FALLOUT SHELTER MANAGER'S GUIDE

Information about this shelter:

Shelter Name: ___________________  Shelter number: ____________
Address: _______________________  Capacity: ___________ persons
Shelter Manager: ________________  Alternate: ________________
Telephone: home ___________  home ___________
P/C/work ___________  P/C/work ___________

Shelter Complex Headquarters:

Address ______________________  Telephone _________________

Name, address and phone number of the 3 nearest shelters:

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

If you need assistance and you are unable to contact the SCH or the 3 nearest shelters, contact the Shelter Officer at the Huntsville-Madison County Emergency Operations Center at 427-5130. The EOC is in the basement of the Public Services Building, 320 Fountain Circle.

Notes:

Version date: January 2010; supersedes all earlier versions. Destroy Earlier versions.
Reserved
CONTENTS: FALLOUT SHELTER MANAGER'S GUIDE

The following items in this Guide are for you, the Fallout Shelter Manager to use in organizing your shelter and shelter staff:

1. Fallout Shelter Information sheet (on the other side of this envelope)

2. Disclaimer

3. Authority to Act As Fallout Shelter Manager form.


5. Local supplements to FEMA 59 (P&P 8):
   A. Priority Action Checklists for the shelter staff.
   B. Administrative Assistant instructions
   C. Fallout Shelter Protective Areas instructions.
   D. Radiological Monitoring instructions
      • Monitoring Procedure
      • Radiation Exposure Record
      • Individual Radiation Exposure Record
      • Shelter Upgrading instructions
   E. Deputy Manager for Operations instructions
      • Water Team instructions
      • Food Team instructions
      • Sanitation Team instructions
      • Medical/Health Team instructions
      • Sleep Team instructions
      • Safety Team instructions
      • Communications Team instructions
      • Ventilation Team instructions
   F. Deputy for Supply and Maintenance
      • Maintenance - Power and Lightning instructions
      • Supply and Distribution Procedure
      • Shelter Inventory Record
      • Fallout Shelter Sign Posting Procedure
         • Fallout Shelter Sign
   G. Deputy Manager for Information instructions
   H. Community Group Leaders instructions
   I. Advisory Committee instructions
   (J. Shelter Complex Headquarters Procedure, if applicable)


5. Shelter Schedules.
6. Directional Fanning (ventilation) Instructions.
7. Shelter Event Log sheets.
8. Emergency Registration & Evacuation Record (DHR EWS-1).
9. Name tags for key staff positions.
10. Shelter Staff Organizational Chart
12. Life Support Operations in Shelters, CPG 2-20, for use by the Shelter Manager.
13. Habitability and Human Problems in Shelters, CPG 2-21, for use by the Shelter Manager.
15. A writing tablet and pencils.
Disclaimer/Waiver of Liability

The use of or adaptation of any materials or any presentation techniques by any entity and/or individual signifies that the user and/or adaptor understands the inherent risks involved and further assumes any and all liability that may result. The City of Huntsville, Alabama, the Madison County Commission, and the Huntsville-Madison County Emergency Management Agency express that reasonable care and good faith were exercised in development of the materials and presentation techniques; nevertheless, use of these materials or presentation techniques is at the sole risk and liability of the user. The City of Huntsville, Alabama, the Madison County Commission, the Huntsville-Madison County Emergency Management Agency, and the federal government specifically disclaim any and all responsibility or liability for any damages to person or property resulting from the use of these materials or presentations. Materials and presentation techniques include any materials and/or presentations, outline instructions and actions which are generally accepted as typical for recovery from the detonation of a nuclear weapon or dispersal of radiological isotopes. However, the conditions created by such events cannot be foreseen, thus, any entity and/or individual implementing the instruction materials may suffer property damages as well as serious injury up to and including death.
Authority To Act As Fallout Shelter Manager

The City of Huntsville and the Madison County Commission established the Huntsville-Madison County Emergency Management Agency, EMA, (Civil Defense) and given the agency the task of organizing a Fallout Shelter program. The EMA is established as authorized in Alabama Code (1975) §§ 31-9-1 et seq, the City of Huntsville Ordinance 84-75, as amended, and Madison County Resolution Adopted October 23, 1961, as amended and Madison County Resolution Adopted November 9, 1962, as amended.

In implementing the program, EMA has selected certain federally-approved buildings and obtained written permission from the owners or occupants to use them as public Fallout Shelters. Should attack appear imminent, the EMA has plans to, if possible, staff the shelters, stock them with supplies, mark them with signs and, if need be, open them to the public.

In fulfilling its duty to staff the shelters and provide governmental leadership to the sheltered population, authority is hereby granted by the EMA to the Shelter Manager(s) designated by the owner/occupant. During the time the shelters are activated and when acting in the capacity of a Fallout Shelter Manager, the Managers act as agents of the City of Huntsville or the Madison County Commission, depending in which jurisdiction the particular shelter is located.

An owner who voluntarily and without compensation allows his/her property to be designated as a Fallout Shelter shall not be “civilly liable for negligently causing the death of, or injury to, any person” on such property, “or for the loss of, or damage to, the property of” a person seeking shelter during an actual disaster or during a mock or practice attack. Ala. Code (1975) § 31-9-17. Additionally, Fallout Shelter Managers providing emergency management services, “except in cases of willful misconduct, gross negligence or bad faith,” are not liable “for the death of or injury to persons, or for damage to property, as a result of any such activity” associated with the providing of emergency management services. Ala. Code (1975) § 31-9-16.

I hereby designate ____________________________ (primary) and ____________________________ and ____________________________ and ____________________________ (alternates; at least one) as Fallout Shelter Managers for ____________________________ (shelter name).

Accepted by the Huntsville-Madison County EMA

Owner/Occupant's Signature

EMA Signature

Owner/Occupant's Printed Name

Date
FALLOUT SHELTER PRIORITY ACTION CHECKLIST

SHELTER MANAGER

First Priorities - As Shelter is Activated and You Have Taken Command

1. Appoint an Administrative Assistant and Deputy Managers for Operations, Supply and Maintenance and Information and their team leaders. Give them their instruction sheets.

2. Open the shelter to the public when the Attack Warning is given or if directed by the EOC. Control traffic for orderly entry.

3. Have the Radiological Monitor determine the feasibility of upgrading and other protective factors and implement them - if time allows.

4. Move supplies and equipment the shelter if this has not already been done.

5. Control movement of people in Fallout Shelter areas according to space assignments.

6. Keep windows and vents open as long as possible. Close and secure all openings when the Attack Warning sounds or if radioactive fallout approaches the area. Make certain ventilation system is operating and that any Packaged Ventilation Kits stocked in the shelter are located and ready to use; improvise Kearney ventilation fans from available materials as needed.

7. Register the sheltered population. (Administration Team)

8. Establish and maintain communications with Shelter Complex Headquarters, SCH, or the EOC. (Communications Team)

9. Check operation of mechanical equipment operating in the shelter; determine if power will be available or portable generators will be used. Make necessary repairs and adjustments while there is still time to do so. (Deputy for Supply and Maintenance)

10. Establish strict fire controls. (Safety Team)

11. Establish toilet area and improvise portable toilets as needed. (Sanitation Team)

12. Establish medical care area. Establish sick bay in isolated area if space is available. (Medical Team)

13. Inventory water and food supplies and establish distribution system for rationing available supply for a two-week period. (Water Team and Food Team)

14. Call meeting of Community Group Leaders for an orientation on shelter living requirements. Have them, in turn, orient their groups.
15. Organize the population into "neighborhoods" of 200-400 persons, each neighborhood with its own leader; each "neighborhood" is further divided into "blocks" of 40-60 persons each with its own leader. Divide each "block" into "families" of 7-10 persons (which should be families or groups of related people), each with its own leader. (Larger shelters may have "sections" of 1,000 persons divided into the "neighborhoods."; adjust the scale to fit the capacity of your shelter).

16. Complete information sheet about your Fallout Shelter.

17. Monitor phones, 2-way radio, and Emergency Alert System for latest information on movement of radioactive clouds and general conditions resulting from attack. Select one system to monitor; turn others off to protect against EMP damage (Communication Team).

Second Priorities - Beginning Immediately As Population Settles In

1. Brief entire population, directly or through unit leaders, what is happening and review with them what shelter life will be like.

2. Have the shelterees select a maximum of seven (7) persons to serve on the Advisory Committee. Use this committee to give and receive information about shelter conditions and problems.

3. Establish a daily schedule.

4. Begin regular water and food distribution.

5. Activate all functional teams.

6. Maintain close control over daily supply inventory. Supplies must be well guarded.

7. Maintain daily health checks with emphasis on preventing spread of disease or psychological upsets.

8. Initiate continual radiological monitoring to assure safety of population.

9. Maintain strictest possible sanitation controls.

10. Establish continual fire and safety patrols: Begin instruction in emergency rescue and escape techniques.
Continuing Priorities

1. Maintain shelter discipline and daily schedule.

2. Keep population well-informed on what is happening within the shelter and outside.

3. Monitor health conditions.

4. Keep constant check on radiation levels in the shelter and take any necessary steps to improve protection.

5. Maintain best possible air exchange levels.

6. Maintain close controls over distribution of water and food and use of other supplies and equipment.

7. Prepare population for post-shelter living.

8. Maintain contact with SCH or the EOC.

9. Prevent people from leaving shelter until EOC authorizes emergence.
Reserved
ADMINISTRATIVE ASSISTANT

First Priorities - As Shelter Is Activated

1. Draw a Fallout Shelter floor plan, if one is not available and assign incoming population to designated spaces.

2. Select an Administration Team and have them register people entering the shelter.

3. Work with Safety Team to collect weapons, alcoholic averages, drugs and other personal possessions not previously collected but which should be collected for safety and the common good.

4. Assist the Manager to establish an appropriate number of Community Groups and assign unit leaders.

5. Assign monitors for radio and Communications Center to provide latest official information.

6. Screen registrations for specific skills needed in team assignments.

Second Priorities - Beginning Immediately As Population Settles In

1. Develop and post Shelter Rules and Regulations. Establish administrative procedures to implement and enforce them.

2. Develop and distribute Daily Schedules.

3. Work with Safety Team on enforcement of rules and regulations if support from law enforcement officers is not available.

