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# GUIDE TO SHELTER ORGANIZATION AND MANAGEMENT

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**GUIDE TO SHELTER  
ORGANIZATION AND MANAGEMENT**

**Contract No. OCD-OS-62-164**

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**This report has been reviewed in the Office of Civil  
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**30 September 1963**

**AMERICAN INSTITUTE FOR RESEARCH**

**Pittsburgh, Pennsylvania**

## FOREWORD

This report is the result of a project whose goal was to develop guidance materials pertaining to shelter organization and management, and to present these materials in a form that would make them maximally useful to civil defense personnel and others interested in the subject of shelter management.

In brief, the study was conducted in the following manner. The data-gathering phase of the study consisted of a survey of the literature both directly and indirectly related to shelter management. In addition, extensive data-gathering trips were made in the first few months of the study, during which shelters in five states and the District of Columbia were visited. The analytic phase of the study involved a systematic examination of the nature of the shelter system. The analysis began with the consideration of the goals of a fallout shelter, which are the physical survival and mental well-being of the protected population. The general requirements for meeting these goals were specified. A further subdivision was made of the operations and activities that had to be carried out to satisfy the general requirements. Next, the specific tasks that made up each activity or operation were specified. For example, some of the tasks associated with the activity of feeding are: preparing food, distributing food, disposal and clean-up, etc. In the guidance preparation phase a format for the presentation of guidance materials was developed, based upon the analysis of the shelter system. The information collected in the literature review and in field trips were analyzed and converted into management guidelines which are information items or action recommendations pertaining to shelter organization and management. A first draft of the guidance material was reviewed by project consultants whose helpful comments and suggestions were reflected in the final version of this report.

The first stage of a program for developing management guidance materials must necessarily produce more generalized types of guidelines. The Guide to Shelter Organization and Management is largely a first-stage product. However, it does point to a critical requirement of the next stage--the systematic consideration of shelter types, and the development or modification of guidance materials for the major types or type combinations of fallout shelters.

There are several factors inherent in the nature of existing fallout shelters and the current fallout shelter program that make it exceedingly difficult to create a single handbook that adequately covers all aspects of shelter organization and management for all likely users.

The first of these factors is shelter type. Although, analytically speaking, all fallout shelters have the same functions (radiological protection, meeting basic human needs, etc.), the specific procedures that underly shelter organization and operation vary significantly for different types

of shelters. A core shelter on several floors of a high-rise building is quite a different system than a single space underground shelter; so is a 100-person shelter compared to a 5,000-person shelter. Occupancy of a shelter by its daytime versus night time population is another dramatic difference with great implications for shelter management. It was impossible within the scope of this project to systematically consider these and other shelter variables in the actual development of management guidelines. In a number of places in the document, where shelter type appeared to the analyst to be a crucial consideration, recommendations for several types of shelters were made, but this was not done on a regular basis.

A second factor that affects the form and content of this document are the limitations in the data base. At the time this study was initiated, there were a number of aspects of shelter organization and management that had received scanty, if any, attention in the published literature. During the course of this project, many products of the active Office of Civil Defense shelter research program dealing with the previously neglected areas were published. The results of recent OCD sponsored research have been included in the present guide, to the extent that time permitted. However, some of the more recent products that bear directly on issues of shelter management could not be evaluated in time for inclusion in the guidance materials.

Just as the authors of this report attempted to "stay on top" of the available literature, they similarly attempted to remain aware of OCD standards and policies. The advances in the national shelter program have led to changes in standards and policies within the time span of the present project. We have not ignored any such changes, but it proved impossible to give some of the latest modifications the consideration they deserve. A case in point is the carbohydrate (hard candy) supplement. This addition to the survival rations has a number of implications for shelter management, but the lack of time and data precluded intensive exploration of the problem.

The multi-purpose nature of the Guide to Shelter Organization and Management is the final factor whose impact upon the guidance materials must be mentioned. The Guide is designed to serve as (1) a reference work, (2) a training aid, and (3) an aid to shelter managers in the event of a nuclear emergency. Normally each goal is best achieved by a somewhat different format, style and body of content. However, it was felt by the project staff that there was sufficient commonality in the subject matter and sufficient need for broadly applicable shelter management guidelines to justify a merger of the goals in a single end-product. The goal that was most affected by this decision was the third one, in-shelter use in an emergency. The body of the document is not organized for rapid use by a manager in a disaster situation. To compensate for this, Appendix A, "A Checklist of Management Responsibilities," and Appendix B, "A Review of Shelter Requirements," were added to the Guide. The former is a temporally ordered list of basic steps in organizing and operating a shelter. The latter is a brief review of the scope of the shelter manager's responsibilities that, in an emergency, can serve as an introduction to the Guide to Shelter Organization and Management.

The contributions of several members of the American Institute for Research staff to this report are gratefully acknowledged. The comments and suggestions of Dr. James W. Altman and Dr. Max U. Eninger were invaluable in the reduction of data and ideas to manageable proportions. Robert W. Smith made a number of contributions from his shelter planning vantage point.

Miss Alice J. Gayley and Miss Barbara Kearns carried out the secretarial and clerical project duties in a most efficient manner.

Special thanks are due the many shelter managers and planners who gave freely of their time to discuss their shelter facilities, plans and problems with members of the project staff.

Dr. Jiri Nehnevajsa and Dr. Morris Berkowitz of the University of Pittsburgh and Dr. Jack Vernon of Princeton University provided valuable advice and assistance in the course of their reviews of the first draft of this report.

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**INTRODUCTION**



**INTRODUCTION TO THE GUIDE**

**CHAPTER 1**

**INTRODUCTION TO THE GUIDE TO  
SHELTER ORGANIZATION AND MANAGEMENT**

## Purpose, Scope, and Use of the Guide to Shelter Management and Organization

### Purpose of the guide

The Shelter Organization and Management Guide has three major purposes. Firstly, it is a summary of current knowledge for administrative, operations, and research personnel on the subject of shelter organization and management. Secondly, it is an informational aid to both trained and untrained shelter managers in an emergency situation. Thirdly, it can be incorporated into the formal course materials in training shelter managers, and other civil defense personnel.

### Scope of the guide

The guide is limited to the organization and management of a community fallout shelter. It does not describe equipment operation and maintenance, use of monitoring instruments, or other technical details. Other documents available to the shelter manager deal with these subjects.

With few exceptions, the guide does not present detailed solutions to problems, even those dealing with organization and management. Specific solutions depend upon the existing conditions and available resources of the individual shelter. The guide contains general recommendations that frequently will have to be adapted to meet the needs of a particular shelter.

The emphasis in the Organization and Management Guide is on the in-shelter period--that is, from the time of attack warning to the time when radiation levels are low enough as to no longer necessitate further stay in shelter. However, there are many additional management functions that must be carried out prior to attack warning, and also during recovery operations after the attack. These additional responsibilities are described in Part VI of the guide.

### Use of the guide by the shelter manager

The guide is designed to be useful to the shelter manager in a variety of ways. Some of the intended uses are described below:

1. Guide for the untrained manager: An untrained person, in using this document should first read Appendix A and Appendix B. This will inform him of the immediate steps that must be taken to set the shelter in operation. In addition, this will provide him with a brief orientation to his responsibilities as shelter manager.

2. Checklist of management responsibilities: In the event of an enemy attack, the manager may want to use the guide to check his actions, to ensure that he has not overlooked an important step in organizing and managing his facility. For this purpose, he should use Appendix A, "A Checklist of Management Responsibilities," which itemizes the duties of a shelter manager according to their relative importance and the time they should be carried out.
3. Solution of in-shelter problems: During the shelter stay, if a problem occurs, the manager should refer to the appropriate chapter of this document for guidance. In so doing, he should consider only those recommendations that apply to his type of shelter. For example, in a shelter in which everyone will sleep on the floor, guidelines about tiered bunks are obviously irrelevant.
4. In-shelter planning: Frequently, the manager may want to consult the guide, not to solve a specific problem, but to review his duties for the immediate or longer range future. He will also want to use the guide in planning and in organizing the necessary shelter groups and activities. The guide contains sample schedules, and organization charts that should prove helpful in shelter planning. The samples are not meant to be adopted uncritically by the manager. They are typical examples and must be modified to fit the conditions of the individual shelter.
5. Pre-attack uses: The guide should be of assistance to the manager prior to an attack. It can be used as a textbook in training shelter managers, either in a formal training course or on an individual self-instructional basis. Secondly, the guide contains a chapter that describes the manager's many important duties in establishing and maintaining the operational readiness of his facility, before any emergency. In addition, the guide may prove of value to the shelter planner or manager in developing a shelter operational plan that combines organization and management recommendations with operational guidelines in a detailed plan for the organization and operation of a specific shelter.
6. Guide to post-shelter duties: Finally, there are guidelines in the document that apply to the period in which the population begins to emerge from shelter. The recommendations in this chapter are less specific than in the others because the nature and extent of the shelter manager's post-shelter responsibilities will depend, in large measure, upon the recovery plans adopted by individual communities.



## The Role of the Shelter Manager

### The Importance of the shelter manager

In the event of thermonuclear war, the responsibility for the safety and well-being of our protected population will rest, in large measure, upon those citizens who bear the title shelter manager. It is their vital task to provide leadership, in the shelter. Without such leadership the goals of physical survival and mental well-being of our population will be difficult to achieve.

The importance of leadership to survival has been amply demonstrated by contemporary and historical experiences of human groups under stress. Studies of civilian populations and military units in wartime, studies of the effects of natural disasters, investigations of isolated and confined military units, all lend support to the conviction that leadership contributes significantly to the ability of groups to withstand stressful physical and social pressures. Experimental studies of groups confined in shelters for extended periods of up to two weeks also clearly indicate that competent leadership is a necessary ingredient for the successful achievement of group goals.

There is a reason to believe that should war come, the shelter manager will represent, as did previous leaders in previous disasters, the key to survival for an important segment of the population.

### Responsibilities of the shelter manager

The responsibilities of a shelter manager are complex, difficult, and in some ways without precedence in our society. Some of the problems that a shelter manager will likely face, may never have been experienced before. Other problems, while not unique in themselves, may occur in shelter on a scale previously unknown. The following list of shelter manager responsibilities should convey some idea of the complexity of the job. It should be noted that many of the shelter operations and activities described among the responsibilities will not be carried out directly by the shelter manager, but rather, by members of the management staff or by the shelterees themselves. However, the shelter manager retains the ultimate responsibility for all the plans that are made in shelter, all the decisions that are reached and implemented, and all the operations that are carried out, regardless of who actually does the work.

## Outline of Shelter Manager Responsibilities

### I. Pre-Shelter Responsibilities

#### A. Responsible for establishing the operational readiness of shelter

1. Determine shelter requirements
2. Procure necessary equipment and supplies
3. Develop plans and procedures
4. Recruit management staff
5. Communicate with staff and potential shelterees
6. Coordinate with governmental and other agencies

#### B. Responsible for maintaining operational readiness of shelter

1. Check equipment and supplies
2. Review and evaluate procedures and plans
3. Train and exercise personnel
4. Determine new or modified shelter requirements
5. Communicate necessary information to staff and potential shelterees
6. Coordinate with governmental and other agencies

### II. In-Shelter Responsibilities

#### A. Responsible for protection and safety of shelterees

1. Maximize available protection against fallout radiation
2. Maximize available protection against other weapon effects
3. Provide protection against in-shelter fires and other hazards to life

#### B. Responsible for satisfying basic survival needs

1. Provide a livable atmospheric environment
2. Provide food and water
3. Provide medical care and sanitation
4. Provide facilities for sleeping

- C. Responsible for organizing and maintaining the shelter as a society
  - 1. Provide for the organization of personnel and activities
  - 2. Maintain law and order
  - 3. Maintain moral standards
  - 4. Provide communications with shelterees and with the outside world
- D. Responsible for the adjustment of the population to shelter living
  - 1. Maintain shelteree motivation and morale
  - 2. Provide religious activities
  - 3. Provide recreational and social activities
  - 4. Provide educational activities related to in-shelter adjustment
- E. Responsible for preparation of population for recovery and reconstruction
  - 1. Provide training and orientation related to post-shelter survival and adjustment
- F. Emergencies
  - 1. Apply the resources of the shelter to combating in-shelter emergencies
  - 2. Make command decisions pertaining to emergency missions or relocation of shelterees

### III. Post-Shelter Responsibilities

- A. Responsible for safety and well-being of the population as long as shelter is used as a base for recovery operations.
- B. Additional responsibilities as specified in community recovery plans

#### The shelter manager as leader and manager

The title, "shelter manager," is a shorter, more convenient way of saying "shelter leader and manager," which is, in fact, what the head of a shelter must be.

Leadership can be thought of as the ability to assume responsibility for the over-all direction of a group, to perceive the goals of the group, to

make decisions as to how these goals can be achieved, and by exercising authority (giving orders) plus, by personal example, to affect the behavior of others in such a manner that the goals are met.

Management calls for the ability to determine what the resources of the group are, to plan and organize the efficient allocation and utilization of both the human and non-human resources, and by maintaining control over the resulting organization, to ensure that the goals of the group are reached.

Although both leadership and management strive toward the same end--the accomplishment of group goals--each has a different emphasis. Leadership stresses the motivation of group members, while management lays emphasis upon the organization and control of resources. Both functions are essential. This does not mean, however, that at all times, and in all shelters, the manager should strive for a fifty-fifty balance between the leadership and management aspects of his job. At certain times in shelter, the manager must be a bold, direct leader, at the expense of his administrative duties. At other times, the reverse might hold true. For some types of shelters, notably the very large ones, the management responsibilities of the manager will assume greater importance throughout the shelter stay than it would in other shelters.

Some general principles of shelter leadership and management, are described in Chapter 12, "Shelter Command." The specific steps that the manager must take in carrying out his leadership and management responsibilities are listed in Appendix A, "Checklist of Management Responsibilities."

#### Factors affecting leadership and management

No two shelter managers may expect to meet exactly the same conditions. Consequently, the demands upon leadership and management will vary considerably for different shelters.

One variable is that of the spatial characteristics of the shelter itself. Some shelters cover more than one floor, thus creating additional problems for assuming command and establishing an organization. The size of the shelter will affect the ease with which control and organization functions can be set in motion. Whether the shelter is filled to its capacity or whether only a relatively small group has been able to get there will have similar consequences.

If ample warning has been given, a different situation can be expected than if attack has already occurred. The physical and emotional condition of the population, in the event of post-attack shelter entry, will require a

## Role of Shelter Manager

different course of leadership and organization than that for a group which has not sustained a large number of physical injuries and emotional traumas.

The time of day in which the attack comes and the amount of time, if any, before the blast occurs will also have an effect on shelter leadership.

None of the possible problems mentioned in this section is insurmountable. Disaster evidence consistently shows that where competent leadership and management are promptly introduced, most individuals prove to be capable of orderly and rational behavior.

**PROTECTION OF  
SHELTEREES  
AGAINST  
ENVIRONMENTAL  
THREATS**



**RADIOLOGICAL PROTECTION**

**OTHER WEAPON EFFECTS**

**SAFETY AND RESCUE**

**CHAPTER 2**  
**RADIOLOGICAL PROTECTION**

## CHAPTER 2 OUTLINE

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## Characteristics of Fallout Radiation

When a nuclear explosion occurs close to the ground, tons of earth and debris are vaporized and sucked up into the mushroom cloud. As these particles cool, they condense and solidify. Radioactive materials are entrapped or collected on the surface of these particles which cause them to emit radiation.

### Time and place of fallout

For a single detonation, it is estimated that one-half of the fallout will drop back to earth within twelve hours after the blast; the remainder, which is finer, will come down more slowly. The descent will depend upon particle size, wind speed and direction, precipitation, and other atmospheric conditions.

Generally, fallout will unevenly cover an elongated area extending downwind from the burst. The earliest fallout may not arrive until thirty minutes after blast, and it may take up to twenty-four hours before severe contamination will reach areas well downwind.

### Appearance of fallout

Most fallout looks and behaves like dust, although in heavily contaminated areas, it may have the appearance of sand. It can be blown by wind and will drift around corners much as any household dust.

### Types of radiation

Three types of radiation are given off by radioactive fallout: alpha particles, beta particles, and gamma rays. Alpha and beta particles are stopped by very light shielding, including clothing and skin. They are not as serious a threat to man as gamma radiation, unless material containing them is taken into the body through the mouth or nose, a situation that can generally be prevented in-shelter by decontamination techniques.

Gamma rays can pass through matter, damaging or destroying living cells. However, it does not make the thing or person it strikes radioactive.

### Decay of radioactivity

Radioactivity diminishes or decays at a specific rate through a natural process which cannot be altered. This decay rate is expressed by the term, "half-life," which means that half of the radioactivity is lost within a

specific period of time ranging from seconds to years. For example, iodine 131, with a half-life of eight days, loses one-half of its radioactivity in this time, and half again of the remaining activity in the succeeding eight days, and so on. The radiation hazard will decrease rapidly at first because early fallout contains many radioisotopes with short half-lives.

#### Procedures for estimating rate of decay<sup>1</sup>

In order to estimate the rate of decrease in radioactivity, the following principle, known as the 7/10 rule, may be used. Provided that fallout is complete, the total intensity of fallout radiation will decrease ten times for every sevenfold increase in time after the nuclear blast. For example, if all fallout has accumulated and if the radiation dose rate is 1000 roentgens<sup>2</sup> per hour (1000 r/hr) one hour after blast, it will decrease to 100 r/hr seven hours after the explosion. In 49 hours, approximately two days after the blast, the rate will be 10 r/hr and in two weeks or 343 hours, the rate will be reduced to 1 r/hr. This rule is accurate to within 25 per cent up to two weeks. After this point in time, it is less reliable.

If the duration of the shelter stay must be estimated in the absence of radiological monitoring instruments, the manager should be conservative and initially estimate a two-week period.

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<sup>1</sup>Glasstone, S. (Ed.) The effects of nuclear weapons. Washington, D. C.: Department of Defense, April 1962.

<sup>2</sup>A roentgen is the unit of measure which expresses the intensity of radiation. It is used to express (1) total accumulated radiation exposure, or (2) when combined with a time factor, the rate at which radiation is given off by fallout (usually roentgens per hour).

## Effects of Radiation

Radiation sickness is the result of accumulated exposure to radiation. All efforts should be made to prevent radiation exposure from external sources, or from ingestion or inhalation of material contaminated with radioactive particles. Any degree of radiation sickness occurring in the shelter will be detrimental to shelter effectiveness.

### Non-contagious nature of radiation

It must be emphasized that radiation and radiation sickness are not contagious. Because radiation is emitted by radioactive particles, once these sources of radioactivity, are removed or shielded, the threat of further exposure is removed or reduced accordingly. The radiation sickness which is the result of exposure accumulated before the removal of the radiation can in no way be transferred or caught by other shelterees.

### Cumulative effects of radiation

The effects of radiation vary from barely detectable symptoms to death. These effects depend upon (1) the total roentgen dose absorbed by the body, (2) the part of the body exposed to the dosage, and (3) the time interval over which the dosage is accumulated. For example, an acute dosage (received in less than three days) of 600 roentgens over the whole body will probably result in death for 90 per cent of the population, while the same dosage over a year's time will cause no serious illness. In short, the degree of radiation sickness will depend upon the total amount of exposure and time period over which exposure took place.

## Radiation Sickness

### Difficulty of diagnosis

It will be very difficult to diagnose radiation sickness for two reasons: (1) the transiency of initial symptoms, and (2) similarity of these symptoms to other illnesses and emotional reactions. It will also be very difficult to determine the severity of the case because of the similarity among symptoms resulting from moderate and severe doses. Even medical personnel may not be able to determine in the first week who has received a fatal dose, for symptoms may be the same for those who survive as for those who will die.

Symptoms and effects of radiation sickness

Accumulated dose of 0-200 roentgens: No obvious effects will be experienced for at least 50 per cent of the population in this range. Mild nausea and vomiting within the first twenty-four hours and minimal incapacitation for no more than two days may occur in people who have received 150-200 roentgens. However, nausea and vomiting will probably cease as soon as the stomach is emptied if the victim does not eat immediately.

Accumulated dose of 200-1000 roentgens. Persons receiving such a dose will suffer damage to the blood forming system. The consequences of this damage will range from minor illness for those who have received a relatively low dosage to probable death for those in the upper dose ranges. A difference of opinion exists concerning the amount of radiation exposure which will be needed to kill 50 per cent of the population (expressed as LD-50, lethal dose causing 50 per cent fatalities as the MDL, median lethal dose). Some experts set the LD-50 dosage at about 450 roentgens, while others set it as high as 600- to 700 roentgens.

Persons in the 200 to 1000 roentgen exposure range will create maximum patient load and will require treatment for a considerable length of time. However, the shelter manager may not be faced with the main task of caring for any victims of radiation sickness, because a latent period of several days to a few weeks exists between the onset of initial symptoms and the appearance of the secondary but more severe effects. If the shelter will be used as a base of operations in the post-shelter recovery phase, radiation sickness may constitute a major medical problem during that time.

The time between exposure and the appearance of symptoms depends upon the total dose received. Generally, the earlier the onset of the symptoms, the higher the exposure has been. The first symptoms of nausea, vomiting, and weakness may occur within eight to twelve hours after a dose of about 200 roentgens has been received.

The secondary symptoms will include malaise and fatigue, fever, diarrhea, bleeding, convulsions, loss of hair, and secondary infections. Those patients who survive may require care and treatment for periods ranging from several weeks to several months.

Accumulated dose of 1000-5000 roentgens. Although the symptoms are similar to the ones described for the lower exposure ranges, the onset is

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<sup>1</sup> Joint Committee on Atomic Energy. Hearings before the special subcommittee on radiation of the Joint Committee on Atomic Energy, Congress of the United States. First session on biological and environmental effects of nuclear war. Washington, D. C.: Government Printing Office, 1959, page 269.

more rapid and severe, and death will probably occur within a few weeks. Because the main damage is to the gastrointestinal system, these cases may create a sanitation problem due to severe diarrhea and vomiting.

Accumulated dose of over 5000 roentgens. Because the symptoms will be hyperacute within minutes, most of these cases will not get to a shelter. Such a large dose of radiation will directly damage the central nervous system. As a result, convulsions, coma, and death can be expected within hours.

#### Complications of radiation sickness

Because radiation damages or destroys the living cells, the normal body mechanisms that fight infection are disabled. Consequently, persons suffering from radiation sickness will have difficulty fighting infections from illnesses or injuries.

#### Long-term effects

Although possible long-term effects (such as sterility, leukemia, cataracts, and shortened life-span) may result from exposure to radiation, these possibilities should not be a principal determining factor when making emergency decisions during a nuclear war.

#### Emergency exposure to radiation

For personnel engaged in emergency activities during and after the shelter stay, the total exposure should be kept below 200 roentgens during the first month of operation. Additional exposures should be less than 25 roentgens a week for the next five months.

#### Treatment of symptoms of radiation sickness

Little else beyond symptomatic treatment of radiation sickness will be possible under shelter conditions.

Present Federally stocked medical supplies will be of little help in treating symptoms of radiation sickness; however, if other supplies are available, it should be remembered that the first symptoms are generally short in duration. Consequently, medical supplies, unless extremely plentiful, should be reserved for those symptoms which will begin after the latent period.

## The Basis for Protective Actions

### Protection factor

The degree of protection against radiation which a fallout shelter provides is called protection factor. It is a ratio based on the radiation dose that an unprotected person would receive, as compared to the dose he would receive in a shelter:

$$P.F. = \frac{\text{Radiation Dose in the Absence of a Shelter}}{\text{Radiation Dose Within a Shelter}}$$

For example, if the radiation dose is 10,000 roentgens in the absence of a shelter and the radiation dose inside a shelter is 100 roentgens, the protection factor of that shelter is 100.

Eight categories of protection factors have been used in the designation of shelter protection. They are as follows:

<u>Category</u>	<u>Protection Factor</u>
8	Over 1000
7	500-1000
6	250-499
5	150-249
4	100-149
3	70-99
2	40-69
1	0-39

Protection factor categories are useful as a basis for shelter planning. However, in the occupancy many conditions can affect the protection factor of a shelter. These will be discussed in the rest of the chapter.

The Federal government is presently stocking shelters rated two through eight. Within a single OCD marked facility there may be shelter spaces of varying categories from two to eight. Local civil defense control centers should have information on the protection factor and the number of spaces per shelter for each marked shelter in its area. The shelter manager should be familiar with this information for his facility.

## Basic Types of Protection

Protection from radiation is based on three factors: barrier or physical shielding, distance or geometric shielding, and time.

### Barrier or physical shielding

Gamma rays are emitted in all directions from an individual piece of fallout. These rays can travel many feet through air and can be most effectively reduced in intensity by placing enough mass between the source of radioactivity and the person being protected to absorb or stop all or part of the rays. If the barrier is not sufficient to absorb all rays, radiation may pass through the barrier in the same direction or be scattered in other directions. To provide complete protection from scattered radiation, a person must be completely surrounded by shielding.

Generally, the denser the shielding material, the greater the protection that is offered. For example, twenty inches of concrete will provide shielding equivalent to thirty inches of earth. This amount of shielding gives a protection factor close to 1000. However, the actual protection factor depends also upon the consideration of other factors listed next.

### Distance and geometric shielding

Another type of protection is provided by distance or geometric shielding. A person will receive less exposure from fallout twenty feet away than five feet away. Shelters should be placed in an area most distant (both horizontally and vertically) from the surrounding sources of radiation. Likely areas include the core of buildings, in basements some distance from sources of radiation on roofs, building set backs, courtyards, or the surrounding ground.

### Time

The knowledge of the rate of decay, which has already been discussed, can be used in protective actions. For instance, it is possible to isolate areas of high contamination knowing that after a calculable period of time, the area will be safe to approach due to the decay rate.

Time and distance shielding are related in terms of distance from the blast. The further away the blast, the longer it will be in time until fallout arrives, and the greater the radioactive decay will be.

## Protective Actions Against Fallout

The procedures to protect shelterees from radioactive fallout involve two aims: (1) to provide enough barrier and geometric shielding to keep radiation from damaging the shelters, and (2) to keep fallout particles from drifting into shelter areas.

The problem of fallout protection may be considerably complicated by the possibility of a close detonation. The effects from a blast wave can create problems which have direct implications for the protective actions to be made for radiological defense. For instance, certain measures against radiation can become dangerous hazards under blast effects (see page 38 and 40, "Structural Protection"). For example, hastily constructed shielding against radiation may become flying missiles under blast.

In selecting protective procedures, management must consider (1) the probability of a close detonation with the resulting blast effects, and (2) the probable time when fallout will arrive. Management must then decide which protective actions to take, and when to take them, such as: when to release shelterees from blast positions, when to put up structural materials, or when to send crews outside to strengthen the external protection.

The procedures below are only examples of possible protective actions. For maximum protection, an operational plan and pre-stocked materials should be available for each shelter.

### Procedures for Fallout Protection Prior to Blast and Fallout

#### Examples of procedures external to the shelter

To provide added protection for exposed parts of the shelter, the emergency team should pile earth or sand (loose or in bags) against windows, doors, and other openings (NOT THE VENTILATION OUTLETS).

All workers should be instructed concerning what to do (areas to cover with earth, parts to shore up) and what materials to use. Constant supervision should be given to see that ventilation outlets are not accidentally covered or buried under earth, and that all weak spots are repaired or reinforced.



Limitations of external procedures

Protective procedures outside the shelter should be undertaken only when the following three conditions are met:

1. Either trained personnel or knowledgeable personnel under a trained supervisor are available to perform the actions with speed and effectiveness.
2. There is little or no probability of blast during the time the crew would be outside the protection of the shelter.
3. Actions taken can actually increase the protection of the shelter. For instance, in the middle of the city, it is unlikely that any protective actions can be taken to improve the external protection, unless special materials and equipment have been pre-stocked for such use.

Examples of procedures in-shelter

Those openings which have been strengthened on the outside with earth or sand may be strengthened on the inside with the same materials.

Elevator shafts can be blocked by stopping elevators on the floor above the shelter.

Limitations of in-shelter procedures

Inside the shelter, few procedures can be taken before blast has occurred, or all danger of blast has passed. Because most actions involve stacking up additional radiation shielding, these materials (such as concrete blocks or boxes of supplies) are subject to rapid and unpredictable movement.

Personnel

If a shelter contains a safety team which is pre-trained in emergency repair and protective action procedures, they should be assigned to augment shelter protection utilizing all available means. However, if a fully-manned team is not present in the shelter, volunteers may supplement the team under the supervision of trained managers.

If no pre-trained personnel are available, a team may be formed consisting of engineers, maintenance personnel, and skilled workers. However, an untrained team should be used outside the shelter only after the blast has occurred or after all danger of blast has passed.

All workers should be instructed concerning what to do and what material to use. All workers strengthening the external shelter must return to the shelter as soon as work is completed or fallout is reported, either by the shelter entrance or through an emergency opening.

Inside the shelter, pre-trained personnel should supervise as many shelterees as can be used effectively to augment internal protection. This type of work will help to alleviate or prevent adverse psychological reactions to disaster by making people feel they can help themselves.

### **Procedures for Fallout Protection After Blast and Prior to Fallout**

Before the arrival of fallout, there will be approximately a half hour to several hours to prepare and augment shelter radiation protection (depending upon shelter location in relation to the blast, winds, and weather).

#### **Examples of procedures external to the shelter**

If blast damage to the shelter has occurred, procedures for damage assessment and repair should be followed to close up any exposed or weakened shelter areas.

In addition, all available shielding materials, such as earth, sand, concrete blocks, rocks, or any dense materials, should be piled against all outside openings or exposed walls, except ventilation outlets.

A radiation monitor should be stationed at the shelter entrance to determine when fallout begins to arrive.

**Caution:** When fallout commences, the team should be sent in immediately, unless emergency repairs must be made and can be completed within a few minutes.

#### **Procedures in-shelter**

**Shielding.** Inside the shelter, shelterees should be directed to shield doors, windows, and other exposed areas with sandbags or earth. If sandbags or earth are not available, any material which is dense can be used; for example, bookcases with books on shelves, file cabinets, and heavy equipment.

In the absence of any other shielding material, shelter supplies may be stacked up for protection, with the following caution. Because areas which require additional protection may be exposed to contamination, it would be wise not to use supplies which might be needed during the first several days of the shelter stay. For instance, the density of containers of food and water supplies piled against a window opening may help to increase radiation protection; however, these supplies should be used last if the area becomes contaminated.

### Personnel

The tasks above will involve the use of the same personnel as those described in the previous section.

### Location of personnel after arrival of fallout

The amount of protection offered by the shelter structure will vary at different points within the shelter. To maximize shelter protection, management should locate personnel in the areas offering the greatest protection. These areas will be determined by radiological monitoring (page 25).

The shelter should be surveyed to find the safest areas for shelterees, that is, areas with dose rates below two roentgens per hour (2 r/hr). If feasible, the manager should move all persons into these areas until the radiation has been lowered by decay or until other areas are declared safe by monitors. This period could last as long as twenty-four to forty-eight hours.

If areas do not have uniform dose rates, and the rates are above 2 r/hr throughout the shelter, the areas with the lowest dose rates should be occupied.

If radiological readings cannot be made, shelterees should be located in areas in the center of basement shelters or next to walls which are at least three feet underground, in order to take advantage of barrier and geometric shielding. In a tall building, the population may be located in the center core, at least two stories below the roof, ledges, roofs of other buildings, or annexes, and two stories above the ground level, as well as in basement areas completely underground.

