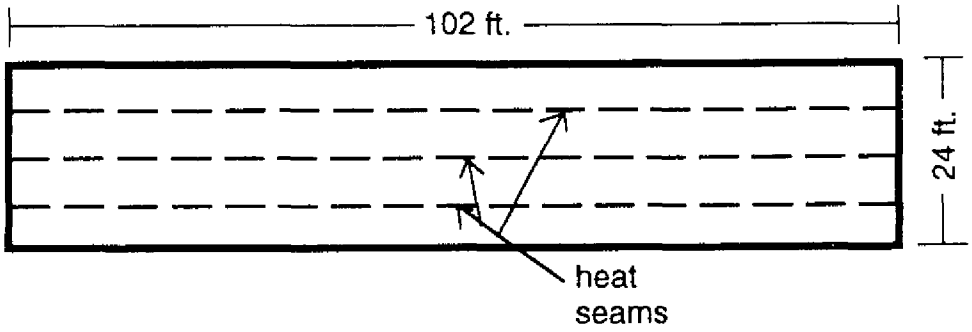
Plastic Sheeting

General:

OFDA has developed and maintains a limited stock of this plastic at five worldwide locations (New Windsor, MD., Guam, Thailand, Panama, and Italy). This material is special designed for shelter and because of its high cost and unique qualities, it should be utilized only to meet temporary human shelter requirements. It can be used to replace damaged or destroyed roofing or to construct temporary shelter by those in need. This plastic sheeting should last over 1 year under normal field conditions and it functions extremely well in hot climates.



This plastic sheeting (24 by 102 feet) is boxed at one roll per carton weighing 130 lbs. Each heavy cardboard box is 42 by 24 by 16 inches. One roll is 2,448 square feet and has heat sealed seams 6 feet apart the length of the roll. These seams allow for quick separation since they will easily "zipper" apart. One box is 9.3 cubic feet and there are 10 boxes banded to a standard wood (42 by 48 inches) pallet. The weight of a 10-box pallet is 1360 pounds.

The plastic is coated on both sides of a black scrim net that makes it strong (cannot be torn) and non-transparent. The white side is ultra-violet deflective, treated to reduce the heat from the sun in hot climates. The other side is a light beige color and should be faced outward in colder climates. An 8-inch AID emblem is printed on the plastic at 3-foot intervals. It has "tic" marks down both sides at 5-foot intervals for measuring purposes. Also enclosed are six rolls of adhesive tape constructed from the same material as the plastic. Each roll of tape is 30 feet long and 1-3/4 inches wide.

Although the material is *fire-retardant*, open fires should not be allowed in or near the shelter for safety reasons.

One reported flaw is that like most tents moisture will condense (sweat) inside, when the tent is used in high altitudes or cold climates, since the material is nonporous and does not breathe. To remedy this, use a second layer of plastic over the structure, keeping it from touching the frame of the building.

Distribution

The OFDA plastic was designed for distribution directly to disaster victims and for use on community buildings such as schools and hospitals, not for use on government or business buildings or churches, when they are not utilized as temporary mass shelter facilities.

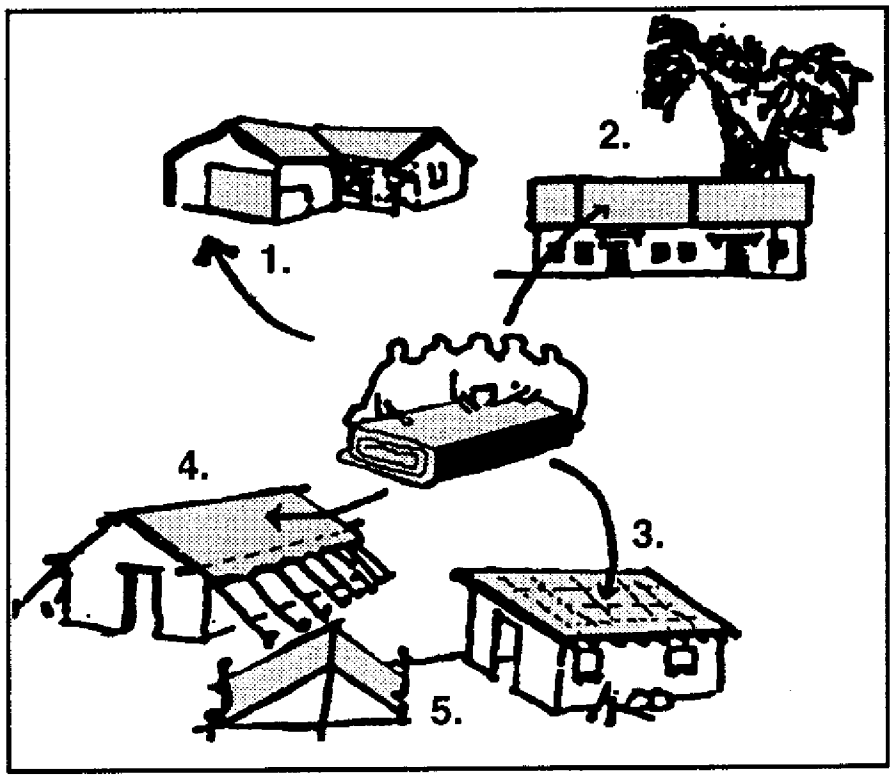
This sheeting cost averages (depends on volume purchased) $282.00 per roll plus transport to the disaster and the transport to replace it to the losing stockpile. For public relations purposes, it should be advertised as furnished in square feet or square meters of unique shelter material rather than by the number of rolls. Example: one roll is 2,448 square feet or over 225 square meters, or 410 rolls is best advertised as over 1 million square feet.