Continuing Priorities

1. Oversee flow of information to Community Group Leaders and act as liaison to them and to Advisory Committee members.

2. Update records of individual shelterees and shelter logs to indicate health and discipline problems, etc.

3. Maintain necessary logs for ultimate delivery to the EOC or other officials. Accurate data on births, deaths, serious illnesses, accidents and discipline problems will have historic, legal and public health value after shelter emergence.

4. Work with Radiological Monitor on needed space use adjustments if radioactivity levels rise, ventilation problems develop, etc., and, conversely, on expanding available space as the radiation intensity decreases.
ADMINSITRATIVE ASSISTANT - ADMINISTRATION TEAM

First Priorities - As Shelter Is Activated

1. Obtain pens, pencils, writing pads and forms needed to register shelter occupants and tape or name tags on which occupants can write their first name.

2. Register all persons entering the Shelter.

3. If forms are not available, get people to write down names, occupations and special skills. Complete the forms later on.

4. Assist in sorting registrations to select additional functional team leaders and members.

5. Assist in assigning space and sleeping areas and, if necessary, re-dividing population into groups.

6. Assist Safety Team in collecting and recording personal property collected during entry.

Second Priorities - Beginning Immediately As Population Settles In

1. Complete registration forms.

2. Establish and maintain records, including those related to supplies, medical, health and discipline problems, births, deaths, equipment status and special problems.

3. Duplicate and distribute rules and regulations, daily schedules and other information the shelter population will need to have.

4. Prepare and duplicate any special forms functional teams will need for their work, including radiological monitoring report forms.

5. Establish and maintain office coverage to monitor phones, radio, etc., in conjunction with Communications Team.

Continuing Priorities

1. Update and maintain records and logs in forms that can be turned over to the EOC at end of shelter period, including such information as births, deaths, discipline and serious health problems which will eventually be recorded for historic and legal purposes.

2. Assist to keep shelter population informed.
Fallout Shelter Protective Areas

To the Shelter Manager and Radiological Monitor

To help you identify the areas of your shelter that offer the best protection against radiation, one of the following is provided:

1. A diagram, attached, of your shelter showing the layout of the protective area(s), or
2. A description of the shelter telling where the protective area(s) is:

<table>
<thead>
<tr>
<th>Area</th>
<th>Protection Factor*</th>
<th>No. Spaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D.</td>
<td>(... as needed; must be individualized for each shelter)</td>
<td></td>
</tr>
</tbody>
</table>

* The **HIGHER** the Protection Factor, PF, the **BETTER** the protection; fill the areas with the highest PF first. **After fallout arrives, the Radiological Monitor must verify the PFs** by monitoring each area. Use the areas with the **LOWEST** radiation exposure rates.
Radiological Monitoring Procedure

To the Radiological Monitor

This procedure explains how to obtain Radiological Monitoring instruments and use them to find the best protected area(s) in your shelter.

1. Normally, obtain your monitoring instruments from the Radiological Officer at the Emergency Management Agency, 427-5130. The instruments may be issued to you directly or to the Shelter Manager. Normally, one set of instruments will be issued to each shelter. Also, firemen, lawmen, utilities crews, etc. may bring additional sets into the shelter; these instruments are primarily for their use as they will be using them on missions outside the shelter.

Two types of instruments may be issued. The first are the Civil Defense instruments such as the CD V-715. The Second is a NukAlert. Both are fully capable of the task required; which one is issued depends on the quantity on hand and the time available. NukAlerts require no maintenance and will be issued to individual shelters; the Civil Defense kits require periodic maintenance, are kept in bulk storage and will be issued upon need.

2. Review the Fallout Shelter Protective Areas material with the Shelter Manager. Use the diagram or description as a basis for your monitoring and selection of the shelter area.

3. Use your instruments to survey your shelter. Follow the directions in the RADIATION EXPOSURE RECORD. See also publication MP-72, How To Use Your Radiological Instruments To Find the Best Shelter and Minimize Your Exposure to Radiation, issued with each set of instruments. The best protected area receives the LOWEST exposure rate.

4. Advise the Shelter Manager of the best area(s); use this area(s) first. If some people must shelter in poorer quality areas, assist the Shelter Manager in rotating people between the two areas.

5. Record radiation rates and exposure readings in the shelter on the RADIATION EXPOSURE RECORD or Supplemental RADIATION EXPOSURE RECORD.

6. Record accumulated exposures for each person on a copy of the Individual Radiation Exposure Log.

7. More detailed information is found in publication CPG 2-6.2, Radiation Safety in Shelters, issued with the Shelter Guide.
RADIOLOGICAL MONITOR

First Priorities - As Shelter Is Being Activated

1. Carefully check all parts of the fallout shelter determine if there is adequate protection for the incoming population. If not, determine the feasibility of upgrading the shelter to increase protection. If this cannot be done with available resources and in the expected time available, inform the Shelter Manager so he can replan space assignments.

2. Sketch each room or area in the shelter on a separate copy of the RADIATION EXPOSURE RECORD per instructions on the form.

3. Interpret for the Shelter Manager information received from the Shelter Complex Headquarters, SCH, EOC or by radio about the arrival of radioactive clouds so he knows how much time he may have to shelter, obtain additional supplies and take other essential actions.

4. Train additional assistants to help you.

5. Work with the Safety-Emergency Rescue Team to develop emergency evacuation plans.

6. Use the areas of the shelter with the lowest exposure rate first then areas with higher rates.

Second Priorities - Beginning Immediately As Population Settles In

1. Establish around-the-clock radiation monitoring in all parts of the shelter and, insofar as safety permits, adjacent areas of the building in which the shelter is located.

2. Review checklists "A" and 'H" in CPG 2-6.4, Radiation Safety In Shelters.

3. Determine with the Ventilation Team which windows, vents, etc., can remain open safely during period of fallout deposition.

4. Work on any additional upgrading that is needed and can be done with supplies and tools on hand in the shelter.

5. Keep management informed of any problems and what can be done about them.

6. Decontaminate people, food, supplies and clothing that have contaminated with fallout.

7. Continue training of assistants.

Continuing Priorities

1. Monitor radiation levels in and around the shelter.

2. Determine when it is safe for emergency errands to be run and for how long messengers on such emergency missions can remain outside the shelter. Coordinate actions with the Communications Team. Use attached chart to determine safe exit times.

3. Decontaminate people, supplies and equipment.
RADIOLOGICAL MONITORING - UPGRADING

First Priorities - As Shelter Is Being Activated

1. Determine what additional upgrading may be required to increase shielding of all designated fallout shelter areas.

2. Assess what can be done with available resources and within available time.

3. Complete such work as quickly as possible.

Second Priorities - Beginning Immediately As Population Settles In

1. Consult with management as to any additional work that needs to be done.

Continuing Priorities

1. Additional upgrading, if needed.

2. Utilizing additional parts of the building as radioactivity level decreases.

3. Plan with Safety Team - Emergency and Rescue for shielding of evacuation routes or quick upgrading of other areas to receive emergency evacuees from other shelters.
UPGRADING EXISTING BUILDINGS

*Before proceeding, assess if there are enough resources (materials and dirt) and time available to upgrade a shelter before fallout arrives. If not, do not upgrade or upgrade just to the extent resources and time allows. Upgrading requires considerable amounts of dirt and labor.*

Ordinary buildings offer limited protection from fallout radiation. However, the degree of protection can be greatly improved by simply providing additional mass (shielding) on the walls and overhead floor or roof of the shelter area. Full scale tests have shown that at least one foot of earth can be placed on the roof of a sound residence, garage or the implement shed portion of a barn, etc.

For added insurance, a piece of lumber (a 2" x 4" or 4" x 4") can be placed on the bottom side of the floor or roof over the shelter and 4" x 4" posts placed every four feet along the floor supporting the piece of lumber.

Shielding in the walls can be provided by simply piling earth against the wall. The shielding is best placed by mechanical equipment such as a back hoe, but tests have proved that it can be quickly accomplished by the people who will occupy the shelter, using picks, shovels, and buckets to move and pile the earth. One or two doors or windows on opposite sides of the building should remain uncovered for ventilation.

Increase shielding by:

First: Plan & improvise vents, ventilation & at least 2 entrances.
Second: Add wooden supports on each story.
Third: Add a maximum of 12" dirt on upper floors/roof.
Forth: Cover windows & openings with plywood sheets.
Last: Pile dirt to ceiling height along outside walls & windows.

EXPEDITELY CONSTRUCTED WOOD SUPPORT WALLS
Reserved
### RADIATION EXPOSURE RECORD

Location Readings Taken: _________________________________________________________

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Dose Rate, R/hr</th>
<th>1-Hour Dose, R</th>
<th>Accumulated Dose, R</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

#### Building Sketch

*Show where readings are taken*

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**Exposure Control Instructions**

1. Identify all rooms where people are to shelter. Sketch the building to show those rooms.
2. Keep a separate record for each room. Use one spot in a room to take all readings. Rates will be different in each room.
3. Record dose rate in each room at least once every hour; record readings more often if the dose rate changes rapidly such as 10 R/hr in 10 minutes. If you run out of forms, record readings on the wall inside the room.
4. Calculate the Accumulated Dose for each room: \([1st\ rate + 2nd\ rate \div 2] \times \text{fraction of hour}\). Example: if the 1st rate is 35 R/hr & the 2nd rate is 44 R/hr after 30 minutes, calculate \([35+44 \div 2 \times .5 = 20\ R\), rounded up. (1 hour = 1)
5. Assume the Accumulated Dose is the same for everyone in the same room.
6. Compare Accumulated Doses for each room. Prioritize: first, put people in places where the Accumulated Dose is the least; use places with higher Doses last.

**Exposure Limits**

Minimize Accumulated Doses by putting people where the Dose Rate is the least. If vital work outside the shelter is necessary, do not exceed an additional 25 R exposure (calculated by Entry Time/Stay Time method, below) without good reason. Plan the destination, the route, time allowed outside and who can go. Decontaminate people who reenter the shelter; shake/brush clothing & wash exposed skin.