If shelterees must be near unshielded windows, protection may be reduced five to ten times. These areas should be monitored frequently to make sure that no radiation has collected on the ledges. If monitoring instruments are not available, it may be advisable for shelterees near windows to sit below the height of the ledges.

## Protective Actions Against Fallout

If lack of space prohibits locating the entire shelter population into areas offering the highest protection, management should rotate personnel to distribute exposure evenly if there is a difference of 10 r in exposure between areas. In general, a manager should consider providing the best protection for pregnant women, children, and all who will serve on emergency missions.

## Monitoring

The activity of monitoring serves several functions in the shelter. The monitors should provide the shelter manager with information which can enable him to make the wisest decisions concerning shelteree protection. This information supports such decisions as: (1) locating the safest areas, (2) estimating exit time, and (3) deciding on evacuation or emergency missions. In addition, this activity will reassure the shelterees that something tangible is being done to protect them. Finally, it will provide tasks for shelterees which will be viewed as important activities.

### Management responsibility in setting up a monitoring program

The shelter manager must have enough information and training about radiological monitoring to anticipate the following four problems:

1. Who to go to for a specific radiological job.
2. What to expect.
3. How to interpret information received from the monitoring team.
4. What decisions are appropriate under any conditions, such as: when to close the shelter, where to locate shelterees for maximum protection; who, what, and when to decontaminate; and when to leave the shelter.

### Monitoring information needed for management decisions

In the Handbook for Radiological Monitors (Office of Civil Defense, April 1963), monitoring operations are described in detail. In general, the shelter manager needs the following basic information:

Arrival of fallout. The monitor should report to the manager when fallout begins to descend.

Measurable radiation in shelter. If radiation becomes measurable within the shelter, a survey of the shelter should be made to find the best shielded area. This information should be immediately relayed to the shelter manager, who will decide if and where to move shelterees.

Emergency information. If the dose rate in shelter reaches or exceeds ten roentgens per hour or if the dose accumulates to 75 r within any two-day period, the monitor should report immediately to the manager, since this indicates that the maximum allowable dosage may be reached if no remedial action is taken, remedial actions include trying to locate personnel in safer areas, building up added protection, or finding better shelter areas elsewhere, if possible. It is recommended that general radiological readings be confirmed with the local control center before action is taken whenever possible.

### Monitoring equipment

Since the human senses cannot detect the presence of radiation, radiological instruments must be used to determine the current rate and accumulated amount of radiation at a given location. Specific information on what radiological equipment is being stocked by OCD can be found in Appendix C, "List of Stocked and Recommended Supplies."

In general, two types of instruments (ratemeters and dosimeters) will be found in each kit. A ratemeter can be used to indicate how much radiation is being received by the instrument, measured in roentgens per hour, and will indicate the amount of radiation penetrating the shelter.

A dosimeter, which is analogous to an automobile mileage indicator, can be used to show the accumulated amount of radiation exposure in roentgens for the time that it has been in operation. It can be used to determine the amount of radiation accumulated by personnel within the shelter or teams on emergency missions.

Each instrument should be checked for operability before use.

### Monitoring procedures

Frequent readings in several areas of the shelter should be made. The frequency will depend upon the previous rate of radiation; that is, the higher the rate, the more closely the area should be monitored.

All shelter openings, particularly door and window areas, should be checked. If the filter or the intake for a forced ventilation system are near occupied areas, they should also be monitored regularly. If contamination is noted, people should be moved as far from these areas as possible.

A record of cumulative group exposure from dosimeter readings, should be kept as well as special dose records for those on authorized emergency missions. These records will assist the manager in deciding who can leave the shelter, for what reasons, and when.

### Monitoring personnel

The duties of the monitor are to: (1) determine when fallout begins to arrive, (2) recommend when to close the shelter door, (3) indicate what persons and areas need to be decontaminated, and (4) show where to place personnel for maximum protection.

Sufficient people must be either pre-trained or recruited in shelter and trained on the job to assure radiological information at all times. In a small shelter, two monitors may be adequate, but in a large shelter (particularly one with more than one room or area), more monitors will be needed.

Detection of fallout without monitoring equipment

In the event that a shelter does not have an operable OCD radiological monitoring kit, the following guidelines may help to determine the arrival of fallout. In the daytime, either a white plate or white cloth may be placed in an exposed area outside the shelter door. Fallout will be clearly visible on it. If it is nighttime, a flashlight beam will illuminate fallout as it descends. These are at best poor procedures and should be considered only in the absence of alternative detection methods. Without operable equipment, or without an external communication capability, the shelter manager will have no way to detect radiation rates. As a result, it will probably be advisable to prepare for a shelter stay of two weeks.

## Calculating Exit Time

The external radiation level should be periodically assessed to determine: (1) an estimated length of stay in the shelter, (2) the advisability of emergency trips, (3) the earliest time that the shelter can safely be opened for a brief period of time.

### Factors to be considered in calculating exit time

Depending on the urgency of shelter exit, the manager must weigh the following factors carefully before deciding to allow one or more shelterees to leave the shelter:

1. Outside radiation level, calculated from instrument readings, decay charts, or confirmed by external communications from local control centers or higher OCD sources.
2. Average or specific cumulative dose of the shelterees, determined from dosimeter readings.
3. Urgency of exit versus delay of exit until radiation decays further; e.g., shelter manager may allow a trip for water earlier than for food.
4. Allowable dose, determined from the following table and with consideration of the above points.
5. Caution: Assess time conservatively. Among the instructions given to those on an emergency mission is the length of time they may remain outside the shelter. The time estimate should contain a considerable safety factor to accommodate inaccuracy in measurement or unexpected problems. Thus, if indications are that a team may remain outside for 30 minutes, they should be told to return in 15 minutes. Because exposure will continue even after a shelter occupancy phase of the emergency, all efforts should be made to keep the total dose of the in-shelter phase below 100 roentgens.

### Information needed to estimate exit time

Periodic readings of external radiation should be taken if the shelter has a remote reading capability. Caution: Where external rates are high, no one should go outside to monitor. In addition, outside readings should be confirmed by communications from the control center or from official OCD radio. Once the outside rate is determined for a given location and a given time after the explosion, this rate may be used for later calculations so long as no further fallout comes down and the only change is from decay.



Monitoring for missions

Radiological support should be available for emergency operations. Before undertaking a mission, monitors should determine that the conditions predicted by control center actually prevail. The monitor assigned to the mission should take frequent dosimeter readings to advise the leader of the mission concerning necessary radiological protective measures and when the team must return to the shelter.

The following table indicates general limits of activities for ranges of fallout intensity.

Table 1.  
Suggested Limits for Shelter Exit

If Intensity has fallen to: (in r/hr)	Recommendations
Less than 0.5	No special precautions necessary, except to sleep in the shelter.
0.5 to 2	Outdoor activity (up to a few hours per day) tolerable for essential purposes. Eating, sleeping and all other activities should be conducted in the best available shelter.
2 to 10	Very short periods (less than an hour per day) of outdoor activity are tolerable for the most essential purposes. Shelter occupants should rotate outdoor tasks to minimize total doses. Rescue, repair, communication, and exercise may safely take place in less than optimum shelter.
10 to 100	Time outside of shelter should be held to a few minutes and limited to those few activities that cannot be postponed for at least one more day. Insofar as possible, all people should stay put in the best available shelter no matter how uncomfortable.
Greater than 100	Outdoor activity of more than a few minutes may result in sickness or death. The only occasions which might call for moving are: (1) Risk death or serious injury in present shelter from fire, collapse, thirst, etc., and (2) present shelter is greatly inadequate--might result in fatality--and better shelter is only a few minutes away.

## Decontamination

To prevent or reduce exposure to radiation, personnel must have radioactive particles removed from their skin, hair, and clothing. The shelter, food, and water must be kept free from radioactive particles and radioactive dust.

Decontamination can reduce radioactive contamination to a harmless level by one of the following methods:

1. Remove fallout from locations where it constitutes a hazard to an area where it will cause little or no harm.
2. Reduce the amount of radiation by covering it.
3. Isolate the contamination until time and weathering can make it safe to remove.

Most decontamination procedures can be carried out without special facilities unless monitors indicate a special problem.

### Personnel Decontamination

To reassure and allay fears of the shelterees, everyone should be monitored upon shelter entry if fallout has begun to fall, and appropriate decontamination measures taken if necessary.

#### Decontamination materials

Generally, combs and brushes may be used relatively effectively to remove radioactive particles from personnel and their clothing.

Some shelters may have more elaborate facilities, such as showers, and soap. In such cases, personnel decontamination will be more efficient; however, a large supply of water must be available as well as a system for disposing of the contaminated water.

#### Procedures for personnel decontamination

Brush off shoes, shake or brush clothing before or at entrance of shelter area. Try to avoid creating radioactive dust.

Brush, wipe thoroughly, or wash contaminated portions of the skin and hair.

Remonitor clothing and body until decontamination is completed.

### Area Decontamination

There may be considerable exposure to radiation when attempting to decontaminate a large area. Therefore, unless the area is immediately hazardous to shelterees or unless it is needed for shelter space, it is preferable to isolate the area by roping or boarding it off, until decay reduces the danger of radiation.

#### Materials for decontamination

Methods for decontamination of the shelter and external areas (whether adjoining or outside the shelter) should be determined by the type of surface to be decontaminated and the availability of materials. Particles can be removed from surfaces by use of vacuum cleaners, brooms, brushes, shovels, water hoses, and similar cleaning equipment. In addition, protective equipment, including respirators, is advised for decontamination personnel. If this equipment is not available, improvisations should be made.

#### Procedures for area decontamination

Teams should conduct decontamination on information received from the radiological monitor concerning type, severity, and extent of contamination.

Apply decontamination from the highest point and continue downward. If water is used, the waste water must be disposed of carefully. Remove all portable items to a special decontamination room in shelter or to a designated area if outside the shelter.

Brushing can remove loose contaminated dust on porous and non-porous surfaces. Vacuuming may be effective in picking up loose particles in places where the dust created by the vacuum will not create a problem.

Water may be used on non-porous surfaces such as metal, plastic, or paint. A hose will allow crews to decontaminate from a distance of fifteen to twenty feet. They should, however, avoid being splashed by contaminated water.

Detergents must be applied to non-porous surfaces with a rubbing action. Because this is not generally effective on long-standing contamination and requires contact with surfaces, it is a less desirable method.

A decontaminated area should be checked by monitors to see that decontamination is complete. Safe areas and routes should be reported to the shelter manager and control centers and the places marked in some way.

### Food and Water Decontamination

Ingestion of food and water contaminated with radioactive particles can result in damage to vital organs. By observing several precautions and procedures, this hazard may largely be avoided.

The food and water stored in the shelter should be properly packaged to prevent contamination; however, any supplies brought into the shelter after fallout has begun to accumulate, should be monitored for radioactive contamination and necessary decontamination performed. Once radioactive particles are removed, food and water will be safe to consume.

#### Procedures to decontaminate food

The following actions should be taken in handling contaminated foods:

1. Boiling or cooking will NOT remove contamination.
2. Before opening containers, wash or dust them off.
3. Wash, scrub, and peel fresh fruits and vegetables in such a way that hands or utensils do not recontaminate the food.
4. Dust or brush food that has smooth surface; then wash if possible.
5. Scrape, separate or cut away contaminated surfaces.
6. Absorbent foods, which are not in dustproof wrappers, cannot be completely decontaminated although washing and scrapping may provide some decontamination. If they are non-perishable, such food can be stored until radioactivity has decayed.

#### Procedures to decontaminate water

Similarly, the following precautions should render contaminated water drinkable:

1. Boiling or chlorination will NOT remove contamination.
2. Water may be filtered through paper towels or several layers of fine cloth.

## Decontamination

3. Contamination may be allowed to settle and the water siphoned, or decanted.
4. A handful of clay soil may be mixed in a gallon of water and allowed to settle a day before siphoning or decanting.
5. Water can be distilled. However, this requires the use of heat and equipment which may raise shelter temperature.
6. After decontamination, water must be purified. For these procedures see Chapter 7, "Water."

**CHAPTER 3**

**OTHER WEAPON EFFECTS**

## CHAPTER 3 OUTLINE

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## Blast Protection

The blast from a nuclear explosion results in a shock wave, over-pressure, wind, and earth tremors. It releases 50 per cent of a nuclear weapon's energy and accounts for the high amount of devastation. While fallout shelters are not generally considered to offer protection against blast, many do in fact, supply minimal coverage against its hazards. The survival of a shelter from blast effects will depend upon distance from the point of detonation, size of the weapon, design of the shelter, height of blast, and a combination of other factors. In many cases, the building which houses a shelter may be damaged, but the shelter will remain intact. In other cases, damage will be limited to flying glass and debris.

Shelter managers should be aware that a fallout shelter will probably offer some degree of blast protection. It should be the responsibility of the manager to increase this protection for a shelter, its equipment, and its personnel by whatever means possible within his capabilities. Without initial protective actions against blast, the shelter may not be operative. If the shelter or its equipment is damaged, it may become vulnerable to fallout or may lack the facilities and equipment necessary for survival.

## Characteristics of Blast

Immediately after a nuclear explosion, a wave of hot, compressed air will move outward from the fireball at a little faster than the speed of sound or 1150 feet per second. In sixty seconds after a one-megaton detonation, the blast front will be some three miles ahead of the fireball. The effects of blast are devastating within a limited radius. The range of effects depends largely upon the size of the weapon and the type of detonation. Blast damage from an air detonation may be 30 to 40 per cent greater than a surface detonation because the blast wave from an air detonation will travel through less atmosphere and encounter fewer obstructions which can attenuate its force before hitting the target.

The blast wave or shock front, accompanied by devastating winds blowing away from the blast, will envelop and squeeze any object in its path with pressures in excess of normal atmospheric pressure. The wind velocities for a nuclear explosion will be in excess of 1500 miles per hour near ground zero but will diminish rapidly with distance.

At a point when over-pressures and wind speed decrease to normal, a suction effect will be caused by air rushing in to fill the vacuum created by the fireball. Pressures will drop to below normal and winds will blow



toward the detonation. Although pressure will quickly return to normal, winds may continue for some time. The combined squeezing and suction effects form the blast wave. Although it will pass in a matter of seconds, its combined effects are capable of doing tremendous damage in that time.

### Effects of Blast

#### Damage to property

Damage to property will probably vary according to many factors, such as: size of weapons, distance from burst point, and type of object hit (material, construction, and shape). Buildings may buckle, blow apart, or sustain lighter degrees of damage depending upon these factors.

Certain types of structures can resist blast better than others, particularly those made of reinforced concrete, those with specially constructed blast features such as blast tunnels, rounded exteriors, underground shelters covered by earth sloped away from the structure, and similar engineering considerations. Buildings with breakable windows and doors usually survive better than other non-blast proof shelters, because pressure can be equalized through the openings.

Even when a building housing a shelter is destroyed, the shelter itself may remain intact and provide some blast protection for inhabitants. In addition, the shelter may offer radiation protection with few or no repairs.

#### Damage to personnel

Four types of blast phenomena can cause injury to personnel. They are injuries from over-pressure, flying missiles, physical displacement, and ground shock. The table on the following page indicates the hazard and the type of injuries which it produces.

### Protective Actions Against Blast

To maximize protection of a fallout shelter, procedures should be developed: (1) to augment structural protection against blast, wherever possible, (2) to protect equipment from effects of shock and displacement, and (3) to locate personnel in the safest areas and positions.

Table II.  
Blast Hazards

Type of Hazards	Injury to Personnel
1. <u>Primary</u> --Over-pressure and their reflections	Rupture of eardrums, internal hemorrhages, and damaged internal organs
2. <u>Secondary</u> --Penetrating and non-penetrating missiles caused by blast pressures, winds, and gravity. Glass will be particularly hazardous since it will fragment at less than one psi of over-pressure	Injury from debris at high speeds, such as penetrating wounds, broken bones, and bruises
3. <u>Tertiary</u> --Physical displacement or being thrown through the air by shock and winds*	Skull fractures, broken necks, and bones from persons being hurled through space and against other objects
4. <u>Miscellaneous</u> --Ground shock, dust, blast associated with thermal phenomena	Inhalation and suffocation, shock, etc.

\*It is more difficult to displace a prone person than one standing or sitting.

Structural protection for fallout shelters

The shelter manager should be aware of certain problems inherent in makeshift preparations against blast. In shelters which are above ground, in building cores, or in large basement areas, it may be difficult to close off the shelter area. Because the force of the blast can turn hastily constructed barriers and barricades within the shelter area into dangerous flying missiles, it is recommended that no makeshift or free-standing blast protection be built. For the same reason, makeshift construction to improve radiation protection should not be erected until after danger of blast has passed.

Certain types of protective actions, however, may give added blast protection without creating potential hazards. The following steps may be undertaken upon shelter entry:

1. Barriers, such as an earthenwork or sandbag walls, can be thrown up outside and in front of the shelter openings, as described under the section "Protective Actions," in Chapter 2.
2. In underground shelters, earth should be sloped away from the shelter structure wherever possible.
3. Inside the shelter, sandbags and earth may be piled against those shelter openings also protected on the outside to absorb some of the shock; however, it must be remembered that under sufficient pressure, sandbags can also become missiles.
4. The windows should be opened completely to avoid flying glass. Casement windows can be rolled out completely, and all other windows opened as much as possible to reduce the hazard. A solid door should be closed.
5. Warning: Do not count on drapes or venetian blinds to stop flying glass as they will probably be cut to ribbons by the glass. In addition, the blinds may become flying missiles. The same drapes and blinds, however, may provide some protection against thermal effects.

#### Structural protection in a blast shelter

For shelters which can be called blast or reinforced shelters, the following additional procedures are necessary to take advantage of augmented capabilities against blast. Such a shelter, usually of reinforced concrete, is equipped with blast doors and valves, which can keep the blast front from entering the shelter.

1. Blast doors and valves must be closed whenever one of the following occurs: (1) blast is imminent, (2) a great flash is seen, (3) the shelter is filled to its overload capacity, or (4) fallout has begun to descend.
2. After the flash from the detonation, there may be time to close the shelter door and valves if action is instantaneous because the blast wave travels at the speed of sound, or approximately one mile every five seconds.
3. For maximum efficiency, one shelteree should be assigned to close one shelter opening, valve, and door. Each person must understand his specific task and be instructed to report to the appropriate supervisor as soon as the task is completed or whenever difficulty is incurred in completing it.

## Blast Protection

4. Personnel should stand by their assigned location as long as a blast is imminent in order to act quickly.

### Equipment protection

All shelters contain some equipment or supplies that can be damaged or cause damage to the shelter, due to blast. To prevent equipment and supplies from becoming missile hazards, they should be placed out of the line of blast. That is, they should be placed away from doors, windows or other openings through which blast may enter.

The following actions should be initiated to avoid damage or destruction to air filters, ventilation systems, auxiliary generators, or other equipment:

1. Shut down shelter ventilation and close ventilation ports.
2. If shelter has a periscope, retract it.
3. Stack sandbags around unmovable equipment, such as the generator, to buffer the shock.

### Population location

The shelter manager must evaluate the arrangement and structure of his shelter to determine the safest place to locate the shelterees to protect them from blast effects. Shelterees should be grouped in the part of the building which is most structurally sound, away from doors, windows, and breakable objects--until blast is over.

Shelterees should be located away from the direct line of blast. Because of the variety of blast effects, this may be difficult to do. The manager must weigh the probable dangers of the potential blast hazards (see Table II). Because there will be no makeshift way to protect against over-pressure, actions should be concentrated on the prevention of flying debris or physical displacement.

The following are several steps which may guide the manager:

1. Avoid areas opposite shelter openings of all kinds.
2. In a shelter above ground, the shelterees should be grouped near, but not against walls, away from but not opposite doors, windows, or other openings.

## Blast Protection

3. In a shelter underground, the safest location to avoid being hit by flying debris and being trapped by the collapse of the structure, would be against the walls, but away from shelter openings.
4. If materials, such as mattresses, plywood, etc., are in the shelter, the shelter manager can show shelterees how to construct a simple lean-to under or behind which persons may receive some protection from falling plaster and rapidly moving objects.
5. Above ground, seat shelterees in a series of double rows, back-to-back, to provide mutual bracing. They should be told to close their eyes (or at least not look at the flash) and hold their hands over their ears.
6. Because the blast wave travels about a mile every five seconds, or eleven miles in a minute, the shelterees should remain in position even after the first heat and light wave have passed.

### Responsibilities of the manager

Until the danger of blast has passed, the shelter manager can use the time spent waiting for the blast to drill his staff and instruct shelterees in protective action. The shelterees should also be informed and reassured about the protection which the shelter offers and the effects of blast. The manager should continue talking up to and during the blast, if possible, to reduce fear, particularly if the lights go off.

Before the shelterees are released from the blast position, the manager should begin to organize the shelter as follows:

1. Tell shelterees to be prepared to resume this position at any time.
2. Assign them to tasks which must be performed to prepare the shelter for fallout.
3. Begin grouping and organization procedures.

## Initial Radiation

The characteristics of initial radiation will not be considered here. If a person is within the range of a fatal dose from initial radiation, the blast and thermal effects would be so destructive that survival would probably be impossible except in an underground blast shelter. Such a shelter would also offer some protection against initial radiation.

## Thermal Effects

### Characteristics of Thermal Effects

Thermal radiation may extend beyond the range of blast effects under some conditions and can produce more casualties than all other nuclear weapons effects except fallout. A combination of ultraviolet, visible, and infrared rays travel from the fireball in a straight line at the speed of light (or almost instantaneously). Within one minute from detonation, two thermal pulses are released. For a one-megaton weapon, the first pulse lasts 1/10 of a second, gives off one per cent of all the thermal radiation, and causes skin burns and eye damage to those facing the blast. The second pulse, lasting about ten seconds, gives off 99 per cent of the thermal radiation. An air burst can set fires up to ten miles, cause burns up to twelve miles, and eye damages at even greater distances. A surface burst can ignite fires up to six miles and cause burns to approximately eight miles. A five megaton air burst can cause fires up to 20 miles from point of detonation, a ten megaton air burst up to 27 miles, while the equivalent surface burst will extend 12 and 16 miles respectively.

Thermal radiation is attenuated or lessened as it spreads out over an ever-increasing area and as it moves through air. Some climatic conditions, like smoke or fog, will also attenuate thermal radiation by scattering it. When thermal rays strike an object, they may be reflected, scattered, absorbed, or may pass through. The amount of radiation absorbed depends upon the nature and color of the material being hit. Thermal effects can be reflected by white or light material and absorbed by dark or black materials. They will pass through glass or transparent matter, but will be shielded by solid opaque objects.

### Effects of Thermal Radiation

The effects of thermal radiation, which are important to note here, are burns and fires. The high temperature of thermal radiation can burn the skin and damage the eyes of exposed personnel, and scorch, char, and even ignite combustible substances like wood, fabrics, paper, and grass. Since thermal radiation continues for several seconds (depending on weapon size), shelterees should be able to escape some of the effects if they take cover instantly upon seeing the initial flash or feeling the first heat wave.

#### Personnel injuries

Burn injuries directly caused by thermal radiation are called "flash burns." These burns generally occur on areas of exposed skin, such as the

## Thermal Effects

face, arms, hands, and legs. Because most thermal radiation travels in a straight line from the fireball, only areas directly exposed to the flash are affected. These burns are usually less extensive and less deep than flame burns, which may be caused indirectly when thermal radiation ignites buildings or clothing. However, the healing of all burns may be complicated by radiation exposure, which tends to lower the body's resistance to infection.

Another thermal effect is flash blindness or temporary loss of visual acuity from the extreme brightness of the flash. Although those persons who look directly at the flash may receive permanent damage, most persons will see an indirect flash and will be likely to suffer only temporary damage, lasting from a few seconds to a few days. For those exposed, the effects of eye damage will be worse if the flash occurs during the night.

### Property damage

Fires which may result either from direct or indirect effects of a nuclear detonation will cause heavy property damage. Direct thermal radiation may produce temperatures high enough to ignite combustible materials, or indirectly, fires may be started from overturned stoves, furnaces, broken fuel lines, or short circuits.

## Protective Actions

Because thermal radiation may be attenuated by solid or opaque material, closed fallout shelters will offer considerable protection against flash burns. To insure protection, closed doors and covered windows will be necessary, although the latter may create a potential fire hazard if drapes or blinds are used. Shelterees should be prepared to pull them down and extinguish the blaze as soon as the blast wave has passed.

### Personnel protection

Personnel should be located away from and opposite from doors and windows. While any opaque object will give some protection from thermal rays, this object should not be a potentially dangerous blast hazard.

Since white fabrics or materials reflect thermal radiation, a white blanket over the body should offer good protection. Wool and other heavy fabrics give better protection than cotton or light fabrics, and two layers of clothing are quite effective against flash burns.

There is very little protection against eye injury except to avoid looking directly at the fireball. It may, in fact, be best to shield eyes and head with one's arms before the flash, if possible.

### Fire protection

The primary way to protect against fires started by thermal radiation is to reduce the number of probable fires and to put them out as soon as they are started. Fires, started either by direct or secondary thermal effects, should be fought between the time of blast and the arrival of fallout.

Ordinary fire prevention techniques to be applied both pre-shelter and upon entry, include eliminating trash from around shelters, avoiding flammable items, and shutting off electricity and gas if there is danger to the lines. Fire extinguishers should be stocked in the shelter and a fire watch maintained. Details concerning fire suppression and other causes of fires will be discussed in the "Safety" chapter.

## Mass Fires

### Causes of mass fires

Fires which burn out of control may spread into a mass fire. The spread of the fire depends upon several factors, including the number of points at which fires will originate, the character of the surrounding area (combustibility and distance between buildings), terrain, and weather. One type of mass fire is a firestorm, which originates from many separate, but simultaneous fires. The superheated air from these fires is sufficient to create strong air currents which, in turn, reach wind strength and blow toward the fireball from all directions. This spreads a mass of flames within its radius.

### Protective actions against mass fires

In the event of a mass fire, the shelterees will face several problems: carbon monoxide, superheated air, and extremely high temperatures. Unless the shelter has the capability of being sealed for a minimum of several hours, the shelter may have to be evacuated if a mass fire seems likely to envelop the area.



## Thermal Effects

For those shelters with adequate protection against fire, the ventilation must be shut down and the air intake closed, unless it is located at a safe distance from the fire. Ideally, a shelter should be able to be sealed for approximately twenty-four hours; however, this time span will necessitate a special closed-ventilation system, which would supply oxygen, remove carbon dioxide and other harmful gases, and control temperature.

In mass fire, carbon monoxide is a most dangerous problem because it builds up quickly and hits without warning. Even after several hours, smoldering rubble may hold high toxic gases, as well as excessively high heat. The air at the intake should be tested periodically with whatever instruments are available to determine when the ventilation should be started and the shelter opened.

**CHAPTER 4**  
**SAFETY AND REPAIR**

## CHAPTER 4 OUTLINE

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## Management Responsibilities for Safety and Repair

This chapter deals with the protection of the shelter and its inhabitants against potential damage and destruction from such hazards as fire, flooding, and structural damage.

Certain basic management decisions must be made in conjunction with safety operations in a shelter. These are:

1. Can the protective or corrective actions be taken in time to provide or to maintain the integrity of the shelter against fallout?
2. If this cannot be done, should the shelterees be relocated or should the actions be continued with the realization that some of the shelterees may receive high doses of radiation?
3. What information should shelterees be given and what instructions issued so that they can help or, at least, not hinder the necessary operations?

Several potential problems may add to the difficulty in assessing damage to the shelter. These include: overcrowding, confusion after a detonation, power and light failure.

In many cases, risks of high radiation must be evaluated against other, more immediately dangerous situations. The manager will have to evaluate such crises on the basis of maximum survival benefits for the most people.

## Fire Prevention and Control

A fire in or around a fallout shelter can pose an extremely serious threat to the habitability of that shelter. The goal of fire safety, therefore, is to prevent fires from starting in the shelter and to extinguish all fires, both in-shelter and within the structure housing the shelter. In addition, wherever feasible, all threatening fires external to the shelter and its building should also be fought.

### Effects of fire in shelter

Fires can affect a shelter in many ways. Flames can damage and destroy the shelter or its equipment and cause death or injury to its inhabitants. The effects of smoke, toxic fumes, and depletion of oxygen may range from respiratory discomfort to suffocation. Also, certain chemical fire extinguishing agents may increase the toxic conditions. In addition to these effects, management may face a serious problem of loss of control over shelterees in the event of fire. Panic, which can cause needless damage, injury, or death must be prevented.

### Causes of fire

For the purposes of fire prevention, the fire problem can be divided into several types: (i) fires originated either directly or indirectly by the nuclear weapon (See Chapter 3, pages 43 to 46), or (2) in-shelter fires caused by shelteree carelessness, faulty or improperly used equipment and the like.

Weapon-caused fires must be extinguished immediately after blast and before the arrival of fallout. It is conceivable that fires will occur in three places: (1) inside the shelter, (2) inside the building housing the shelter, and (3) outside both the shelter and the building which houses it. The main fire-fighting efforts should be directed at the first two types of fire, and the third only if there is time, equipment, and manpower.

The seriousness of the situation will depend upon: (1) how many fires there are to extinguish, (2) what kind of fire-fighting equipment is available, and (3) how many people there are to fight the fires. It will be very difficult for management to know when to abandon the shelter rather than fight fires. Decisions may have to be based on observations, and, if possible, outside communications.

The second type of fire problem, or those fires which originate from hazards within the shelter, may be caused by any of the following:

1. Smoking by shelterees.
2. Candles or emergency torches.
3. Heating elements.
4. Over-heated motors or sparks from machinery.
5. Flammable elements, such as fuels or special volatile supplies.
6. Spontaneous combustion of supplies or debris left in or around the shelter.

In order to discover all the other possible sources of fires, the shelter must be examined for additional hazards by a fire team or members of the management staff.

## Prevention and Detection

### Management procedures

As soon after shelter entry as feasible, management should instruct shelterees in the rules for fire prevention and control that will apply in the shelter. The reasons for these rules should be presented, and it should be stressed that a violation of fire rules is a serious shelter offense.

The second step should be an inspection of the shelter to locate fire hazards, such as old papers and oily rags, and to dispose of them.

A general fire watch should be established to observe all possible sources of fire. Although such instruments as smoke detectors and heat sensors are available, they are expensive and will seldom be found in a shelter. Therefore, a fire watch is the most practical approach for fire detection. A fire watch consists of a number of shelterees, who may or may not be part of the fire team, depending upon shelter size. These persons will be assigned regular fire monitoring shifts and will inspect and patrol all parts of a given area. The number of people on fire watch depends upon the size and configuration of the shelter, but at least one person should be on this watch at all times. Whenever feasible, a periodic inspection should be made for fires outside the shelter area.

### Monitoring procedures

The following should be inspected routinely for fire hazards:

1. Exposed shelter wiring: Inspect to see that none is faulty.
2. Shelter machinery: Inspect equipment to see that it is not overheating or sparking and that it is free from grease or oil film.
3. Oxygen containers: Check to make sure that no leaks have developed.
4. Volatile substances: Fuels, solvents, volatile cleaning agents should be checked to insure that they are stored properly in air-tight containers.
5. General housekeeping: Control collection of flammable debris.

In addition, the following measures are applicable to the prevention of the specific causes of fire listed above:

1. Smoking should be carefully controlled, and under certain conditions, it should be prohibited. When smoking is permitted, a specific location should be assigned away from flammable materials and preferably near a ventilation exhaust. This area should contain sand pails for matches and butts, and smokers should be cautioned to observe smoking rules at all times.
2. Flammables, such as lighter fluid, brought into the shelter by incoming shelterees should be turned into a central supply area where necessary precautions can be taken for their disposal or storage.
3. Shelter machinery should be monitored at all times that the equipment is operating.