Before unpacking and unrolling sheeting, move the distribution operation to a large area such as a school gym, football field, or airport hanger, preferably protected from the weather. For distribution purposes, the sheets can easily be separated at the heat seams by peeling the seams apart. Normally a single sheet is split at the center seam which allow strips of 12 by 102 feet. These are then cut at appropriate lengths for distribution. With measurement "tic" marks at every 5 feet, cutting lines can be quickly established. The most common size for a small family is a 12 by 20 feet piece. This may be enlarged according to family size, weather conditions, and other considerations such as roofing patches or replacements.

If wood shelter frames are constructed to be covered with the plastic, the walls should be slightly less than 6 feet high. This allows the plastic to be split quickly and easily by hand at the 6 feet seams. Walls slightly less than 6 feet high will allow all four sides of a structure to be wrapped with a single strip (see following design recommendation).

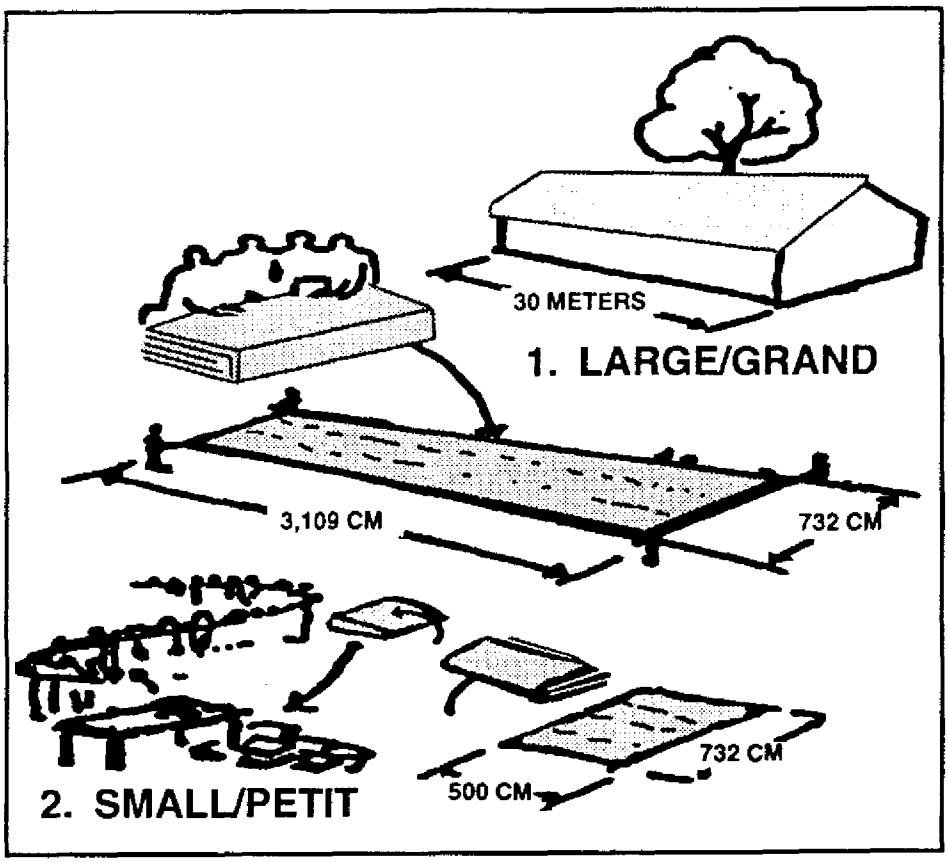
To wrap a structure, staple or nail one end of a 6-foot wide piece to the corner upright and pull or wrap it around the structure to the same beginning corner and staple or nail it to the same upright. Then go back and staple or nail at the other uprights and cross pieces. A door can be cut as a slit until the final door is established or designed. Nails should be hammered through thin wood or metal disks or strips, such as soft drink cans and lids, to prevent the nail head from pulling through. Staples, if available, work best since they cross over the scrim netting. Use the enclosed adhesive tape to seal seams, patch rips and cuts, and the seal nail and staple holes when used in the roof. The roof should be a single piece of plastic when possible to prevent the possibility of leaks in its center.

How to Use Plastic Sheeting



General Uses:

1. Repair a hole in a damaged wall.
2. Cover a hole in a damaged roof.
3. Cover a new roof built on an existing building.
4. Cover the walls and/or roof of a newly constructed building.
5. Construct personal shelters.