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**RADIAC 21-C Instructions (Adapt for other instruments)**

1. The 21-C measures gamma radiation Dose Rates from 0.001 to 600 R/hr & a Accumulated Dose to 1,000 R.
2. Turn unit On to obtain the Dose Rate.
3. Toggle between Rate and Accumulated Dose. Note: The Accumulated Dose feature shows the dose just for the 21-C; **the accumulated dose for each room will be different and must be calculated.**
Exposure Control

Decay Rate Extrapolation
1. Radiation intensity from a nuclear detonation loses strength rapidly; 90% in the first 7 hours & 99% in 49 hours.
2. Plot readings as soon as radiation is detected. Reading will first rise, then peak and then fall or decay.
3. The rise and peak are not predictable.
4. Once decay starts, the rate of decay is predictable and plots as a straight line.
5. Plot at least 2 readings an hour apart.
6. Connect the points & extend line to Time After Burst line.
7. Estimate future exposure rates at the intersections of the Exposure Rate and Time After Burst Lines.
8. Continue to plot readings to verify accuracy of extrapolation.
9. Redraw line if necessary.

Entry Time & Stay Time Calculations
10. Entry Time is the time in the future, calculated from the Decay Rate Extrapolation, when people may leave shelter to perform a specific task.
11. Stay Time is the length of time people may remain outside shelter without exceeding an Exposure Limit of 25 R.
Example: it will take 45 minutes to bring water back to the shelter. The current outdoor Dose Rate is 60 R/hr. In 45 minutes, a person would accumulate about 45 R. By decay rate extrapolation, you estimate that 2.5 hours from now the Dose Rate will decay to 32 R/hr and a 45 minute exposure would be about 24 R, an acceptable Dose. If “now” is noon, the Entry Time becomes 2:30 p.m. and the Stay Time is 45 minutes. Track, by Dose Rate or Accumulated Dose and the clock the actual Dose. In this example, return by 3:15 p.m. or if exposure reaches 25 R.

Approximate Percent of Symptoms and Deaths vs. Dose

<table>
<thead>
<tr>
<th>Short-Term Whole-Body Dose, R.</th>
<th>Nausea and vomiting within 4 hours</th>
<th>Expected Deaths - No Medical Treatment</th>
<th>Comments:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-50</td>
<td>0</td>
<td>0</td>
<td>Radiation injury is progressive; doubling dose from 200 to 400 R raises death rate from 5% to ~40%. Medical care reduces illness &amp; deaths but outcome depends greatly on persons age &amp; general health.</td>
</tr>
<tr>
<td>80 – 170</td>
<td>25%</td>
<td>0</td>
<td>Use your shelter effectively. Find &amp; use the areas with the lowest exposure rates first; use areas with higher exposure rates last. Shelter as long as possible. Leave shelter only if inside exposure rate exceeds 25 R/hr, better shelter is nearby and can be reached in less than 5 minutes. Minimize exposure!</td>
</tr>
<tr>
<td>180 – 220</td>
<td>50%</td>
<td>&lt;5%</td>
<td>Do not exceed 25 R dose on trips outside the shelter.</td>
</tr>
<tr>
<td>270 – 330</td>
<td>100%</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>400 – 500</td>
<td>100%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>550 – 750</td>
<td>100%</td>
<td>98-100%</td>
<td></td>
</tr>
</tbody>
</table>

Radiation Sickness is NOT contagious! Victims are NOT radioactive! Treat the symptoms!
**SAMPLE RADIATION EXPOSURE RECORD**

Location Readings Taken: **Middle of Room B-5, Basement, Smith Building**

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Dose Rate, R/hr</th>
<th>1-Hour Dose, R</th>
<th>Accumulated Dose, R</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 a.m.</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9 a.m.</td>
<td>26</td>
<td>4+26÷2= 15</td>
<td>15</td>
</tr>
<tr>
<td>10 a.m.</td>
<td>50</td>
<td>38</td>
<td>53</td>
</tr>
<tr>
<td>11 a.m.</td>
<td>30</td>
<td>40</td>
<td>93</td>
</tr>
<tr>
<td>Noon</td>
<td>19</td>
<td>25</td>
<td>118</td>
</tr>
<tr>
<td>1 p.m.</td>
<td>14</td>
<td>17</td>
<td>135</td>
</tr>
<tr>
<td>2 p.m.</td>
<td>10</td>
<td>12</td>
<td>147</td>
</tr>
<tr>
<td>3 p.m.</td>
<td>8</td>
<td>10</td>
<td>157</td>
</tr>
<tr>
<td>4 p.m.</td>
<td>6</td>
<td>7</td>
<td>164</td>
</tr>
<tr>
<td>5 p.m.</td>
<td>5</td>
<td>6</td>
<td>170</td>
</tr>
<tr>
<td>6 p.m.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

See example of Decay Rate Extrapolation chart on back.

In the example above, the readings continue after 11 a.m.; on the decay extrapolation chart, reading stop at 11 a.m. and the estimated decay rate is shown by the dashed line. **Use readings after 11 a.m. to verify projected decay rate.**

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**RADIAC 21-C Instructions** (Adapt for other instruments)

1. The 21-C measures gamma radiation Dose Rates from 0.001 to 600 R/hr & a Accumulated Dose to 1,000 R.
2. Turn unit On to obtain the Dose Rate.
3. Toggle between Rate and Accumulated Dose. Note: The Accumulated Dose feature shows the accumulated dose just for the 21-C; the accumulated dose for each room will be different and must be calculated.

---

**Exposure Control Instructions**

1. Identify all rooms where people are to shelter. Sketch the building to show those rooms.
2. Keep a separate record for each room. Use one spot in a room to all take readings. Rates will be different in each room.
3. Record dose rate in each room at least once every hour; record readings more often if the dose rate changes rapidly such as 10 R/hr in 10 minutes. If you run out of forms, record readings on the wall inside the room.
4. Calculate the Accumulated Dose for each room: \[(1st rate + 2nd rate) ÷ 2 \] x fraction of hour. Example: if the 1st rate is 35 R/hr & the 2nd rate is 44 R/hr after 30 minutes, calculate \[(35+44) ÷ 2 \]x .5 = 20 R, rounded up. (1 hour = 1)
5. Assume the Accumulated Dose is the same for everyone in the same room.
6. Compare Accumulated Doses for each room. Prioritize: first, put people in places where the Accumulated Dose is the least; use places with higher Doses last.

**Exposure Limits**

Minimize Accumulated Doses by putting people where the Dose Rate is the least. If vital work outside the shelter is necessary, do not exceed an additional 25 R exposure (calculated by Stay Time/Entry Time method, below) without good reason. Plan the destination, the route, time allowed outside and who can go. Decontaminate people who reenter the shelter; shake/brush clothing & wash exposed skin.

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Version: January 25, 2010 Destroy earlier versions.
Exposure Control for Fallout Radiation

Decay Rate Extrapolation
1. Radiation intensity from a nuclear detonation loses strength rapidly; 90% in the first 7 hours & 99% in 49 hours.
2. Plot readings as soon as radiation is detected. Reading will first rise, then peak and then fall or decay.
3. The rise and peak are not predictable.
4. Once decay starts, the rate of decay is predictable and plots as a straight line.
5. Plot at least 2 readings an hour apart.
6. Connect the points & extend line to Time After Burst line.
7. Estimate future exposure rates at the intersection of the Exposure Rate and Time After Burst Lines.
8. Continue to plot readings to verify the accuracy of the extrapolation.
9. Redraw line as necessary.

Entry Time & Stay Time Calculations
10. Entry Time is the time in the future, calculated from the Decay Rate Extrapolation, when people may leave shelter to perform a specific task.
11. Stay Time is the length of time people may remain outside shelter without exceeding an Exposure Limit of 25 R.

Example: it will take 45 minutes to bring water back to the shelter. The current outdoor Dose Rate is 60 R/hr. In 45 minutes, a person would accumulate about 45 R. By decay rate extrapolation, you estimate that 2.5 hours from now the Dose Rate will decay to 32 R/hr and a 45 minute exposure would be about 24 R, an acceptable Dose. If “now” is noon, the Entry Time becomes 2:30 p.m. and the Stay Time is 45 minutes. Track, by Dose Rate or Accumulated Dose and the clock the actual Dose. In this example, return by 3:15 p.m. or if exposure reaches 25 R.

Approximate Percent of Symptoms and Deaths vs. Dose

<table>
<thead>
<tr>
<th>Short-Term Whole-Body Dose, R.</th>
<th>Nausea and vomiting within 4 hours</th>
<th>Expected Deaths - No Medical Treatment</th>
<th>Comments:</th>
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<tbody>
<tr>
<td>0-50</td>
<td>0</td>
<td>0</td>
<td>Radiation injury is progressive; doubling dose from 200 to 400 R raises death rate from 5% to ~40%. Medical care reduce illness &amp; deaths but outcome depends greatly on persons age &amp; general health.</td>
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<tr>
<td>80 – 170</td>
<td>25%</td>
<td>0</td>
<td>Use your shelter effectively. Find &amp; use the areas with the lowest exposure rates first; use areas with higher exposure rates last. Shelter as long as possible. Leave shelter only if inside exposure rate exceeds 25 R/hr, better shelter is nearby and can be reached in less than 5 minutes. Minimize exposure!</td>
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<tr>
<td>180 – 220</td>
<td>50%</td>
<td>&lt;5%</td>
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<tr>
<td>270 – 330</td>
<td>100%</td>
<td>20%</td>
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<td>400 – 500</td>
<td>100%</td>
<td>50%</td>
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<tr>
<td>550 – 750</td>
<td>100%</td>
<td>98-100%</td>
<td>Do not exceed 25 R on trips outside the shelter.</td>
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Radiation Sickness is NOT contagious! Victims are NOT radioactive! Treat the symptoms!
Supplemental Radiation Exposure Record

Shelter _______________________

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<tr>
<th>Shelter Area</th>
<th>Remarks/Initials</th>
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Log all readings; as an alternate, record the date, time & reading on the walls in the areas where the readings were taken.
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INDIVIDUAL RADIATION EXPOSURE RECORD

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Address __________________________

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DEPUTY MANAGER for OPERATIONS

The following actions must be taken on a priority basis; the order in which they are done will depend on actual circumstances.

