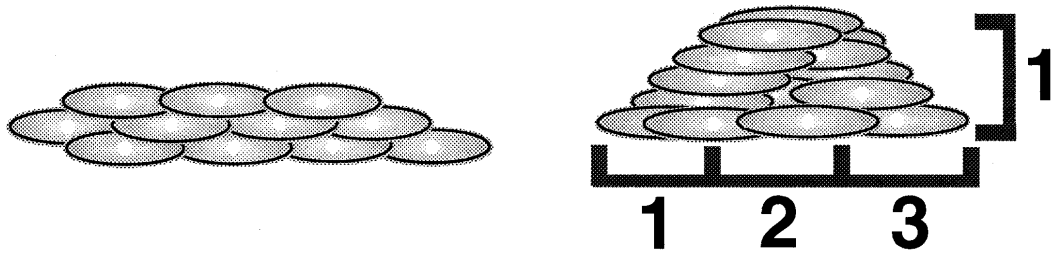
Dig a Key Trench --



Follow the survey line and dig a key trench 4 to 6 inches deep and two sandbags wide. Anchor poly securely in the trench.

Stack Sandbags --

**Expedient Flood Training
Instructor Guide**

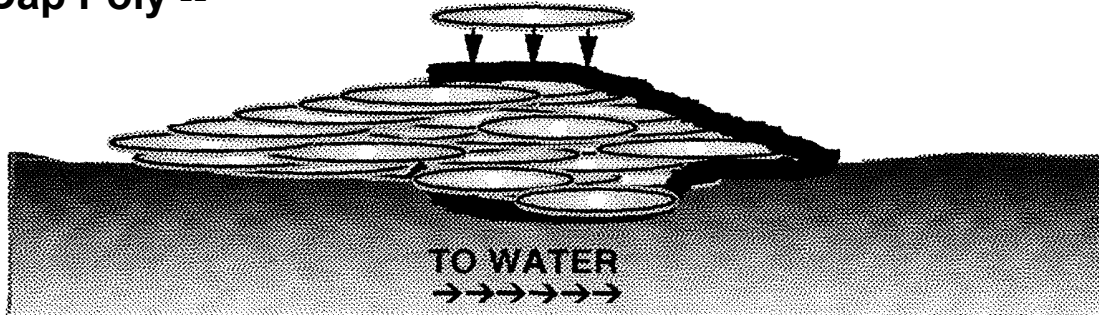


***Stack sandbags in alternating rows using
A three-to-one width/height ratio.***

Master Page 2

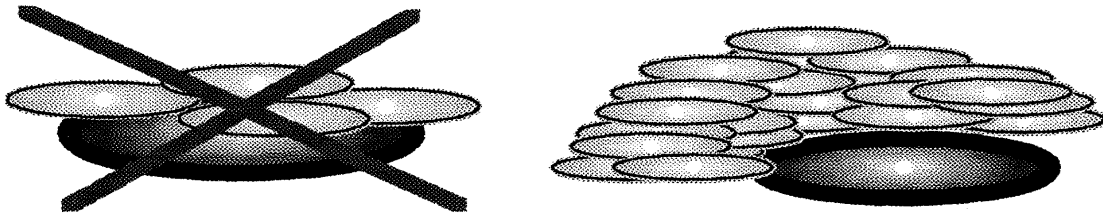
to remember!

Cap Poly --



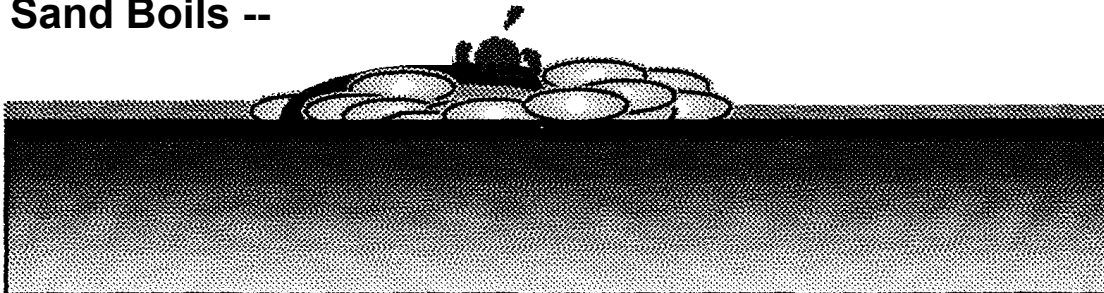
Once the appropriate levee height has been Achieved, cap the poly to hold it in place.