After a fire watch is organized, the emergency exits should be noted, and shelterees drilled in evacuation procedures as soon as possible. Shelterees should also be asked to watch for, and to report, all potential fire hazards.

### Supression

Once a fire has been discovered, it must be extinguished as quickly and safely as possible, and with the release of the least possible amount of smoke and toxic gases. There are three ways to put out a fire: (1) remove its fuel, (2) take away air, or (3) cool the burning material below its combustion point.

Several steps should be taken almost simultaneously to fight the fire:

1. The most appropriate fire-extinguishing materials available should be directed against the blaze which will either cool the burning material below its combustion point or suffocate the fire.
2. All combustible material near the fire should be removed and rendered non-combustible (wet down with water or covered with non-flammable tarpaulins or sand) in order to remove the fire's fuel.
3. It must be decided whether or not to shut down ventilation equipment until the fire is extinguished. If the fire is extremely smoky or toxic, the ventilation system may have to be kept on to prevent suffocation of shelterees; however, this may create a draft which will fan the fire.

Material

The following table will indicate some common types of material which may be available for putting out specific types of fire.

Table III.  
Common Fire-Fighting Materials

Type of Fire	Possible Extinguishing Materials	Comments
Wood, paper, cloth or rubbish	Water, sand, earth, brooms, blankets, etc., may be used to suffocate the fire.	Water is likely to be essential for drinking purposes and will probably not be available for fire fighting. Sand will be needed in large quantities, although it is difficult to use on irregular surfaces. Brooms, thick coats, blankets, rugs, particularly if dampened can be used to smother small fires.
Oil, gas, or grease	Sand or water in a fog or fine spray.	A heavy stream of water may spread the fire.
Electrical fires	Turn off electric current before extinguishing. Sand, dry chemicals, or, as a last resort, water.	Until the power is turned off, there is the danger of electrocution if water is used. Also, water will probably damage the machinery.



Fire extinguishing equipment is not presently being stocked. However, pails of sand or water placed in accessibly located stirrup-type water pumps, and dry chemical fire extinguishers are recommended by OCD. (See Appendix C, "List of Stocked and Recommended Supplies.")

In shelters which have acquired fire extinguishers, the fire team must be aware of: (1) the location and condition of the extinguishers, and (2) their proper use. In addition, most buildings will have portable extinguishers, which can be brought into the shelter to augment facilities. A procedure to have portable extinguishers collected and brought into the shelter at the alert should be part of the shelter operations plan. If not, persons in shelter familiar with the location of the portable equipment should be asked to pick up the extinguishers and return them to the shelter. The extinguishers should be placed in strategic and accessible areas, near equipment, smoking areas, and other sources of potential hazards. Instructions for the use of the equipment should be posted, and the fire team trained in their operation by simulated use, if they are not already experienced. In general, when using the extinguisher, the contents should be directed at the base of the flames (forcing flames upwards).

Warning. Because certain types of extinguishers may be extremely dangerous, they should not be used in a shelter area which has limited ventilation. Carbon dioxide extinguishers, carbon tetrachloride, and chloromethane will emit toxic fumes. If no other extinguishers are available, however, a calculated risk will have to be taken with their use.

#### Special fire procedures

During a fire, a special effort should be made to protect shelter exits and stairwells in the event that evacuation is necessary. If smoke and toxic gases become overwhelming, shelterees should be instructed to cover their noses with cloths and to crawl on hands and knees along the wall to the exit.

## Flooding

### Causes and effects

Major flooding of a shelter may occur: (1) if a large water main or sewer is broken in or next to the shelter, or (2) if the shelter is located below water level near a large body of water, such as a river, lake, or reservoir which may break its banks. Minor flooding may be caused by broken water pipes. The damage can range from a noticeable increase in shelter discomfort because of floor or wall dampness, humidity, and mildew, to inundation of the shelter.

### Control procedures

The procedures to control flooding are quite limited. First, an effort should be made to shut off the water, either at the water meter in the building or at the street shut-off valve. If the shelter is located below water level, nothing can be done to counter flooding short of diverting the water flow.

Until the flow of water is stopped, the water can be pumped from the building (if such equipment is available), swept, or bailed from the shelter by a chain team. (The end persons should be rotated to avoid over-exposure to radiation at the door.) If the water cannot be turned off, sand bags may be used (1) outside the shelter to divert the flow of water away from the shelter, or (2) inside the shelter to direct the flow of water to a drain or to an outlet.

A broken sewer line will create two additional problems: (1) a ventilation problem from sewer gases, and (2) a sanitation problem from polluted water. Consequently, all efforts should be made to divert this water from the shelter location. In an area around a broken sewer, all open flames should be avoided because of the danger of sewer gas.

The repair of minor pipe breaks will be discussed under "Shelter Damage and Repair," page 59.

## Rescue

The discussion of rescue is limited to self-extricating rescue, which means the ability of the shelterees to get out of the shelter if exits are blocked, or the rescue of those trapped within the shelter area as a result of serious shelter damage.

### Rescue Actions

#### Personnel

Rescue teams generally are composed of five to eight men. This team should be trained in the use of ropes, knots, casualty handling, stretcher lashing, breaking walls, tunnelling, shoring and bracing. Rescue personnel and equipment is essentially the same as for shelter repair operations. This same team may also be used to carry out protective actions against radiation. In a small shelter, the repair team may also function as the rescue team. In a large shelter, however, several teams may be needed, especially if the shelter has more than one area.

#### Procedures

After blast damage or structural failure, the rescue team should try first to determine how many shelterees are missing, and second, to locate these victims within the rubble or debris. They should look for protruding limbs, or listen for cries or breathing.

Once a person is located, rescue must be done with great caution. The following are some procedures and cautions involved in rescues:

1. Watch for further collapse (cracking noises), hot wires, etc.
2. Smaller pieces of debris should be lifted off first. Heavy dust may be a particular problem, and can even suffocate an unconscious victim.
3. Larger debris is more hazardous to remove, since it can be supporting other debris which may fall.
4. The last of the debris may be lifted off the trapped person by leverage. Wrecking bars, jacks, or any make-shift lever may be used; however, the load should be propped or shored carefully.

5. Rescue may be complicated by fallout, which may be a major factor in the management decision concerning the priority of shelter rescue versus shelter repair. To maximize shelteree protection, the shelter may have to be repaired before persons are rescued.
6. It may be possible to use available exits, manholes, or access to the adjoining building to help reach buried victims.
7. The rescue team should have a knowledge of first aid. If a medical team is available, however, they should supply the medical assistance at the rescue site.

### **Emergency Escape or Extrication from the Shelter**

Since an emergency evacuation could be necessary at almost any time during the shelter stay, the repair or rescue team should do the following to insure that exit is possible:

1. All exits and routes should be marked and shelterees should be made familiar with them.
2. These routes should be checked to see that they are accessible. If an exit becomes jammed or blocked, it must be cleared or an alternate found.
3. The procedure for emergency evacuation will be found on page 214.

## Shelter Repairs

At any time during the shelter stay, repairs may be required for continued habitability of the shelter. Immediately after a nuclear detonation; a quick but thorough assessment of shelter damage must be made and repairs undertaken, if it has been determined that such repairs can re-establish an adequate level of fallout protection in the shelter.

### Types of repairs

In order for the shelter to function safely, the repair team should assess and report damage to the following: roof, walls, window and door areas, utilities, large water tanks, and vital equipment. All weakened structural members must be shored up where necessary. If openings have been created through which fallout can enter, they must be closed or covered with any type of material available. After radiological monitors determine which areas have reduced protection, management should attempt to relocate people in other parts of the shelter. If, however, the protection is lowered to the danger level and no alternate areas are available within the shelter, the shelter may have to be abandoned and a close-by alternative shelter sought.

The gas lines must be checked for leaks and fires, water and sewer lines for breaks and flooding, and electric lines for short circuits, live wires, and fires. Large reserve water tanks which may be ruptured should be checked to avoid flooding and to minimize water loss. In addition, all generators, ventilation machinery, and other necessary equipment should be tested. It may still be possible to find repair parts near the shelter before the arrival of fallout.

### Protective Actions

After all damage reports have been made, the repair supervisor, in concurrence with the manager, will assign priority and personnel to repairs. Speed will be of the utmost urgency, because fallout can be expected within thirty minutes of a close detonation.

### Personnel

Within the shelter, manuals concerning shoring and repairs should be used in case a pre-trained repair team is not available. Although a pre-trained team would be invaluable, building maintenance men, construction and building trade workers, engineers, technical personnel, and men with military training may be recruited to form a repair team.

Procedures for protective actions

As indicated previously, any openings through which fallout can penetrate should be repaired and reinforced in whatever manner possible.

An example of the types of actions which can be taken are as follows:

Gas line leak. A gas line can be shut off at the meter with a pipe or monkey wrench. Also, all stoves and furnaces should be shut off.

Electric line. All electrical wires should be considered hot. The electricity can be shut off at the master switch near the fuse box on the meter and all fuses can be unscrewed.

Water pipes. Water may be turned off at the meter. If a pipe joint is damaged, several layers of insulation tape, aluminum foil, or other heavy material may be wrapped around it and tied with wire.

Repair equipment

At present, no tools have been stocked in fallout shelters by the Federal Marking and Stocking Program; however, a list of self-extricating tools has been recommended as highly desirable by OCD. This list included the following: shovels, wrecking bars, hatchets, pliers, screwdrivers, wrenches, saws, and rope. Many types of equipment may be improvised: boards, pipes, and rods may be used as levers; solid debris or rocks as fulcrums, etc.

## Maintenance

Maintenance involves routine monitoring, detection of malfunction, and repairs to the shelter structure (particularly parts which have received prior emergency repairs) and equipment. After completion of the repair work following weapons' damage, the repair team should be assigned to regular shifts for shelter maintenance.

Using manuals attached to each piece of equipment, the repair crew should conduct all necessary preventive maintenance on equipment in the hopes that major malfunctions can be avoided. In the event of a serious or potentially serious maintenance or repair problem, the shelter manager should be notified.

Repairs should be made by people who are skilled in the handling of the particular equipment in the shelter. If trained people are unavailable, minor maintenance may be carried out following the instructions in the charts or manuals accompanying each piece of equipment. Unauthorized personnel should be kept from tinkering with the equipment.

**PROVIDING FOR BASIC  
SHELTEREE NEEDS**



**TEMPERATURE AND ATMOSPHERE CONTROL**

**FOOD**

**WATER**

**SLEEP**

**SANITATION**

**MEDICAL CARE**

**POWER AND ILLUMINATION**



**CHAPTER 5**

**ATMOSPHERE AND**

**TEMPERATURE CONTROL**

## CHAPTER 5 OUTLINE

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## Introduction

The maintenance of tolerable environmental conditions with respect to temperature, humidity, and air constituents is one of the most important factors for survival in shelters. In general, this can be accomplished most readily and economically by natural or forced ventilation with outside air. Since the processes of natural ventilation are greatly influenced by shelter configurations, neighboring obstructions and changing air movement conditions, forced ventilation is more generally applicable. In special cases more sophisticated methods may be used, such as cooling and dehumidification with well water or mechanical refrigeration in hot climates.

## Temperature Requirements and Problems

Maintaining a tolerable effective temperature is a major requirement for shelter habitability. Effective temperature relates dry-bulb temperature, humidity, and air movement to relative physiological comfort or discomfort. Without air cooling equipment, the effective temperature may be high because of many factors, such as number of shelterees, amount of activity, the shelter structure, ground temperature, and air flow used in ventilation.

The range of relative comfort extends from 68° to 78° F. effective temperature. At approximately 85° F. effective temperature and above, body temperatures may begin to rise. This occurs when the amount of body heat produced exceeds the rate at which this heat can be lost to the environment. As a result, shelter survival can be seriously affected depending upon the rate that the body temperatures increase and the length of time that they remain high.

Although temperatures below 60° F. will probably cause extreme discomfort, healthy persons can tolerate living in 50° temperatures, if they have adequate clothing and food.

### Causes of temperature extremes

The extent of effective temperature control will depend largely on the temperature of the air being drawn into the shelter, the time of the year, and the geographical location. In cold external environments, low shelter temperatures may occur, particularly in shelters which are above ground level. Conversely, a hot, humid external climate may produce unbearable conditions within a fallout shelter.

There are several additional causes of high effective temperatures:

1. A sharp rise in effective temperature is likely to occur soon after occupancy in a shelter filled to capacity because of the body heat generated by shelterees. The amount of heat that each person gives off will depend upon how active he is. The greater the activity; the greater the amount of heat and perspiration.
2. Heat may be generated by hot plates or heating units used to prepare food or purify water, or from heat given off by shelter machinery, such as a generator.

Effects of temperature extremes

The consequences which effective temperature will have on shelter habitability are summarized in Table IV.

Table IV.  
The Effects of Temperature Extremes

<p>Below 50° F. Effective Temperature</p>	<p><u>Work Efficiency:</u> Dexterity will be very poor.</p> <p><u>Medical:</u> Chilblains may appear as well as other circulatory ailments, particularly among the aged.</p> <p><u>Psychological:</u> Irritability, restlessness, and listlessness may occur.</p> <p><u>Comfort:</u> Shelterees will be very uncomfortable, even with heavy clothing.</p> <p><u>Supplies:</u> There will be an increased need for food and oxygen.</p>
<p>At 50° F Effective Temperature</p>	<p><u>Work Efficiency:</u> Manual dexterity may be affected.</p> <p><u>Medical:</u> This is the lowest temperature acceptable for continuous exposure with adequate food and clothing.</p>
<p>At 68° - 72° F Effective Temperature</p>	<p><u>Comfort:</u> This is the optimum temperature for habitability.</p> <p><u>Sleep:</u> Most people will be cool if blankets or other covering are not available.</p>

Table IV (Continued)

<p>At 78° F. Effective Temperature</p>	<p><u>Comfort:</u> Perspiration will increase shelter humidity and discomfort.</p> <p><u>Medical:</u> This is the threshold of perspiration.</p>
<p>At 80° F. Effective Temperature</p>	<p><u>Work Efficiency:</u> Those performing physical activity may suffer increased accidents from inattention and poor judgment. Those performing short or forced intellectual tasks will show little effect; however, the quality of sustained intellectual performance will decline because of decreased ability to concentrate.</p> <p><u>Medical Problems:</u> Medical problems will increase, especially upper respiratory diseases and heat rashes. The latter will be aggravated because of inadequate bathing opportunity and lack of clean clothes. There will be a loss of sleep.</p> <p><u>Comfort:</u> Mildew will appear on bedding and clothing.</p> <p><u>Psychological:</u> Irritability and expressions of aggression are likely to increase.</p>
<p>At 85° F. Effective Temperature</p> <p>(This is considered by the Office of Civil Defense to be the maximum tolerable effective temperature for prolonged exposures.)</p>	<p><u>Work Effectiveness:</u> Physical symptoms of nausea, dizziness, abdominal and muscular pains will effect work efficiency severely.</p> <p><u>Medical Problems and Comfort:</u> Increased nausea and vomiting may severely strain medical supplies and sanitation facilities.</p> <p><u>Supplies:</u> There will be substantial increase in drinking water requirements.</p>
<p>At 88° F. Effective Temperature</p>	<p><u>Medical Problems:</u> Heat prostration may occur which can lead progressively to unconsciousness or death if the victim is not cooled.</p>

Detection of temperature extremes

The Office of Civil Defense has recommended that a wet-bulb, dry-bulb hygrometer be stocked to measure the temperature and the amount of moisture in the air. From a table, measures can be converted into the effective temperature of the shelter.

To determine high effective temperature when instruments are not available, the body temperature of approximately ten per cent of the population can be checked at half-hour intervals when high effective temperature is suspected. In a very large shelter, a check of two per cent of the population may be adequate in any one shelter area. If body temperatures rise about 2° F., above normal, remedial action should be taken. For accuracy, temperatures should never be taken after physical exertion.

Conversely, because body temperatures may be lowered under extremes of cold, the same technique may be used to determine extremes in cold.

## Requirements and Problems of Atmospheric Components

A life-sustaining atmosphere must retain a relative balance of atmosphere components. An excessive reduction of oxygen and an excessive increase in carbon dioxide must be prevented and all toxic or noxious components, such as carbon monoxide, kept to a minimum.

### Oxygen-Carbon Dioxide Balance

#### Balance of oxygen and carbon dioxide

Air normally contains approximately 21 per cent oxygen by volume and 0.02 to 0.04 per cent carbon dioxide. When oxygen drops below 14 per cent by volume and/or carbon dioxide rises to two to four per cent, adverse physiological symptoms will begin to occur. (See Table V.) However, even in cases where the percentage of oxygen remains high, an excess of carbon dioxide will have adverse effects. While extremes greater than this may be tolerable for a very brief time, all studies indicate that a low oxygen to high carbon dioxide ratio can be fatal or highly damaging over more than a few hours. This problem will be particularly severe in a shelter designed for mechanical ventilation in which the equipment has been shut down.

#### Causes of oxygen and carbon dioxide problems

The major problem here will be carbon dioxide. Unless there is adequate fresh air exchange, carbon dioxide will tend to build to a maximum amount that will depend upon the rate of fresh air exchange, and physiological symptoms may result before the oxygen levels have dropped significantly. The reasons for the carbon dioxide build-up are as follows:

1. Shelterees burn up the oxygen which they inhale and exhale carbon dioxide and carbon monoxide. If fresh air exchange is inadequate, oxygen will be used up faster than it is replaced, and the amount of carbon dioxide will increase beyond healthy limits, (unless it is absorbed by special equipment).
2. Open flames will consume oxygen and give off carbon dioxide. Fires both inside and outside the shelter must be considered.
3. Engine exhaust and cigarette smoke will add carbon dioxide and carbon monoxide to the shelter atmosphere.

Table V.  
Effects of Oxygen Deficiency and Carbon Dioxide Excess\*

EFFECTS OF OXYGEN DEFICIENCY

<u>Oxygen Content of Inhaled Air, Per Cent by Volume</u>	<u>Symptoms and Effects</u>
20.9	No effects; normal air
15	No immediate effects
12	Minimum for safety
10	Dizziness; shortness of breath; deeper and more rapid respiration; quickened pulse, especially on exertion
7	Stupor sets in
5	Minimal concentration compatible with life
2-3	Death within a few minutes

EFFECTS OF CARBON DIOXIDE-OXYGEN CONTENT NORMAL

<u>Carbon Dioxide Content of Inhaled Air, Per Cent by Volume</u>	<u>Symptoms and Effects</u>
.04	No effects; normal air
0.6	Threshold of objectionable reactions
2.0	Breathing deeper; air inspired per breath increased 30 per cent; maximum except in emergencies, such as equipment breakdown
4.0	Breathing much deeper; rate slightly quickened; considerable discomfort
4.5-5.0	Breathing extremely labored; almost unbearable for many individuals; nausea may occur; maximum safe limit
7-9	Limit of tolerance
10-11	Inability to coordinate; unconsciousness in about ten minutes
15-20	Symptoms increase, but probably not fatal in one hour
25-30	Diminished respiration; drop in blood pressure; coma; loss of reflexes; anesthesia; gradual death after some hours

\*Environmental Control Systems for Closed Underground Shelters, General American Transportation Corporation, 1962.



Symptoms and effects of oxygen-carbon dioxide imbalance

Excess of carbon dioxide. Table V indicates the changes and symptoms brought about by increasing concentrations of carbon dioxide.

Deficiency of oxygen. The symptoms of oxygen deficiency are similar to alcoholic intoxication, and include impairment of vision, reaction time, memory and insight. If the deprivation continues, people will show irritability, anger, and extremes of exhilaration, boisterousness, and even hallucinations. Fingernails and lips will turn blue. Table V shows the symptoms and the effects of oxygen deficiency.

Detection of atmosphere imbalances

Shelterees may be affected by atmosphere imbalances without becoming aware of the cause. Although it may be difficult to distinguish adverse atmospheric effects from the symptoms of other stresses and physiological deprivations, the problems of atmosphere imbalance should create a relatively uniform disturbance among shelterees as contrasted to individual anxiety reactions. If one shelteree faints, it may be a result of emotional stress; however, if several persons faint, the manager should suspect atmospheric imbalance as the possible cause. Another indication of this imbalance will be if those located nearest fresh air intakes seem to be in better condition than those who are away from the intakes.

Monitoring equipment

Oxygen meter. To determine when oxygen goes below adequate levels, an oxygen deficiency meter may be lighted on occupancy and regulated to burn with a steady flame. Whenever the flame lowers or goes out, the amount of oxygen is inadequate. It can be assumed that the carbon dioxide level has risen correspondingly unless special absorbers are being used.

Carbon dioxide detector. Because carbon dioxide will probably be a major problem in atmospheric content, a detector of some variety is recommended for the shelter.

## Carbon Monoxide

Carbon monoxide may have serious cumulative effects in very minute quantities. It may be a problem whenever ventilation or exhaust is inadequate.

### Sources of carbon monoxide

Carbon monoxide is given off by engine exhaust fumes, tobacco smoke, or open flames. For this reason, any engines in shelter should be located in a separate room with special exhaust ports. Smoking may have to be curtailed if a forced ventilation system is not available or the shelter is sealed, and open flames should be allowed only if proper exhaust is available.

### Effects of carbon monoxide poisoning

Symptoms of carbon monoxide toxicity are flushed skin, dizziness, lack of strength, poor balance, fainting, and mental confusion. Unconsciousness and death can result quickly.

### Detection of carbon monoxide

It is colorless, odorless, and tasteless and extremely difficult to detect. There are, however, detectors for carbon monoxide which may be used in a shelter.

## Other Gases

Certain common substances may be dangerous in a closed, poorly-vented shelter. A partial list of things to be avoided include: cleaning agents, solvents, degreasers, carbon dioxide refrigerants, ammonia, pressurized dispensers or aerosols, broken mercury thermometers, and some types of fire extinguishers. (See Chapter 4, "Safety and Rescue.")

## Odors and Smoke as Discomfort Factors

### Odors

While people will be able to adapt to offensive odors after a few hours, odors resulting from injury, sanitation problems, illness, or death are particularly objectionable, even fear producing, and may contribute to a loss of appetite, nausea, and irritability. Although these odors will not force anyone out of the shelter, they may make adjustment to shelter living a more difficult goal to achieve.

### Smoke

Smoking not only produces irritating aerosols, but it also releases very small amounts of carbon dioxide and carbon monoxide into the atmosphere. Because tension may be heightened if smoking is banned, it may be possible to work out acceptable smoking regulations.

## Types of Air Exchange

Air exchange refers to the introduction of fresh air into the shelter from the outside, and the simultaneous removal of stale air from the shelter to the outside. The control of temperature, humidity, air composition, and discomfort factors depend to a large extent upon the amount of air which is exchanged.

The control of atmospheric and temperature conditions can be accomplished most readily and economically by one of two types of ventilation: natural or mechanical. At present, ventilation equipment is not part of the OCD stocking program; consequently, most shelters will have to depend upon natural ventilation for air exchange.

### Definition of natural ventilation

Natural ventilation is the circulation of air through wall cracks, open doors, and windows, around closed doors and other openings present in shelters which are above ground or in unsealed basements. Under conditions of natural ventilation, several problems can be anticipated very early in the shelter stay, such as rapidly rising heat and humidity, stale air, and odors--all of which may add to general discomfort.

### Definition of forced ventilation

Forced or mechanical ventilation is the more effective method for providing air exchange. This method employs mechanical equipment such as fans and blowers to exchange air. In shelters employing mechanical ventilation, the ventilation system should be installed and operational before shelter entry. It may be possible to improvise or improve mechanical ventilation by utilizing portable ventilating equipment such as fans or small air conditioners which may be available if the shelter is part of an existing structure.

### Determination of shelter capacity

It is difficult to determine the amount of air exchange which will be necessary for a given shelter population. The amount of air exchange required will depend upon such factors as the size of the shelter, number of shelterees, and outside environmental conditions which include temperature and humidity.

### Natural ventilation and shelter capacity

In cases where the capacity of the shelter has not been determined prior to shelter entry and no mechanical air exchange is available, the shelter management will have no way to estimate how much air is coming into the shelter or how many people the atmosphere can accommodate. Consequently, the use of natural draft ventilation may limit the number of shelterees that can be adequately provided for in the shelter. If the shelter capacity is unknown, the manager may crowd the shelter area to its physical limit to provide initial protection for as many shelterees as possible. In such cases, however, a part of this population may have to be moved to other shelter areas as soon as external radiation levels decrease or the atmosphere becomes intolerable.

### Forced ventilation and shelter capacity

In a shelter using mechanical ventilation, three cubic feet of fresh air per person per minute has been widely suggested as a minimum rate of air exchange for maintaining a safe atmospheric composition. However, this rate of exchange will be inadequate for limiting the increase in temperature and humidity during warm weather unless supplementary cooling is provided.

## Atmospheric and Temperature Control in OCD Stocked Shelters

### Control of Natural Ventilation Problems

There are two general approaches to alleviating the problems of natural ventilation. The first involves the control of shelter activities to conserve the amount of air which is used. This means curtailing physical activity, eliminating smoking, and prohibiting the use of heat-producing appliances. The second approach is to increase the amount of air in the shelter by such procedures as opening windows, doors, or openings to vent shafts.

### Control of high effective temperature

Reduce activity. As long as external temperatures are high or the shelter overcrowded, physical activity should be kept at a minimum. Sleep and minimal activity will not only lower the heat production of the body, but it will also reduce the output of perspiration thereby helping to decrease the humidity. Only enough exercise should be allowed to keep the shelterees from becoming weak or cramped.

Avoid heat-producing appliances. Heat-producing appliances, such as hot plates or boilers, should be used only when absolutely necessary.

Utilize initial coolness. Initially, the earth surrounding an underground shelter may give some cooling effect for the first day or two, after which the temperature in the shelter will increase rapidly. If shelter is taken during hot weather and is comparatively cool, the shelter should not be heated. The temperature will rise quickly enough.

Prevent evaporation. Evaporation from various sources can result in increased shelter humidity. All water cans should be kept covered and human wastes and wet garbage should be covered and removed from the shelter as soon as possible.

#### Control of low effective temperature

Physical activity. Unrestricted activity, exercise, and close body contact will help to raise both the body and the shelter temperature. Planned shelter activities, such as calisthenics, may be organized.

Hot beverages and food. Heated food and beverages will make people feel warm and will thereby aid morale considerably.

Improvise covers. Covers may be improvised from newspapers, cardboard, or any other available materials. In addition, clothing can be most effectively utilized if taken off and then wrapped around the body. This will serve as insulation to reduce the loss of body heat.

### **Control of Atmosphere Components Without Special Equipment**

In addition to the above procedures, the following actions will help to maintain an acceptable atmospheric balance.

Control smoking and fumes. Unless all engines are vented to the outside, they probably should not be operated unless they are in a separate, uninhabited, closed room. Smoking may have to be prohibited since smoke contains carbon dioxide as well as carbon monoxide.

Open the shelter. If ventilation is inadequate and shelterees begin to show signs of insufficient oxygen or too much carbon dioxide, the shelter manager may have to open the shelter; that is, open doors, windows, or in some way provide openings for additional air circulation.

Move shelterees. If the above procedures do not work, it may be necessary to move a part of the shelterees to other shelter areas. As a last resort, some of the shelterees may have to be moved to another shelter if suffocation is the alternative.

Avoid sources of carbon monoxide. Shelterees should be made aware of the sources of carbon monoxide and instructed to avoid them. For example, if an open flame is to be used for cooking or lighting, it should be burned only if the fire is placed beneath the exhaust pipe and ventilation is activated. It has been recommended that an open flame should be allowed to burn for a short time only, after which the shelter should be ventilated as thoroughly as possible.

### Control of Odors and Smoke

Although shelterees will adapt to disagreeable odors, an effort should be made to reduce certain odors in the shelter.

1. Bodily wastes should be sealed in containers and disposed of as soon as radiation allows.
2. Bodies should be removed from the shelter as quickly as possible.
3. It may be necessary to prohibit smoking, or to limit it to certain areas in the shelter or to certain times of day.

## Atmosphere and Temperature Control in Shelters With Augmented Capabilities

Mechanical ventilation equipment may range from a handcranked blower to an elaborate ducted system with automatic intake and exhaust blowers. Forced ventilation with air conditioning is the most protective and effective system of air supply, because it can provide cooling and dehumidifying with a minimum intake of fresh air.

### Elements and Problems of Mechanical Ventilation System

Equipment. The problems which arise in the use of mechanical ventilation will generally be associated with operation, maintenance, and limitations of the equipment. Depending upon the capacity and efficiency of the equipment, it may be also necessary to augment a mechanical system with the procedures recommended for natural ventilation in order to increase the comfort of the shelter.

Upon shelter entry, the ventilation system should be prepared for operation, tested, hooked to auxiliary power, if necessary, and malfunctions corrected. In anticipation of blast, the equipment should be shut down to minimize damage unless automatic blast protection is provided. The equipment should be ready to hook up to auxiliary power the instant public power sources fail.

Power supply. All forced-ventilation systems will require some type of power, either from public utility, or auxiliary power sources. In the absence of power, the shelter is limited to the procedures for naturally ventilated systems unless manually-operable blowers are available.

Technical personnel. Although a mechanical ventilation system can generally be operated by untrained persons, a competent technical supervisor and crew should handle repair and maintenance aspects of the ventilation system. If trained personnel are not in the shelter, a temporary team should be selected from among the first incoming shelterees with relevant experience to operate the ventilation system during the initial stage of the shelter stay. After the initial phase has passed, the manager may want to recruit people with more skill and experience to the permanent technical operations staff.

Technical information. To operate all the mechanical equipment in the shelter, technical manuals on operation, maintenance, and repair for each piece of shelter equipment should be attached to that equipment or located in a convenient place. The technical supervisor should inform the manager immediately if he cannot operate any of the equipment, or if unexpected problems or malfunctions develop.

## Control of High Effective Temperature

### Utilize air conditioning

Only air conditioning offers a high degree of control of both temperature and humidity. In cases where mechanical ventilation is inadequate to maintain the effective temperature at a tolerable level, the procedures discussed in the previous section may supplement the forced-ventilation system.

### Utilize high air exchange

If the shelter has a large air intake, large quantities of outside air may be used to limit the dry-bulb temperature rise to 10° F. or less. However, during warm, humid weather this offers limited control of temperature and no control of humidity.

### Problems in temperature control with mechanical ventilation

Temperature variation. The area at the intake opening may be relatively cool and drafty compared to the hot, humid air at the exhaust outlet. Consequently, shelterees may tend to crowd towards the intake opening to compensate for the temperature variations. Because this condition may create friction over shelter location assignment, the shelter manager may wish to arrange some form of rotation. In addition, those shelterees who are particularly weak or exhibiting effects of heat may be given preferential location.

Power or equipment failure. If a shelter is designed to use mechanical ventilation, serious problems may occur in the event of equipment malfunction or power loss. If the system cannot be repaired, the shelter will have to follow the procedures for a naturally ventilated shelter.

## Control of Low Effective Temperature

### Utilize a heater

If a heater is used to warm the shelter, the twofold problem of power drain from electric heaters and ventilation problems from gas or open-flame heaters must be anticipated. Unvented or open-flame heating appliances should be avoided.



## Control of Atmosphere Components with Special Equipment

Mechanical ventilation equipment. Large quantities of fresh air will re-establish a healthy balance of air components, minimize the problem of shelter and body odors (especially if air is exhausted through the toilet rooms and other odor-producing areas), and reduce irritations from smoke.