First Priorities - As shelter Is Activated

1. Immediately appoint leaders and members of Food, Water, Sanitation, Medical, Sleep, Safety, Communications and Ventilation Teams. Work with the Radiological Monitor. Review registration cards with the Administrative Assistant to find shelterees with needed skills.

2. Give team leaders appropriate checklists. Review checklists with them if necessary.

3. Review inventories of water, food, sanitation and medical supplies and develop a plan for rationing or limiting their use so they can last for a two week period.

4. Improvise additional toilets as necessary.

5. Establish separate medical care and sick bay areas and see that those requiring care are identified and directed to the medical care areas immediately.

6. Determine a method of food distribution and initiate it as soon after entry as possible.

7. Assign sleeping space on basis of the floor plan provided by the Administrative Assistant.

8. Make certain Safety Team collects personal items on basis of the common good.

9. Have the Radiological Monitor survey shelter areas and determine the impending arrival of radioactive clouds. Improve upgrading protection of shelter areas in the building as possible.

10. Consult with the Radiological Monitor on any special problems related to locating living, eating, medical or other areas.

11. Assure adequate flow of fresh air into the building and determine how much of the building ventilation system can be utilized under fallout Shelter conditions. Make necessary adjustments, and begin construction of improvised Kearny Ventilating Fans if this has not already been done.

12. Establish Fire Safety Patrols and gather all available fire fighting equipment; immediately remove all fire hazards.

13. Establish contact with the Shelter Complex Headquarters, SCH, or EOC by telephone or 2-way radio from Fallout Shelter area. Maintain 24 hour contact. (Communications Team)
Second Priorities - Beginning Immediately As Population Settles In

1. Establish regular daily schedule for meals, sick call, water distribution and sleeping.


3. Continue and maintain best possible sanitary conditions to prevent spread of disease or morale problems in overcrowded living conditions.

4. Enforce rules and regulations established by the Shelter Manager.

5. Continue regular monitoring of all areas of shelter by the Radiological Monitor.

6. Initiate fire and evacuation drills and instruct population in fire fighting techniques.

7. Maintain an internal communications system within the facility to inform the population and assist management functions.

Continuing Priorities

1. Provide water, food, and medical care on a survival basis and maintain sanitary conditions.

2. Maintain order.

3. Monitor radiation in the shelter and take protective or preventive steps as necessary.

4. Maintain shelter support systems.

5. Conduct fire and safety drills.

6. Monitor ventilation problems and construct Kearny Fans to improve air quality.
WATER

First Priorities - As Shelter Is Activated

1. Shut off water supply NOW at entrance valve to prevent trapped water from flowing back out of the building, should the water mains be broken.

2. Determine how much water will be available and advise Shelter Manager of your plans for water rationing to make it last for two weeks.

3. Take steps to control use of available water. Cut off nonessential water lines, fountains, faucets, etc., that will interfere with rationing.

4. Guard water sources.

5. Initiate a water distribution system, including distribution of individual cups if population does not already have them.

Second Priorities - Beginning Immediately As Population Settles In

1. Establish and maintain water rationing and distribution system.

2. Determine and provide, if possible, amount of water needed for non-drinking purposes; give priority to essential and medical purposes.

3. Purify or filter alternate water supplies that may be in pipes, cooling systems, boilers, etc., or that was obtained from outdoor sources and may contain fallout particles. Some of this water, if not drinkable, can be stored or used for fire fighting, cleanup and flushing toilets.

4. Maintain the building's plumbing system.

Continuing Priorities

1. Monitor daily water use in terms of available supply and changes that may indicate ventilation or health problems.

2. Monitor purity and safety of water being used from stockpiles or storage in pipes, tanks, etc. in building.

3. Decontaminate or purify water as necessary. Decontaminate water by passing it through layers of towels; fallout particles are not soluble in water and can be filtered out.

Reserved
FOOD

First Priorities - As Shelter Is Activated

1. Determine how much food you have and develop a plan for rationing it to last for two weeks. Inform the Shelter Manager of this plan.

2. Establish a food distribution plan - it may not be possible to have special dining areas in a crowded Fallout Shelter - and inform management of this plan.

3. Guard food supplies.

4. Provide an initial light meal to people moving into the shelter.

5. Establish the best possible sanitary controls over the food storage and distribution system.

Second Priorities - Beginning Immediately As Population Settles In

1. Plan meals and food distribution in terms of the need for rationing, the limited amount of water available, use of canned drinks to supplement drinking water and basic survival requirements.

2. Establish a regular meal or food distribution schedule.

3. Establish and maintain food supply controls.

4. Determine and supply, insofar as possible, the special diet needs of invalids, the sick, injured, the aged, infants and small children.

5. Decontaminate any food supplies which have been exposed to radioactivity. Wash, wipe or peel foodstuffs; filter water through layers of towels.

Continuing Priorities

1. Monitor food supply status.

2. Maintain cleanliness in food preparation and eating areas.
SANITATION

First Priorities - As Shelter Is Activated

1. Determine need for and establish separate toilet facilities for men and women, if possible. Post appropriate location signs.

2. Improvise additional toilets as needed.

3. Inventory sanitary supplies: toilet paper, soap, tampons, sanitary napkins, towels, diapers, etc. and establish strict controls over their distribution.

4. Obtain maximum number or trash cans, garbage cans, plastic bags, etc. for use in maintaining sanitation and, if needed, as improvised toilets.

5. Assign initial teams to monitor and clean toilets on a hourly basis.

6. Determine, with Water Team, if any water will be available for toilets, washing, and cleaning the shelters. Inform management of special instructions which may be needed about effect this will have on living conditions.

Second Priorities - Beginning Immediately As Population Sets In

1. Keep toilet area as clean as possible. Inspect and clean them hourly. Empty improvised toilets regularly.

2. If unable to flush sewage down existing toilets, identify a place to bury/store sewage.

3. Control or forbid use of water for sanitation/hygiene purposes if water is rationed.

4. Maintain strict cleanliness in eating areas.

Continuing Priorities

1. All of above.

2. Educate population in what personal hygiene and shelter sanitation can be achieved under the circumstances.
Reserved
MEDICAL/HEALTH

First Priorities - As Shelter Is Activated

1. Immediately establish separate medical and sick bay areas and consolidate all medical care and first aid activities there. Temporary Group Leaders have been told to handle their own medical problems until such an area is established.

2. Transfer invalids, the handicapped and their care givers to the sick bay as they enter the shelter. Begin screening incoming evacuees for health problems not previously detected which may require treatment or separation from the main group.

3. Assist the Safety Team to place pets, including guide animals, in non-shelter areas of the building and insure they are not a danger to people or to other animals.

4. Inventory available medical supplies and establish controls over their use so they will last for two weeks.

5. Guard medical supplies.

Second Priorities - Beginning Immediately As Population Settles In

1. Establish a regular Sick Call and system of monitoring shelter health problems.

2. Maintain control of medical supplies.

3. Give First Aid or comparable instruction to the shelter population.

4. If supplies or medical personnel are insufficient to treat everyone, establish a system of priority treatment; treat the ones who will benefit the most first; treat those with minor injuries later and treat those unlikely to survive last.

5. Assist the Safety Team with animal care.

Continuing Priorities

1. Maintain regular health services insofar as possible.

2. Assist to maintain the highest possible sanitary standards to prevent the spread of disease.

3. Treat persons exposed to radiation.

4. Arrange the removal of dead persons to a non shelter area of the building or to a temporary mass grave.

5. Keep Shelter Manager informed of health problems that may require special consideration after emergence from shelters is permitted.

6. Assist the Safety Team with animal care.
Reserved
SLEEP

First Priorities - As Shelter Is Activated

1. Establish sleeping arrangements within designated areas.

2. Help people settle into sleeping areas; provide them with or help them improvise bedding.

3. Assure maximum use of limited sleeping areas.

4. Establish and maintain night time patrols to monitor sleeping areas and deal with problems of noise, overcrowding and other potential disturbances.

Second Priorities - Beginning Immediately As Population Settles In

1. Make any urgently needed adjustments to sleeping arrangements.

2. Establish permanent sleep schedule, especially if two shifts are needed.

Continuing Priorities

1. Monitor ventilation of sleeping areas.

2. Maintain night time sleep area patrols.

3. Maintain discipline in sleeping areas.
SAFETY

First Priorities - As Shelter is Being Activated

1. Direct movement into the shelter according to the floor plan (see Administrative Assistant), or as directed by the Manager.

2. Help the divide people into groups. If leaders have to be appointed, do so, and give names to the Shelter Manager.

3. Know the capacity of the Fallout Shelter. Count the people who have entered the shelter and the number of people who may be waiting to enter. Do not exceed the capacity of the shelter. Inform the Shelter Manager of the number of people in the shelter and those waiting outside.

4. If directed by the Shelter Manager, direct persons for who there is not room to other nearby Fallout Shelters.

5. Assist in registering people. Prevent them from bringing pets, bulky items and other items which could cause a morale or law and order problem into the shelter. Collect and secure firearms, flammables, liquor, drugs and similar items. Instruct people that animals, including guide animals, and bulky items can be put in non-shelter areas of the building.

6. Place pets, including guide animals, in non-shelter areas of the building and insure they are not a danger to people or to other animals.

7. Remove items from the shelter area like furniture and machinery which take up needed space.

8. Open windows, doors, vents and other openings unless an attack has taken place or you are otherwise directed by the Shelter Manager or the Radiological Monitor.

9. Guards food, water, medical and other essential supplies.

10. Establish security patrols.

11. Work with Safety Team - Emergency/Rescue Section to develop emergency plans.

12. Enforce No Smoking rules and other regulations.

Second Priorities - Beginning Immediately As Population Settles In

1. Enforce rules and regulations.

2. Guard medical, food, and water supplies, and help control distribution of items which are rationed.
SAFETY

3. Insure animals in non-shelter areas are secure. Encourage and allow owners to care for their animals.

4. Maintain regular security patrols. Stop people from leaving the building except unless specifically authorized by the Shelter Manager and the Radiological Monitor.