Manholes --



Ring manholes with sandbags and allow the water to seek it's own level. Do not place sandbags on manhole covers!

Sand Boils --



Ring sand boils with sandbags to reduce water Flow and stop sand & soil movement. Do Not

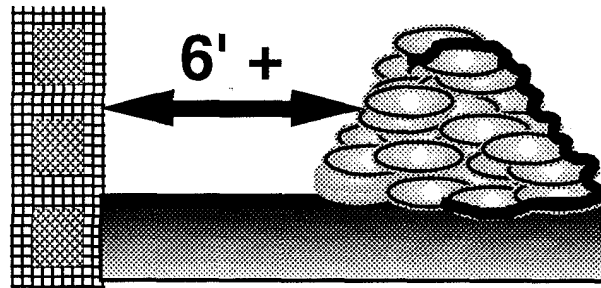
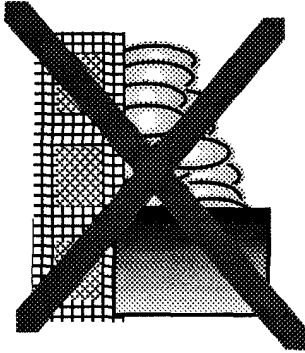
**Expedient Flood Training
Instructor Guide**

attemp to completely stop the water flow.

Master Page 3

Use Common Sense!

Foundations --



***Keep at least six feet from basement
and foundation walls!***

Important Points

- Use extreme caution around electrical equipment and machinery.
- Always lift with your legs, not your back.
- Properly care for all wounds and injuries, no matter how minor.
- Dress in layers and appropriately for the weather.
- Drink plenty of fluids and eat regularly.
- Don't walk behind construction equipment.
- Plan an emergency escape route.
- Travel only when necessary and in groups of three.
- Use extreme care when walking in flooded areas.
- Be careful around foundations and watch out for cave-ins.
- Report broken gas lines immediately!
- Wash your hands before eating and follow basic sanitary procedures.
- Stop immediately if you feel dizzy, have chest pain, shortness of breath, or pain down your left arm. Seek immediate medical attention!

**Expedient Flood Training
Instructor Guide**

Local Program Sponsor

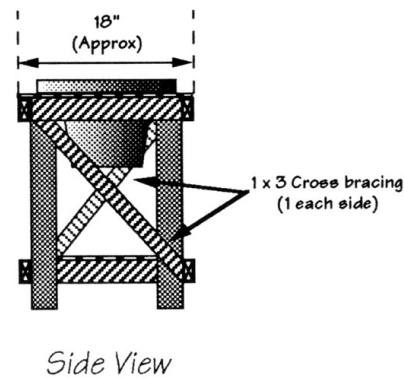
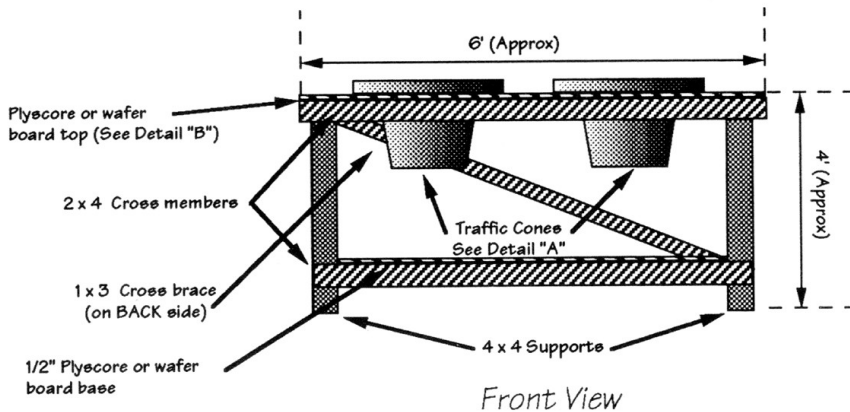
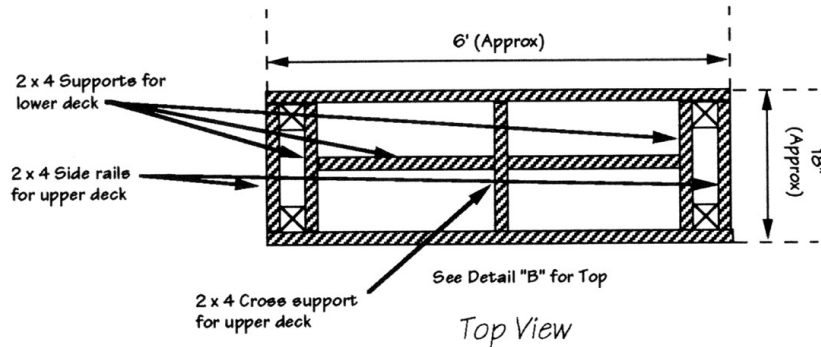
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Master Page 4