Oxygen tanks. In some specially-equipped shelters, oxygen regeneration can be accomplished by bleeding oxygen from large tanks into the shelter proper. For such a procedure, it will be necessary (1) to have trained personnel, and (2) to orient the shelterees on necessary safety precautions against fire hazards.

Chlorate candles. These can be easily stored and burned to give off small amounts of oxygen. Because this method does create considerable heat which will raise shelter temperatures, and, because these candles require special facilities, they may not be desirable unless air cooling is also used.

Carbon dioxide absorbers. Carbon dioxide can be absorbed by several materials, such as soda lime or special preparations for this purpose. These can increase shelter heat beyond desirable levels and may also be fire hazards. They must therefore be used by trained personnel and, generally, in conjunction with air cooling units.

## Filtration

Filters are not a part of the present Federal Marking and Stocking Program. However, some shelters with augmented capabilities will have filters installed. These guidelines are included for the managers of such shelters.

Filters serve one or more of the following purposes: to screen out radioactive particles from incoming air, to absorb noxious and toxic elements, and to reduce unpleasant odors. Filters are often used in rows or banks of increasing fineness to perform all of the above functions.

Two kinds of filters may be available in the shelter:

1. A pre-filter may be used to remove dust and coarse particles which would otherwise clog the finer, particulate filter. This type of filter is generally adequate for fallout particles.
2. An absolute filter efficiently removes all particles down to 0.3 microns. It must be protected from snow and rain.

### Factors to consider in the use of filters

Radioactivity. Filters should be shielded and isolated from the shelter area because they can become radioactive from accumulated fallout particles. The area ground filters should be monitored regularly to detect contamination. If possible, the filter should be changed or removed, or the shelterees located away from the area.

Insufficient air. If a filter is to be used, some type of forced ventilation system is required to overcome the resistance which incoming air meets when being pulled through the filter. As it becomes clogged by dust or particles (which may or may not be radioactive), resistance to air flow increases and the rate of air flow may be substantially reduced. Although filters vary in dust-holding capacity, if the filters are clean at the beginning of occupancy, the increased resistance due to two weeks operation should not be excessive.

Susceptibility to damage. All filters are susceptible to blast damage with the exception of a sand or gravel filter which may help to absorb shock from blast. Humidity is a problem particularly for chemical or charcoal filters, which can be destroyed by high humidity. Without air conditioning capabilities, these filters may have limited life.

**CHAPTER 6**

**FOOD**

## CHAPTER 6 OUTLINE

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## Food Requirements and Problems

A major consideration in any shelter stay will be the availability of a food supply. Food is less essential to shelter survival than is water, and healthy individuals should be physically able to survive a shelter stay without any food. However, such deprivation will impose hardships on all inhabitants, and may create serious problems for management. To prevent this, OCD is stocking shelters with survival rations which are minimally adequate to permit shelterees to endure the shelter stay both physically and psychologically.

The following information pertains to the general survival needs of the shelterees:

1. Adolescent and young adult males will have greater need for food than will the shelterees whose growth processes have ceased.
2. Infant nutritional needs are a function of their weight and size. Although normal diet for an infant will supply about 60 calories per pound per day, infants will survive on one-third of this amount.
3. Pregnant and lactating women will have considerable increased caloric requirements. A lactating woman generally needs 1000 additional calories in order to produce adequately nourishing milk.
4. In addition, the aged, sick, and very young will have special nutritional needs which may be complicated by their difficulty in consuming enough survival ration to meet minimal needs.

### Relationship of food to water

Because water consumption will probably be limited, certain foods which increase the demand or need for water should be restricted. Food which increases thirst such as salted foods, high protein or high vitamin supplements which require increased water, or foods which require much water in preparation should be avoided in shelter stocks unless additional water is likely to be available.

### Effects of food deprivation

Healthy people can survive two weeks and longer without food, as long as they can drink minimal amounts of water. These persons, however, may experience psychological and physiological problems which will make it difficult for them to endure the shelter stay. In addition, shelterees deprived of food may be too weak to begin the tasks of the post-shelter period.

Physiological. Over a period of time, food deprivation is likely to cause weakness, tiredness, and deterioration of muscular coordination. Shelterees may have hunger pains, become dizzy, and black-out upon standing up suddenly, and, in general, have difficulty concentrating on their tasks.

Psychological. Hunger may become the dominant factor affecting the behavior of shelter occupants, and they will be constantly preoccupied by thoughts of food. Ultimately, many of the shelterees may exhibit apathy, decreased efficiency, and irritability. Depression, anxiety, and pre-occupation with bodily concerns also may become very widespread in shelter. As a result, some of the shelterees may even attempt to steal food.

## Food Resources in Shelters

The Federal Marking and Stocking Program is supplying survival rations to all marked shelters. In addition to the stocked food, some food items may be brought in by shelterees at entry, and some foods may be available within the building housing the shelter.

### OCD Survival Rations

The survival ration consists of 10,000 calories per shelter space, which will provide an inactive adult with the essential dietary requirements to maintain him during the anticipated shelter stay in condition to resume an active and productive life upon emergence.

#### Types of survival rations

Two basic types of survival rations (a wheat biscuit and a wheat-corn cracker), and a carbohydrate (hard candy) supplement are being stocked. A third type of ration, now under test, may be added to the stocking program. This is the bulgar wheat wafer. Because more than seven to eight per cent protein in the diet will tend to raise individual water needs, all contain minimal amounts of protein. The carbohydrates in the form of hard candy will not exceed one-third of the total diet by weight. Table VI indicates the types of ration, how they are packaged, a description of the food, and recommendations on how to eat it.

### Other Possible Food Resources

In addition to survival rations, there are other potential sources of food that are likely to be found in many shelters, such as vending machines, stores, concessions, and kitchens within the shelter building. Also, persons may bring food into the shelter upon entry.

### Standard Food Supplies

Some shelters with an augmented food capability will have various kinds of commercially available processed foods which approximate a standard diet. These items may range from candy bars to the one-meal, ready-to-serve dishes. Canned foods will generally contain: meat and fish dishes, soups, fruits, vegetables, juices, spaghetti, puddings, etc. Other foods will be coffee, tea, sugar, dry milk, and crackers.

Table VI.  
Food Rations Stocked by OCD

TYPE	PACKAGING	DESCRIPTION	HOW TO EAT
Biscuit, wheat flour, baked	The unit of issue is 5 pounds (10,000 calories) per person. The food items will usually be packaged in cases of six 2.5 gallon cans and cases of two 5 gallon cans. The case containing the six 2.5 gallon cans will provide 10,000 calories per person for 7 persons. The case containing the two 5 gallon cans will provide 10,000 calories per person for 5 persons. Can opener supplied in sanitation kit.	Similar in taste and appearance to graham crackers; 2" x 2" equals approximately 22 calories. 2.5" x 2.5" equals approximately 30 calories.	1. Dry, as a cracker. 2. Spread with jam, peanut butter, cheese.
Cracker, wheat-corn flour baked  Carbohydrate (Hard candy) supplement	Same as biscuit.  Loose in 5 gallon square tins with 20 polythelene-treated paper bags; two tins per case.	Same as biscuit.  Flavors similar to lemon and cherry drops, forming one-third (by weight) of the food ration in lieu of an equivalent quantity of biscuit, or approximately 20 calories per piece.	Same as biscuit  Eaten as hard candy. A daily ration may be distributed to shelterees if there are enough bags; or a portion distributed at each meal time.



Table VI. (Continued)

TYPE	PACKAGING	DESCRIPTION	HOW TO EAT
<p>Wafer Wheat based (Bulgur)</p>	<p>ADDITIONAL SURVIVAL RATION UNDER CONSIDERATION BY OCD</p>	<p>Approximately 2" x 2" x <math>\frac{1}{4}</math>" or 1 <math>\frac{3}{4}</math>" x 1 <math>\frac{3}{4}</math>" x <math>\frac{3}{8}</math>" Each wafer weighs about .7 of an ounce and contains approxi- mately 75 calories.</p>	<ol style="list-style-type: none"> <li>1. Dry, as a cracker.</li> <li>2. Spread as biscuit.</li> <li>3. As supplementary ration:               <ol style="list-style-type: none"> <li>a. crumbled with milk and sugar</li> <li>b. crumbled with hot sauce like chili or spaghetti</li> <li>c. added to soup like rice or barley</li> <li>d. served as soft gruel for aged and children</li> </ol> </li> </ol>

## Experimental Adjuncts

At present, the stocking of adjuncts as supplemental toppings for OCD survival rations is being investigated. Many of these adjuncts have been specially designed and adapted for the requirements of shelter stocks in terms of long shelter life and ease of preparation.

### Purpose of adjuncts

It is hoped that the supplemental food adjuncts will increase the palatability, raise the caloric content, minimize the diet monotony, and improve the nutritional balance of the survival ration. Those adjuncts which contain a high protein content should be used in limited quantities in order not to increase the need for water.

### Types of adjuncts

Dry mixtures. These are dehydrated foods which would be prepared by the addition of hot or cold water. Included in these categories are spreads, soups, sauces, gravies, desert toppings, and non-fat dry milk.

Concentrated and non-concentrated canned foods. These canned stocks, similar in kind to the above mixes, have a relatively shorter shelter life, but are easier to prepare since they can be eaten heated or as is.

Special foods. These are back-up stocks which include: (1) a general non-fat dry milk or concentrated milk formula for bottle-fed babies, and (2) an enteric formula for persons suffering from acute digestive disturbances. These foods require only the addition of water.

## Elements of a Shelter Feeding System

This section will discuss the common aspects of rationing, scheduling, preparation, distribution, eating facilities and clean-up for all types of shelter foods. Following this, procedures will be specified for shelters with OCD stocks, augmented stocks, experimental adjuncts, and for special problems.

### Rationing

Under most shelter conditions, food supplies will have to be strictly apportioned for the duration of the shelter stay. In shelters using OCD survival stocks, the basic food ration may be increased through additional food supplies, or may be decreased by such factors as overcrowding, food loss, and a longer-than-forecast shelter stay. Shelter management should explain the reasons for rationing and maintain close control over food distribution procedures to insure that rationing is carried out according to plan.

#### Factors related to food apportionment

Before the first meal can be served: (1) a census of the shelter population, and (2) a complete inventory of the food supplies must be taken. In a very large shelter with a large food supply, the population and food inventory may have to be estimated for the first meal. With this information, the manager, with the assistance of the food supervisor, can decide what the ration per shelteree should be. Until information about external conditions is available, the confinement period should be estimated at two weeks. Shelter management may wish to initially use standard OCD stocks at a rate of about 700 calories per day. Even if a larger ration is permissible, this will allow a small surplus for unexpected problems.

The following unanticipated conditions may force revision of the rationing procedures at any time:

1. Overcrowding: Because public shelters are stocked with food supplies according to their designated capacity, the food ration available per individual shelteree will be reduced if the shelter is crowded beyond that capacity.
2. Food spoilage or loss: The amount of food available in the shelter may not be sufficient due to food spoilage or damage.
3. Extended confinement: If confinement period extends beyond the anticipated length of stay, the available rations will have to suffice for a longer period.

### Alternative approaches to reduction of rations

If under one of the above conditions, the ration has to be decreased appreciably, the manager can choose one of two approaches to rationing:

Immediate reduction of food intake. The reduced rations could be allotted in equal portions for the duration of confinement. The digestive system will quickly adjust to the reduced diet. If excess food is left at the end of the shelter stay, it can provide the shelterees with extra energy and strength for post-shelter activities.

Gradual reduction of food intake. An alternative approach involves a gradual reduction in the food intake over a number of days. Because this does not expose the shelterees to drastic physiological and psychological adjustments, they may be better able to adjust to a gradual cut-down in food intake than to a precipitous one. However, the continual reduction of the ration and the resulting austerity, may affect morale and cause control problems.

### Equal versus special rations

Generally an equal ration, no matter how limited, will be the most acceptable form of rationing particularly in larger shelters. If, however, the shelter population is highly motivated and cohesive, different rations may be established for different people according to their needs. For example, persons engaged in physical activities, ill people, pregnant and lactating women, and adolescent males may be given slightly larger rations. If such a procedure is adopted, the reasons behind it should be made clear to the shelter population.

Because some shelterees may never eat as much as allotted, and others may not eat their total ration at every meal, some flexibility may be introduced into the rationing system if shelter size and manageability make it possible. In small shelters, a food account or record may be kept for all shelterees. If an individual does not wish to eat his entire meal allotment, he may return it to the food team, and request it at a later time. This has a sanitation advantage over permitting the individual shelteree to keep his uneaten crackers in his pockets, and also provides greater management control over food supplies, should some rationing adjustments be necessary. However, as indicated above, the practicality of such a system may be limited to certain types of shelters.

Under all approaches to rationing, each Unit leader should watch for food problems within his group, try to determine the cause, and find an acceptable solution.

## Scheduling Meals

### Number and timing of meals

Even if the food supplies are very limited, it is desirable to prepare and serve meals in a regular schedule. Suggested schedules are discussed in the chapter, "Shelter Administration." If a change in the meal schedule is necessary, it should be announced and explained as soon as possible.

It is recommended that shelter management try to distribute five or six approximately equal servings throughout the day, or three larger servings at mealtime and two or three smaller amounts between meals.

The reasons for distributing five or six smaller portions of food through the day, as opposed to serving three meals are: (1) to make the survival ration more palatable by serving smaller quantities at any one time, (2) to reduce the feelings of hunger due to the limited amounts of food, and (3) to break the monotony of the routine by scheduling food and water "breaks" during the day.

Although in some large shelters frequent food distribution may cause traffic and supply problems, wherever possible management should try to make the multiple serving schedule work.

### First in-shelter meal

The first meal should be served as soon as feasible after the following conditions have been considered and met:

1. Shelterees should be organized into some type of initial grouping in order to minimize confusion and traffic congestion.
2. All feeding procedures including rationing, preparation, and distribution should be established.
3. Shelterees should be sufficiently recovered from the shock of disaster to be able to eat and indicate a desire to do so. During the first hours after entry, most shelterees may not be hungry.
4. In addition, the first in-shelter meal may be established in relation to the last regular meal that people had before entering the shelter.

### Meal schedule for infants and young children

Bottle-fed infants will require a regular feeding schedule. When there is a large ratio of infants in the shelter, it will be necessary to adhere closely to this schedule. If, however, there are few infants in the shelter, the individual infant's usual routine should be retained whenever possible.

### Number of shift feedings

Whenever possible, one feeding shift should be maintained for all shelterees. In cases where there is more than one sleeping shift, more than one feeding shift may be necessary. A recommended schedule for shift feeding will be found in Chapter 15, "Shelter Administration."

In some cases, the shelter will operate on one shift, but because of limited food preparation facilities or special eating areas, all shelterees cannot be fed at one setting. Consequently, each meal should be served consecutively until all are fed.

## **Food Preparation**

### Food preparation area (kitchen)

In this report, a kitchen refers to a specific food preparation area regardless of the type of food or the complexity of preparation. This area should be separated from the rest of the shelter by a physical barrier, which can be improvised from furniture or stacks of supplies if necessary. It should be within easy access of the food storage area(s) and as far from the toilets and sick bay as possible.

### Centralized versus decentralized food preparation

There are two approaches to food preparation: centralized preparation where all food for the entire shelter is handled in one kitchen area, and decentralized preparation where food processing is divided among several kitchen areas.

### Advantages of the centralized kitchen

The centralized kitchen offers the following three general advantages:

1. It allows optimum control and supervision of food activities, such as rationing, preparation, and distribution.

2. It requires the minimum amount of equipment and personnel for efficient operation.
3. It uses the least amount of shelter space.

When certain conditions of size and shelter configuration preclude the use of a centralized kitchen as the most efficient approach, decentralized kitchens may be used to minimize traffic congestion problems in the preparation and distribution of food. The latter approach also spreads supervision responsibilities to a lower echelon, which can reduce the management burden when there are too few trained managers to carry out all responsibilities.

#### Recommendations for establishing a food preparation area

Whether one centralized or several decentralized kitchens will be used in a shelter will depend upon several factors, such as: the size of the population, shelter configuration and available kitchen space, and amount and type of food supplies and equipment. Below are elaborations on these factors.

A centralized kitchen is generally recommended under one of the following conditions:

1. If a population is under 300.
2. If a shelter consists of a single, relatively manageable area.
3. If shelter space is at a premium.
4. If the amount of food is insufficient or severely rationed during the shelter stay.
5. If the food is packaged in large bulk quantities.
6. If the amounts of equipment and utensils are restricted and inadequate for more than one kitchen.
7. If the food needs to be heated, and ventilation is limited.

However, if the shelter population is large, containing two or more Divisions, or if the shelter consists of several separated areas or one extremely large area, a decentralized kitchen may have more advantages.

#### Preparation of food

Food preparation procedures depend largely upon the type of food and feeding equipment that is available. The procedures include unpacking,

opening, and, where called for, mixing, heating, and cooking. Specific preparation procedures for OCD and augmented food stocks are discussed in later sections of this chapter.

Food personnel must exercise extreme precautionary measures to prevent the occurrence and the spread of disease. Food handlers should wash or cleanse their hands before touching the food; and all utensils used should be sanitary. Only authorized persons should be allowed into the food preparation area.

### **Distribution of Food**

The criteria for successful distribution of food are efficiency, and minimal waste. Shelterees must receive their allotted portion of food with minimal confusion and spillage and within a reasonable time period.

#### **Moving-point versus fixed-point distribution**

Food can be distributed either (1) by taking the food to shelterees, or (2) by having shelterees go to the food. The first procedure is called moving-point distribution and the latter--fixed-point distribution.

The selection of fixed- or moving-point distribution will depend upon such factors as: the density of the population, the type of food to be distributed, and the configuration of the shelter.

#### **Advantages of moving-point distribution**

The moving-point approach will minimize traffic problems because only distribution personnel and equipment will move. It will also utilize shelter space more efficiently. In addition, it will facilitate feeding shifts by giving greater flexibility to the time for distribution and for eating.

#### **Advantages of fixed-point distribution**

The fixed-point approach provides for optimum control of food apportionment, sanitary conditions, and minimization of waste, and it requires the minimum amount of equipment and personnel for efficient operation.



### Recommendations for food distribution

Under the following conditions, food should be carried to the shelterees:

1. If the shelter has more than one area, and only one central kitchen.
2. If the shelter is crowded and the movement of large numbers of people difficult. However, the food should be relatively simple to carry.

Under other conditions, shelterees should go to a fixed-point to pick up their own food:

1. If the shelter is not crowded and there is enough space to allow a smooth flow of traffic.
2. If food supplies are severely rationed, for better control of rationing and minimize the waste.
3. If foods prepared in bulk form, may involve spillage if moved or carried (unless these foods are pre-packaged, individual ration type, such as a one-dish meal).

## Eating Facilities

### Location of eating area

Wherever feasible, a separate eating area is recommended to increase management efficiency and shelteree comfort. Although this area is less important in shelters serving only survival rations, it should be provided where possible. When not in use as a dining area, it can be used for training or recreation purposes.

The eating area should be located close to the food preparation and distribution points, and away from the toilet areas and sick bay.

Where a separate eating area is not practical, shelterees will eat in their assigned living area.

### Equipment for eating areas

If benches or tables are not available, it may be possible to improvise facilities from materials in the shelter. For example, benches can be made from unhinged doors, set on boxes of supplies or water drums.

### Clean-Up and Garbage Disposal

The procedures for clean-up and garbage disposal will necessarily vary according to the type of food available in the shelter. More information on this subject can be found in the sanitation chapter, page 151.

## Procedures for OCD-Stocked Shelters

The following section is divided into specific procedures for food preparation, distribution, consumption and clean-up for shelters with OCD food stocks.

### Preparation of Survival Stocks

To prepare survival rations, the following functions must be performed:

1. Take inventory of the stocks.
2. Open the cases and cans containing wafers or crackers and those containing the carbohydrates (hard candy) supplement in a systematic fashion to avoid opening more food than is needed at any one time. Shelter humidity may quickly make exposed rations stale, soggy, or sticky.

All cases, cans, and wrappings should be opened carefully to preserve them for other uses. Fiberboard cases should be opened so that the top will form a lid; wrappers can serve as bags or envelopes, and can be used as receptacles. All these items should be collected when empty and handed over to the supply team.

3. Dole out the appropriate amounts and prepare them for distribution. For instance, the carbohydrate supplement will have to be apportioned into individual bags for distribution.
4. If gruel is to be made (particularly for infants, sick, and elderly), rations will have to be mixed with water in individual cups. Eating utensils will have to be improvised because none are stocked.

### Equipment for preparing survival rations

The only equipment needed is a knife to open the cases, a can opener, and a cup and polyethylene-treated bags for the carbohydrate supplement. All, except the knife, are included in the stocks. A working surface can be improvised by stacking a few unopened cases to an appropriate height.

### Personnel to prepare survival rations

A food team should be recruited to prepare the survival rations. Although these people will not need to be trained, they must be responsible persons who will observe all sanitary rules. The size of the team will depend upon the size and configuration of the shelter.

## Distribution of OCD stocks

### Distribution schedule

Food should be served one meal at a time, and only at scheduled times. Even when the shelter is overcrowded, shelterees should not receive an entire day's rations at once because: (1) feeding is an important scheduled activity which breaks up the day, and (2) shelterees would have no place to store their rations and any unwrapped biscuits would get crumbled and/or dirty.

### Fixed-point distribution

After the preparation of the rations, distribution personnel will open wrappers (if necessary) and dole out the appropriate portion to each shelteree at the specified distribution area. Care must be taken to insure equal distribution, and to see that no food is wasted. Extra rations should be returned to the food crew immediately, who will redeposit them in the stocks.

### Moving-point distribution

Either a distribution team will take rations to the shelteree groups or the appropriate group leader will come to the distribution area to get rations for his group.

### Equipment for distribution of survival ration

When the moving-point approach is to be used, simple equipment such as trays, baskets, or cans may be employed to carry rations to the shelterees. They may be improvised from water drum lids, food case covers, empty cans, and cardboard containers.

In fixed-point distribution, each shelteree will carry his own food; consequently, no equipment will be required.

### Personnel

In a large shelter, a distribution team should be appointed to allocate all food rations. The activities of this team require no training or skill.

The number of people needed for distribution will depend upon: (1) the size of the population, (2) whether a central kitchen or several kitchens are operating, and (3) the method of distribution used. For a small shelter, part of the feeding team can be used to distribute the food, and in a large shelter, a separate team should be organized.

In central kitchens, the food distribution should be directed by the food team supervisor, who will be responsible for all food operations. In a large shelter, the distribution of food may be done from several kitchens, each of which will serve one or more Divisions.

### Consumption of Survival Rations

Management can anticipate some problems concerning the acceptance of survival rations. Some shelterees may be reluctant to try the survival rations or may find them unpalatable. However, with increase hunger, this initial reluctance will tend to disappear. Other shelterees may find the rations initially palatable, but due to the unrelieved monotony of the diet, they may find it more difficult to accept the rations after a period of time. Any food variety that can be introduced into the diet will increase shelteree acceptance of food, and may prove to be a significant morale factor.

One way to deal with these problems is to modify the food distribution system. If the shelter is of a manageable size, a flexible policy of food distribution may be introduced which will allow shelterees greater freedom in selecting the amount of their rations they will consume at any one serving. In such cases, a record would have to be kept of food and water rations for each shelteree.

### Clean-Up and Garbage Disposal

Very little trash or garbage can be expected in shelters whose food supplies consist of the Federal stocks. There may be crumbs and bits of hard candy which should be collected and placed in containers provided for the purpose. Wrappers, empty cans and cases, and any other re-usable waste should be collected for other uses, and Unit and Section leaders should see to it that no littering and spilling occur during and after the meal.

Although care should be exercised in clean-up under any conditions, a thorough clean-up after each meal is even more important in shelters where food must be served in the living area.

## Procedures for Shelters With Augmented Foods

### Preparation of Augmented Foods

Although very few shelters will have food supplies approximating a standard diet, those which do will very likely have plans for the food preparation, food service, and food distribution phases of their feeding activity. In those shelters, equipment and utensils required to prepare and serve the food will have been stocked. It can be assumed that the personnel responsible for food preparation have been designated in advance, and familiarized with their responsibilities, the available resources, and recommended procedures.

#### Menu planning

If a variety of foods are available, they should be rotated to provide variety. It is advisable to plan the menu at least several meals ahead.

Another problem of planning will involve calculating the amount of bulk foods to be opened. Because many bulk foods are perishable, they should be consumed in one sitting unless refrigeration is available.

#### Relationship to water

When augmented food supplies are to be used, an additional water supply is almost always necessary. Although foods which provoke thirst or require large quantities of drinking water should be limited, an augmented diet is likely to include some high protein foods which will raise the water requirements.

Also, additional water will be needed for minimal clean-up of eating utensils and cooking facilities.

#### Heating or cooking foods

Several factors must be considered before food and water should be heated, such as: whether there is adequate control of temperature and humidity, whether the power drain is justified, or whether there are adequate safeguards against fire hazards. If it is feasible to use heat, the equipment which may be used include immersion units, hot plates, large coffee urns, stoves, ovens, etc.

Non-concentrated canned foods can be heated by placing the unopened cans in a large container of warm or hot water. For this purpose, even water used for cooling diesel-powered generators can be used.

Personnel

To prepare augmented food, a larger and more organized food team will be desirable, preferably under the supervision of a trained supervisor. If a pre-trained person is not available, someone with knowledge of nutrition and food handling can be appointed.

**Distribution of Augmented Foods**

Distribution of augmented or bulk foods is more complex than survival rations because of the possibility of spillage and spoilage.

Procedures and personnel

For a fixed-point distribution, shelterees should proceed to the service center, receive their meals, the necessary utensils, and return to the area designated for eating.

For a moving-point distribution, plates of food and the necessary utensils should be carefully carried to the shelterees located in a designated place.

Because some of the food may be in a liquid or semi-liquid form, all personnel engaged in distribution should be cautioned against spillage. The personnel requirements will be the same as for personnel distributing OCD rations, page 97.

Equipment for distribution

For the service of bulk food at a fixed point, a special service area, adjacent to the kitchen and separated from the rest of the shelter, is desirable. Counters, tables, and benches may be improvised where needed.

For moving-point distribution, improvised trays may not be stable enough. Carts or baskets may be more efficient and help to prevent spillage.

In addition, bulk or supplemental foods will require ladles and containers for distribution.

## Consumption of Augmented Foods

Unit and Section leaders should eat with their groups to see that all receive and eat rations and that traffic and sanitary rules are observed.

### Eating utensils

Shelters serving foods other than survival rations will require the use of eating utensils, plates, cups, bowls. Normally, it can be expected that shelters with augmented food capabilities will have sufficient eating utensils, and ample water and soap or detergents to keep the utensils clean. If, for some reason, there is no way to clean plates and utensils, shelterees should be allowed to keep their own and be responsible for cleaning them as best they can.

In the event that eating utensils are unavailable, plates may have to be improvised from wrappers, empty cans, or can lids.

### Clean-up and garbage disposal

In shelters with augmented food capability, the clean-up procedures will be more complex.

Trash and refuse may consist of left-over food, disposable eating utensils, spilled food, and wrappers, all of which should be collected promptly and placed in appropriate containers. It will be particularly necessary for Unit and Section leaders to see that all spoilable food is eaten or returned for proper storage in order to avoid food poisoning.

When eating utensils are re-usable, and when cleaning supplies are available, they should be collected and cleansed carefully by a special crew of the feeding team. A sterilizing solution, if available, will be most desirable. The shelter manager must make the allocation of water for this purpose. If water is not available, each shelteree should keep the re-usable eating utensils throughout the confinement period, and clean them to the best of his ability after each meal.

All cooking utensils should also be carefully cleansed.



## Procedures for Experimental Adjuncts

The procedures for the use of experimental adjuncts is similar to those for augmented foods with the exception of certain guidelines for preparation which are given below.

### Preparation of Experimental Adjuncts

#### Menu planning

Main dish toppings such as soups, gravies, and sauces have more protein content than survival rations. When such toppings are used the amount of survival crackers should be reduced to balance protein intake (and calories if rationing is necessary), unless additional water is available.

#### Reconstitution adjuncts

Some dry mixtures and concentrated foods, reconstituted with warm or hot water, form the various toppings to be served as main dishes or soups with the crumbled shelter ration. Although a heating capacity is desirable for the preparation of some adjuncts, they can be eaten cold if necessary. Other dry mixtures and concentrated canned foods use cold water for reconstitution to make the various dessert toppings, jams, and jellies.

The dry mixtures and concentrated foods should be prepared in bulk in one or more large containers, using the appropriate number of cans and only the necessary amount of water.

#### Equipment for adjuncts

Containers for the preparation of toppings will be necessary. If these are not specifically supplied, empty survival ration cans and empty hard candy cans can be used. Can openers and some utensils to mix and serve the foods, such as long-handled spoons and ladles will be needed. While plates and spoons are desirable, they can be improvised from can lids, and parts of lids when not available.

#### Preparation of individual servings

The rations should be crumbled by the preparation team and served on individual plates. The toppings may be added to the crumbled rations just before distribution to prevent the wheat from becoming a soft gruel.

## Special Feeding Problems

### Feeding of infants

The ideal food for infants is the breast milk of the mother. If breast feeding cannot be accomplished or if such feedings must be supplemented, a formula should be used. One standard formula consists of evaporated milk (one can), and water (19 ounces).

When the number of infants in shelter is small, mothers and mother substitutes should prepare their infants' formula. For larger ratios of infants, a special feeding team should be responsible for this activity in order to minimize the risks to health. The actual preparation should be carried out by the same people, who should generally perform this task for the duration of the shelter stay.

There will be no special distribution required in small shelters, however, for shelters with a large infant population, the food should be distributed to the mothers by a special member of the feeding team. Depending upon traffic problems, the mothers should either personally get the formula from the preparation area or, under crowded conditions, the infants' formula will be brought to her.

### Food for persons with acute digestive disturbances

When such food is available, a specific member, or members, of the preparation team should assume the responsibility for its preparation.

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<sup>1</sup>Wells, F. E. An evaluation of emergency rations designed for fallout shelters with respect to the characteristics of the population. Denver: Midwest Research Institute, 30 November 1962, page 15.

## Foods Which Contain Radioactive Particles

When radiation levels decrease to a point where selected teams can make temporary trips outside the shelter to obtain needed stocks, food items may be brought back to augment shelter supplies. In some cases, food contaminated by radioactive particles may be brought into the shelter. In addition, shelterees entering the shelter after fallout has arrived, may bring contaminated food.

The chapter on Radiological Protection, page 11, will give specific information on monitoring and decontamination of food. Whenever there is doubt about contamination, it is wisest to apply decontamination procedures.

The following general information will apply to the in-shelter as well as the post-shelter period:

1. Non-contaminated food and water should be eaten first; that is, foods which have been carefully stored and tightly covered. This will allow the radioactivity in contaminated foods to decay.
2. If there is no monitoring equipment, foods which are least likely to be contaminated should be eaten first. The principal source of ingested radioactivity will come from externally contaminated edible plants, fruits, and uncovered meats.
3. Give children first preference for the non-contaminated foods and then the least contaminated foods.



**CHAPTER 7**

**WATER**

## CHAPTER 7 OUTLINE

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## Water Requirements and Problems

People cannot survive a two-week shelter stay without water. The amount of water people must have to live will vary with such factors as shelter temperature, shelteree health, age, and degree of activity. In general, however, people will die after four to five days of total water deprivation. In the shelter, food may contain small amounts of water which can prolong life a few additional days. However, should shelter water stocks be depleted, water will have to be obtained after several days, regardless of the radiation level, if life is to be sustained.