Continuing Priorities

1. Maintain order in the shelter.

2. Help ration vital survival items.

3. Assist teams as necessary.

4. Insure animals in non-shelter areas are secure. Encourage and allow owners to care for their animals.

5. Assist with night patrols of sleeping areas.

6. Prevent emergence from shelter except under emergency circumstances or when leaving shelter is specifically authorized.
SAFETY TEAM - FIRE SAFETY

First Priorities - As Shelter Is Being Activated

1. Identify and clear all fire exits so they are unobstructed.

2. Paint exterior windows white to reflect heat from a detonation (if an attack has not yet happened.)

3. Work with Safety/Emergency Rescue team on plans for evacuation in case of a serious fire or smoke problem.

4. Gather as much additional fire-fighting material as you can: buckets of sand, shovels, fire extinguishers, etc., while it is still safe to move around outside the shelter.

5. When directed by the Shelter Manager or upon the Attack Warning, close all windows and doors; pull drapes and blinds to stop heat from detonation from starting interior fires.

6. Determine, with Water Team, if any water will be available for fire fighting and plan accordingly.

7. Advise management on safe installation of temporary cooking equipment, portable generators and other machinery which require flammable fuels or generates heat or fumes.

8. Help enforce No Smoking Rules to avoid use of matches and lighters in crowded areas.

Second Priorities - Beginning Immediately As Population Settles In

1. Maintain round-the-clock fire patrols.

2. Instruct the shelter population on fire prevention, fire fighting techniques and conduct fire drills.

3. Distribute fire-fighting equipment throughout the shelter.

Continuing Priorities

1. All of the above.

2. Inspect portable extinguishers to assure they are useable.

3. Constantly inspect for fire safety.
Reserved
SAFETY TEAM: EMERGENCY - RESCUE

First Priorities - As Shelter Is Activated

1. Locate and mark all fire/emergency routes and exits from the shelter area to the outside.

2. Develop a plan for emergency evacuation of population to the nearest Fallout Shelter to minimize the time evacuees are exposed to radiation while moving there. Consult with Radiological Monitor in doing this.

3. Assist removing all obstacles which would hamper shelter exit and evacuation

4. Be prepared to rescue people who may be trapped in damaged parts of the building if there is a fire, explosion or if effects of enemy attack damage the shelter.

Second Priorities - Beginning Immediately As Population Settles In

1. In conjunction with Fire Safety Team, conduct fire and evacuation drills.

2. Prepare to rescue people who may be trapped in damaged parts of building or were in high radiation areas before they could get to the safety of the shelter.

Continuing Priorities

1. Training of population in evacuation procedures.

2. Modify evacuation plans to accommodate changes in radiation levels and other problems which may arise.

3. Train firefighters, safety teams and others to assist in rescue operations as needed.
Reserved
Fallout Shelter Communication Procedure

To the Communications Team chief:

This procedure outlines the flow of information between the Shelter Manager and the Emergency Operations Center (EOC). It amplifies instructions in publication FEMA 59, Shelter Management Handbook, page 6, Section F, Communications.

1. Communications

A. **Communicate with your assigned Shelter Complex Headquarters (SCH).** Normally, all messages are received from and sent to your SCH. The SCH relays messages to and from the EOC.

B. The reason for this indirect contact is that if the more than 150 shelters contact the EOC directly, it would overload the EOC and most shelters would not get through. Thus, the shelters are distributed among 9 SCH's who will combine reports from their shelters and relay reports to and from the EOC.

C. **Your SCH is listed on the front of the Shelter Manager's Guide.**

D. If you cannot reach the SCH, contact one of the nearby shelters that are also listed on the front of the Guide. If you cannot reach any of these, contact the EOC directly.

2. Methods of Communication

A. Telephone, if working

B. Two-way radio, if any are present, or

C. Messenger (when safe), in that order. If you send a messenger, consult with the Radiological Monitor to assign the messenger vehicle, plan a route and set a time limit for the trip.

3. What Information to Send

To ensure all shelters have a chance to communicate, keep messages short. Limit content to:

A. Number of people registered in the shelter.

B. Supply levels and requirements.

C. Radiological Monitor reports.

D. Shelter safety reports.

E. Medical reports and requirements.

F. Other important information.
Fallout Shelter Communication Procedure - continued

4. When to Send Reports

A. Establish communications immediately after the shelter is staffed and thereafter as directed.

B. Report when the Attack Warning is announced and shelter is opened to the public and every 2 to 3 hours thereafter.

5. Communications Team Area

Set up a Communications Team Area around the telephone, radio, etc. used as the means of communication.

Special Instructions to Shelters serving as SCH's

1. If you shelter also serves as an SCH, your Shelter Manager will ask you to expand your Communications Team to handle the increased flow of traffic.

2. The Shelter Manager has a list of the shelters assigned to your SCH and their telephone numbers.

3. Coordinate and consolidate the reports of all these shelters.

4. Pass information to and from these shelters and the EOC.

5. Keep a separate log for these messages.
VENTILATION

First Priority - As Shelter Is Being Activated

1. In cooperation with the Safety Team and with advice from the Radiological Monitor, open windows, doors and other vents to get the maximum amount of fresh air for people in the shelter. Close all openings if the Attack Warning sounds or if fallout blows into the shelter.

2. Determine the ability of the building's existing systems to provide needed air exchange. Determine if the systems extend to underground fallout shelter areas, availability of power and fuel and overcrowded conditions. Make adjustments to obtain best possible results.

3. Take maximum advantage of natural ventilation by creating a “chimney effect.” Open windows or other openings on the windward side on the lowest floor. Then open windows on the downwind side on the upper floors, especially in high-rise and multistory buildings. In buildings with windows that can't be opened, it may be necessary to break windows on the upper floors or to use the fire escape stairwell as an air chimney.

   Be aware that using a fire escape stairwell poses a severe potential fire hazard; cooperate with Safety-Fire Team in taking precautions.

4. Determine the need for such mechanical ventilation systems as hand-operated Packaged Ventilation Kits and improvised Kearny Fans; initiate construction, installation and operation. Review the directional fanning instructions with the Shelter Manager.

5. Monitor temperature and oxygen-carbon dioxide balance in shelter areas and keep them within survival limits.

6. Check for and eliminate sources of dangerous fumes from within the building.

Second Priorities - Beginning Immediately As Population Settles In

1. Monitor air quality and temperature. Take action to keep them within tolerable limits.

2. Advise management on activity limitations which may be necessary because of air quality and ventilation problems.

3. Install improvised ventilation systems where needed.

Continuing Priorities

1. All of above.

2. Adjust ventilation system as needed and as falling radiation levels permits.
Reserved
DEPUTY FOR SUPPLY AND MAINTENANCE

First Priorities - As Facility Is Being Activated

1. Determine, with the functional teams, the exact inventory of supplies on hand or that can be immediately obtained.

2. Develop plans to ration those supplies over a two-week period. Establish a supply distribution system in cooperation with appropriate functional teams.

3. Inspect all equipment, permanent in the building and portable, such as generators, to make sure that it is in working order. Make necessary repairs. If power and fuel is available, keep essential support equipment working during the entry period and while population is settling down and adjusting to a new environment.

4. Report status of equipment, fuel resources, available tools, etc. to management.

5. Determine availability of light and power for the shelter and hooks up to any available portable generators. Remove batteries and lamps with associated wiring from automobiles and bring them into the shelter. Provide light to the shelter areas where light is most essential.

6. Inventory all available supplies in the building and work with team leaders involved to develop tightly controlled distribution plans and assure that supplies are placed under guard.

7. Determine conditions of all mechanical equipment and facilities which will be useable under fallout shelter conditions and make necessary repairs or adjustments to accommodate limited power or fuel resources.

Second Priorities - Beginning Immediately As Population Settles In

1. Establish and maintain permanent, tightly controlled supply distribution system.

2. Place all supplies under guard.

3. Monitor supplies to assure that adequate controls have been established.

4. Initiate a program to operate and repair useable mechanical systems in the facility, including portable generators, and assure that all systems that cannot be used but could become a drain on limited power and fuel resources are disconnected or otherwise put out of service.

Continuing Priorities

1. All of above.

2. Advise management and functional teams of supply status and any changes in usage patterns.

3. Maintain the supply distribution system.
Reserved
MAINTENANCE - POWER AND LIGHTING

First Priorities - As Shelter Is Being Activated

1. Determine if electrical power will be available from Huntsville Utilities on a reduced or interrupted basis. If there will be limited or no service, connect portable generators to provide power and light for most essential functions and areas of the shelter. Disconnect circuits that use power for nonessential purposes.

2. Ensure as many automobile batteries with associated headlamps (or courtesy lights; they use less power) and wiring are brought into the shelter as possible. Because of the hazards of fire and Carbon Monoxide, use battery lighting as long as possible in preference to lanterns. Collect and distribute lamps, candles and instructions for making improvised lanterns to group leaders for use in different parts of the shelter where regular light will not be available.

3. Advise management on functional and activity limitations that will be caused by lack of power or fuel, and plan with management for best possible use of what power resources you do have, giving first priority to the ventilation of the shelter.

Second Priorities - Beginning Immediately As Population Settles In

1. Provide as much electrical power and light as possible under the circumstances.

2. Work with management to develop an activity schedule that will require a minimal amount of power and light.

3. Develop plan for controlling use of available resources, including batteries, so they will last for two weeks.

4. Select two or more vehicles (pre-1970 vintage cars or any car without an electronic ignition are best) for use as "battery chargers" for the automobile batteries in the shelter. Park them near an downwind entrance. Make sure they have full fuel tanks or be able to refuel them. Do not remove any lights or wires from these cars; they can also be used as courier vehicles.

Continuing Priorities

1. All of the above.

2. Instruct the shelter population in importance of energy conservation and how to improvise lights/lanterns.
Reserved
Fallout Shelter Supply and Distribution Procedure

To the Supply Team Chief

This procedure details the types and sources of supplies needed in the fallout shelter.

1. It is the intent and plan of the Emergency Management Agency to distribute survival supplies to all public fallout shelters prior to an attack. However, because of the conditions that may then exist, there is no guarantee these supplies can actually be distributed.