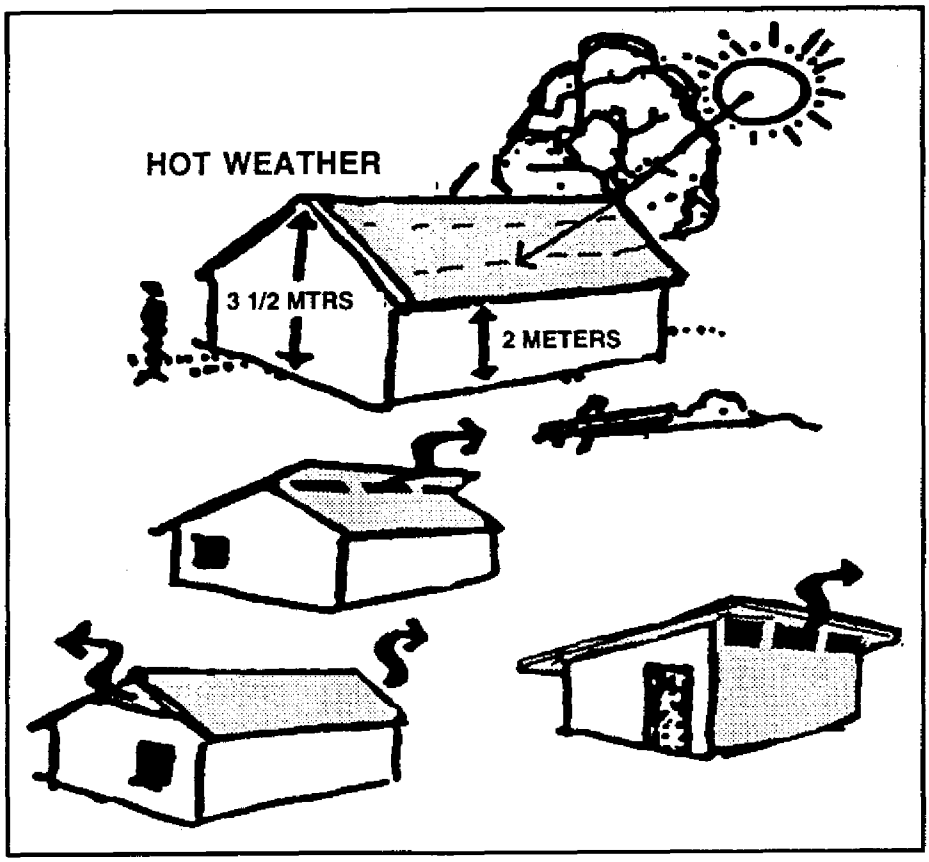


Dimensions:

The package of plastic sheeting is very large: 732 cm wide by 3,109 cm long (24 by 102 feet).

1. The sheeting can be used to repair or build a large building such as a school, field hospital, or other community type building.

2. The sheeting can be divided into smaller pieces and distributed according to local needs and conditions.

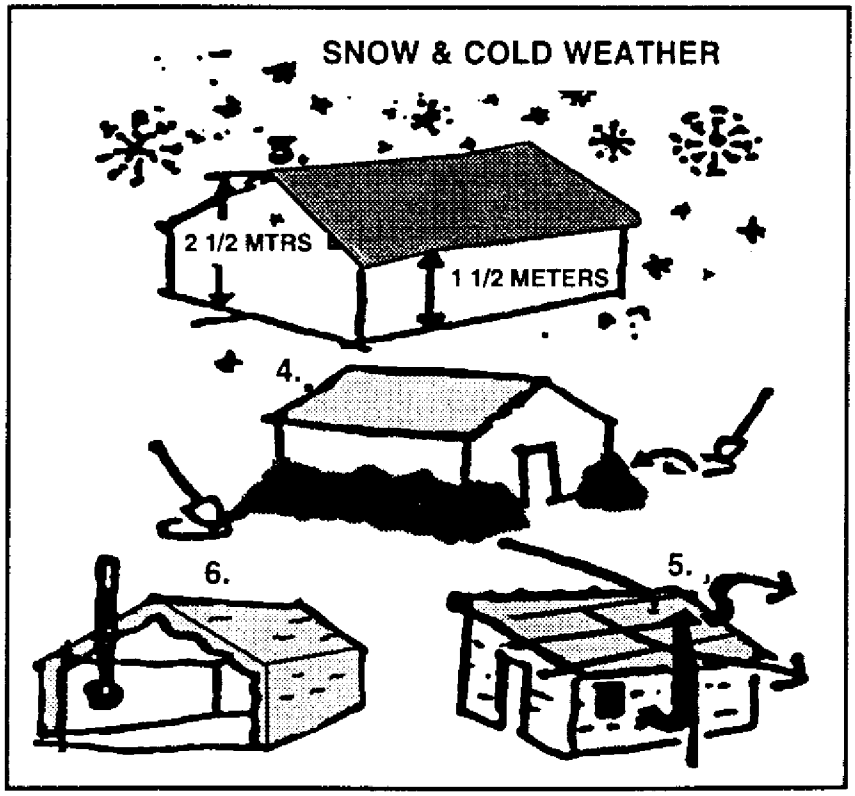


Hot Weather Conditions:

1. Turn the white side of the sheeting towards the outside to reflect as much of the sun's heat as possible.

2. Make the roof of any new building as high as possible. three and one-half meters at the highest point is good.

3. Vent the roof to let the super hot air escape, and reduce the temperature inside the building. Ventilation through doors and windows helps but *is not enough.*



Cold Weather Conditions:

1. Turn the long side of the building towards the warmth of the sun.

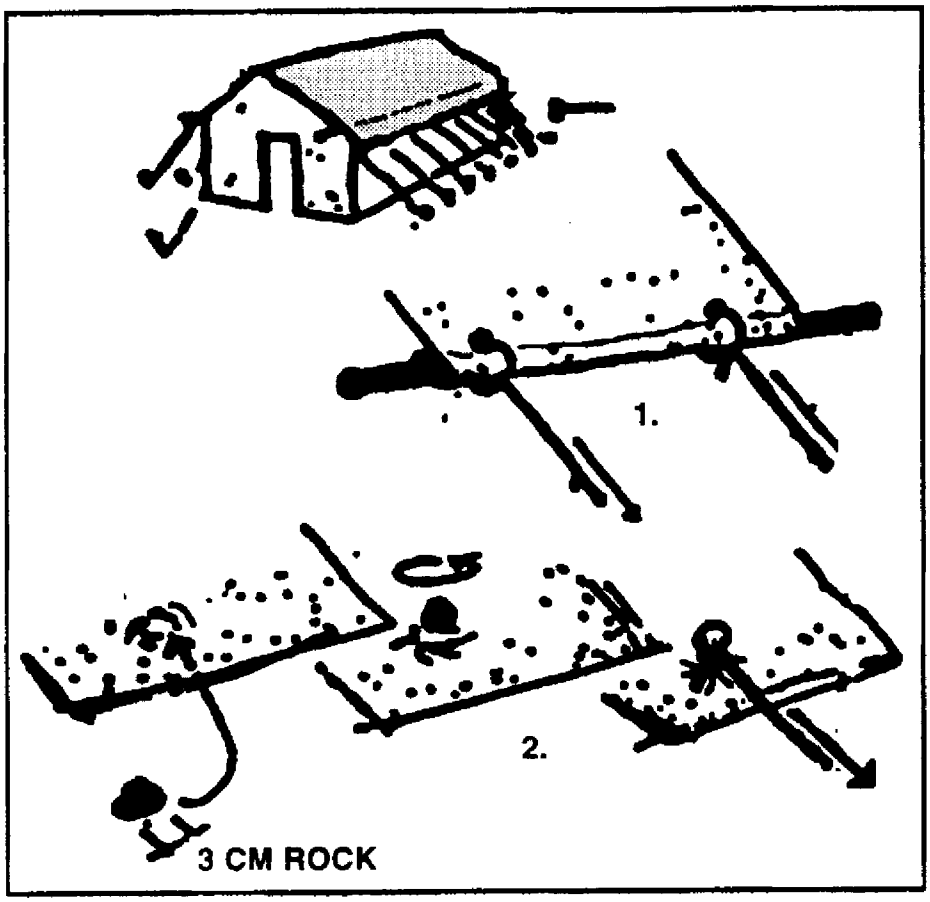
2. Turn the dark (tan) side of the sheeting towards the outside to absorb the heat of the sun.

3. Make the roof of any new building as low as possible. Two and one-half meters at the highest point is good.

4. Shovel dirt against the outside of the building walls to help hold the heat inside.

5. Special care must be taken when heating the inside since plastic sheeting will burn.

6. Tack a second layer of OFDA plastic or any other material on the inside to create a double layer for insulation.



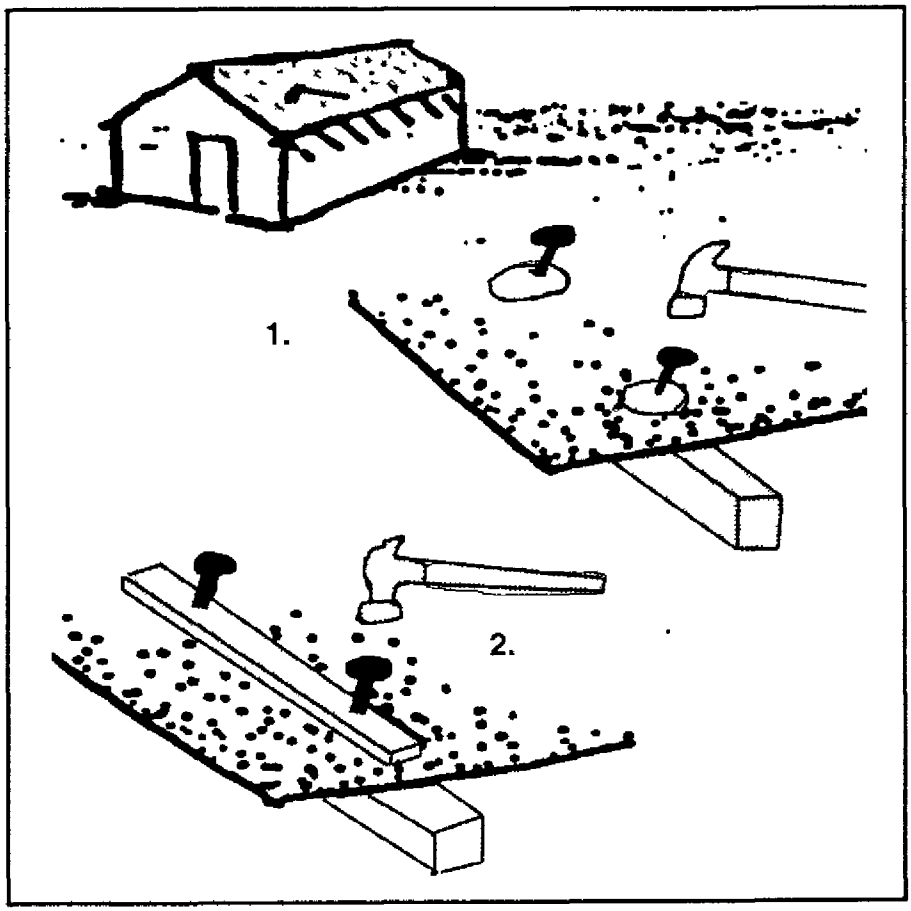
Setup:

Plastic sheeting can be stretched over a building and then anchored to the ground with ropes and stakes like a tent.

1. Wrap the plastic around stick or bamboo. Tie the rope around the stick.

2. Place a small rock under the sheeting. Twist the sheeting around the rock.

Use as many stakes or anchors as needed to keep the plastic as tight as possible.



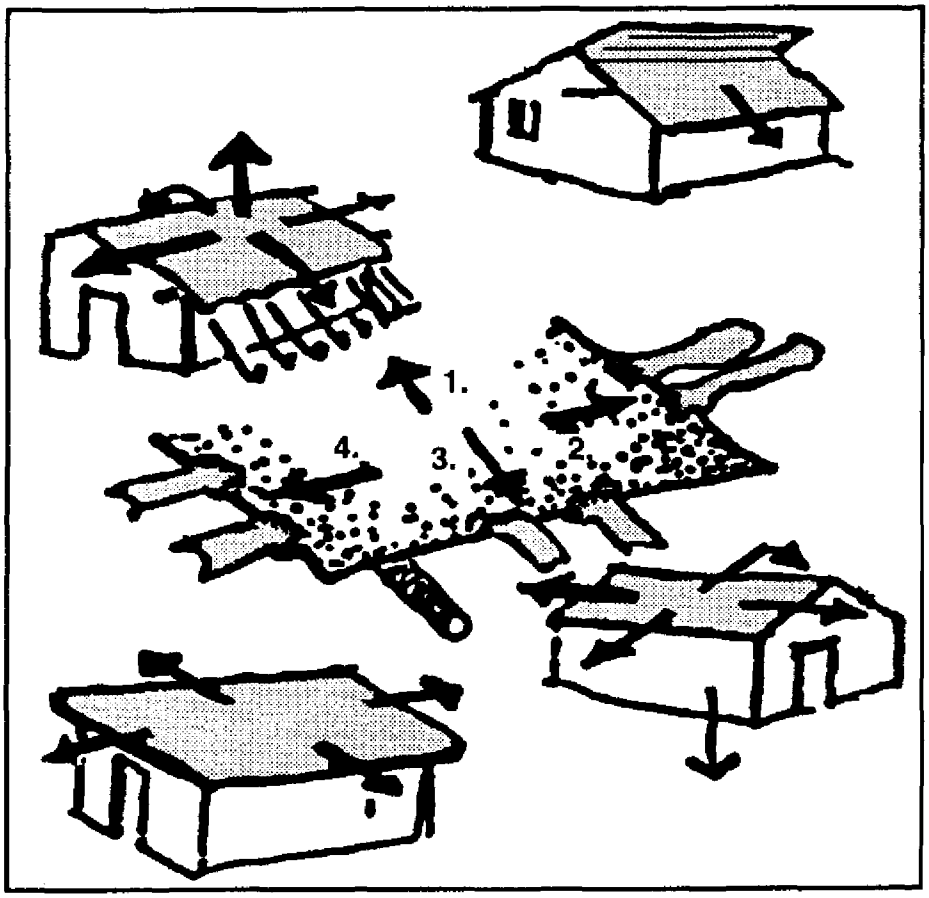
Plastic sheeting can be stretched over a building and nailed to the frame of the building.

1. Hammer the nails through some type of washer, piece of tire, rubber, flattened bottle cap; or

2. Through a batten.

Use tape for repair purposes only.