### Factors affecting the need for water

The following information will give some idea as to the necessity of water and the length of deprivation that can be tolerated; however, it is difficult to indicate the minimal quantities that will be required.

1. Temperature within the shelter will determine the minimum daily requirements to sustain life. With low temperatures, healthy, sedentary adults and children may survive a 14-day period of confinement with one quart of water per day. However, water requirements increase considerably with high temperatures. If a shelter stay were to last for an extended time under high temperature and low water intake, serious consequences, including fatalities, may result.
2. Infants who weigh more than ten pounds and are not receiving any food will need more water than adults. More than a quart may be minimally necessary under high temperatures.
3. All activities involving physical exertion increase the need for water, although the physiological processes help the body to adjust to limited intake by increasing body temperature.
4. As a result of certain illnesses and injuries, especially those involving loss of fluids, such as severe diarrhea or burns, water requirements for survival increase considerably.
5. Certain foods, especially those with high protein or those that are salty or sweet, will also increase the water needs for all individuals.

### Effects of water deprivation

Physiological. The foremost effect of total water deprivation is a sensation of thirst which manifests itself in dryness of the mouth, a decreased volume of urine, and a feeling of weakness. These effects become marked after three or four days without water intake. At some point, when the body loses too much of its water content, the physiological damage becomes irreversible and revival with water is no longer possible.

Psychological. Personality traits become exaggerated; mental power is impaired; and confusion and hallucinations appear. The amount and severity of these disturbances increase with the degree of water depletion. Ultimately, people may attempt to relieve their thirst by sucking their own blood and drinking their own urine.

## Water Resources

All OCD-stocked shelters will have drinking water supplies for their designated capacity. Most other publicly and privately sponsored shelters will also have water stocked for use by the anticipated shelterees. In addition to stored supplies, most shelters will have other likely sources of water, such as: the building's piping system, hot water tanks, boiler tanks, and toilet cabinets. Procedures for making this water available for human consumption will be discussed in detail in the following sections.

### OCD water supply

The Federal government is stocking all licensed shelters with metal water drums holding 17.5 gallons of water, which is the ration for five shelter spaces at the rate of 3.5 gallons per shelter space.

Double polyethylene plastic bag liners will be packaged separately from the drums: 20 sets to a folder, 25 folders in a heavy-duty, triple wall fiberboard box.

The water in these containers should have a long shelf life of approximately five years.

Because these drums are heavy, they should never be stacked more than three drums high.

### Other common sources of water

Public water system. Although not all shelters rely on the public water system to remain functional after a nuclear attack, those shelters located in areas remote from the blast may be able to obtain water from the public water system. Because this water may become contaminated by radioactive fallout, caution must be exercised before using it. Decontamination procedures are described in Chapter 2, "Radiological Protection."



Building water system. Most shelters will have additional water available in the building's water system. Uncontaminated water may be trapped in the piping system, boiler and storage tanks, sprinkler system, and non-operable heating and air-conditioning system, by shutting off all valves leading to and from the building's water system. For example, water closets will hold approximately four gallons of drinkable water.

When the water is in a closed system, such as the sprinkler, heating, and cooling systems, it should be purified before drinking. In some cases, water used for cooling and heating may contain chemicals to prevent rust, etc., which will make the water too toxic to drink even if purification methods are applied.

Miscellaneous sources. Other sources will include water collected in bathtubs, sinks, buckets, wastebaskets, and other containers during the time that the public water is functioning (generally before the attack). Also liquid from water-packed foods and ice from undamaged refrigerators may augment the supply. These sources should be regarded as supplemental rather than primary sources of water.

#### Water sources in shelters with augmented capability

Some shelters may be equipped with additional facilities to increase water supplies.

Storage tanks. In some buildings, especially in those housing large shelters, drinkable water may be found in large storage tanks specifically provided for shelter use, but which can be employed for other purposes in peacetime.

If these tanks are part of the regular water system of the building, the water should be drinkable. In cases where the storage tanks are not part of the regular water system, it is important to shut off immediately all valves leading to and from the tank in order to trap the water and maintain its purity.

Other privately-stocked water supplies. Some of the publicly- and privately-sponsored shelters will have additional stores of commercially-filled water containers which come in various sizes. Water in containers which have been hermetically sealed should maintain its purity for longer than five years.

Wells. Some elaborate shelters may have wells which will supply drinkable water. The deeper wells will require a pumping system to be operated. If public power fails, auxiliary power generators will be necessary to keep the pumps working. Under extreme conditions, however, it may be possible to operate the pumps manually.

In a few parts of the country, artesian wells may supply the shelter through natural gravity flow.

## Elements of a Shelter Water Program

### Purification of Water

Three main types of impurities in water are bacteria, foreign bodies, and toxics. Toxics which include such things as anti-rust chemicals will not be discussed because shelter resources are generally too limited to cope with toxics and the likelihood of encountering such elements is small.

#### Bacteria

Bacteria may be attacked in one of several ways:

1. Water purification tablets which are available through the Federal Marking and Stocking Program may be added to water. Instructions will be found with the tablets.
2. Tincture of iodine may be added, two or three drops to each quart of clear water or eight to ten drops per quart of cloudy water. The water should be allowed to stand for thirty minutes before using.
3. Two drops of chlorine household bleach may be added to one quart clear water or three to four drops to cloudy water. Stir for fifteen minutes and allow to stand for thirty minutes. If a chlorine smell is not detectable, the process should be repeated.
4. Water may be boiled vigorously for a minimum of one minute.

#### Foreign bodies

Foreign bodies may be removed either by filtration or settling. The water may be filtered through filter paper, gauze, fiberboard, or a finely woven fabric. Or the water may be allowed to stand until sediment is collected on the bottom. The water may then be decanted or siphoned from the top.

### Decontamination of Radioactive Particles

In addition to the above methods of purification, some of the water may have to be decontaminated from radioactive particles. Simple procedures of filtration and siphoning can remove most of the dangers of radioactivity. For more details, see page 32, Chapter 2, "Radiological Protection."

## Aeration of Water

Water that has been stored in a closed system or a container for any length of time tends to become unpalatable. While such water may be perfectly drinkable, the bad taste may affect shelteree acceptance. Ill-tasting water may be equated by some persons with unsafe water. Water that has been stored for an extended period can be made more palatable by aeration. This can be accomplished by pouring the water from one container to another several times carefully to avoid spillage.

## Rationing Water

Because water is essential for life, it is of primary importance to prevent its waste and to ensure that it is rationed fairly. Even when shelter water supplies are plentiful, management should operate under the assumption that unforeseen factors such as overcrowding, contamination or loss of water, and extended shelter stay may reduce the availability of water. In addition, it will be prudent to save water for the immediate post-shelter period if possible.

The alternative approaches to rationing that were discussed in Chapter 7, "Food," page 88, apply also to the rationing of water. It should be emphasized again that water is more essential than food for survival. Strict control of resources is, therefore, a paramount management concern.

### Factors to consider in rationing

Before water can be apportioned, (1) the number of shelterees, (2) the amount of available drinking water, and (3) the length of the stay must be estimated. Until information about external conditions is available, confinement should be estimated at two weeks. The ration can be adjusted later when the length can be gauged with greater accuracy.

## Scheduling Water Breaks

### Number and timing of water servings

Water should be served at regular intervals during the day. A schedule of five or six water servings per day is recommended, to be distributed with each serving of food. Sample daily water distribution times are indicated in the shelter schedule, page 310.

For more details about changes in schedule, the first shelter meal, schedule for infants and children, and shift feeding, see the discussion of those topics in the chapter on food.

## Tapping of Water

Tapping water refers to siphoning water from the OCD drum and drawing water from other likely sources. Because the procedures are pertinent to each type of water source, they will be discussed under OCD drums, other likely sources, and augmented sources, respectively.

## Distribution of Water

No matter how the water is drawn, in all cases, management should see that each shelteree gets his apportioned amount of water with the least spillage.

Where feasible, a water record kept for each shelteree may allow for flexibility in receiving water rations by keeping an individual record of the water drawn by each shelteree. This would insure that no one would receive more than his allotted share.

Methods for distribution of water will depend on the size of the shelter, its configuration, and the type of available equipment. The discussion on centralized versus decentralized preparation of food, page 90, and fixed-point versus moving-point distribution, page 92, are also applicable to the location of water supplies and will not be repeated here. Additional information pertaining solely to water will be presented below.

### Procedures

One of two distribution alternatives should be followed depending upon shelter size and configuration.

1. Fixed point: Either a Unit or Section goes to the water source at one time. Each person has his cup filled and carries it himself. The Unit or Section leader supervises the distribution.
2. Moving point: The Unit leader collects all cups, goes to the water drum, has the cups filled and capped with the lids (using OCD stocks), and carries them to his shelter group.

The first method may create traffic problems in a large shelter, while the second method has the danger of high spillage.

## Procedures for Shelters With OCD Water Stocks

### Purification

Water stocked in the Federally provided drums should be drinkable. To eliminate any possibility of contamination, however, the Federal government has provided purification tablets with instructions for their use printed on the bottles.

### Drawing Water from OCD Stocks

#### Location of the drums

In general, water supplies should be located in the kitchen area(s). The drums should always be kept upright. The water drums weigh approximately 150 pounds when filled. As a result, it will take two to three men to move them to a new location in the shelter. Any movement should be executed with the utmost caution to prevent damage to the drum and water spillage.

#### Problems of water tapping

In order to tap OCD water containers with a minimum of water loss, the bag must be siphoned with the provided tube. Because no clamp has been supplied to stop the flow of water, either a medical clamp found in the OCD medical stocks should be used or some type of clasp or tie improvised; for example, a large paper clip. If untrained persons are employed for this task, management can anticipate some difficulty in terms of water spillage.

When the water in the drum is too low to flow freely, the drum should be elevated either by placing it on another drum, food case, or any other object, so that water can continue to flow. After the water supply has been depleted, any additional water which has spilled into the outer bag should be used before the empty drum is used for other purposes.

#### Personnel

Only authorized personnel should handle and distribute water. These persons may be part of the food team or may be a separate team depending upon the size of the shelter and the methods of distribution practiced.

A monitor should be placed at the water supplies at all times to supervise the drawing and distribution of water.

## Distribution of OCD Stocks

### Equipment and procedure

The Federal stocks contain a six-ounce plastic cup for each shelteree and an additional supply in case of breakage. Water should be poured from the drum into these cups and distributed to the shelterees. The drum lid may serve as a tray to carry the water cups.

Each shelteree should keep his drinking cup for the duration of confinement. If some marking equipment is available, the cup may be marked with the identification of the shelteree and kept in a designated location, if his section has such an arrangement. Otherwise, the cup should be kept on his person or with the personal belongings of the shelterees.

### Personnel

At least one monitor should be stationed at each water outlet in the shelter to supervise the distribution of the water. The number of monitors needed will depend on the size of the shelter and the method of distribution used.

If individual water records are to be kept in a shelter, personnel will be needed to monitor and record the amounts of water which shelterees will draw.

## Procedures for Shelters With Other Common Water Sources

### Purification

#### Public water system

Water available from a public system should be monitored for fallout. Methods for decontamination of radioactive fallout are described in Chapter 2, page 32.

#### Building water system

Water trapped in hot water tanks, toilet tanks, pipes, and any other part of the open water system, should be drinkable if the valves leading to and from the total system have been shut off upon shelter entry.

Water contained in closed systems such as the heating, cooling, and sprinkler may need purification and aeration. Care must be taken to avoid using water which contains toxics.

### Tapping of Other Likely Water Sources

The procedures to obtain water from such sources as public water systems, pipes, water tanks and closets, and storage tanks, basically involve the same steps. The following procedure begins at the time of shelter entry:

1. All water intake valves for the building and for individual tanks should be shut off to prevent water loss into the mains if pressure drops. Where shut-off valves cannot be found, the shut-off valve at the curb may be closed.
2. To create the air pressure which is required for tapping the water sources, a valve or faucet should be opened at the highest level in the building above the water supply. This must be done before the arrival of fallout. If fallout is descending, then the tap in the safest high point should be opened.
3. To conserve water, all water taps except the one required for pressure should be closed.
4. For tapping a hot water tank, generally, opening a valve at the top of the tank will allow water to flow from the bottom faucet.



Procedures With Other Common  
Water Sources

5. The water supply may be wasted if the outlet for the water is too large, or if it cannot be shut off. If the water taps are not located within the shelter area, water may be brought in through a flexible hose.
6. In addition, all available containers, tubs, sinks, etc., should be filled with water and covered.

## Procedures for Shelters With Augmented Water Stocks

### Purification

#### Storage tanks

If storage tanks have been part of the building water system, the water in them should be drinkable. The valves leading to and from the building water system, should be shut off to ensure that the water will not be contaminated from outside sources. If the tanks have been used solely for storage, the purity of the water should be tested before using it and appropriate measures taken. If testing is not possible, it will be safest to purify the water with the most feasible methods available.

#### Other privately-stocked water supplies

Water stored in hermetically-sealed containers will be drinkable for a long period of time. However, if purification is indicated for any reason, refer to page 111, "Purification of Water."

#### Wells

Water from wells should be free from all contamination, particularly if the well is supplied by subterranean sources.

### Tapping of Water

#### Commerically stored water

These containers require the same procedures as OCD stocks, if these containers are large, heavy, and have no outlets for drawing the water. If the containers are small, water may be poured either into receptacles such as pots, pans, coffee urns, or kettles, and ladled into individual cups, or poured directly into individual cups or canteens. Care should be taken to avoid spillage.

#### Well water

As long as the pumps are operative, water can be drawn from outlets in the shelter. An artesian or gravity-type well will not require a pump. If power is not available, some wells may be drawn by hand.

## Other Uses of Water

Although water may be desirable for other shelter functions, such as personal hygiene, sanitation, fire suppression, and decontamination, these are secondary uses and other alternatives to water are usually available. If, however, drinking water is more than adequate for all eventualities, management may allocate water for the above purposes.

Non-contaminated water which is considered non-drinkable because of impurities may be used in fire fighting, decontamination from fallout, sanitation, personal hygiene, and heating food containers. The chapters on "Radiological Protection," "Safety and Rescue," "Sanitation," "Health," and "Food" provide additional relevant information.

**CHAPTER 8**

**SLEEP**

## CHAPTER 8 OUTLINE

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## Sleep Requirements and Sleep Problems

### Sleep requirements

It is difficult to establish a specified number of hours as a minimum human sleep requirement. The amount of sleep required varies greatly with the individual and the situation. A majority of adults get between six to nine hours of sleep daily, but this cannot be taken as a standard for in-shelter sleep requirements.

As a rule, children and elderly and infirm people will require more sleep than the general adult population. Children under six, especially, will require a great deal of sleep.

It is natural and to be expected that most shelterees will experience partial or total sleeplessness the first few days in shelter. After the first few days, many people will tend to sleep or rest more than they did prior to entering the shelter. This will be due to a decreased intake of oxygen, water, food, and the monotony of the environment that will characterize many shelters.

### Sources of sleep problems

It is impossible to catalog all the possible sources of sleeplessness in a shelter. Some of the more likely causes of sleep problems are:

1. Anxiety, fear: Emotional reaction to the disaster and to the strangeness of the shelter environment will contribute heavily to sleep problems, especially the first few days.
2. Temperature: High temperature and humidity will be a common cause of sleeplessness in many shelters. Under some conditions shelterees may find it too cool for comfortable sleeping.
3. Hard floors: In the absence of a bunking system shelterees will have to sleep on the floor. Even with improvised mattresses, the floor may be too hard to permit comfortable sleeping for many persons, especially in the initial portion of the shelter stay.

Children. Children in shelter may well pose a management problem during sleep times. Many children will fall asleep rapidly under shelter conditions. Others, especially those separated from parents, ill or injured, or those with special problems (for example, bed wetters), may not be able to sleep and thereby disturb others.

### Effects of sleeplessness

Shelteree reaction to extended periods of sleeplessness may be either apathy and listlessness, or, on the other hand, irritability, or a combination of the two. This may be accompanied by physical symptoms, such as headaches and nausea. Performance of tasks requiring concentration may be impaired.

Because of the crowded shelter conditions, individuals with sleep problems, through their noise and movement, may interfere with the sleep of those near them. This will hold true whether the shelterees are sleeping on the floor, or in bunks.

### Recognizing sleep problems

Signs of sleeplessness will be obvious. There will be much tossing and turning among the shelterees. The amount of toilet traffic at night will also be a measure of restlessness in shelter. Physical effects of fatigue that can be recognized during the day include sagging facial muscles, drooping posture, frequent yawning, headaches, and nausea. However, any or all of these conditions may be due to other causes.

### Procedures for dealing with sleep problems

The shelter manager should consider providing additional daytime rest periods for all shelterees the first few days, at the expense of organized social and recreational activities.

For shelters with many separate rooms or floors, shelterees with serious sleep problems may be segregated at sleep time from the remainder of the shelterees. This will allow those with severe sleep problems to receive special attention, and will tend to make it easier for the remainder of the population to fall asleep and remain asleep.

Children's sleep problems will be decreased if they sleep with their parents. In the absence of a child's parents, he should be assigned to a set of "substitute" parents during the shelter stay.

Drugs to induce sleep should not be given to shelterees, except perhaps in cases of painful injuries or ailments, where the drug is primarily given for relief of pain.

The above mentioned procedures are special and limited. There is no simple general procedure for solving sleep problems. The most reasonable procedures are those that deal with the source of the sleep problem. Shelterees should be made as comfortable as possible in the sleep area. The manager and his staff should try to allay fears by creating an atmosphere of confidence. The comfort that family and friends can provide the distraught during sleep time can be a valuable aid to the manager.

## Sleeping Arrangements for Shelters Without a Bunking System.<sup>1</sup>

There are several basic decisions that the shelter manager has to make concerning sleep that greatly affect the organization and operation of the shelter. One such decision is whether all shelterees should sleep at once, or in two or more shifts. Another important decision pertains to locating the sleeping area in shelter. These decisions must be made very early in the shelter stay, if they have not been made prior to occupancy. If the decisions have been made prior to occupancy, they should be re-evaluated if the actual number of shelterees is greater than the planned capacity.

### Simultaneous versus Shift Sleeping

#### Recommendations for simultaneous sleeping

If there is adequate space, it is better to sleep the entire shelter population at one time, rather than in shifts.

Simultaneous sleeping should be considered, especially if the shelter consists of a single space, or of several areas or rooms which cannot be adequately "insulated" from light and noise.

#### Requirement for simultaneous sleeping

There must be enough usable space available to sleep all shelterees at one time. This can be determined through use of the following table.

Aisle space, which was not taken into account in the table, should be allotted wherever possible. A two-foot aisle around the perimeter of the sleeping area, plus at least one aisle and preferably more within the sleeping area, will make entry and egress in the sleep area easier, and thereby increase management control during sleep hours.

#### Advantages of simultaneous sleeping

Simultaneous sleeping appears to offer fewer management problems than multiple shifts of sleepers, because of such factors as noise control, control of shelteree movement, and scheduling of activities.

---

<sup>1</sup>A bunking system consists of bed, cots, or bunks that have been installed in a shelter for the primary purpose of sleeping the shelter population.



Table VII.

On The Floor Sleep Space Required For 100 Sleepers

SQUARE FEET AVAILABLE	CONDITIONS FOR SLEEPING 100 SHELTEREES
650	<ol style="list-style-type: none"><li>1. All except children have to sleep with legs bent.</li><li>2. Situation may be uncomfortable enough to consider "shift sleeping."</li></ol>
900	<ol style="list-style-type: none"><li>1. Almost all shelterees will be able to sleep on their sides with legs extended.</li><li>2. Some will be able to sleep on their backs.</li></ol>
1500	<ol style="list-style-type: none"><li>1. Almost all shelterees will be able to sleep on their backs with legs extended.</li><li>2. There will be sufficient room to extend arms and move body slightly without interfering with other shelterees.</li></ol>

Recommendation for shift sleeping

Shift sleeping is recommended when there is not enough space for simultaneous sleeping, particularly where a shelter has well separated rooms or areas that will keep out light and noise.

Advantage of shift sleeping

The major advantage of shift sleeping is that it saves space, which is a very important consideration in shelter. However, the uses to which this space can be put might be limited by the requirement to lower noise and illumination levels, so as not to disturb those on the sleep shift.

Number of shifts

It is recommended that the number of sleeping shifts be kept to two, if at all possible. See Figure 11, page 312, for sample shift schedules.

## Sleeping Arrangements No Bunks

Two shift sleeping will permit a large period of time daily when all shelterees are awake for activities in which the entire shelter population should participate. Two shift sleeping will also allow time for daytime naps and rest periods for children and others requiring them.

### Assignment to shifts

The Section should be assigned to a sleep shift as a group. This is to retain the cohesiveness of the Section, which is an important factor in shelteree morale. However, in some cases, the Section may have to be broken up, in order to segregate the sexes during sleep hours. See "Separation of Sleepers," page 128.

### Location of the Sleeping Area

Many considerations must be taken into account in determining where to locate the sleeping area in shelters without a bunking system. This is another decision that should be made prior to occupancy, but should be re-evaluated on the basis of actual in-shelter conditions.

### Factors to consider in locating sleeping area

Shelter size and layout. In a small single-space shelter, there will often be no choice in locating a sleeping area. The sleeping area will consist of all or most of the usable floor space.

Ventilation. To provide an environment most conducive to sleep, the sleeping area should be located, so that temperatures are within the comfort zone. See Table IV, page 64.

Noise and light. When shift sleeping is used, the sleeping area must be separated from the activity area, either by a barrier or by physical distance. This has a twofold purpose: to insure that sleepers are not affected by ongoing activities in the day area, and that activities are not constrained by the requirement to keep light and noise levels low enough so that people can sleep. The quieter and darker the location, the greater the opportunity for sleep.

Toilet facilities. In a shift-sleeping shelter, the toilet and sleep areas should be located in relation to each other, so that those in the day area can use the facilities without disturbing sleepers.

## Separation of Sleepers

### Recommendations for separation of sleepers

It is recommended that shelterees be separated in the sleeping area on the basis of sex, age, and marital status. Single men and single women should be segregated in the sleeping area. This includes unmarried men and women, and also those who are married but unaccompanied in shelter by their spouses or children. It is advisable that infants and pre-teenage children sleep in close proximity to their parents.

### Segregation procedures

The most effective way to accomplish separation is to use physically separate areas for a dormitory or dormitories for single men, and one or more for single women. Family groups should sleep together in a third location.

If physically separated sleeping areas are not available, separation may be achieved in several ways. Single men can be assigned sleep positions at one end of the shelter and single women at the other end. Family groups will be assigned sleep positions between the two single groups. This approach is based on the assumption that married couples, especially in the presence of their children will be more likely to accept a shelter regulation against sexual behavior, and thus not only provide a space barrier between unmarried men and women, but also be a model of appropriate behavior for the young unmarrieds.

For larger shelters without physically separate sleep areas, a method for separation of sleepers is to assign a Section or Division to a sleeping area and have a group leader segregate the sexes within his group. This would require coordination between group leaders to insure that segregation extends between groups. Management control over the large shelter may be increased by keeping groups together for sleep purposes and segregating within them, rather than assigning, say 1000 women to one part of the shelter and 1000 men to another. See Figure 1, page 129, for a sample method of segregating sleepers.

## Allocation of Sleeping Space

### Purpose of standardized sleep positions

If shelterees are arranged in certain standardized sleep positions, the spread of respiratory ailments may be decreased. It is the shelter manager's

Sleeping Arrangements  
No Bunks

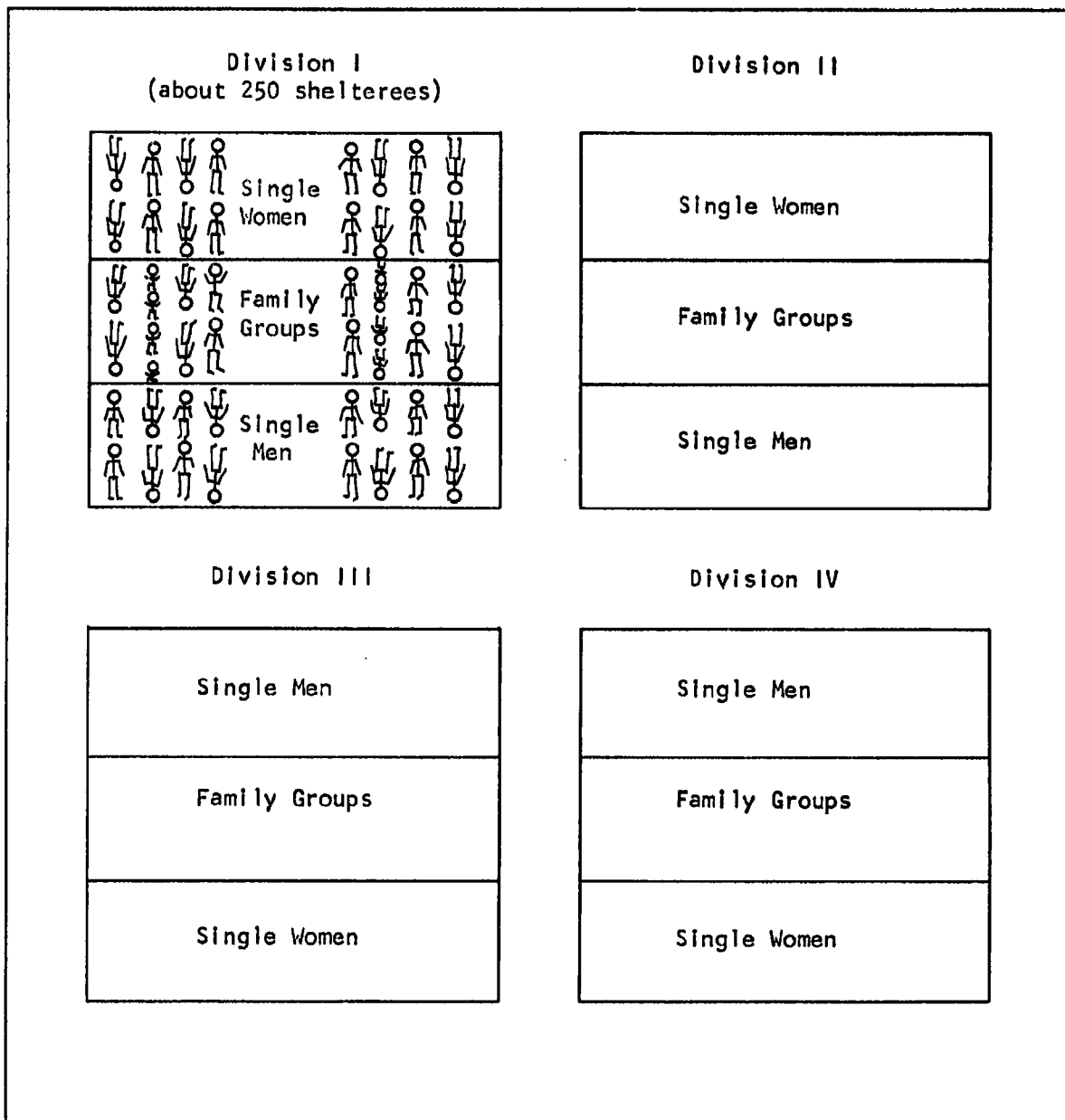


Figure 1. Sample Sleep Arrangements in a Single Space Shelter of 1000. Indicating (1) grouping of shelterees into divisions, (2) segregation of sexes within each division, and (3) head-to-foot positioning of sleepers. The aisle space is exaggerated for illustrative purposes.

## Sleeping Arrangements No Bunks

responsibility to have ready a plan for the arrangement of shelterees within the sleeping area, and to provide a basis for assigning shelterees to their positions.

### Recommended standardized sleep position

It is frequently recommended that shelterees and their neighbors sleep in a "head-to-foot" arrangement. This is illustrated in Figure 1.

In assigning shelterees to sleep positions on the floor, sufficient aisle space should be left so that individuals may enter or leave the sleep area without disturbing others. A three-foot aisle allows passing without too much difficulty; a two-foot aisle requires a good deal of coordination for two way traffic, while a one-foot aisle will allow passage in only one direction at a time. One of the problems of maintaining open aisle space will be the tendency of people to extend arms, legs, even whole bodies into the aisle while asleep.

Two small children may be fit into the floor space allocated for one adult.

### Responsibility for assignment to sleeping positions

If the Section is to sleep together, then the Section leader is responsible for assigning shelterees to specific sleep spaces. If the Section will be broken up for sleep purposes, then the manager, a staff member, or the Division leader must explain and implement the sleeping arrangements.

## Daytime Use of Sleeping Area

### Naps and rest periods

Children and elderly or infirm persons require daily naps and rest periods. It would be desirable that space in the sleeping area be set aside for daytime sleep and rest use.

Under shelter conditions, many healthy adults may also want to spend more time resting than usual. If at all possible, sleeping space should be also made available for daytime use by adults.

**Sleeping Arrangements  
No Bunks**

Daily planned rest and quiet periods, during which children's activity and noise levels are controlled, may provide needed "breaks" for the adult population.

Daytime rest periods will tend to lower in-shelter temperature and oxygen consumption. If many people are actually sleeping during the day, this reduction can be significant.

## Sleeping Arrangements for Shelters With a Bunking System

Most of the decisions that must be made in establishing sleeping arrangements are the same for shelters with a bunking system and without one. As a result, a number of guidelines in the previous section, dealing with shelters without a bunking system, are applicable to this section for shelters with bunks. The material presented below consists of additional guidelines that pertain only to shelters with a bunking system.

### Simultaneous versus Shift Bunking

#### Requirements for simultaneous bunking

There must be sufficient bunks available to sleep all or most of the shelterees at the same time. If there are almost enough bunks, some additional bunks can be fashioned from furniture or otherwise improvised; in addition, some shelterees (the very tall or very wide ones) will frequently feel more comfortable sleeping on the floor, making more bunks available.

#### Advantages of simultaneous sleeping

If only one person occupies a bunk which does not have to be dismantled daily, the bunk becomes a place of relative shelter privacy, where an individual can relax during the day and store his non-valuable personal effects.

From the health and sanitation point of view, it is more desirable that only one person occupy any bunk. "Hot bunking" (assigning more than one person to the same bunk in shifts), increases the possibility of the transmission of infectious diseases.

### Separation of Sleepers

#### Procedures for segregation

Segregation of sexes may be accomplished by assigning single men and women to bunks in tiers that are physically separated. If the tiers are located in separate rooms, the dormitory principle may be carried out.

## Allocation of Sleeping Space

### Assignment to bunks

If the bunks are erected at the time of shelter entry, it may increase management control to assign shelterees to temporary bunk locations upon entry. Bunk reassignments should then take place to unite families and friends and segregate sexes as the shelter is being organized.

In assigning bunks, it would be advisable for safety reasons not to put children in the top bunks of tiers. Elderly and infirm shelterees should not be assigned to bunks that are either too high or too low to reach with safety and relative ease.



## Sleeping Facilities for Shelters Without a Bunking System

If a shelter is not equipped with bunks or cots for sleeping purposes, a management decision must be reached as to whether shelterees will sleep on the floor, or whether a bunking system can be improvised out of available furniture and other in-shelter materials.

### Improvisation of Facilities Without Modification<sup>1</sup>

#### Recommendation for sleeping on the floor

Sleeping on the floor is recommended if sleeping space is not a problem, and if there are not enough tables, desks, etc., for all or most shelterees to use for sleeping purposes, and there are no apparent health reasons that make it undesirable to sleep on the floor. The comfort of "on-the-floor" sleeping will be enhanced through the use of improvised bedding. See pages 137 and 138.