2. Type of Supply Source

A. Water
   Undamaged water mains; trapped water in the shelter plumbing (turn off the water at the valve NOW to stop it from flowing back into a broken main); EMA supplied containers; wet-pack foods and beverages; water brought by the public.

B. Radiological Instruments
   Issued by EMA

C. Food, Medical & Sanitation Supplies
   Distributed by EMA; brought by the public; items already in the shelter.

D. Clothing, Bedding, Tools, Radios, Games, Books, Writing Materials, etc.
   Supplies brought by the public.

3. The public was asked to bring as many survival supplies as possible. The Shelter Manager should encourage the voluntary donation of all materials useful for group survival. Items like weapons, alcohol and drugs should also be collected and controlled.

4. Pets should be separated from the shelter population either in an unoccupied shelter area, if there is a surplus; in non-shelter areas if there is not enough space or in the owner's vehicle. Do not allow pets to run free. Seeing eye dogs or service animals, while it is not pets, must be placed with the other animals. Owner should be allowed and encouraged to care for them.

5. Bulky objects should be excluded from the shelter area. Put these items in either non-shelter areas of the building or in the owner's vehicle.
<table>
<thead>
<tr>
<th>Category/Item (list)</th>
<th>Quantity</th>
<th>Date</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>Food</td>
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<td>Sanitation/Hygiene supplies</td>
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<td>Tools &amp; Misc Supplies</td>
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<td>Other</td>
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</table>
DEPUTY MANAGER FOR INFORMATION

First Priorities - As Facility Is Being Activated

1. Choose leaders for the Religious Affairs Team, Recreation Teams and other special service teams.

2. Appoint assistants to begin immediately watching for signs of individual and group emotional problems that can be dealt with before they become a threat to the morale of the population and the entry process.

3. Arrange for religious services once the population has completed its entry into the facility if this seems appropriate. Services may be interdenominational or denominational, depending on the wishes of the population.

4. Prepare and schedule briefings, meetings for the Shelter Manager to inform the sheltered population of events in and outside the shelter. Work with the Communications Team.

Second Priorities - Beginning Immediately As Population Settles In

1. Develop and maintain education programs to prepare the population for (1) Fallout Shelter living and (2) Preparation for living in the post-attack period for the reconstruction of society. **THIS IS OF THE HIGHEST PRIORITY.**

2. Complete staffing of teams and develop a recreational activities program and schedule.

3. In cooperation with the Medical Team, develop the best possible psychological support program which would include monitoring the population's morale, and both group and one-to-one discussions with troubled people.

4. Determine the need for any special services required and recruit individuals to help provide them.

5. Prepare posters, flyers, etc. to augment the meetings with the shelter population.

Continuing Priorities

1. Prepare the population for Fallout Shelter living.

2. Provide psychological support as needed for individuals in the population.

3. Maintain a program of religious, recreation and training activities.

4. Keep the shelter population informed.
Reserved
COMMUNITY GROUP LEADERS

First Priority - As Facility Is Activated

1. Appoint Assistants - one for every fifty people - to help you control your group until the formal organization is established.

2. Direct your group to the area designated by traffic control people.

3. Tell them not to smoke until further notice.

4. Tell them to tell you their problems (and you will pass them to management) until entry is complete and the formal organization is established.

5. Identify and refer critical medical problems immediately to the Medical Team; lesser problems should be handled by someone from your group who has a medical background or first aid training.

6. Tell your group to sit or remain in their assigned location until the Shelter Manager gives the All-Clear to move around.

7. Relay management instructions and information to the group.

Second Priorities - Beginning Immediately As Population Settles In

1. Follow instructions from management to establish permanent group organization and leadership.

2. Orient your group to Shelter Regulations, daily schedule and other aspects of shelter living.

3. Assist management and functional teams to maintain discipline, distribute rationed water, food and other supplies and to establish and maintain the daily shelter schedule.

4. Be particularly alert to health, safety and ventilation problems and report them immediately.

5. Consult with management and the Advisory Committee on other problems that arise.

Continuing Priorities

1. All of above.

2. Assist in preparing your group for post-shelter living.

3. Assist the Deputy Manager for Information to give psychological support to troubled people.
Reserved
ADVISORY COMMITTEE

The purpose of the Advisory Committee is to give feedback to the Shelter Manager of events, actions and circumstances affecting people in the shelter, to give counsel and advice to the Shelter Manager and to help people in the shelter understand and accept instructions given by the Shelter Manager.

1. Act as a liaison between the shelter staff and the shelter population.

2. Give the Shelter Manager information on the problems and suggestions of the shelterees, on all issues whether in the areas of morale and motivation, in operational areas, of maintenance of order or the use of supplies and other routine activities.

3. Assist the Shelter Manager to evaluate and resolve problems.
Fallout Shelter Sign Posting Procedure

To the Fallout Shelter Manager

This procedure explains how to mark Fallout Shelters with signs so that the public can easily find the shelters.

1. Some Fallout Shelters already have signs posted outside, usually near the main entrance. A few shelters have signs inside telling which part of the building is the shelter area. Most shelters do not have any signs posted.

2. The signs in the Shelter Manager Guide may be used to mark both the building exterior, near the entrance, and the shelter area(s) inside the building. The shelter diagram or description included in this Guide should be consulted to see what part(s) of the building is the shelter area(s). Also, after fallout arrives, the Radiological Monitor will determine what area(s) has the best protection; use this area(s) first.

3. A Fallout Shelter Sign follows
FALLOUT SHELTER
SHELTER COMPLEX HEADQUARTERS PROCEDURE

To the Fallout Shelter Manager of __________________________

1. Your Fallout Shelter has been selected to be a Shelter Complex Headquarters, SCH, because it is centrally located in respect to nearby shelters. A SCH serves as link in the communication chain between the Emergency Operations Center, EOC and each shelter.

2. Your additional duties as Shelter Manager of an SCH are to:
   
   A. Relay communications from your assigned shelters to and from the EOC; accomplish this by expanding the Communications Team.
   
   B. Ordinarily, your job is not to supervise the other shelters, just to relay information. However, if contact with the EOC is lost or danger threatens, the other Shelter Managers will undoubtedly look to you for guidance and assistance. In this event, to the best of your ability, organize your assigned shelters to aid any shelter(s) that needs help.

3. Pass information to the EOC by:
   
   A. Telephone, 427-5130.
   
   B. Two-way radio, if available.
   
   C. Messenger, if safe; consult the Communications Team Chief and the Radiological Monitor before sending a messenger.

4. Pass information to and from the shelters by:
   
   A. Telephone (see below).
   
   B. Two-way radio, if available.
   
   C. Messenger.

5. Your SCH number is __ (1 to 9).

6. Shelters assigned to your Shelter Complex Headquarters are:

<table>
<thead>
<tr>
<th>SCH No.</th>
<th>Name</th>
<th>Address</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Smith Building</td>
<td>222 Lincoln St.</td>
<td>123-4567</td>
</tr>
<tr>
<td>102</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>103</td>
<td>(individualized for each SCH)</td>
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<tr>
<td>104</td>
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<tr>
<td>105</td>
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</tbody>
</table>
### Public Fallout Shelters

<table>
<thead>
<tr>
<th>Shelter Complex, SCH, Number</th>
<th>Fallout Shelter Name</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Shelbie King Building</td>
<td>188 Sparkman Dr., UAH</td>
</tr>
<tr>
<td>201</td>
<td>W.J. Blake Memorial Center</td>
<td>Oakwood Rd, Oakwood College</td>
</tr>
<tr>
<td>301</td>
<td>Walker Wood Hall</td>
<td>Campus Rd, A&amp;M University</td>
</tr>
<tr>
<td>401</td>
<td>Madison County Courthouse</td>
<td>100 N Side Square</td>
</tr>
<tr>
<td>501</td>
<td>First Presbyterian Church</td>
<td>307 Gates Ave</td>
</tr>
<tr>
<td>601</td>
<td>Holmes St Methodist Church</td>
<td>429 Holmes Ave</td>
</tr>
<tr>
<td>701</td>
<td>Sheraton Four Points Hotel</td>
<td>1000 Glenn Hearn Blvd</td>
</tr>
<tr>
<td>803</td>
<td>Huntsville High School</td>
<td>2304 Billie Watkins</td>
</tr>
<tr>
<td>901</td>
<td>Westlawn Middle School</td>
<td>4217 9th Ave</td>
</tr>
</tbody>
</table>
SHELTER REGULATIONS

GENERAL

Fallout Shelter life requires the utmost in cooperation and willing participation by every person in the shelter. No one is accustomed to being isolated in cramped quarters with minimal comforts and supplies. Shelter Management will do its best to meet the needs of all people in the shelter under difficult circumstances. Many limits on your activities must be imposed in order for the group to survive this crisis. The Shelter Management will impose the least restrictions possible and allow the most privileges possible under the circumstances. Some initial regulations are listed below; more may be made to cover specific situations.

SAFETY AND FIRE

All occupants shall turn in firearms, knives, flammable liquids (such as canned heat, ether or alcohol) and other potential safety hazards to the Supply Team for safekeeping.

Smoking shall be controlled as required by the safety and well-being of the shelterees. The minimum of control is:

1. A specific smoking area will be designated.
2. Smoking is not permitted in any other area.
3. Matches and cigarettes shall be carefully put out in a fire-proof receptacle.

Shelterees must watch for and report any potential fire hazard such as careless use of combustible materials, electrical equipment, faulty wiring, outlets and switches.

The following basic rules apply to putting out fires:

1. Wood, paper, cloth, plastic or rubbish fires can best be extinguished by smothering the fire with blankets, sand or dirt. Use water only as a last resort.
2. Gas, oil or grease fires are best extinguished by sand or dirt.
3. Electrical fires are best extinguished by turning off electrical power and then using sand or dirt.
4. After the fire is out, the area must be force ventilated to remove Carbon Monoxide and fumes.

LAW AND ORDER

Existing State, County and Municipal laws plus emergency proclamations from the city, county or Governor and federal declaration and shall be enforced in this shelter.
SHELTER REGULATIONS - continued

Shelterees shall use the shelter areas assigned by shelter officials.

Personal conflicts shall be resolved first by the Shelter Unit Leaders. If the Unit Leader can not resolve the conflict, the Safety and Security Team will resolve the conflict.