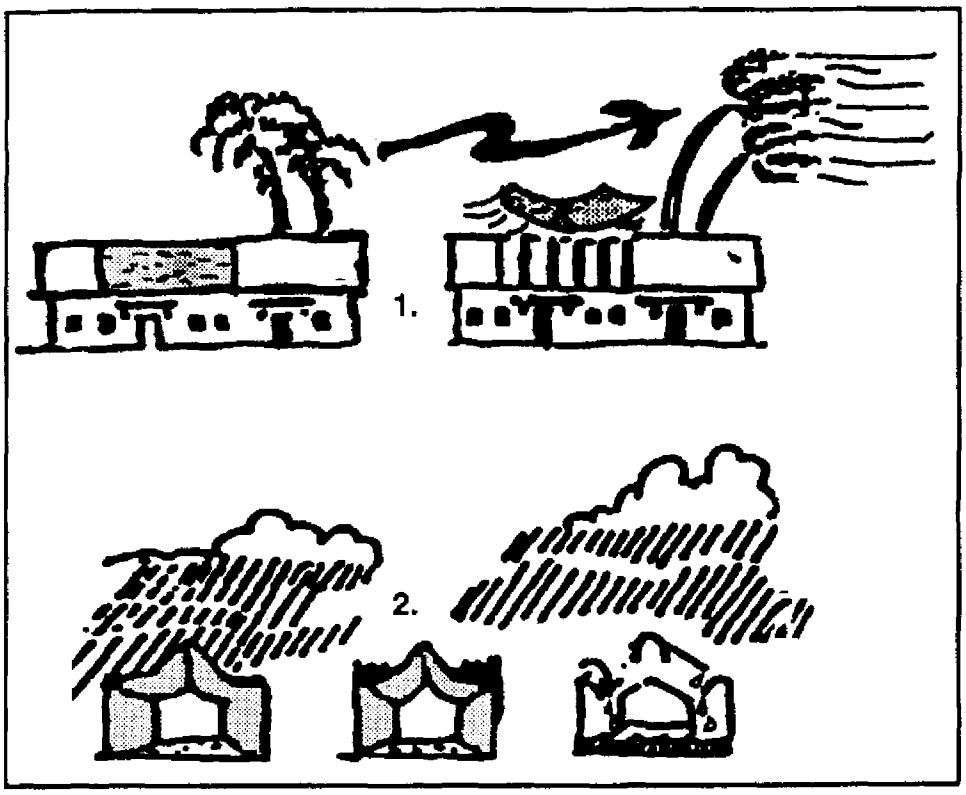
Caution: Plastic sheeting will burn. Be careful with all open flames.



Stretch the sheeting over the roof. Pull the plastic sheeting as tight as possible before connecting it to the roof frame.

To get the sheeting tight, pull it firmly in all four directions.

It is very important to stretch the plastic tight and to attach it securely to the roof frame or to anchor it to the ground.



Precaution:

1. During windy weather, loose sheeting will flap violently and cause (more) damage to the structure.

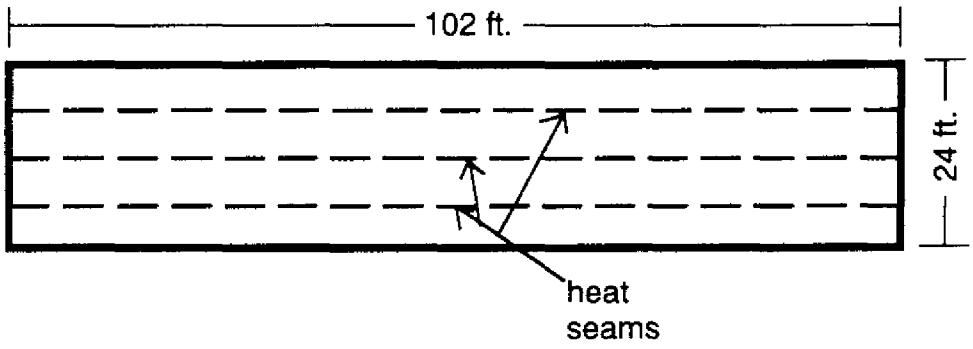
2. During rainy weather, loose sheeting will collect rainwater which can cause (more) damage to the structure.

After a strong wind or rain storm, look at the building for signs of wear and tear. Tighten all ropes and use additional nails if needed to tighten the sheeting.

Use two 6 by 26 feet pieces to cover an 8-foot-square roof. Place seams *along* supports and secure ends tightly.

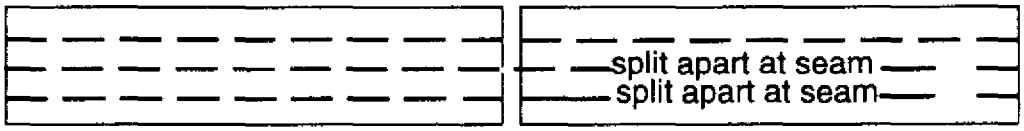
Doors should be slit in after connecting to offer a tight opening against sand and dust. Narrow 1 and 2 feet pieces left over can serve as curtains over slits and windows.

Shelter Construction Suggestions for Plastic Sheeting



Recommend 10 foot Square shelter (four shelters per roll) (one roll is 102 feet long with tic marks every 5 feet)

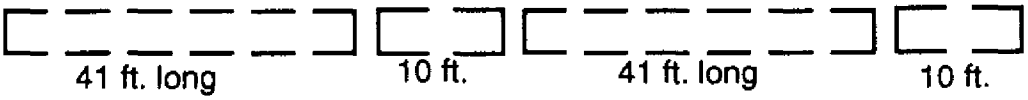
After laying the sheet out flat, fold it in half and cut across the fold, (1 foot past the tenth tic mark). Each half will construct two of the following shelters.



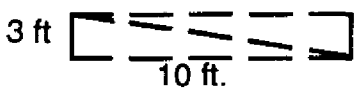
(24 feet wide by 51 feet long)

Split (zip) off two strips of plastic (each strip will be 6 feet wide by 51 feet long). Each strip will wrap the wall of a 10 foot square.

Now cut 10 feet (two tic mark) off each 6 feet by 51 feet strip (one 41-foot strip and 10-foot piece per shelter).