If a decision is made to sleep on the floor and there are some more comfortable facilities such as chairs, cots, even tables and desks, these should be set aside for special use (for example, in the sick bay).

#### Other possible facilities

Some shelters will have special facilities that can be used without modification for sleep purposes. In a shelter with an auditorium, the auditorium seats will very likely be the sleeping facilities. In a filled parking garage, the cars may well provide sleeping facilities for many shelterees.

### Improvisation and Modification of Facilities

#### Purpose for modifying facilities

The basic reason for modifying improvised facilities is to increase the shelter sleep capacity. If shelterees can sleep on tops of desks, tables, etc., as well as under them, more shelterees can be accommodated at one time.

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<sup>1</sup> Modifying improvised facilities consists of taking tables, desks, chairs, doors, whatever is available, and in a planned way, combining them into a bunking system.

## Sleeping Facilities No Bunks

### Improvised tiered bunks

The most effective use of sleep space will result from improvising facilities in a tiered arrangement. If there are a number of tables or desks with wells open at both ends, they may be used for this purpose. Pushing tables or appropriate desks together results in two sleeping levels. Shelterees can sleep under the tables, and some on the table tops. Carefully placing additional tables on top of the lower arrangement of tables, provides another tier for sleeping. It also adds a safety factor for sleepers on the lower table tops; the legs of the second layer of tables should keep more active sleepers from rolling off the table.

This approach is feasible only if there are a large number of tables or desks to push together or stack. If there are only a few tables relative to the shelter population, they may be more profitably put to other uses in shelter.

Another approach is to fasten together six or seven multi-tiered, open backed, metal bookcases or stock shelves. Depending upon the width of the shelves, one or two persons can sleep on each tier. Five tiers of sleepers will very often be possible, using normal metal bookcases or stock shelves. See Figure 2.

When improvised bunks are tiered, precautions should be taken to assure that the tier is strong enough to support the intended weight and safe enough to keep shelterees from falling off the upper tiers. Also, if possible, assignment to above-the-floor improvised bunks should be on a voluntary basis.

### Improvised children's bunks

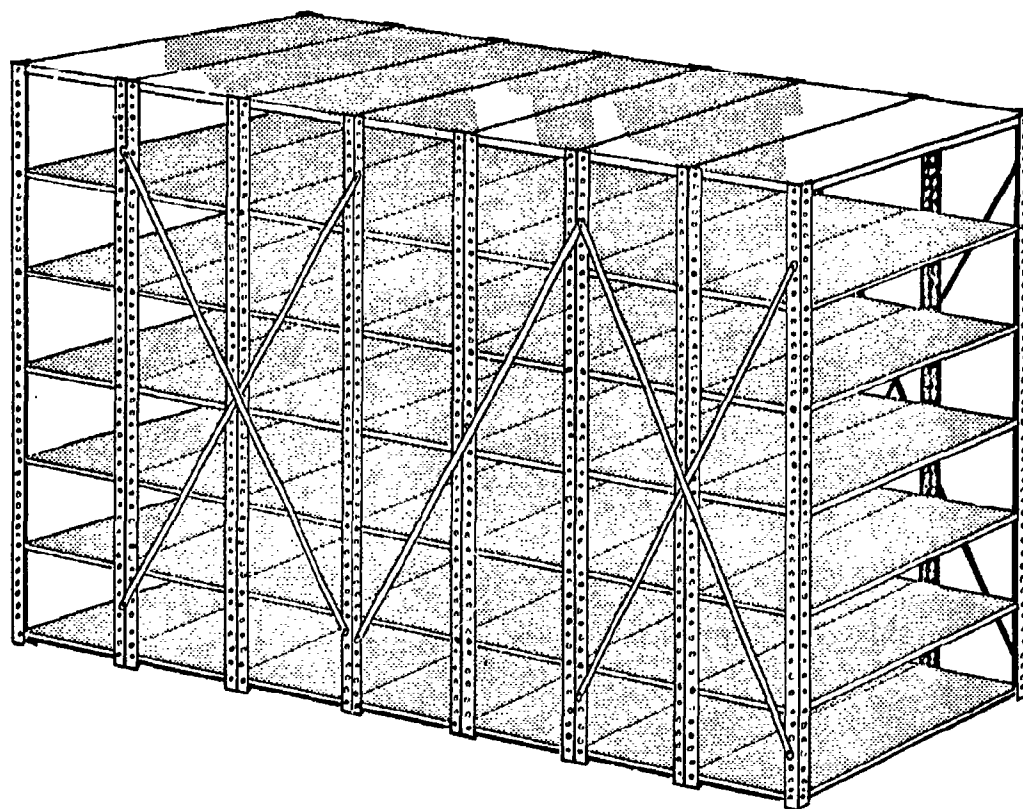
Bunks for infants and small children may be made from cardboard cartons. If possible, the carton should be lined with a waterproof material. It should be recognized that waterproof materials, if not properly installed, may become a suffocation threat to infants. Children should be assigned to a specific cardboard bunk for the entire shelter stay, to the extent possible.

## Sleep Area Partitions

### Purpose of partitions

Partitioning the sleep area serves two basic purposes. First, the partition serves to separate the sleeping area from the daytime area. This is a

**Sleeping Facilities  
No Bunks**



**Figure 2. Improved Tiered Bunks Using Metal Book Shelves**

## Sleeping Facilities No Bunks

requirement for carrying out shift sleeping successfully. Secondly, partitions can be used to segregate the sexes during sleeping hours, which will help maintain social control in the shelter.

### Natural and improvised partitions

The natural configuration of the shelter can be used to provide separate sleeping areas. A natural partition is any structural feature of the shelter that insulates one part from sight or sound of another. This includes separate rooms, walls, room dividers.

Temporary partitions for separating sleeping areas can be erected from folding screens, portable blackboards, map racks, bulletin boards, and signs. Tables and desks can be used as temporary partitions also. Curtains and blankets can be hung or draped to separate areas. In parking garages, cars may be moved to form partitions. Whatever is used as a partition should not take up too much floor space in shelter.

## Bedding

In most shelters, bedding such as blankets, sheets, and pillows are not stocked for general shelter use. Some bedding may be brought by shelterees, in addition to which improvised bedding can be fashioned in shelter from items that may be available.

### Use and improvisation of blankets

In the warm environment of many shelters, blankets will not be necessary as a covering. However, in all shelters, blankets may still be needed by the infirm and aged.

In addition to being useful for warmth, they have a number of other uses. A blanket may be used as a mattress or mattress cover, rolled up as a pillow, or hung up as a partition.

In those shelters in which blankets are needed, they may be improvised from among the following sources: clothing (coats, jackets, shirts, sweaters); furniture (slip covers, drapes, curtains, rugs); towels, laundry bags, and newspapers, other paper and cardboard.

## Sleeping Facilities No Bunks

### Use and improvisation of mattresses

Sleeping on the floor, on a desk or a table, may be made more comfortable through the use of an improvised mattress. It would be impractical to try and simulate the thickness of a mattress with improvised materials, but even one layer of clothing, cardboard, or other available material, between the sleeper and the floor or desk top will aid shelteree comfort. Anything that can be used as a blanket can also serve as a mattress.

### Use and improvisation of sheets

As a general rule, sheets or their improvised equivalents are not necessary in a shelter. One condition under which they may be valuable is that of shift bunking. If two or more shelterees share a common bunk, table top, or even spot on the floor, it would be advantageous if each had his own real or improvised sheet or something between the sleeper and the sleep surface. From both a psychological and a medical point of view, an individual's own private sheet or other form of bedding would be valuable in overcoming some of the disadvantages of "hot bunking" (more than one person using the same bunk).

### Use and improvisation of pillows

For many Americans, pillows are a requirement for sleep comfort. Few shelters will stock pillows, but in almost all cases, pillows can be improvised out of available shelter materials. Any sizable article of clothing that can be rolled up can be used as a pillow. Books may also serve as improvised pillows.

## Sleeping Facilities for Shelters With a Bunking System

The following guidelines are the additional information items and action recommendations that apply only to shelters with a bunking system. Many of the guidelines in the section immediately previous are also relevant for shelters with bunks.

### Status of bunks at time of shelter entry

Bunks erect. Under many circumstances, it will be beneficial to have some bunks erected at the time of shelter entry. Among the advantages of such an arrangement are:

1. It provides a place where sick and injured can rest immediately upon entry.
2. By directing incoming shelterees to specific locations in bunks, crowding and milling about is cut down.
3. Assignment to bunks represents an immediate first step in shelter organization, and it can be the basis for later assignment to shelter sub-groups.

These bunks ought to be set at a distance from the shelter entrance to prevent congestion at the point of ingress.

Bunks dismantled. If there is a possibility of blast, it may be advisable to keep bunks dismantled and stored in a way that keeps them from injuring shelterees at the time of blast.

### Assignment to bunks

Shelterees should be directed to fill up bunks in order, starting with the tiers that are furthest from the shelter entrance.

It should be made clear to shelterees that the initial bunk to which they have been assigned may not be the bunk in which they will spend their shelter stay, and that they will have a voice in determining this.

In order to carry out bunk assignments upon shelter entry, some traffic assistants may have to be recruited from among the first incoming males and given the task of directing shelterees to their bunks.

## Sleeping Facilities With Bunks

### Erecting and dismantling bunks

In some shelters, bunks will have to be dismantled and erected daily, for maximum use of shelter space. In such cases, the shelter manager should establish a set of procedures and a schedule for erecting and dismantling bunks, and, in addition, assign responsibility for this task to appropriate personnel. These personnel may consist of either a specialized bunk team who perform the task daily, or it may be performed by the shelterees in a group.

### Daytime use of tiered bunks

Many formal bunking systems are flexible enough to provide for a variety of daytime uses.

1. Bunks may be left in place for daytime naps.
2. Bunks may be used as chairs for eating, recreation, etc. To accomplish this, some modification is usually necessary (e.g., removing or raising the middle bunk on a tier).
3. Removable bunks may be used as tables or desks, when placed on water drums, cartons, camp stools, etc.

## Control of Sleep

The period of shelter sleep offers a stern test for shelter management. If order can be maintained during sleep hours, then from a management point of view, the shelter is in fairly good shape.

### Maintaining Order During Sleep Hours

#### Controlling noise levels

Noise within the sleeping area must be kept down to a level that will not interfere with shelteree sleep. During periods of anxiety in shelter, the noise level in the sleeping area may be quite high. Children and teenagers may be especially difficult to quiet down.

Where shift bunking is utilized, it is extremely important that the noise levels in the day area be kept down to a level that will not jeopardize shelteree sleep.

#### Controlling light levels

"Lights out" for sleep should prevail for the entire sleeping group. Individual shelterees should be discouraged from such activities as reading via flashlight after "lights out."

In almost all shelters there will be some way of dimming or extinguishing the lights in the sleeping area. For shelters that cannot dim or extinguish lights for one reason or another, there is evidence that within a few days, people will get used to sleeping in the light.

The sleeping area should not be in total darkness. There must be enough light to carry out necessary movement in the sleeping area. Flashlights, lanterns or gooseneck lamps may be reflected off wall or corner of room to provide sufficient light for dark-adapted movement in sleeping area.

#### Maintaining social standards

It is imperative that high social standards be maintained in the sleeping area. This pertains especially to sexual behavior. Separating sleepers by sex is only a partial solution. The shelter staff, especially those on sleep watch, must be vigilant in identifying potential problems and keeping them from becoming actual problems.



Providing assistance to shelterees

During sleeping hours, shelterees may require assistance. These include people who can't sleep, people who require medical attention, people moving to and from the toilet facilities, etc. One of the purposes of the sleep watch will be to render assistance to shelterees during sleeping hours.

**Sleep Schedule**

Purpose of sleep schedule

Since sleeping is such a space-consuming and time-consuming activity, it affects the organization of all other shelter activities. Were shelterees allowed to select their own sleep times, the organized pattern of shelter activities, so vital to survival, would be threatened.

A standardized sleep time is necessary to maximize the opportunity for in-shelter sleep. People retiring on an individual basis will be a cause for disturbance in the sleeping area, and interfere with the sleep of those who have retired previously.

Recommended sleep schedule

Adults. There should be a standard time for "lights out" and reveille. The shelter schedule in the shelter administration chapter contains sample sleep times for simultaneous and two-shift bunking.

Children. Children should go to sleep earlier than the above times, but also on a scheduled basis. One possibility is nine o'clock p.m. sleep-time for children between six and twelve and a seven o'clock p.m. sleeptime for children under six. A separate schedule for children's sleep will be most effectively implemented if two conditions are met. The first is that it is possible to set up space in the sleeping area where children can sleep prior to general "lights out." Secondly, this sleeping space should be sufficiently "insulated" from ongoing adult activities so that children are not disturbed. These conditions are highly desirable, although not absolutely necessary. Many children will be able to sleep under adverse noise, light, and space conditions.

Responsibility for schedule

Since the sleep schedule is a standard for the entire shelter, the shelter manager or his top level staff is responsible for its development and implementation. This should not be left to group leaders to do.

Implementing the schedule

The sleep schedule should not be put into effect on the basis of "clock time" alone. It should depend upon the physical and emotional status of the shelterees and the length of time since entry. For example, if shelter entry took place around nine o'clock p.m., it is not recommended that shelterees be sent to sleep at eleven o'clock p.m., especially in the first 24 hours of shelter occupancy. The manager must determine the optimum time for sleep based upon his evaluation of a wide variety of pertinent factors, such as shelteree wishes, time of day, emotional state of shelterees, available shelter facilities.

**CHAPTER 9**  
**SANITATION**

## CHAPTER 9 OUTLINE

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## Toilet Facilities for Shelters With OCD Sanitation Stocks

In most shelters, toilet facilities are quite primitive. As a result, shelterees will have to make adjustments in their personal habits. If the shelter contains a large number of infants and children, or outbreaks of gastrointestinal illnesses occur, toilet problems may become acute.

### Toilet equipment and supplies

Shelters are supplied with OCD sanitation drums to meet the needs of the rated capacity of the shelter. In addition, the 17.5 gallon water storage drums may be used as toilets when empty.

General toilet supplies, such as toilet paper, antiseptic chemicals, polyethylene gloves, etc., are also supplied with the sanitation drums. These supplies are quite limited, and must be used very sparingly if they are to last. See Appendix C for lists of sanitation and other OCD supplies.

Toilet facilities very likely exist in other parts of the building in which the shelter is located. When the radiation level permits, these spaces may be checked for operability and, if in working condition, could either supplement or replace the stocked toilet facilities.

Under certain circumstances such as an outbreak of gastrointestinal illness, the existing toilet facilities could become inadequate. If no alternate facilities become available as radiation subsides, the sanitation drums can be emptied outside the shelter and re-used.

### Location of toilet facilities

Facilities should be located away from the living area. In a shelter that consists of a single space, commodes may be placed at either end of the shelter. This limits shelteree contact with the toilet area and facilitates segregation of the sexes. It also reduces odors in the living area and enhances whatever toilet privacy is practicable.

Toilets should be as far way from the food storage and handling area as possible to prevent possible contamination of the food supply.

Because the sanitation drums are portable, they may be placed wherever desirable in shelter. However, the drums will be inconvenient to move when filled. The distance to the shelter exit, or to another area where the filled drums can be emptied or stored, is another consideration in locating the toilet facilities.

Toilets should be shielded from public view. The physical layout of the shelter may make it possible to locate toilet facilities in areas that are closed to general view.

Toilet facilities should be located near the ventilation exhaust if one exists in shelter, in order to keep odors and fumes from the toilet area to a minimum.

When the radiation level permits, the portable commodes could be relocated in another part of the building outside the immediate shelter area.

#### Procedures for use of toilet facilities

The OCD sanitation kit contains instructions on the use of the sanitation drum as a commode.

Making water drums available. Water drums will become available for toilet use as water is consumed. Some sanitation situations may require the use of more drums than would become available using normal water distribution procedures. By changing distribution procedures so that water is taken from only one, or in large shelters a few drums at a time, a given drum may be emptied more quickly.

Segregation. Toilet areas should be segregated by sexes, preferably by establishing separate toilet areas insofar as possible.

Privacy. Some method of screening toilets from general view should be improvised if the configuration of the shelter is not such that this can be accomplished by placement of the toilet area. Blankets or furniture can be used as improvised partitions. Unopened cartons of shelter supplies can be piled up around the toilet facilities to provide a temporary screen.

Infants and children. Infants and young children in diapers will constitute a serious problem for toilet sanitation. Among the possible procedures for alleviating the problem are:

Toilet Facilities:  
OCD Stocks

1. Improvising diapers out of available materials, such as articles of clothing.
2. Making diapers re-usable, by fashioning a diaper liner from available materials.
3. Extending the use of diapers, by changing children only after defecation.
4. Disregarding diapers, and cleaning up after each child. This may be the simplest and most desirable procedure for all.

Conservation of supplies. The contents of the sanitation kits, such as disinfectant, hand cleaner and plastic gloves will be in short supply, and their use should be regulated. Toilet paper may become a valuable personal item, and it too should be used with care. The necessity for economic use of these materials should be communicated clearly to the shelterees and their cooperation requested in the conservation of all sanitation supplies. They should be provided with guidelines as to how much an individual is to use of a given item. Sanitation team personnel should monitor closely the rate at which these supplies are being used. If, at any point, it appears that serious shortages are developing, it would probably be best to ration all supplies until they can be replenished.

If toilet supplies, especially toilet paper, must be rationed, it is most effectively accomplished by having sanitation personnel distribute the proper ration to each user as he enters the toilet facility.

Adjusting toilet traffic. Toilet traffic may be heavier at certain periods of the day than at others. This will very likely be the case during the period immediately after reveille, and in the evening before "lights out." Serious congestion may result if individuals take too much time in use of the facilities. Social pressure may correct the situation without direct intervention by management. If the situation persists or worsens, it may be advisable to set up several different times for reveille or lights out, separated by 10 or 15 minutes. Half the shelterees could be assigned to the "early" reveille and lights out; the other half to the "late" shift. This should relieve toilet area queuing.

Maintaining cleanliness. All shelterees are responsible for maintaining sanitary standards in their use of the toilet facilities. To increase cleanliness in the toilet area, shelterees should perform all toilet functions in the seated position.

The waterless hand cleaner is primarily for the use of medical, food, and sanitation personnel, who are required to clean their hands after using the toilets.

**Toilet Facilities:  
OCD Stocks**

**Toilet area personnel**

Toilet area personnel will be members of the sanitation team. Members of both sexes should be chosen, since it is recommended that toilets be segregated by sex.

In large shelters, in shelters with shift sleeping, and in shelters where toilet use is high, toilet area teams should operate on a 24-hour day basis.

Toilet personnel are responsible for use of OCD disinfectant in the toilets and for maintenance of cleanliness of the general toilet area. They are also responsible for the existing toilet supplies. Should rationing be necessary, the monitors will have this function.

Toilet monitors are responsible for regulation of toilet traffic, which will be a significant problem during "rush hours." They may also be given the task of indicating when toilet facilities are vacant or in use.



## Trash and Garbage Disposal in Shelters With OCD Stocks

"Garbage" refers to food waste, and "trash" to materials such as waste paper, rags, etc. The degree to which trash and garbage will be an in-shelter problem depends upon the amount and type of food stores and other types of supplies and materials available. The amount of garbage resulting from OCD stocks should be minimal, since there will probably be little waste of the survival rations.

### Trash and garbage equipment and supplies

All shelters should contain some equipment for collecting, disposing of, or, if necessary, storing trash and garbage. The primary piece of equipment is the container in which to place refuse. If such containers are not available in shelter, they can be improvised from the cardboard and metal containers in which OCD stocks are packaged.

### Procedures for collecting trash and garbage

Because of the fire hazard and because of the negative effect on morale, the accumulation of litter is to be avoided. Placing litter cans or boxes throughout the shelter and emphasizing the need for their use by all shelterees could reduce general littering.

Garbage and trash still may be a problem immediately after meals. A clean-up period should follow every meal. The Section leader, in large shelters and the Unit leader in small shelters, are responsible for trash and garbage collection in their areas. Either they or someone from their group should collect the group's refuse and take it to a pre-selected area where the garbage team will assume responsibility. Such a procedure will avoid congested aisles and passageways that would result if every person were to take his own refuse to the pre-selected area.

Many things which are normally thought of as trash may serve useful purposes in shelter. The waxed paper, in which rations are wrapped, empty boxes, storage tins, and other containers should be kept for other shelter uses, such as toilet paper, storage containers, etc. Such items should be carefully sorted out by the Unit or Section leader in collecting trash, and brought to the central supply area, if one exists, in the shelter.

Wherever possible, a covered metal container, such as an empty food tin, should be provided for the deposit of medical wastes (bandages), sanitary napkins, and liquid or semi-liquid wastes.

Procedures for disposal or storage of trash and garbage

In preparing cardboard and metal containers for use in storing wastes, it is recommended that they be opened carefully, along three sides, so that the top of the container can serve as a lid. In this way, refuse can be covered while it is stored in the shelter.

Metal containers with lids or other covering should be reserved for medical waste and vomitus. If these wastes cannot be immediately removed from the shelter, care should be taken that they are stored in covered containers. Disinfectant should be used here as well as in chemical toilets.

Where possible, garbage should immediately be removed from the shelter. Whether the refuse is actually thrown from the shelter or whether it is simply removed to another part of the building in which the shelter is located depends upon the radiation level.

Location of disposal area

Garbage disposal areas should be as far from the living area as possible. Where storage is necessary, the disposal area should be close to the shelter entrance or entrance to some other part of the building in which the shelter is housed. This facilitates removal of refuse from the shelter when the radiation level permits.

Disposal areas should be located near the ventilation exhaust if one exists in shelter.

If trash is stored, precautions must be taken to reduce the possibility of fire. For example, trash should not be stored near an equipment area. Smoking should not be permitted near the trash storage area.

## Area Cleanliness in Shelters With OCD Sanitation Stocks

General shelter cleanliness will be important not only for the maintenance of health, but for the morale of the shelterees as well. This will involve keeping the shelter as litter-free as possible, cleaning spills, vomitus, human waste, and providing for general shelter "house cleaning."

### Equipment and supplies

With the exception of the disinfectant, cleaning materials are not currently supplied in OCD sanitation kits. However, there will be materials existing in shelter which can be used for this purpose. For example, pieces of cardboard can be used as "brooms" and "dustpans," etc.

### Procedures for maintaining area cleanliness

The Section and Unit leaders should see that cleanliness standards are maintained in their area. Periodic checks should be made by a sanitation supervisor to assure that standards are met throughout the shelter.

There should be regularly scheduled clean-up periods in the shelter. In shelters where there are no separate eating areas, clean-up should take place after every meal. In shelters where there are separate living and eating areas; the living area should be cleaned in the morning, in the afternoon, and before bedtime. The dining area should be cleaned after every meal.

Spills should be cleaned up as soon as possible, especially those resulting from vomiting and diarrhea.

Areas should be kept free of litter. If smoking is permitted, receptacles for cigarette butts must be provided.

Special attention must be given to the maintenance of cleanliness in the food preparation, sick bay, and garbage disposal areas.

If the manager has determined that an ample supply exists in the shelter, some water may be used in maintaining area cleanliness. For example, part of the shelter may be cleaned with wet rags. Hosing down the shelter or other extensive use of water in area cleanliness is recommended only where the water supply is practically unlimited, and where high humidity is not a problem. In most underground shelters, there will be sufficient dampness due to shelter humidity to wash the walls and floors.

## Personal Hygiene in Shelters With OCD Stocks

In the shelter environment, there will be little opportunity to carry out the normal activities associated with personal hygiene. Personal hygiene articles, such as soap, razors, etc., will very likely not be available in a shelter, although some individuals may bring such articles with them. Even if the articles were stocked, the restriction on water consumption in shelter, might limit their use. Cleanliness is a positive morale factor for a number of people, and by the ingenious use of available or improvisable facilities, some rudiments of personal hygiene can be introduced into the shelter. If improvisation is not possible, it should be remembered that most people will adjust rapidly to a soapless and toothbrushless environment.

### Equipment and supplies

Personal hygiene supplies will be extremely limited in nature and in amount. They consist primarily of toilet paper, sanitary napkins, and waterless hand cleaner. These items will be supplied for the rated capacity of the shelter. If there is to be toothbrushing, use of toilets for disposal will be unpleasant. A separate receptacle should be provided.

### Aspects of personal hygiene

Bathing. In shelters with adequate water supply, sponge bathing should be considered as a cooling and comforting activity. Young children especially because of the diaper problem, will benefit from sponge bathing. In order of priority, children, women, and men should be permitted this luxury. If the water supply consists solely of OCD water drums, the rate of water consumption should be measured during the first few days and the general adequacy of the water supply determined. Under favorable conditions, occasional sponge bathing with water from the OCD supply should be allowed.

Feminine hygiene. Under emotional influences, it is possible that menstruation may be delayed for months. The fear and anxiety brought on by nuclear attack may affect many women in this way, although no direct evidence is available to support this point. In shelters where this phenomenon might occur, and in shelters made up predominantly of males, the sanitary napkins that are stocked can be used quite advantageously as bandages.

It is also possible that emotional reactions to disaster may initiate the onset of menstruation in some women prior to their normal period.

Clothing. In most cases, shelterees will wear the clothing they came in with, for the duration of the shelter stay. Although this may appear uncomfortable, it is something to which the population will rapidly adjust. As the shelter gets warmer, it can be expected that shelterees will divest

## Personal Hygiene: OCD Stocks

themselves of clothing, approaching under certain conditions the minimum limits of propriety. Articles of clothing that are not being worn have many valuable in-shelter uses, such as blankets and other bedding, partitions, stretchers. Certain articles of clothing may be expendable, and used as diapers or as cleaning cloths.

Odors. The lack of extensive facilities for personal cleanliness means more body odors in shelter. Evidence from habitability studies suggests that shelterees, after a short period of time, will tend to adapt to body odors. Only after leaving the shelter, breathing relatively fresh air, and returning to the shelter will people notice the extent of the odors to which they had adjusted.

Oral hygiene. Except for toothbrushes that shelterees bring with them, there will be no facilities for oral hygiene in OCD-stocked shelters. Abstention from brushing the teeth for the length of the shelter stay in no way endangers the health of the individual or the group.

### Personal hygiene procedures

Controlling the use of supplies. Because hygiene supplies will be limited and because they will acquire value in shelter, careful control over their distribution should be exercised. Medical personnel, food handlers, and members of the sanitation team have top priority for the use of the hand cleaner. The polyethylene gloves are intended for the use of the sanitation team. If, under local conditions, extensive use by these teams is not necessary, the personal hygiene supplies may be made more generally available to shelterees.

Scheduling hygiene activities. If there are any facilities for personal hygiene, the time for their use should be made part of the daily shelter schedule. The actual timing depends on the available facilities and the number of shelterees.

## Shelters With Augmented Sanitation Capabilities

Most of the guidelines pertaining to OCD sanitation stocks also apply to shelters with augmented sanitation capability. Only general guidelines concerning augmented sanitation capability are listed because the specific procedures vary with the individual shelter.

### Toilet Facilities

In a number of buildings in which shelters are located, the normal toilet facilities may be operable and accessible. This may relieve the sanitation problem somewhat, but it will not reduce the necessity of strict management control of toilet facilities and supplies.

Before flush toilets are used, several factors must be evaluated by management. The most important of these is the availability of water. If water is available, a decision must be reached as to whether it should be used for toilet purposes, for other sanitation activities, such as washing, for medical purposes, or for drinking.

Some shelters may have their own chemical toilets or other emergency facilities, in addition to or in lieu of, OCD stocks. The guidelines pertaining to OCD toilets apply, in almost all cases, to private emergency toilet facilities.

### Trash and Garbage

Shelters with additional sanitation facilities may also have an augmented food capability. Under such conditions, garbage and trash will be more extensive than in shelters with survival rations only. Specifically, there will likely be more "wet" garbage (food leftovers), food cans or boxes, food wrappers, and perhaps disposable plates.

The availability of brooms, mops, dustpans, garbage cans and other sanitation equipment will ease the clean-up problem to some extent. As in the case of augmented toilet facilities, the additional sanitation equipment must be subject to the same strict control as the OCD-stocked supplies.

If additional disinfectant is available in a shelter, its use on garbage and medical wastes as well as human waste is recommended.

If available, treated sawdust (sweeping compound) should be used immediately for cases of vomiting or diarrhea to reduce odor and to absorb moisture. In the absence of sweeping compound, other materials which could serve the same or

similar function should be used. For example, bicarbonate of soda will serve to reduce odors from vomit, while shredded paper will absorb moisture.

### Personal Hygiene

If there are augmented capabilities for personal hygiene in shelter, they will most likely be washing and bathing facilities and supplies, such as sinks, showers, tubs, and soap. Here too, the availability of water and the need for water for drinking and medical purposes must be considered before any increase in personal hygiene activities can be allowed.

**CHAPTER 10**  
**MEDICAL CARE**



## CHAPTER 10 OUTLINE

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## In-Shelter Medical Problems

Without doubt, the incoming population will bring its share of chronic and acute ailments that are unrelated to nuclear attack into a shelter. Under the best of conditions, a large shelter can expect a wide range, if not a great number, of cases of chronic and acute, contagious and non-contagious ailments. However, the basic medical problem of a shelter is not the normal illnesses of incoming individuals. The basic problem is comprised of two elements: (1) the injuries and illnesses directly or indirectly caused by the effects of nuclear or other weapons, and (2) the epidemic spread of communicable or other diseases within a confined and overcrowded shelter.

### Potential Medical Problems Caused by Weapon Effects and Shelter Confinement

The following chart indicates some of the likely medical problems that may be caused by the effects of nuclear attack or an extended shelter stay. The chart is not designed to provide guidance in the diagnosis of medical problems; it is merely illustrative of the range of illnesses that may be found in a fallout shelter.

Table VIII  
The Nature and Cause of Potential Medical Problems

MEDICAL PROBLEM <sup>1</sup>	POSSIBLE CAUSE
Nausea	Radiation sickness High in-shelter temperature High concentration of CO <sub>2</sub> Eating or drinking unsanitary food or water Sights and odors associated with death, illness, extreme toilet odors Infectious diseases
Diarrhea	Radiation sickness Eating or drinking unsanitary food or water Infectious diseases

<sup>1</sup>A number of the items listed as medical problems are, in fact, symptoms of ailments, rather than specific illnesses. However, it is frequently the symptoms that will cause the management problems.

Table VIII (Continued)

MEDICAL PROBLEM	POSSIBLE CAUSE
Constipation	Lack of physical activity Low residue shelter diet Decreased water intake Infectious diseases
Upper Respiratory illness	Temperature extremes Radiation sickness Overcrowding and confinement Infectious diseases
Unconsciousness	Lack of oxygen Increased carbon dioxide Severe radiation sickness Blast effects
Headaches	Radiation sickness High Temperatures Poor ventilation Infectious diseases
Shock	Exposure to weapon effects Accidents
Hemorrhaging	Exposure to weapon effects Accidents Severe radiation sickness
Fractures, sprains, wounds	Exposure to weapon effects Accidents
Burns	Exposure to radiation Exposure to fires caused by weapon effects Exposure to in-shelter fires
Skin Ailments	Temperature extremes Poor ventilation Unsanitary living conditions Infectious diseases

Additional medical problems likely in shelters

Among the categories of medical problems that may realistically be present in a community fallout shelter are:

1. Respiratory illness: Influenza, bronchitis, colds, pneumonia, the amount depending upon the geographical location and season of the year.
2. Common infectious diseases: Mumps, measles, chicken pox, whooping cough, tuberculosis.
3. Heart and circulatory diseases: Arteriosclerosis, heart failure.
4. Nervous system disorders: Cerebral hemorrhage or thrombosis.
5. Other non-infectious conditions: Diabetes, malignant and benign tumors.
6. Obstetrical and gynecological: Near-term pregnancies, menstrual problems.
7. Digestive system disorders: Ulcers, appendicitis.
8. Musculoskeletal: Arthritis.
9. Allergies: Asthma.