Serious violations, such as assault, theft or revolt against authority, shall be dealt with quickly and forcefully by shelter leaders.

Minor violations, such as violations of quiet hours, shall be handled by Unit Leaders.

Any necessary restraint and serious disciplinary actions will be ordered only by the Shelter Manager in consultation with the Advisory Committee.

HEALTH AND SANITATION

The following rules will be observed:

1. Persons with contagious diseases will be isolated immediately.
2. A daily Sick Call schedule will be held.
3. Clean trash and waste from shelter floors immediately; do not let them accumulate.
4. Rest rooms and toilets must be kept clean at all times.
5. Waste containers shall be emptied of as soon as filled and trash bagged and put outside the shelter.
6. Drinking cups and utensils shall be marked with the owner’s name and used as long as possible.
7. Towels and rags, etc, shall be retained by their user and used as long as possible.
8. Pets and service animals are not allowed to run free. Animals will be placed and cared for as directed by the Shelter Manager.
9. Deceased persons shall be prepared for burial and immediately removed from the shelter.
### Sample Daily Schedule

#### A.M.
- 7:00    Wake Up
- 7:30    Breakfast
- 8:30    Clean Up
- 9:00    Sick Call
- 9:30    Training session, or group meeting, or continuation of sick call, or recreation
- 10:00   Coffee break (if water supply is adequate)
- 10:30   Training session
- 11:00   Training session. Ongoing education for children.
- 11:30   Free time for quiet activities.
- Noon   Lunch

#### P.M.
- 1:00    Clean Up
- 1:30    Information and training session
-           Nap for children
- 2:00    Information and training session
-           Ongoing education for children
- 2:30    Emergency drills
- 3:00    Coffee break (if water supply is adequate)
- 3:30    Recreational activities
- 4:00    Recreational activities
- 5:00    Dinner
- 6:00    Clean Up
- 6:30    Daily briefing
- 7:00    Training session
- 7:30    Planned recreational activities
- 8:00    Planned recreational activities
- 8:30    Free time for quiet activities
- 9:00    Free time for quiet activities
- 9:30    Coffee Break (if water supply is adequate)
- 10:00   Free time for quiet activities
- 10:30   Prepare for sleep
- 11:00   Lights Out

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**NOTE**

If water is being rationed, you will have to include water distribution, washing, and similar times in your schedules. Also, if food is rationed, you may wish to schedule more frequent, smaller meals, for morale purposes.
# Sample Daily Schedule For Two Shifts

<table>
<thead>
<tr>
<th>SHIFT A</th>
<th>Time A.M.</th>
<th>SHIFT B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wake Up</td>
<td>7:00</td>
<td>Recreation</td>
</tr>
<tr>
<td>Breakfast</td>
<td>7:30</td>
<td>Recreation</td>
</tr>
<tr>
<td>Clean Up</td>
<td>8:00</td>
<td>Free time for quiet activities</td>
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<tr>
<td>Sick call</td>
<td>8:30</td>
<td>Prepare for sleep</td>
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<tr>
<td>Group meeting or sick call</td>
<td>9:00</td>
<td>Sleep</td>
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<tr>
<td>Coffee Break (if water supply is adequate)</td>
<td>10:00</td>
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<tr>
<td>Training session</td>
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<td>Training session</td>
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<tr>
<td>Free time for quiet activities</td>
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<td>Lunch</td>
<td>Noon</td>
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| P.M. |  |
| Clean Up | 1:00 |
| Training session | 1:30 |
| Training session | 2:00 |
| Coffee Break (if water supply is adequate) | 2:30 |
| Quiet recreation | 3:00 |
| Quiet recreation | 3:30 |
| Free time | 4:00 |
| Dinner | 4:30 |
| Clean Up | 5:00 |
| Free time | 5:30 |
| Recreation | 6:00 |
| Recreation | 6:30 |
| Briefing | 7:00 |
| Briefing | 7:30 |
| Training session | 8:00 |
| Training session | 8:30 |
| Coffee Break (if water supply is adequate) | 9:00 |
| Free time for quiet activities | 9:30 |
| Free time for quiet activities | 10:00 |
| Prepare for sleep | 10:30 |
| Sleep | 11:00 |
| 11:30 | Training session |

**Midnight**

| A.M.12:30 |
| Coffee break (if water supply is adequate) | 1:00 |
| Quiet recreation | 1:30 |
| Quiet recreation | 2:00 |
| Free time for quiet activities | 2:30 |
| Dinner | 3:00 |
| 3:30 | Clean Up |
| 4:00 | Training session |
| 4:30 | Training session |
| 5:00 | Free time for quiet activities |
| 5:30 | Free time for quiet activities |
| 6:00 | Group meeting |
| 6:30 | Coffee break (if water supply is adequate) |
DIRECTIONAL FANNING TO VENTILATE SHELTERS

Directional Fanning is the simplest way to force enough outdoor air through typical basement, trench, and other expedient shelters to maintain endurable conditions, even in extremely hot, humid weather.

During a worsening nuclear crisis most unprepared citizens probably will not have the time and/or materials needed to make a KAP or other efficient shelter-ventilating pump — even if they have the instructions. In contrast, tests with average citizens have indicated that if they have instructions for making and using Directional Fans and if there are a few hours of warning time before the attack, then the majority will be able to ventilate all of their expedient shelters, except some of the largest.

The principal disadvantage of Directional Fans is that they are more laborious to operate than are KAPs, that are manually powered, pendulum-like air pumps that conserve energy.

A. DIRECTIONAL FANNING TO VENTILATE AND COOL SMALLER SHELTERS

A 2-Handled Directional Fan of the size illustrated is less tiring to use than does a 1-handled fan with the same size blade. With this small 2-handed fan you can easily force about 300 cubic feet per minute (900 cfm) of outdoor air through a crowded trench or basement shelter. This is enough air for up to 9 adults crowded into a small shelter in extremely hot, humid weather, and enough for about 100 people in cold weather. By fanning vigorously, 500 to 600 cubic feet per minute have been forced through a small covered-trench shelter.

To make a durable 2-handled fan, first make its frame out of 2 sticks each 14 inches long and by 2 sticks each 22 inches long. See sketch. To strengthen the corners, overlap the sticks about 1/2 inch, as shown.

When using sticks cut from a tree, select ones with diameters of about 1/2 inch, and make shallow notches in all 4 sticks before tying together 4 corners of the blade. If you do not have strong, 5/8-inch-wide strips of bedsheet cloth, or other strong cloth, slightly twisted.

If using sawed sticks, be sure to use none smaller than 1/2 inch in cross section. If you have very small nails or brads, use only one to connect each corner, then tie 4 corner securely. To prevent possible blisting of hands, wrap cloth around the fan handles, or wear gloves.

To cover the fan's blade, any strong, light fabric, such as bedsheet cloth, serves well. If you are going to sew on the cloth, first cut a 24 x 30-inch piece. Wrap the 20-inch width smoothly around the frame, after cutting 4 notches in the cloth's corners, so that the tied-together parts of the stick will not be covered. Pin or tape the cloth to make a smooth blade, finally sew securely. (If waterproof construction adhesive is available, a smaller piece of cloth can be used and the blade can be covered in a very few minutes.)

If time and/or materials are very limited, make a fan with its blade merely a piece of cloth connecting two 22-inch-long sticks. This very simple fan is reasonably effective, although tiring to use.

Cardboard covering a blade is likely to become damp and fragile in the humid air of a crowded shelter. Very light sheetmetal makes a good fan blade and requires only 2 sticks. A blade of ¼-inch plywood is too heavy.

If no sticks are available, a double thickness of heavy, stiff cardboard 22 inches wide will pump almost as much air as used a handledless fan. The pieces should be securely tied or taped together. If waterproof tape is available, cover the parts that you will grip with sweaty hands, thus preventing dampening and softening the cardboard.

For maximum ventilation, the air-intake opening of a shelter should be at least as large as its air-exhaust opening. (If the air-exhaust opening of your small shelter is much larger than that shown in the sketches, block part of it off to reduce it to approximately this 24-inch-high by 20-inch-wide size. For more effective use with this fan.) The air should be fanned out of the shelter in the direction in which the air is naturally flowing. For maximum ventilation — fan about 40 strokes per minute.

With one or more Directional Fans, air inside a shelter can be distributed effectively and the occupants cooled. Also, if during the time of maximum fallout dose rate the occupants get close together in the most protective part of the shelter, they often will get unbearably hot unless fanned.

To fan air out through an air-exhaust opening, sit facing the opening with your elbows about 4 inches lower than the bottom of the opening. Then count 1, 2, 3, while you:

1. Quickly raise the fan to a vertical position close in front of your face and immediately fan a slug of air into the opening — ending the power stroke with your arms fully extended and with the fan almost horizontal and out of the way of air that was "sucked" behind the fan and is still flowing out through the opening.

2. After a slight pause, leisurely withdraw the almost horizontal fan until the bottom of its blade almost touches your stomach — preparatory to the next power stroke.

To increase the flow of air through a shelter, while fanning the occupants:

Have two or more occupants sitting inside the shelter each use a fan of the size described above to fan the air so as to increase its velocity in the direction in which air already is flowing through the shelter. Such Directional Fanning is especially effective in increasing the air flow through small, narrow shelters.

To avoid higher radiation exposures near openings, build an essentially airtight partition across the shelter room, with a 24-inch-high by 20-inch-wide hole in it through which to fan. By fanning through a 24 x 20-inch hole in a cardboard partition built across a doorway inside a U-shaped trench shelter 75 feet long, the air flow was increased by an average of 232 cubic feet per minute.

B. DIRECTIONAL FANNING TO VENTILATE AND COOL LARGER SHELTERS

1. With a Large 1-Man Fan

To ventilate larger basements, big covered trenches, and other large shelters lacking adequate ventilation, use one or more large 1-man fans. See sketch. Note that the 20 x 30-inch fan blade is made like a 2-stick kite, and that the upper end of the longer diagonal stick serves as a 10-inch handle. The model illustrated is made of 2 nominal 1 x 2-inch boards, one 46 inches long and the other 35 inches long. These boards are connected at a point 17½ inches from their lower ends, first with a single clinched nail, and then by being tied securely. The edges of the handle are rounded smooth.