Cut the 10-foot long strips down the center for two 3 by 10 feet strips (fold in half lengthwise and cut at fold). One piece will become the top cover of the front of the shelter where the wall will be higher than 6 feet.



Cut one of these 3 by 10 feet strips across the corners lengthwise to form two triangles 3 feet high and 10 feet long. These triangles will become the extension of the side wall beyond 6 feet high.

Or, cut the 6 by 10 feet piece. Across both corners to make two 10-foot long 3-foot high triangles for a different shape roof.

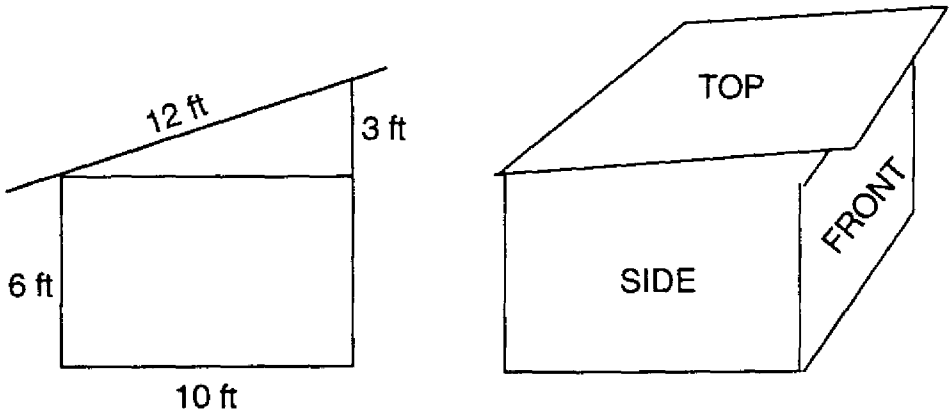
Take the larger remaining piece, fold it in half and cut at the fold for two pieces at 12 by 25+ feet. Cut each of these across the seams at 10 feet (two tic marks) resulting in two pieces of 10 by 12 feet and two pieces 12 by 15 feet (the floors and roofs for two shelters).

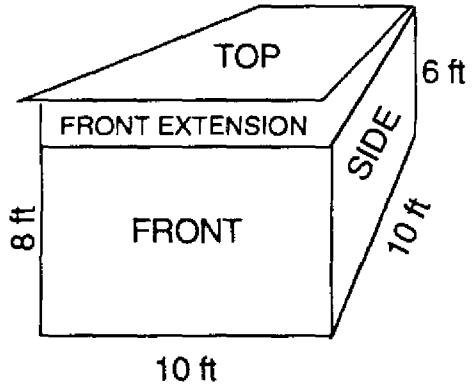
Piece sizes for the covering of a 10-foot square framed shelter:

- 2 each pieces 10 by 12 feet and 12 by 15+ feet (floor, roof)
- 1 piece 6 by 41 feet (walls)
- 1 piece 3 by 10 feet (front wall height extension) for shed type
- 2 triangles, 3 feet by 10 feet (depends on type shelter)

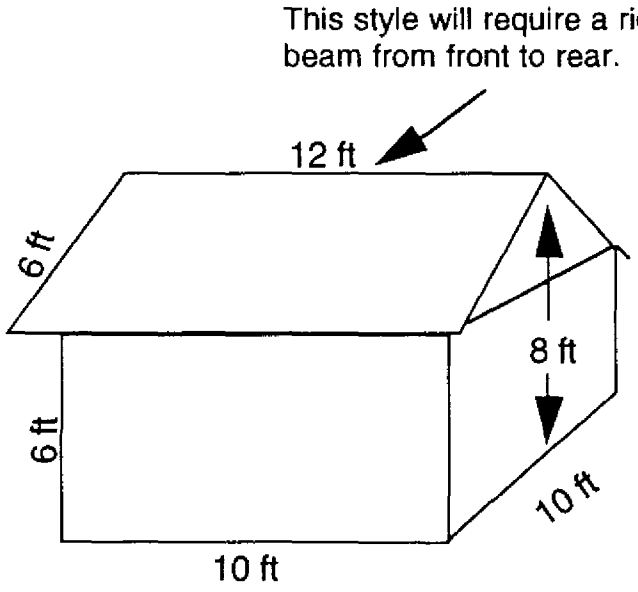
Sample Construction Designs

When the frame is covered, the shelter should look like one of the below (not drawn to scale). Use adhesive tape to seal corners and to cover nail or staple holes to prevent leaks. Doors and windows may be cut in place where desired and the plastic removed may be used as curtains or as future patching materials.





The second style shelter, using the two triangular shaped pieces, utilize the same 10-foot-square with 6-foot high base structure as pictured below. Only the roof is different.



Roof rafters/beams may run from front to rear or from top center beam to the sides, depending on the ability to connect the rafters to the ridge beam or the structure itself. These plastic covers should overlap the wall cover to prevent leaks and to cover cracks. They may be taped together.

Ensure that the building frame is securely anchored to the ground.

Personal Health and Critical Incident Stress

This section provides a guide to recognizing and meeting common physical and emotional problems encountered during disaster relief activities. Experience has shown that promoting and maintaining good health, especially by coping with the stresses encountered overseas, are the keys to successful performance.