## Establishing a Shelter Medical Facility

A medical facility refers to the people, the materials, and the space necessary to carry out medical treatment in a shelter. Treatment per se is discussed in a subsequent portion of the chapter. Most of the following materials pertain to shelters whose medical capability is provided by the OCD-stocked medical kits. A few community shelters will have a greatly augmented medical capability. These include hospitals and some industrial and business shelters. It is assumed that part of this augmented capability consists of trained medical personnel and plans for the practice of shelter medicine. Therefore, the guidelines do not deal explicitly with the establishment of elaborate medical facilities.

### Diagnosis and Treatment Center

All shelters should have at least one area set aside for the use of medical team personnel for the diagnosis and treatment of illness and injury. This is distinct from a sick bay, or hospital-like section of the shelter where severely ill or injured shelterees may be isolated from the remainder of the group. Medical supplies and equipment should be centrally located in the diagnosis and treatment center.

#### Characteristics of the diagnosis and treatment center

This area should resemble a doctor's office as closely as possible under shelter conditions. Some of the important considerations in locating a diagnosis and treatment area are:

1. Illumination: The diagnosis and treatment center should be located so to receive as much light as possible to allow for accurate diagnosis and proper treatment.
2. Privacy: A separate room is ideal for the diagnosis and treatment center. If this is impossible, improvised partitions of blankets, drapes, furniture, and the like should be erected to provide as much privacy as possible.
3. Absence of disturbing stimuli: It is desirable to establish this medical area in as comfortable a location as possible away from extremes of noise and heat.
4. Relation to other shelter activities: If possible, a sanitation area should be set up near the medical area: (a) to allow for the disposal of medical wastes and (b) under the assumption that the sick and injured will have more extensive need of sanitation facilities. The diagnosis and treatment area should be situated away from the food preparation area. As indicated above, it should be located as far as possible from noise and heat-producing activities.

## Establishing A Shelter Medical Facility

### Number and size of diagnosis and treatment centers

Some of the important factors in the determination of the number and size of diagnosis and treatment areas are:

1. The number of sick and injured: The greater the number of casualties and the incidence of illness, the larger will be the number and/or size of diagnosis and treatment centers.
2. Configuration of the shelter: A shelter composed of widely separated areas will require more medical areas than a single-spaced shelter.
3. Amount of medical equipment and supplies: The size or number of the medical areas is influenced by the extent of supplies and equipment. The more supplies, the larger the number and/or size of medical areas.

### Procedures for establishing a diagnosis and treatment center

Timing. The time at which a treatment area should be put into operation depends upon the medical strategy selected in a particular shelter. For example, if the sick and injured are going to be sorted at shelter entry, the diagnosis and treatment area will have to be set up immediately.

Movement and storage of medical supplies. Medical supplies and equipment should be centralized in the diagnosis and treatment area. In many shelters, this will mean that supplies will have to be moved from other parts of the shelter where they have been stocked with other survival kits, or else moved from other sections of the building into the shelter. See "Medical Supplies," page 167 to 170.

Signs. In large shelters, a sign of some sort should be erected to indicate the location of the medical area.

### The Sick Bay

The sick bay refers to an area in the shelter that has been set up to accommodate persons with communicable diseases, serious ailments, or injuries, requiring isolation from the rest of the shelter. The sick bay is the shelter version of a hospital. There are three reasons for keeping the seriously sick and injured separated from the rest of the shelter. One is to provide a setting within which the non-ambulatory patient can be given the most effective treatment and care. The second reason is to reduce the possibility of the spread of contagious disease in shelter, and thirdly, to

## Establishing A Shelter Medical Facility

control the potentially demoralizing effects that the appearance and behavior of severely ill or injured persons may have on the shelter.

### Determining the necessity of a sick bay

A sick bay is not an automatic requirement for all shelters, at all times. The foremost considerations in evaluating the need for a sick bay are the nature and extent of in-shelter medical problems.

Under the following conditions, the establishment of a sick bay is recommended:

1. Communicable diseases have erupted in a shelter without as yet having reached epidemic proportions.
2. Seriously sick or injured people are present whose appearance or behavior are a source of discomfort to shelterees.
3. A shelter has an advanced capability for treatment of medical problems including: beds or cots, equipment for minor surgery, extensive medical supplies, and trained medical people.

Under the following conditions, an alternative other than a sick bay appears to be reasonable:

1. Widespread communicable illness of epidemic proportions turns the entire shelter into a veritable hospital.
2. In a shelter whose population is composed largely of families or groups of friends, it may be more effective from the management point of view to allow the non-contagious sick and the injured to remain with their relatives and friends, where they can receive personal attention and continuous care.
3. In a small single-spaced shelter with a capacity of several hundred or less, the likelihood is increased that a separate sick bay will not accomplish the goals of shelteree protection and patient comfort.

### Characteristics of the sick bay

Ideally, the sick bay should have the following characteristics:

1. Flexibility: The sick bay should not be established automatically as a fixed area of constant size. Because of the scarcity of space in a shelter, the sick bay should be flexible--able to contract when the patient load is low, thereby making more space available for other activities, and conversely, able to expand rapidly in response to medical emergencies.

2. Comfort: If the shelter contains only a few cots, beds, or items of bedding, these should be reserved for use in the sick bay. In a number of shelters, the sick bay will consist of space on the floor. Any improvised bedding that can increase patient comfort should be utilized. See "Improvise Bedding," Chapter 8, "Sleep."
3. Privacy and absence of disturbing stimuli: See "Diagnosis and Treatment Center," page 164.
4. Relation to other shelter activities: In addition to the considerations discussed on page 166, the sick bay should be located near the diagnosis and treatment area.

## Medical Supplies, Equipment and Manuals

### Types and sources of medical supplies

OCD-stocked medical materials. A list of the medical supplies, equipment, and supporting information stocked by the Office of Civil Defense in community fallout shelters is presented in Appendix C.

Supplementary materials. A list of supplies and equipment to supplement the OCD medical kits, is described in Appendix C. The asterisked medical supplies in Appendix C are listed in the Guide for Community Fallout Shelter Management (Office of Civil Defense, 1962), as "Other Desirable Items."

Individual medical requirements. In a majority of shelters, it can be expected that some people will bring with them medicines necessary to sustain life or health. Examples of medical requirements that will be frequently encountered in shelters are insulin for diabetics, and digitalis or other drugs for people with heart conditions.

As a general rule, the responsibility for the preservation and use of such medications in shelter must rest with the individual. Few shelters will contain the proper refrigerated facilities for storing insulin, or other drugs that might require refrigeration.

Relatively few shelters will stock emergency supplies of insulin and analogous drugs. If a person has entered a shelter without his vital medication or has depleted his supply and is in danger of death, volunteer donors of medicines should be sought from among other shelterees suffering from the same ailments.



Improvised medical supplies. The limited medical capability in a Federally-stocked shelter can be somewhat enhanced by the use of improvised medical supplies. Some examples of medical improvisation are: (1) the use of sanitary napkins as medical dressings, and (2) the use of items of clothing as medical dressings.

#### Control of medical supplies

In setting up the diagnosis and treatment centers. Medical supplies should be centrally located, preferably in the diagnosis and treatment area. If medical supplies have to be moved from some other part of the shelter or building to the diagnosis and treatment area, this should be accomplished by members of the supply team or male adult volunteers, under the supervision of the medical team leader or a member of the management staff.

As the supplies are brought into the diagnosis and treatment area, they should be inventoried and the results checked against the pre-occupancy inventory data.

In daily use. Medical supplies should be constantly kept under watch, and, if possible, stored under lock and key.

In order to maximize control over scarce medical supplies, a daily inventory should be carried out, especially in the larger shelters. In addition, a medical log should be kept in which the supplies dispensed to each patient should be recorded.

#### Distribution of medical supplies

Responsibility for distribution. The distribution of medical supplies should be under the jurisdiction of the medical team leader. Several members of the medical team should be given the specific assignment of control and distribution of supplies.

Distribution to medical personnel. The use of medication and other supplies in the diagnosis and treatment area will be easy to control, as that is where the supplies will be stored.

However, when medical personnel make their rounds, that is, move throughout the shelter to diagnose and treat ailments, the control of supplies becomes more complicated. A member of the medical staff, before making rounds, should be given and sign for a parcel, package, or bag, of medical supplies. After his tour, he should return the unused supplies to the storage area, and have his account brought up to date.

## Establishing A Shelter Medical Facility

Distribution of medication to shelterees. There are three cardinal principles of distribution of medicine and supplies in a shelter:

1. Give only the immediate dosage: Shelterees should not be given a day's or several days' medication at one time. They should be given only a "one-time" dose to prevent wasting or losing supplies and to prevent inappropriate use of medicines and drugs.
2. Take medicines "on-the-spot": Medicines should be taken by shelterees in the presence of a member of the medical team. For the same reasons as in No. 1 above, medicine should be ingested by shelterees at the time and place of distribution. They should not be allowed to take medicine back to their shelter location or save it for later use.
3. Keep a record of patient's medication: A record should be kept of the medication that has been dispensed to an individual. This has been discussed previously in connection with the inventory of medical stores. It is also important from the treatment standpoint to be able to find out how much of what types of medications have been administered to a patient.

### Replenishing medical supplies within the building

In a number of buildings in which fallout shelters are located, there are first aid or sick room supplies that have been stocked for normal peacetime use. It would be very desirable if some of these materials could be brought into the shelter at the time that it is being occupied. If there exists no pre-established plan for bringing supplies into the shelter, one or more people who are familiar with the building may be given the assignment of rounding up additional medical supplies. If the people selected for this task do not have any previous medical training, they should be briefed on the types of supplies that should be brought back. This activity should be carried out as soon after entry as possible, or after the radiation levels have subsided to permit movement within the building.

External sources. At the time radiation levels become low enough to permit brief trips outside the shelter, the replenishment of medical supplies should be made one of the highest priority tasks. The local community emergency operations plan should indicate the replenishment sources for each shelter. In the absence of such a plan, communications between the manager and the control center should establish where medical supplies for a particular shelter may be procured.

Before a team is sent out to replenish medical stocks, the medical team head should determine what supplies are needed, in what quantities, and according to what priorities. The types of supplies brought back into the shelter should bear a relationship to the medical capabilities of that shelter. If a doctor is available, a wide range of replenished drugs and equipment can be put to effective use. If the medical team consists only of untrained or barely trained persons, only those supplies within their capabilities to administer should be brought back.

The quick trips outside may also provide an opportunity to procure certain special medicines, such as insulin.

### Medical Personnel

The practice of medicine is one of the few shelter activities for which extensive previous training is a prerequisite. Unfortunately, many shelters will not have people with the ideal training--that of a physician. However, a shelter is likely to have one or more persons with para-medical training. The management problems regarding medical personnel are: (1) to select a medical team head in the absence of a physician, and (2) to determine the degree of responsibility of the team head. Further information on the medical team is presented in Chapter 13, "Shelter Organization."

#### Composition of the medical team

Medical team head. Ideally, the medical team should be headed by a licensed physician. His responsibilities are: to establish and run the medical facility, to oversee all medical operations, and to make all major diagnostic and treatment decisions.

Medical assistants. Medical assistants should be selected on the basis of at least first aid training or rudimentary knowledge of medicine. Their primary duties include: to perform first aid, to carry out treatment under the supervision of the medical head, and to control the distribution of medical supplies.

Medical aides. By far the largest component of medical teams will be the medical aides--volunteers without training. The responsibilities entailed in this position are: to comfort patients, provide whatever non-medical care is possible, and to keep the sick-bay area clean.

All shelterees. In one sense, all shelterees will be members of the medical team, since self-care will be a major part of the shelter medical program.

#### Responsibilities of medical personnel

If a licensed M.D. is head of the medical team in shelter, medical practice should be left to his direct supervision. In many shelters, the head of this team will be someone with only para-medical experience. In such cases, the shelter manager should specify the limits of responsibilities

that the medical team leader can undertake on his own. Needless to say, these limits should be much narrower than would apply for a licensed physician. In the event that the head of the medical team is a layman, without significant training or experience, his medical care duties should be restricted to first aid and other simple procedures. In the event that medical emergencies occur in a shelter with no medically-trained persons, every effort should be made to communicate with the outside in order to obtain medical advice. If communication is impossible, the necessary decisions should be made by the shelter manager, based upon such criteria as are discussed on page 178, "Establishing Priorities for Treatment."

## Detection of Medical Problems

One of the major phases of the medical program is the identification of shelterees with medical problems and the determination of the specific ailments or injuries. The detection procedures described below are different alternatives which may be used singly or in combination, depending upon the size and configuration of the shelter, the extent of illness and injury in the population, and the availability of trained medical personnel.

### Detection of medical problems at point of entry

This method which is rather limited in its applicability calls for a trained medical person to be stationed at the entrance to the shelter and to direct the obviously sick and injured to a medical area for immediate treatment or further diagnosis. In order for point-of-entry detection to be effective, three conditions should be met:

1. Trained medical personnel should be available to perform the on-the-spot diagnosis.
2. The number of people entering the shelter, and the rate at which they are entering cannot be too great.
3. The proportion of ill and injured among the incoming population should not be too high.

### Detection of medical problems after shelter is filled

Using this approach, the incoming population is initially directed to locations away from the entrance, so that the shelter may be efficiently "loaded." After the initial assignment to a shelter location, either (1) people with serious medical problems should report to the treatment area, or (2) members of the medical team should circulate through the shelter "spot diagnosing" severe injury or illness. In the latter case, the members of the team can perform immediate first aid, or send shelterees to the medical area for further diagnosis or treatment.

### Detection of medical problems from registration forms

During the first few hours of the shelter stay, the shelterees should fill out registration forms. Included in the form will be space for the enumeration and description of medical problems. The completed forms should be reviewed by a trained medical person. Information on registration forms may be a useful way to discover medical problems that are without visible symptoms.

## Detection of Medical Problems

### Detection from medical examination

After the shelter has been organized, and a schedule of activities put into effect, medical problems will, in the main, be detected by examination at daily sick-call or on rounds made by the medical team.

## Treatment of Medical Problems

The following materials do not contain any detailed information about treatment of specific ailments or injuries. Such information can be obtained from the "Emergency Health Care" manual that accompanies the OCD medical kit, the instructions for the use of special medicines that are also stocked, and from the additional documents that may be stocked in some community shelters. (See Appendix C.) This section on treatment focuses upon the management responsibilities in regard to a program of shelter medical care.

### Emergency Treatment

During the first few hours after shelter-taking, the medical program should emphasize the detection and treatment of medical emergencies. During the routine phase of shelter habitation, the capability must be maintained within the medical area to switch rapidly to emergency operations.

#### Types of medical emergencies

A medical emergency is an occurrence characterized by one or more of the following conditions:

1. The existence of illness or the occurrence of injuries, whatever their cause, on a scale large enough to render the shelter incapable of carrying out the necessary operations required for survival.
2. The outbreak of illness that might rapidly spread through the shelter in epidemic proportions.
3. The illness or injury of an individual shelteree whose life can be saved by the administration of available drugs or other treatment.

#### Requirements for emergency medical treatment

Rapid diagnostic capability. Among the most important steps in coping with a medical emergency is rapid diagnosis. Many of the illnesses that are likely to be found in a shelter will have similar symptoms (for example, nausea or diarrhea). It is, therefore, necessary to accurately determine which of the patients exhibiting a set of widely prevalent symptoms are seriously ill and which are not.

Expansion of the medical areas. As indicated in the discussion of the sick bay, shelter medical areas should be flexible in their arrangement, so that sudden increase in medical problems can be accommodated by expanding the size of the treatment area and/or sick bay.

Rapid movement of supplies and personnel. In a crowded shelter, it may be difficult to move medical supplies and non-ambulatory patients from one part of the shelter to another with speed. The capability of a shelter to cope with medical emergencies is increased as the ability to move equipment and people with ease is increased.

Rapid communication capability. The ability to speedily and accurately communicate with all or selected numbers of shelterees will enhance the shelter's status in medical emergencies. See "Communications," Chapter 16.

## Sick Call

Sick call is the medical procedure whereby ambulatory patients are examined and receive treatment at a centralized location.

### Sick call schedule

After the shelter schedule has been put into effect, sick call should be held on a daily basis. Preferably, it should be held in the diagnosis and treatment area. A frequently recommended time for sick call is after the morning meal and clean-up, sometime between 8:30 and 9:30 a.m.

### Sick call in large shelters

In larger shelters with extensive illness and injury, it may be necessary to have more than one sick call period a day, in order to accommodate all patients. An alternative, if there are sufficient trained medical personnel, is to schedule sick call at several separate points of the shelter simultaneously.

If many people are expected at sick call, some procedure should be established for maintaining order among shelterees waiting for treatment. One procedure is to hold sick call on a community group basis. Each Section or Division can be assigned to sick call at a specified time, according to a schedule worked out by the medical team.



Responsibility for sick call examination

The examination of patients on sick call should be in the hands of trained medical personnel. If such are not available, a member of the management staff should be present at the examination point to supervise the layman head of the medical team.

**Medical Rounds**

Medical rounds is a procedure whereby members of the medical team circulate through the shelter and diagnose and treat cases of illness and injury at the point where shelterees are located. Medical rounds can be used as the basic treatment procedure or in conjunction with sick call.

Conditions under which medical rounds are recommended

Not all shelters have a need for a circulating medical team. Medical rounds will probably be effective under the following conditions:

1. Shelters without a sick bay but with a number of non-ambulatory patients who would find it physically impossible to go on sick call.
2. Very crowded shelters. It is more convenient to send a member of a medical team to the shelterees than vice versa.
3. Large shelters with extensive minor illness. In such cases, it might be more convenient to distribute aspirin and similar medication through medical rounds than have long lines of shelterees waiting for diagnosis and treatment.
4. Shelters with a substantial number of trained medical people.

Medical rounds schedule

Like sick call, medical rounds should take place on a daily basis. In shelters with an abundant supply of trained medical people, sick call and medical rounds can be carried out simultaneously, as complementary activities. This will cut down on the amount of time spent in daily medical activities. More frequently, there will not be enough team members to carry out both activities simultaneously. If both sick call and rounds are desirable activities, they will have to be scheduled at separate times, perhaps one right after the other, or one in the morning and the other in the afternoon.

### Dispensing medication on rounds

In the section on "Medical Supplies," page 167 to 170, some procedures for the distribution of supplies to shelterees are discussed. The cardinal principles of distribution of medication are even more important to keep in mind when dispensing drugs among the shelterees (as opposed to in a centralized medical area). These principles are:

1. Give only the immediate dosage.
2. Insist that medication be taken at the time it is dispensed.
3. Keep a record of all medications administered.

### **Self-Care**

Self-care is a procedure whereby shelterees minister to some of their own medical needs, and in a similar fashion, help other shelterees. In large shelters with extensive medical problems and limited resources, a considerable portion of the medical program will consist of self-care.

### The scope of self-care

The basis of medical self-care consists of keeping the sick and injured clean and comfortable and maintaining their spirits. It may also include such simple medical tasks as changing dressings or monitoring the patient's condition, but as a general rule, it precludes specific medical treatment. Self-care will likely be the basic approach to treatment for those with minor injuries and illnesses, for those with chronic conditions that cannot be relieved in shelter, and for those shelterees who are beyond medical help.

### Requirements for self-care

It can be assumed that self-care will be carried out almost exclusively by previously untrained persons. Therefore, an important part of the in-shelter training program should consist of lectures and demonstrations of simple first aid and rudimentary practical nursing procedures that can be applied to the self-help medical program. Such training sessions should stress the first aid and practical nursing procedures that are relevant to the shelter situation.

Self-care schedule and personnel

Medical self-care will be an unscheduled activity that will operate continuously, day and night, as long as there is illness in a shelter. In many cases, the persons carrying out self-care will be the relatives, friends, or shelter neighbors of the patient. In addition, shelter group leaders may find it convenient to organize groups of volunteers to care for those who are without family and friends, or to periodically relieve family and friends from self-care duty.

**Establishing Priorities for Treatment**

All sick and injured shelterees will receive some form of medical care. However, in many cases, there may not be enough drugs or other scarce medical supplies to meet the needs of a shelter. In such cases, a management decision must be made as to which patients receive the scarce drugs or supplies and in what priority. There are several alternatives that have precedents in American society; all of them are unjust in a sense, because they all result in a denial of medication to some element of the patient population. The following guidelines are not to be construed as recommendations; they are merely illustrative approaches. This difficult decision must be made by the manager and the medical team head based on the particular medical situation in each shelter.

Priority on the basis of traditional selection criteria

A general procedure for allocating medical resources consists of utilizing the pre-disaster standards of American society. This has two consequences. Firstly, it means that medication should be given to persons who are in greatest need--that is, who are suffering the most. Secondly, it means that for patients with the same level of seriousness of injury or sickness, treatment should be initially given to those groups that are traditionally served first in our society--women, children, and the aged.

Priority on the basis of medical prognosis

Using this priority, medical treatment should be given first to those sick and injured whose chances for survival will be most greatly enhanced by the receipt of drugs or other treatment. This refers to patients who might die without medication and whose lives could possibly be saved with drugs or other treatment.

## Treatment of Medical Problems

The group that should be treated last is that composed of patients who will very likely recover spontaneously from their ailments. For this group, medication serves to prevent further complications from arising and increases comfort; it is not related to life or death.

In order for this approach to be effective, a trained medical person is required to assess medical problems and place patients in the proper treatment categories.

## Preventive Medicine

The widespread outbreak of disease can be one of the most disruptive situations which the shelter manager will face. It can cripple the shelter organization, weaken the morale of the shelter population, and cause the serious illness or death of many shelterees. The confined nature of the shelter, plus the comparatively limited medical supplies stocked in most shelters, will make it very difficult to cope with large-scale disease situations. Therefore, a crucial goal of the medical program is the prevention and control of epidemics in the shelter. An auxiliary concept to that of preventive medicine is the prevention of injuries which will increase the magnitude of the medical problem for the shelter.

### Procedures to Combat the Occurrence and Spread of Disease

#### Maintaining high sanitary standards

Sanitation and preventive medicine go hand in hand. One of the major weapons against the occurrence of disease is high sanitary standards. Among the standards to be maintained to the highest extent possible are those dealing with: (1) the purity of food and water, and (2) personal cleanliness--of shelter areas. These points are discussed in Chapter 9, "Sanitation."

#### Controlling vermin

Lice, fleas, mites, ticks, flies, mosquitoes, and rats are among the insects and animals that could cause medical problems as transmitters of diseases. A program of sanitation represents the best shelter defense against vermin. The program involves maintaining high standards of cleanliness, and carrying out frequent sanitation inspections to check persons, their belongings, and the shelter itself for vermin.

Disease-carrying insects and animals should be disposed of where found. However, chemical insecticides, especially aerosol sprays should be used with extreme caution, and only under conditions of adequate ventilation.

#### Maintaining a rapid diagnostic capability

An important step in controlling the spread of disease lies in identifying the specific medical problem and its cause. A rapid capability to diagnose illness is a distinct advantage in a campaign to limit the spread of disease. However, one must assume that such a capability will exist only in shelters with a highly-trained medical person.

Isolating shelterees with contagious disease

A major method to prevent the spread of disease is to separate the sick from the well. Not all shelters will have the facilities to separate patients from non-patients. Even in shelters that have a separate sick bay, it cannot guarantee the control of contagious disease. Nevertheless, isolation of patients with such diseases, is the most frequently recommended procedure for controlling the spread of illness, that has applicability to a wide range of shelters.

Treatment of shelterees with contagious or communicable disease

Not many shelters can be expected to stock vaccines or other special medicines that will prevent contagious diseases from developing or limit their effects. However, the drugs that will be commonly found in shelter medical kits, when used by trained medical personnel, can help in combating communicable and contagious diseases.

**Procedures to Prevent Injuries**

Although the prevention of injuries is not literally an aspect of preventive medicine as the term is commonly used, it is appropriate to discuss injuries in this section if the phrase "preventive medicine" is used in its broadest meaning, as prevention of medical problems. Some injuries will be unavoidable in a large shelter over an extended period of time. The implementation of certain procedures described below may keep the number and severity of injuries down.

Taking protective actions against weapon effects

The extent of injuries can be limited under many conditions if protective actions against the effects of nuclear weapons are rapidly and properly instituted in a shelter. See Chapter 2, "Radiological Defense," and Chapter 3, "Other Weapon Effects."

Fire and other emergency drills

Injuries can be decreased if the shelter population is trained to respond rapidly and rationally to emergency situations. Emergency drills should be practiced daily in shelter. Crowded conditions may not permit shelter-wide drills, but some portion of the population may be drilled at one time without causing overwhelming traffic problems.

Monitoring for the presence of damaging elements

An individual or team should be constantly on watch to detect the presence of fire, structural damage, slippery floors, dangerously stocked supplies, improvised bunks, or any other aspect of shelter living that may cause injuries.

Shelter orientation

A vigorous orientation campaign should be carried out to inform the population of the causes and consequences of accidents. If there are drawing supplies available or improvisable, posters can be drawn and hung on shelter walls as an additional reminder. Some of the important points to be made in the safety orientation are described below:

1. Walk, do not run, in the shelter.
2. Walkways, aisles, or other areas used for personnel movement must be kept clear of debris and other tripping hazards.
3. Spilled water, waste materials, oil or other slippery substances should be cleaned up at once to prevent falls.
4. Only authorized personnel should operate or repair shelter equipment.
5. Look where you are going. Do not walk forward while looking over your shoulder. Do not walk backwards. Always glance at the walking surface ahead of you for tripping and slipping obstacles.
6. Never throw objects to another person in the shelter. Items should be handed or passed to another person.
7. Do not use flammable or toxic materials, except when absolutely necessary and when under strict supervision.
8. When piling or stocking materials in the shelter, start with a firm foundation. Do not pile or stock so high that an unsteady pile will result.
9. Do not lean against or sit on unsteady stocked materials or other unsteady objects.
10. Assign hazardous, or potentially dangerous, jobs to adults.
11. Recognize and caution shelterees about potentially hazardous aspects of routine shelter living (such as opening metal food tins).

## Disposal of the Dead

Every shelter should be prepared for the contingency of death occurring during shelter occupancy. Death poses significant problems for shelter management. There is the health problem concerning the possibility that the body will host disease-producing organisms. Secondly, there is a problem concerning the emotional impact of death on the shelter population. The procedures in the event of death depend upon the number of deaths, the size and configuration of the shelter, and the available facilities for storage or disposal of bodies.

### Pronouncement of death

The head of the medical team will take the major responsibility in pronouncing a person dead. If no one with medical background is available, the manager or some appointed person will be designated to determine if death has occurred.

### Indications of death

Early indications. Absence of heart beat, pulse, and breathing for at least twenty minutes are signs of death. The procedure for listening for a heartbeat is to place the ear directly on the chest. If a mirror is available, and is placed in front of the mouth and nose of the person, a slight film will appear if the person is alive. A very thin wisp of cotton placed before the mouth and nose of the person will also indicate a breathing motion, if it is present.

Later indications. Several hours following death, the cornea loses its normal transparency and appears milky and/or wrinkled. There is an accompanying drop in body temperature. Finally, rigor moris, a stiffening of the muscles and rigidity of the body, will set in as a definite indication about two to eight hours following death.

Caution. Great care must be exercised in the pronouncement of death by untrained persons. Cases of severe shock and/or poisoning may leave a person paralyzed, and it may be difficult to detect breathing in the early stages of such conditions.

### Collection of personal effects

The personal effects of the deceased should be collected and given to the family if they are present in the shelter. Otherwise, private property found on the body should be tagged and stored in the administration area or some other designated section of the shelter.



Recording of vital information

Records should be kept of all deaths in the shelter. The vital information can be entered on or attached to the registration form. If the deceased should be identified through his effects or by family or friends, identification, in the form of a tag or other device, should be attached to the body before it is stored. The following information should be ascertained:

1. Name and address.
2. Date of death.
3. Cause of death, if known.
4. Names of immediate survivors.
5. List of personal effects found on the body.
6. Last will, if expressed.

Burial services

Religious services for the dead should not be too elaborate. A simple service should be held by the shelter manager or a member of the religious team. If death occurs infrequently, a service should be held for each deceased individual. In the event of many deaths, a mass service should be considered.

Disposition of the body

The procedure involved in disposing of the body will depend on the facilities which have been installed in the shelter. In most shelters, there will be no pre-arranged facilities provided for storing bodies. Body storage and disposal will involve two phases:

1. Body storage within the shelter: The body should be kept in the shelter only if it is not possible to remove it. The body should be wrapped in a sheet, blanket, or other material, and removed from the main shelter area or center of activity and placed out of sight of the other shelterees as soon as possible. If shelter design permits, it may be removed to a cool part of the shelter. While in the shelter, a body should be kept close to an exit to facilitate removal to the outside as soon as feasible.
2. Movement of the body outside the shelter and subsequent burial: If the shelter is within a large building, the body can be removed from the confines of the actual shelter to another part of the building. As soon as the external radiation levels are tolerable enough to permit short trips to the outside, the bodies should be moved and buried under at least three feet of dirt or earth.

**CHAPTER 11**  
**POWER AND ILLUMINATION**

## CHAPTER 11 OUTLINE

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## Power

Electric power would normally be the most common form of energy for the operation of ventilation, illumination, and other equipment in-shelter. However, either temporary or permanent interruption of power may be expected in many shelters. Because the Federal shelter stocking program at present does not include emergency power equipment, a majority of shelters will lack an extensive emergency power capability.

A number of buildings which provide acceptable fallout protection, will have existing auxiliary power equipment. Those which have none, will have to depend upon portable power sources that can be brought into the shelter at the time of disaster, or improvised power sources (e.g., automobile batteries), or they will have to adopt to survival without power. In a naturally-ventilated shelter with some emergency lights or lanterns, the lack of power need not be a major detriment to survival.

### Sources and Problems of Emergency Power

#### Motor-driven generators

For those having them, diesel or gasoline engine-driven generators offer the greatest emergency power capability. However, there are many possible sources of difficulty that must be taken into account in operating a motor-driven generator in or near the shelter. These include:

1. Exhaust: If the exhaust system is faulty, the presence of carbon monoxide from the engine becomes a real danger. Engine exhausts should be vented, in a closed system, through pipes or ducts leading outside the shelter building. Even small leaks in the vent system could cause serious contamination of the atmosphere.
2. Heat: Internal combustion engines generate large amounts of heat, especially when in continuous operation. Engines located within the shelter area may have negative effects on temperature and humidity as well as the water consumption rate of the shelterees.
3. Fuel: Fuel, in or near the shelter constitutes a continual fire hazard. Extreme caution must be exercised in all operations involving fuel, and with smoking in the equipment or fuel storage area.
4. Location: In addition to problems of exhaust and heat, the location of the generator engine has important implications for maintenance and repair during shelter use. Frequently, existing engines will be located in radioactive "hot" areas creating problems of access by repair personnel in the event of equipment trouble.