Appendix 2

Sandbag Filling Station Plans & Drawings

Sand Bag Filling Station



Construction Notes:

Dimensions given are approximate and may be field modified to suit local materials and needs.

Distance between bottom of traffic cone and bottom deck should be equal to 3/4 of the bag height.

For added strength, lag screws may be used to attach 2 x 4's to 4 x 4 posts.

To reduce lifting heights, bottom deck should be as high as possible.

Materials List (Built as Shown)

- 2 - 1" x 3" x 8' Economy Grade
- 2 - 4" x 4" x 8' Economy Grade
- 5 - 2" x 4" x 8' Economy Grade
- 1 - Sheet 1/2" Plycure (CDX) or 7/16" Wafer Board
- 2 - Traffic Cones (or see Option Detail "C")

Hardware

- 8 d, 16 d, 20 d. Nails

Optional Hardware

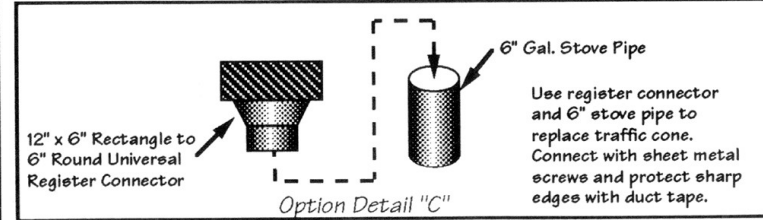
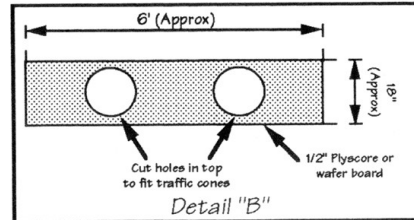
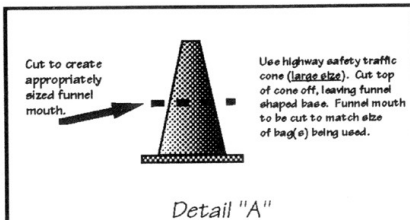
- 4 1/2" Lag Screws

Estimated Cost: \$35.00

Est. Skilled Conet. Time: 1.75 Mhr.

Note: Drawings NOT to scale - - Measurements may be field modified. As shown, table height is suitable for use with sand off-loaded from a dump truck. If sand is to be hand shoveled, height of top deck may be lowered.

Note: Make sure distance between lower deck and cone bottom is sufficient for sand bag height.



User Instructions

Expedient Flood Training 270.3 INSTRUCTOR GUIDE

This document contains a list of files that you should have after decompressing **270_3A.EXE**, **270_3B.EXE** and **270_3C.EXE** files. There should be a total of 9 files. All of the files are in Microsoft Word version 6.0 format, except the README.TXT file. The documents are formatted for a Hewlett Packard LaserJet, Model 4 printer.

Note: If you do not have a HP LaserJet Model 4, the spacing in the document may automatically adjust to your printer's specifications. This may require some repagination and checking the document prior to printing.

1	COVER.DOC	Cover
2	TOC.DOC	Table of Contents
3	270_3IG_A.DOC	Instructor Guide
4	270_3IG_B.DOC	Instructor Guide
5	Appendix1.DOC	Handout Masters
6	Appendix2.DOC	Sandbag Filling Station Plans & Drawings
7	Appendix3.DOC	Overhead Masters Cover
8	README.TXT	Instruction File
9	COURSE.DOC	This file

Assistance:

If you are unable to access or print this manual, please send an email message to: gary.chase@fema.gov.