Briefings:

The most important key to personal health and safety is to follow briefings given by OFDA, State Department, the DART team leader, the USAID Mission in-country, the U.S. Embassy or Consulate in-country, and affected country contacts. They can provide up-to-date details on disease, sanitation, food and water safety, personal and property security, and other information to keep relief workers healthy and safe during the assignment.

Disaster workers should never knowingly put there lives in jeopardy. Tasks should be accomplished by putting safety first. "Stay alert, keep calm, think clearly, and act decisively" should be their motto.

Managing Culture Shock:

International disaster relief workers may experience two different but interrelated types of stress: first is culture shock, which comes from suddenly being placed in a strange foreign environment. The second is the emotional and physical impact that often comes from being immersed in a disaster.

Between arriving in-country and reaching the disaster site, relief workers may experience classic culture shock. The relief worker is a foreigner; may be frustrated because of inability to communicate with the local population; anxiety and frustration may erode customary level of self-confidence.

The relief worker should expect to be disoriented and confused and realize that it is natural and often happens to others in similar situations. Patience, realistic expectations of an ability to make a difference, and a sense of humor are good coping strategies in these circumstances. The relief worker should not expect the affected country and the victims to change their ways of doing things to accommodate to relief workers.

Critical Incident Stress:

No one who sees a major disaster remains emotionally untouched by it. Typical reactions are frustration and a feeling of hopelessness; that there is simply too much suffering and relatively little impact one person can have.

The combined effects of cultural and job stress make relief workers vulnerable to physical and emotional exhaustion. Some people refer to this as "burnout." It can happen to anyone

The disaster-related stress caused by these factors is often referred to as **critical incident stress or CIS**. A critical incident is any incident so unusually stressful to an individual as to cause an immediate or delayed emotional reaction, surpassing available coping mechanisms. Critical incidents take many forms, including all emergencies that cause personnel to experience unusually strong reactions.

The effects of critical incidents can include profound behavioral changes that may occur immediately or may be delayed for months or years.

How Disaster Relief Workers Are Affected by Stress During Disaster Operations:

- They may experience physical symptoms associated with stress, such as headaches, upset stomach, diarrhea, poor concentration, and feelings of irritability and restlessness.

- They may become tired of the disaster and prefer not to talk about it, think about it, or even associate with co-workers during time off. They may become tired of continual interaction with victims and may want to isolate themselves during time off.

- There may be a feeling of frustration or guilt because they miss their families, and they are unavailable to their families both physically and emotionally due to their psychological involvement in the disaster, fatigue, and so forth.

- They may feel frustrated with family and friends when they are able to contact them because the relief workers feel that families and friends simply cannot understand the disaster experience. If family and friends become irritated, it can compound the problem, and temporary isolation and estrangement may occur.

How To Minimize Stress During a Disaster Operation:

- As much as possible, living accommodations should be personal and comfortable. Mementos from home may help disaster workers to keep in touch psychologically.

- Regular exercise consistent with present physical condition and relaxation with some activity away from the disaster scene may help.

- Getting enough sleep and trying to eat regular meals even if the workers are not hungry will help. Workers should avoid foods high in sugar, fat, and sodium, such as donuts and fast foods. Taking vitamin and mineral supplements may help the body to continue to get the nutrients it needs.

- Excessive use of alcohol and coffee should be avoided. Caffeine is a stimulant and should be used in moderation as it affects the nervous system, making relief workers nervous and edgy.

- Although relief workers need time alone on long disaster operations, they should also spend time with co-workers. Both experienced and new relief workers should spend rest time away from the disaster scene. Talking about normal things (home, friends, family, hobbies) other than the disaster is a healthy change of pace.

- Humor helps ease the tension. However, use it carefully as victims or co-workers can take things personally, resulting in hurt feelings if they are the brunt of "disaster humor."

- When on the job, it is important for relief workers to take breaks during the day, especially if they find themselves making mistakes or unable to concentrate.

- Relief workers should try to stay in touch with family back home if they can. Communication helps prevent the sense of being strangers when they return after the disaster.

Disaster managers can take specific, practical action to prevent and reduce the effects of critical incident stress, consequently avoiding the personal and organizational costs associated with them. Steps include:

- Learning to identify and respond to critical incident stress in personnel.

- Educating team members in advance about potential harmful effects of critical incidents.

It's normal to experience stress during a disaster operation, but remember...stress can be identified and managed.

Miscellaneous Information
Conversion Tables

Temperature Conversion Factors:

Centigrade to Fahrenheit: Centigrade X 1.8 + 32 = Fahrenheit

Fahrenheit to Centigrade: Fahrenheit - 32 X 0.555 = Centigrade

Weight of water by volume (at 16.7 °C or 62 °F:

1 liter	=	1 kilogram
1 U.K. gallon	=	10 pounds
1 U.K. gallon	=	1.2 U.S. gallons
1 U.K. gallon	=	4.54 liters
1 U.S. gallon	=	0.833 U.K. gallons
1 U.S. gallon	=	8.33 pounds
1 U.S. gallon	=	3.79 liters
1 liter	=	0.26 gallons
1 cubic foot of water	=	62.3 pounds

Distance:

1 nautical mile = 1.152 statute miles = 1.852 kilometers