The blade frame is covered on both sides with strong bedsheet cloth, that is wrapped around and secured to the strong cords or wires tied to notches cut in the boards (or sticks) near the 4 corners of the blade. If cord or wire is not available, 4 2-inch-wide strips of strong cloth, slightly twisted, serve well.

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A durable but laboriously heavy fan can be made in a few minutes using a 20 x 30-inch piece of 1/4-inch plywood nailed to a single 4-inch-long, 1 x 2-inch board. Or use a single round stick about 1 1/4 inches in diameter, flattened on one side.

A fan with its blade made of two sheets of very heavy cardboard tied on both sides of a 1 x 2-inch board is decidedly effective when dry. However, typical cardboard will become soft and worthless in most crowded, long-occupied, humid shelters.

To fan directionally, it is best to stand just outside and to one side of a doorway, so that your body does not obstruct the air flow. Preferably stand opposite and facing the open door, which should be secured open and perpendicular to its doorway. Holde the fan like a golf club and swing it with your arms extended. Then slowly count 1, 2 while you:

1. Make the power stroke with the fan blade broadside until the end of the stroke, when you quickly turn it 90 degrees.
2. Make the pendulum-like return stroke with the fan blade kept edgewise ("feathered") to the air flow until the end, when you quickly turn it 90 degrees, preparatory to making the next power stroke.

To pump more air, block off the upper part of the doorway with cloth, cardboard, plywood, etc., to prevent air from flowing back in the wrong direction through the upper part of the doorway. See sketch on preceding page.

2. With a Bedsheet Fan

Use a 2-man Bedsheet Fan to force thousands of cubic feet per minute of outdoor air through a tunnel or long corridor having at least a 9-foot ceiling and a large opening at each end. The most practical design tested was made from a strong double bedsheets cut down to 6-foot width, with the wide hem at its head end left unchanged and with a similar-sized hem sewn in its opposite end, to give a finished length of 6 feet. A 6-foot-long, nominal 1 x 2-inch board (or an approximately 1 1/4 inch diameter stick) was secured inside each hem of various models with waterproof construction adhesive, or with tacks, or by tying. Before a board was inserted, its edges were rounded. Round sticks were smoothed.

Two persons preparing to use a Bedsheet Fan (see sketch) should stand facing each other, at right angles to the desired direction of air flow, with the cloth extended horizontally between them. Each faner should grip his stick with one hand near its "downwind" end and with his other hand near its center.

A pair of Directional Fanners get ready to make a power stroke by leaning in the upwind direction, as illustrated. Then the pair of fanners should count 1, 2, 3 while they:

1. Make the power stroke by rapidly sweeping their sticks and the attached cloth in an arc, until they are leaning in the downwind direction and the sticks and cloth are again horizontal. See sketch.
2. 3 Hold the sticks and cloth horizontal (to permit air that was "sucked" behind the cloth to continue flowing in the desired direction) while leisurely moving the Bedsheet Fan back to the starting position. During this move the fanners change hands, as illustrated. (Note that what was the upper side of the fan at the beginning of the power stroke now has become the lower side.)

Two men thus fanning vigorously produced a net air flow of 5,500 cubic feet per minute through an empty school corridor that is 8 feet wide, has a 9-foot ceiling, and is 194 feet long. The doors at both ends were open. To adequately ventilate and cool people crowded into a long tunnel in hot weather, a pair of Bedsheet Fans should be positioned about every 100 feet along its length.

Whenever practical, directionally fan the air in the same direction that the air is naturally flowing through the shelter. More air usually can be pumped through a shelter if the fan is used to force air out through the air-exhaust opening. This reduces the air pressure inside the shelter and causes fresh outdoor air to be "sucked" into the shelter through the air-intake doorway, or through other large air-intake openings. Thus with one fan, 1,000 cubic feet per minute can be pumped through a fully occupied shelter. This is enough outdoor air — if it is properly distributed within the shelter — to maintain tolerable conditions for weeks for 25 occupants during extremely hot weather, and for up to about 300 occupants during cold weather.

To ventilate and cool a room having only one doorway and no other opening, do not block off any part of the doorway. If air is pumped into such a room through the lower part of its completely open doorway, there will be no flow back out of the room through the upper part of the doorway. However, this pumps much less air than when a separate, large air-exhaust opening is provided.

To increase the flow of outdoor air through a tunnel-shelter, several fansers equally spaced along its length should each fan in the direction of the natural air flow. This procedure was first proved practical during a 1951 ventilation test that Creason H. Kearny participated in with Chinese civil defense officials in the port city of Dalian. In this test 5 fansers, each with a fan of approximately the size illustrated, forced air from the outdoors through a 385-foot section between two opened entrances of a typical Chinese tunnel-shelter. The air flow was increased from a natural flow of 290 cubic feet per minute to 3,800 cubic feet per minute. The 5 excellent Chinese fans each had a blade made of a piece of 8 mm (approx. 1/3 inch) plywood nailed to a single board.

3. ADDITIONAL ADVANTAGES OF DIRECTIONAL FANS

1. No installation is needed, thus saving working time and materials for making habitable shelters hurriedly built or upgraded during a crisis.
2. Directional Fans enable shelter occupants to quickly reverse the direction of air flow through their shelter when outdoor wind changes cause the direction of natural air flow to be reversed.
3. Four or more Directional Fans when used to circulate air within a shelter room can serve like air ducts, while simultaneously fanning occupants.
4. Directional Fans are very unlikely to be damaged by blast effects severe enough to wreck bladed fans or other fixed ventilation devices placed at or near air-intake or air-exhaust openings, but not severe enough to injure shelter occupants.
# Fallout Shelter Event Log

## Page _____ of _____

**Shelter Name** ____________________________  **Shelter Manager** ____________________________

<table>
<thead>
<tr>
<th>Event No.</th>
<th>Date &amp; Time</th>
<th>Description of Event</th>
<th>Action Taken</th>
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FALLOUT SHELTER EVENT LOG

Page _____ of _____

Shelter Name ________________________________    Shelter Manager ________________________________
Form EWS-1  
EMERGENCY WELFARE SERVICES SHELTER REGISTRATION AND INFORMATION RECORD  
(Rev.08/06)  

______________________ County Department of Human Resources  

Case No. ________________  
Disaster Type ________________  
Disaster Date ________________  

1. Name_____________________________________________________________Age______  
   Last      First      Middle Initial  
   Permanent Address_____________________________________________________________Telephone ______________  
   Temporary Address ______________________________________________________________          Telephone _____________  

   _______________________________________________________________        ______  
   Home Owner   □ Insurance:   □ Personal Injury  
   Rent         □ Home        □ Deaths      
   Other        □ Medical      □ Damage to home  
   Personal Property  □ Car   □ Slight  
   □ Other Property □ Major     

4. Current DHR Status  
   □ Food Stamps  
   □ Social Services  
   □ Financial Assistance  

5. Source of Income  
   □ Unemployed  
   □ None ______________  
   □ Other ______________  

Worker’s Observation:  

I hereby authorize the Department of Human Resources to share the information on this form with other agencies and/or organizations.  

Signature ________________________________ Date ________________________________ Worker ________________________________ Date ________________________________  

Social Services _______  
Shelter:  □ Permanent  □ Temporary  
Food, Clothing, Household Items, Medical and Legal Aid _______  
Other (Explain) _______  

Worker ________________________________ Supervisor ________________________________ Date Case Closed
**EMERGENCY WELFARE SERVICES SHELTER REGISTRATION AND INFORMATION RECORD**

______________________ County Department of Human Resources

Case No. _____________

Disaster Type ___________

Disaster Date ___________

1. Name ________________________________________________________________ Age ______
   Last  First  Middle Initial

Permanent Address __________________________________________________________ Telephone __________

Temporary Address _________________________________________________________ Telephone __________

2. Composition of Household Relationship Age

3. Housing:
   Home Owner  Insurance:
   Renters  Home
   Other  Medical
   Personal Property  Car

4. Current DHR Status
   Food Stamps  Social Services  Financial Assistance

5. Source of Income
   Unemployed  None
   Other

Worker’s Observation:

I hereby authorize the Department of Human Resources to share the information on this form with other agencies and/or organizations.

Signature ______________________________ Date __________________ Worker __________________

Date ________________________________

8. List Needs in the Categories Below:

<table>
<thead>
<tr>
<th>Social Services</th>
<th>Shelter: Permanent</th>
<th>Shelter: Temporary</th>
<th>Food, Clothing, Household Items, Medical and Legal Aid</th>
<th>Other (Explain)</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

9. Referral: Organization & Date

10. List as Applicable Organization Need Met Amount Date

11. Unmet Need

12. Worker

Worker __________________ Supervisor __________________ Date Case Closed
<table>
<thead>
<tr>
<th>Name Tags for the Shelter Staff - cut out and tape to clothing</th>
<th>Information Team Chief</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shelter Manager</strong></td>
<td><strong>Recreation Team Chief</strong></td>
</tr>
<tr>
<td><strong>Assistant</strong></td>
<td><strong>Recreation/Religious Team Chief</strong></td>
</tr>
<tr>
<td><strong>Shelter Manager</strong></td>
<td><strong>Supply Team Chief</strong></td>
</tr>
<tr>
<td><strong>Deputy Manager for Operations</strong></td>
<td><strong>Maintenance Team Chief</strong></td>
</tr>
<tr>
<td><strong>Deputy Manager for Supply</strong></td>
<td><strong>Ventilation Team Chief</strong></td>
</tr>
<tr>
<td><strong>Deputy Manager for Information</strong></td>
<td><strong>Advisory Committee Chair</strong></td>
</tr>
<tr>
<td><strong>Radiological Monitor</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Food Team Chief</strong></td>
<td></td>
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<tr>
<td><strong>Water Team Chief</strong></td>
<td></td>
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<tr>
<td><strong>Safety Team Chief</strong></td>
<td></td>
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<tr>
<td><strong>Sanitation Team Chief</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Medical/Health Team Chief</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Communications Team Chief</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Sleep Team Chief</strong></td>
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</table>
Reserved
Reserved