5. Noise: While not directly related to survival, the shelter noise level can have important psychological effects. Generator engines and auxiliary equipment may contribute heavily to the general shelter noise level. Machinery could be especially disturbing during sleeping hours.

### Battery power

Large dry cells which are used for emergency lanterns, portable radios, and other low-power equipment are an important source of power for emergency lighting and communication equipment. In addition, these batteries are small enough that a large number could be supplied without sacrifice of vital shelter space.

Some of the limitations of battery power are:

1. Limited power: Batteries could not be used for total emergency power on a continuous basis because extended current drains render them ineffective. Both storage batteries and dry cells require frequent recovery periods during which some, but never all, of the expended energy is required. Batteries can be returned to full strength only by recharging from another source. Since recharging facilities will not be generally available, conservative battery use will be necessary.
2. Machinery operations: Most machinery that could be used for shelter purposes is designed for operation on normal commercial power, i.e., 110-120 volts a.c. Unless large high-current storage batteries and battery-adapted machinery are available, the use of batteries for machinery operation will probably not be possible.
3. Lighting: Lights too, will require special adaptation for operation from normal 6 to 12 volt storage batteries. Either special bulbs or transformed current will be necessary to provide minimal shelter lighting from storage batteries.

### Manual generators and equipment

Although this type of capability can offer little more than battery strength power, manually-operated equipment has few of the drawbacks that are inherent in more comprehensive and powerful machinery. Even if other equipment is available, the back-up capability offered by manual equipment should not be overlooked. Bicycle-type generators, for example, could supply low-level lighting almost indefinitely. A similar arrangement for the mechanical operation of exhaust fans could also be valuable should the primary system fail.

## Procedures Using Motor Driven Generators

### Check for operability

An initial managerial responsibility involves preparation for activation of emergency power equipment in the event of commercial power failure. During shelter entry, auxiliary power unit should be checked for operability by someone familiar with the system.

### Check exhaust system

Exhaust system function is a critical checkpoint when the generator engine is located inside the shelter space or if lethal fumes could enter from an adjacent engine room.

### Check fuel

The quantity of fuel immediately available will determine whether equipment can be used continuously. If other fuel is stored nearby it may be possible to transfer it to the shelter area before it is necessary to close the doors.

### Location

If the emergency power system is in another part of the shelter building it should be activated, even though commercial power may still be operating. This will include "topping off" the fuel tank so that the engine will run as long as possible without attendance.

Systems in shelter, on the other hand, should be left on standby until actual failure of commercial power.

### Preventive maintenance

All preventive maintenance such as lubrication should be accomplished early, preferably during the initial equipment checkout. This is a requirement for engine-generators which are not in the shelter area or will otherwise be inaccessible during at least the first few days.

### Operating schedule

Continuous operation of auxiliary power units may not always be possible even though the unit is not located in the immediate shelter area. Carbon monoxide might enter the shelter area through cracks in doors or walls, heat ducts, etc., following failure of an exhaust system in an adjoining area.

Effects of heat

The effect of engine heat on shelter temperature and humidity and on the water consumption rate of the shelterees should be taken into consideration when the generator engine is located inside the shelter area. If ventilation is inadequate, it will probably be necessary to use the auxiliary power unit on an intermittent basis to maintain shelter temperature at an acceptable level.

Monitor fuel consumption

Fuel consumption should be monitored. If a shortage appears to be developing and if there is little hope of replenishing the fuel supply within a reasonable period of time, intermittent use of equipment is again suggested.

Remote equipment failure

Failure of equipment which is located in a remote area of the shelter building will require corrective action as soon as the radiation level in that area has diminished sufficiently. Empty fuel tanks, fouled fuel lines, clogged or buried air intakes, and blown fuses are examples of possible minor causes of failure which could be remedied in a short period of time. More serious malfunctions may require longer repair team exposure to radiation, and, therefore, cannot be repaired until the radiation level is further diminished.

### Procedures Using Battery Power

Shelters which do not have a motorized auxiliary power unit may have been supplied locally with batteries and battery-adapted equipment.

Storage batteries

Storage batteries should be filled with activating fluid soon after shelter entry and prepared for connection to auxiliary lighting and, possibly, ventilating equipment. Power from batteries should not be used until actual failure of commercial power.

Battery-adapted equipment

Equipment such as battery-adapted ventilating fans should be used on an intermittent basis unless enough batteries are available to permit continuous rotation of battery use.

Dry cell batteries

Dry cells do not provide as much current as storage batteries nor do they have the staying power. They provide a versatile capability, however, because of their light weight and because many types of lights, radios, transmitters, and other equipment are made for use with dry cells. In addition, many of these pieces of equipment may be found in the shelter building because of their common use. All available dry-cell type equipment should be brought into the shelter area for use following a failure of commercial power or a possible failure in an auxiliary system.

**Procedures Using Manually-Operated Equipment**

Generator

Bicycle-type or other manual generators can supply low-level power for minimum illumination and for the operation of other low-power equipment. Volunteer personnel may be organized into shifts to maintain continuous generator operation if necessary, though intermittent use, as with batteries, should be generally sufficient.

Ventilation blowers

Some shelters may be provided with hand-operated ventilation equipment or equipment which could be adapted for manual operation should the need arise. Ventilation conditions will determine both the number of personnel and frequency of operation required under such a system.



## Illumination

Some illumination will be necessary to organize and operate the shelter. There are certain light levels which are generally recommended for various types of tasks or activities. These levels must not be considered as the absolute minimum for successful performance of the tasks to which they apply. It has been observed, in fact, that when the situation demands, people can successfully perform exacting visual tasks (such as reading) under lighting conditions which would normally be thought of as wholly inadequate.

### Illumination Recommendations for Different Shelter Activities

#### Daytime activities

Most required shelter functions such as eating, toilet use, and general maintenance could be adequately conducted in light levels between one and five foot-candles (recall that a well-lighted business street measures about 2.5 foot-candles). Much higher levels, of course, are desirable and would greatly facilitate the efficiency with which these activities could be accomplished.

#### Medical area

Medical areas will require the most light. If surgery is involved, the need will be increased. Though 20-50 foot-candles would represent poor lighting for such activities, it should be possible to function at these levels without great difficulty. It may be that for many medical functions, levels as low as 10 foot-candles would prove sufficient.

#### Sleeping

Lights in the sleeping area should be of low intensity though still bright enough to permit free movement of the shelterees. A level of about two foot-candles would be sufficient to facilitate such traffic and still not interfere with sleeping.

#### Toilet area

Shelterees should have enough illumination for unimpaired vision in this area. Toilet area lights should be in the vicinity of five to ten foot-candles.

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For example, most general shelter functions could be accomplished in light levels ranging from that of a drive-in theater during intermission (.5 foot-candles) to the average well-lighted business street (2.5 f.c.) though these standards are far below the standards that would be recommended for normal conditions.

### Reading

Where conditions require, materials can be read under very sub-standard illumination. Such would apply, for example, to the necessity for reference to this document under poor lighting. Sustained reading requires brighter illumination.

If there are reading materials available, areas under or nearly under a particular light source could be reserved for reading recreation during certain periods of the day.

### Likelihood of Illumination In-Shelter

Fallout shelters located at a distance from any nuclear detonation may expect their commercial power supply to be largely unaffected by the effects of nuclear weapons. Fallout shelters which are located near a target area, though not damaged by the blast itself, may lose commercial power when major power lines are destroyed. A third possibility is that a shelter may be damaged and lose its illumination capability while retaining its structural integrity as a shelter. Shelters in the second and third situations will have to rely on emergency lighting for the duration of the shelter stay.

The likelihood that normal lighting will be operative depends upon the extent of damage to the shelter and to the surrounding area.

While the lighting systems in Federally-marked shelters will vary widely in type and adequacy, one may expect at least some overhead light source. In general, the larger the shelter space, the more fixtures will be present.

### Sources of Illumination

Whether the shelter has incandescent or fluorescent lighting would seem to make little difference so long as the amount of illumination is sufficient. There are different characteristics of these sources, however, which should be known to shelter management because of the effects that these differences might have under certain shelter conditions.

#### Fluorescent lights

There is little or no glare from this type of fixture. Light is fairly evenly distributed.

Fluorescent lights produce only one-fourth as much heat as do incandescent giving the same amount of light. This is probably the most significant feature of fluorescent lighting in shelter.

A broken fluorescent tube does present a health hazard over and above the potential for cuts from broken glass. Should breakage occur, broken pieces should be disposed of immediately.

### Incandescent lights

It may be necessary to improvise some means for reducing glare if the only light sources are bare incandescent bulbs. This is especially true for sleeping areas.

Incandescent lights are more reliable than fluorescent especially if there is some impairment of the commercial or auxiliary power supply which results in frequent voltage dips.

Consideration should be given to the amount of heat given off by incandescent bulbs, in determining the extent of their use, especially if they are in large number and of high wattage.

### Other sources

Candles, matches, cigarette lighters, or other open flames provide some light. Such light sources should not be used except under emergency conditions, e.g., power failure with no other light available, and then only by the shelter staff for short but absolutely necessary visual tasks.

In some shelters, flashlights or other battery-operated lights may be available. These represent a valuable source of emergency lighting and, if properly used, could provide light over an extended period of time.

## Control of Illumination

### Types of control

Control of lighting in all areas can be accomplished by one of two methods. The first involves differential switching where different switches control different lights. When, however, one switch controls all the lights of the shelter, it will be necessary to manipulate light levels by loosening or tightening bulbs in their sockets. This holds true whether lights are of incandescent or fluorescent type. Special care should be taken when following the second procedure that bulbs are not dropped and broken.

### Maintaining the diurnal cycle (day-night cycle)

Maintenance of the diurnal cycle may prove to be an important factor in the maintenance of shelter organization and shelteree morale. The cycle helps to maintain the concept of the passage of time in days and, as such, provides a measure of length of stay in shelter. It also provides reference points for projected time of exit from the shelter.

### Lighting in the sleeping areas

Lights in the sleeping area should be at a low level during the night segment of the diurnal cycle. Lights must be bright enough for shelterees to move about with relative freedom and yet not be so bright as to interfere with anyone's sleep. Such suggests not only that certain of the lights be shut off entirely but also that whatever lights are left on be shaded as much as possible to prevent direct glare.

During the evening, before "lights out," many of the shelterees may want to sleep instead of engage in other activities. Some provision should be made, therefore, that at least part of the sleeping area could be dimmed for this purpose.

### Lighting in the medical area

It is not necessary that lights in the medical area remain on at all times though sufficient illumination must be readily available when required. If no severe cases exist which require frequent attention, it should be possible for the sick-bay area to follow the diurnal cycle established for the rest of the shelter.

### Lighting in the toilet area

Light of constant medium-low intensity should be provided in the toilet area.

## Emergency Lighting

### Generator lighting

The lighting capability from in-shelter generators is the most desirable since, with sufficient fuel, moderate lighting can be provided for the duration of the shelter stay. Because auxiliary generators do not usually provide power equal to that supplied commercially, it will be necessary in many

## Emergency Lighting

cases to reduce the number of lights in use when changing over to an auxiliary system. Possible effects of exhaust fumes on the shelter air supply must be taken into consideration. Shelter lighting supplied by the generator should be discontinued either temporarily or permanently where there is contamination of the shelter air supply as the result of an inadequate engine exhaust system.

### Battery-powered lighting

Though less desirable than lighting by means of motor-driven generators, battery-powered light sources are valuable in offsetting the effects of a prolonged total power failure. Because of the necessity for preserving battery strength, battery-powered lighting should receive minimum use, especially where battery replacements are not or do not become available.

### Non-electric sources

Non-electric light sources such as kerosene lamps or candles should be resorted to only under the most extreme conditions of need for light and then only for short periods of time, especially in those shelters with natural ventilation. In addition to the negative effects on the shelter atmosphere, light sources requiring an open flame constitute a definite fire hazard. A special, demanding need for temporary light must exist, therefore, before the use of non-electric light sources could be justified.

**ORGANIZATION AND  
OPERATION OF  
THE SHELTER SYSTEM**

**IV**

**SHELTER COMMAND**

**SHELTER ORGANIZATION**

**SOCIAL CONTROL**

**SHELTER ADMINISTRATION**

**COMMUNICATIONS**

**SUPPLY MANAGEMENT**



## CHAPTER 12 OUTLINE

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## Introduction

Shelter command refers to the over-all direction of the shelter, to the decisions made and actions taken by those in authority that affect the shelter as a whole.

In the introductory chapter of this document, it was pointed out that command of the shelter called for both leadership and management abilities. Leadership, it was stated, stresses the motivation and control of the members of this group, while management emphasizes the organization and control of the resources of the group. Both dimensions of command are vital to the success of any shelter system.

## Some Principles of Shelter Leadership

### The goal of shelter leadership

The goal of shelter leadership is to return as many shelterees as possible to the post-attack world, physically and psychologically capable of assuming responsible roles in the recovery and reconstruction of the society. This goal must underlie every command decision. Very often, the goal of maximum survival will be clearly and unambiguously tied to one solution among several alternative solutions to a shelter problem. On occasion, the goal of maximum survival may be difficult to perceive, as in the case of allocating medical supplies in a shelter with widespread illness or injuries. In such cases, command decisions should be based on the best estimate of the manager, his deputies, and the appropriate task team leaders, as to the course of action that leads to the survival of the greatest number of shelterees.

### The basis of shelter leadership

Effective shelter leadership results from a combination of elements of both civilian and military leadership.

Although the leaders and the occupants of public fallout shelters will overwhelmingly be civilians, shelter management cannot operate solely on civilian principles of leadership and administration. Under the wartime conditions in which shelters will be occupied, rapid and decisive action on the part of the shelter manager is a requirement for group survival.

Under such circumstances, a number of democratic procedures, in which the population voices its preferences, and a number of peacetime bureaucratic procedures, in which information passes relatively slowly up and down chains of command, have to be by-passed. The shelter manager must be prepared to act as an authoritative leader, making and implementing decisions rapidly.

However, the shelter manager is not a military figure commanding a military unit. His mission is to ensure the survival of the population in his shelter, while maintaining, to the utmost possible extent, the values and standards of our democratic society. Although a manager may frequently have the legal status of a representative of local government during a nuclear emergency, he has few of the normal sources of governmental power at his disposal in the shelter. His leadership depends upon, at least, the tacit consent of the shelterees. This means that for practical as well as ideological reasons his authoritative leadership should not extend beyond those in-shelter situations involving the safety and well-being of the group which require unquestioned obedience.

### Rapid assumption of command

People will take shelter, under stress, with little information as to what to do. For the most part, shelterees will not be exhibiting panic behavior; they will be anxious, shocked, perhaps stunned, but they will be willing to be directed. The direction should be provided by the shelter manager upon entry, or as soon thereafter as possible. The early stages of the shelter stay, particularly the first few hours, and more generally, the first 24 to 48 hours, are critical for management. The sooner the manager assumes command, the greater will be the tendency on the part of the shelterees to accept his authority. Conversely, the longer the manager delays in taking command, the greater the chance of his authority being challenged by spontaneous leadership emerging from among the shelter population.

### Demonstration of authority

It is not enough to assume command by an announcement to that effect, and by putting on the manager's armband, or other symbol of his authority. It is by his action that the manager will demonstrate his authority and capability. During the initial stages of the shelter stay, the manager should stress the personal leadership aspect of his position at the expense of some of his "behind the scenes" administrative duties.

By carrying out his own task in a direct, forceful fashion, visible to all, by similarly supervising the activities of other staff members, and by explaining to the shelterees what is being done to maximize their opportunity for survival, the basis for a manager's successful command of his shelter will be cemented.

Delegation of authority

It is essential that the manager not overburden himself with too many of the details of shelter operations and not attempt to carry out all management duties, regardless of their priority, by himself. Above all, the manager must retain his capability to perceive, evaluate, and make decisions on the over-all shelter situation. Delegating authority to subordinates frees him from the responsibility of carrying out many operational details. It also tends to enhance his command capability, as a demonstration of his leadership.

Priority of actions

Even after the responsibility for specific tasks has been delegated to others, there will remain a number of tasks and possibly problems that will require the manager's attention. Sometimes several situations may occur that have to be dealt with simultaneously; sometimes two problems will arise whose solutions are in conflict with one another. At all times, the manager will have a great deal to do personally and frequently he will have to consider a priority order in which to implement his responsibilities. A Checklist, as illustrated in Appendix A, should be of value in assessing the priority of actions, but it is impossible for a checklist to cover all shelter exigencies and describe management responsibilities in the necessary detail. The primary goal of the shelter system, maximum survival, should in almost every case, be the determinant of what actions the manager takes, and the order in which he takes them.

The leader as a model for shelterees

As part of being a successful leader, the manager must be a model for shelterees, after whom they can pattern their behavior. Shelter living imposes many new requirements upon the population, who will have to make adjustments in long-established habits and customs. The personal example set by the leader aids adjustment in that, by his actions, he constantly demonstrates what appropriate in-shelter behavior is. Also, the knowledge that the leader himself is conforming to the new and strange regulations tends to make the adjustments more acceptable to all shelterees. It is important that the manager become the model for the entire shelter population, and not for certain groups within the population. Favoritism or partiality exhibited by the manager can jeopardize his authority.

The changing needs of shelterees

The condition of the shelter and its occupants will be quite different after a week, than it was the first few hours after entry. The shelter is a dynamic system that will undergo significant changes as time progresses. The phases or stages of shelter living, each with its implications for management, are discussed on page 204 of this chapter.

## Some Principles of Shelter Management

### The basis of shelter organization

The process of organizing a group represents an attempt to apply the group's resources toward the achievement of group goals in a rational and efficient manner. This is one of the two major purposes of in-shelter organization. The other is to give as many shelterees as possible a useful task to perform, with the possible results of lowered efficiency in a number of tasks but increased shelteree motivation and morale.

There are two major exceptions to the rule of maximum assignment. Vital in-shelter tasks requiring special technical skills should be exempted from maximum assignment. Examples of such tasks are operation and maintenance of equipment, and diagnosis and treatment of medical problems. Although the medical team may include many untrained people who can make bandages and comfort the sick, the diagnosis and treatment should be carried out only by trained personnel. Secondly, no activity should be organized so that vital information is delayed in reaching the manager or his core staff. For example, although many shelterees may be assigned to a fire watch team, there should not be so many levels of command between the fire watcher and the manager that the latter might not be informed immediately of a fire.

### Rapid organization

Certain shelter tasks should be organized as soon as possible. Examples of this are a traffic team to assist in filling the shelter in an orderly fashion, and a team to operate equipment necessary to support entry operations. In the cases of the traffic team, candidates can be selected on the basis of appearance; in the case of the equipment operators, previous experience must be the major criterion. In either case, it is possible that the manager will not pick the best available persons for the job immediately. His first concern is to begin the necessary shelter operations with a temporary staff that can do the job. If there are more suitable shelterees available, or if people are unhappy with their assignments, this can be straightened out after the registration cards are filled out and processed and a permanent organization is established. If shelter teams are pre-selected and are available, this phase of the organization problem is largely solved.

### Estimate of the situation

Making an estimate consists of taking stock of both the physical and the human resources of the shelter, and of the external environmental conditions. Although this is also a principle of leadership, it is discussed

as a management principle, because of its vital connection to in-shelter planning and organization. An estimate of the situation should be made as soon as possible after entry. The physical resources are ascertained by visual inspection of the available equipment and supplies (including those brought into shelter by the population), and monitoring in-shelter radiation levels. The human resources are evaluated through the registration forms that shelterees fill out, and through observation of the physical and emotional state of the shelter population. Information about external conditions is received through communications with the outside world and through monitoring external radiation levels. A realistic plan for in-shelter survival cannot be developed without information about the condition of the shelter, its population, and the external environment.

### Shelter schedule

A goal to strive for is the early introduction of a shelter operations and activities schedule. This serves to establish a rhythm and a pattern to the shelter life, which will be a positive factor in the adjustment of shelterees. In setting up a schedule, one precaution should be kept in mind. The schedule may not function smoothly the first day or two. Many shelterees may still be anxious and distraught, and incapable of directing their full efforts toward in-shelter survival. Also, shelterees will have to adjust to a number of unfamiliar conditions. The manager should be aware of these possibilities and provide for a certain flexibility in the schedule. He should also be prepared for the failure of some to adapt themselves to the schedule initially. As time passes most of them will adjust.

Some organization of activities is necessary the first day in the shelter, for example, a schedule for food and water distribution, sleeping, and medical treatment. The schedule of recreational, social and even training activities can be implemented after the manager has assessed the "mood" of the shelter, and determined that such activities will contribute positively to shelter goals.

## Shelter Phases and Shelter Command

The evidence is clear from experimental studies and historical instances of long-term confinement that a shelter stay can be divided into several phases, each with its management implications. However, the strict definition of the specification of each phase, its duration, and its impact upon leadership and the shelter population depends upon knowledge of the status of a particular shelter and its resources, its membership composition, and its leadership. Consequently, specific command guidelines applicable to all shelters cannot be provided.

### The Entry Phase

The entry phase extends from the time that the shelter is opened until the population has been received and initial protective actions against weapon effects, and start-up operations have been carried out. The three crucial times in the entry phase are the time of arrival of the manager, the time of arrival of the population, and the time of a nearby nuclear detonation. Depending upon the order of their occurrence, the command responsibilities of the entry phase will be different. Some of the likely possibilities are discussed below.

#### Manager first, shelterees second, attack third

Although this may not be the order of occurrence in many shelters, it is mentioned first because it is the most advantageous from the point of view of shelter management. The manager has an opportunity to quickly evaluate shelter readiness for occupancy, inventory its resources, and prepare himself for the assumption of command. Arriving before the mass of shelterees and being able to direct shelter entry will also tend to strengthen the manager's authority. Incoming shelterees may more closely identify the manager with the shelter and will also receive immediate demonstration of the leader's capabilities.

#### Manager and population together, attack following

It is quite likely that the manager will arrive in the midst of the population movement to shelter. Under such circumstances, his initial responsibilities are to rapidly prepare the shelter for occupancy (turning on lights, opening doors, removing obstacles) and fill the shelter, assume command and supervise protective actions and start-up procedures.

Because shelterees may be anxious and fearful concerning the impending attack, the manager should stress the protective capabilities of the shelter, and the availability of supplies essential for survival, in his communications

to the shelterees. Reassuring the population in the face of unknown dangers will require great leadership skill, as well as continual communications between the manager and the shelterees.

If a nearby nuclear detonation is expected, it will be well to keep shelterees in the shelter location and position that affords the greatest protection against blast and thermal effects (see "Protective Actions Against Blast," Chapter 3, page 38).

Shelterees first, manager second, attack third

The main difference between this sequence and the one discussed directly above, is that if the manager arrives after the shelter is filled he may face the situation that one or more of the incoming shelterees have assumed temporary command of the shelter, in the absence of other staff members. There should not be any difficulty in taking over command of the shelter, especially if the assigned manager can show documentation of his legal status. It will be necessary to review the actions that have been taken prior to the manager's arrival and assess their adequacy. If an emergent leader or a leadership group has evolved in shelter, it will generally be advantageous to utilize the initial organization and to incorporate this person or persons into the leadership structure that the assigned manager establishes.

Attack first, shelterees and manager following

The immediate leadership requirements placed upon the shelter manager are more extensive and more demanding in this entry sequence than in all others.

If there has been a nearby nuclear detonation, the number of casualties among those taking shelter may be quite high. In addition to the physically injured, there may be many persons who are temporarily dazed, disoriented, or represent some other type of psychological casualty. The basic problem the leader faces is not panic or disordered flight; by all indications, the problem is to mobilize the population to individually and collectively do those things that are required for survival.

The state of the shelterees is not the only focus of the manager's attention after the attack. A nearby detonation may have damaged the shelter. Rapid decisions must be made as to whether the shelter is habitable, what repairs must be made to retain a minimum level of fallout protection, what rescue activities are necessary or possible. Such decisions must be made whenever the shelter is damaged, but when the attack precedes shelter occupancy, decisions must be implemented without the advantage of prior in-shelter preparation and organization.

## Securing the Shelter

A critical management decision in the initial stage of occupancy is when to secure, or close the shelter. The criterion for shelter closing is the safety of the shelterees. If further admittance will endanger the lives of those in the shelter, considering the number of people in shelter, shelter resources (especially air and water), the estimated length of time until additional resources could be made available, and external radiation levels, the shelter should be secured.

### Closing the shelter before the arrival of fallout

The capacity of the shelter may in many instances be reached before fallout poses a serious threat. If this occurs, the shelter should be closed to further entry. People outside should be informed where the nearest fallout shelters are located, and directed to them. Persons should not be turned away from a shelter without being told of alternative safe locations. In the absence of a current or impending threat to the non-shelter population, the primary goal should be to get them to a recognized community fallout shelter.

Under certain conditions, the manager may consider allowing persons in the shelter after its capacity has been reached, and before fallout has descended. Examples of such conditions are:

1. It is known that there are no other safe locations in the neighborhood which persons can be expected to reach in a reasonable amount of time.
2. The people who are seeking entry to the shelter after its capacity is reached are few in number.
3. The shelter possesses augmented capabilities in regard to essential resources which can be stretched to accommodate the post-capacity arrivals.
4. All indications are that a comparatively short shelter stay is expected.

### Closing the shelter after the arrival of fallout

Fallout may begin to descend before the shelter has been filled. If external radiation levels are high enough and the shelter is so constructed that keeping doors and entranceways open would endanger the shelter population, the shelter should be secured.

What to do with persons who are outside seeking entry into a shelter filled to capacity, after fallout has begun to descend, is one of the crucial



## Shelter Phases: Securing the Shelter

dilemmas of shelter management. If fallout is heavy, it is not feasible to direct the population to other shelters in the area, unless they are adjacent, across the street, or similarly located with respect to a particular shelter.

If the non-shelterees can enter and remain in the shelter without any question of jeopardizing survival, they should be permitted into the shelter proper. (See the conditions that apply in the section on closing the shelter before arrival of fallout.) If they cannot be accommodated immediately, the manager should assess the availability of space, inside the building, but external to the shelter proper, that offers protection against fallout. In many buildings there will be non-marked spaces that equal or approximate the protective capability of the marked shelter spaces. These should be used to the fullest, for the immediate protection of the non-sheltered population.

It should be clearly recognized and stated by management to the shelterees, and to the population in limited protection areas, that occupying the non-shelter portions of the building is a temporary solution to the radiological protection problems. In order for the non-shelterees to survive, additional needs must be met, requiring command decisions by the manager. Some of the alternatives, from which the manager may select one or several in combination, are:

1. Provide limited-protection shelterees with essential supplies from the shelter and let them remain in the non-marked spaces if radiation levels are not dangerously high.
2. Incorporate limited-protection shelterees into the shelter, if it has been determined by that time that shelter resources can be stretched to accommodate them without endangering survival.
3. Relocate them to a nearby marked and stocked shelter after radiation levels subside, and communications indicate space is available in another shelter.
4. Send out emergency teams to procure additional supplies for subsistence in the non-marked areas.
5. Rotate places with volunteers from the marked shelter, to equalize exposure to radiation.

### Procedures to close shelter

Shelter with no door. To close such a shelter, pre-stocked sandbags, concrete blocks, or boxes of supplies should be piled up to keep fallout from coming into the shelter entrance. (This should be done only after all danger of blast has passed.)

Shelter with a normal door. The door should be closed to provide protection from thermal radiation. Locate personnel according to guidance on page 23. Because of blast hazard, makeshift radiation protection should not be put up until all danger of blast has passed.

Shelters with a blast door. In these cases, the door should be sealed before the blast occurs.

#### Personnel to close shelter

If the shelter organization contains a security team, it will be responsible for shelter closing. If such a team has not been formed, then the safety team will supervise the operation. If the shelter must be secured before task teams can be formed, persons chosen from among the shelterees, or previously selected traffic assistants, may be assigned the task of closing the shelter.

The duty of shelter closing personnel is to see that the doors remain closed, and that improvised doors (stacks of supplies, sandbags, etc.) are not damaged. In addition, personnel will verbally direct shelterees who cannot be accommodated in the shelter, to other shelters or to other portions of the buildings which provide some protection.

Because radiation levels near entranceways may be relatively high, personnel monitoring doors or entrances may have to be rotated.

### The Initial Orientation and Organization Phase

The initial orientation and organization phase may be thought of as the next few hours after shelter entry. It is characterized by two major management tasks: preliminary orientation of the shelterees, and initial organization of the shelter.

#### Shelteree orientation

Most of the communication between management and the shelterees in the entry phase is of two kinds: supportive, consisting of reassurances to buoy shelteree spirits, and directive, commands pertaining to where to go and what to do. As soon as is feasible, a briefing session should be held for the population, during which the characteristics and requirements of shelter living are briefly spelled out. The details of shelter living can be presented at a later time, perhaps through community group meetings. What should be communicated initially is an outline of shelter requirements and a feeling for what an extended shelter stay will be like.

Shelter Phases: Initial  
Orientation and Organization;  
Initial Operations

At the same time, communications to the shelterees should still retain the early reassurances, because many shelterees may still be anxious and fearful about their survival chances.

Initial shelter organization

Four things must be organized: people, time, resources, and space. To the extent that a shelter has a pre-selected staff, a pre-developed operations plan, and a pre-established schedule of activities, it will have accomplished some of the objectives prior to shelter occupancy. Otherwise, the following initial organizational steps must be taken:

1. Organization of shelterees into community groups and selection of essential task teams. (See Chapter 13, "Shelter Organization.")
2. Organization of time, in the form of a schedule for the first day's operation, and planning for the "permanent" shelter schedule. (See Chapter 15, "Shelter Administration.")
3. Organization of resources in the form of supply inventories and initial plans for the allocation of water, food, medicine, etc. (See Chapter 17, "Supply Management.")
4. Organization of space in the assignment of activities to locations in shelter. (See appropriate chapters for recommended location of specific shelter activities.)

**The Initial Operations Phase**

This stage is made up of the first day or two in shelter. It is the period during which the shelter becomes fully organized, and shelterees begin to involve themselves in the range of activities that constitute daily shelter living. Feeding, sick call, sleeping, and training are experienced for the first time as planned activities. It is an important period of adjustment for the shelter population. The procedures of shelter living are explained, demonstrated, practiced, and implemented.

Within this period, what may be referred to as a new "definition of the situation" should occur for most shelterees. For one thing the overwhelming initial concern with the disaster and immediate survival, that will very likely be paramount in the minds of the population, should, by this time, shift to an orientation focusing upon survival of an extended shelter stay. Secondly, as shelterees enter into the stage of organized group living, their fears about survival in the shelter, and the strangeness and austerity of shelter life should lessen, barring emergency situations.

## Shelter Phases: Initial Operations; Routine

During this phase, the manager will have to continue his strong personal leadership, for several reasons. The first is to serve as a teacher and a model of appropriate behavior. Secondly, some shelterees may still be anxious and fearful about the disaster, about their chances for survival, and about the fate of missing relatives and friends.

### The Routine Phase

This period extends almost the remainder of the shelter stay. Most shelterees will have made an adjustment to their environment during this time. The authority of the manager and his staff should have "taken hold" sufficiently so that the manager no longer has to be continuously visible to the population. He can spend more of his time carrying out his administrative duties.

#### Shelter moods

It is important to remember that the routine phase is not of a single nature. Within it, there may occur temporary dips in morale brought on by monotony and austerity. This mood of lethargy and lack of motivation is quite natural. When it occurs, the manager should provide some variety in the shelter system (for example, permitting new task assignments, introducing new activities, varying the shelter schedule slightly).

#### Communications

One of the most important continuing responsibilities of the shelter manager is to provide shelterees with as much news about the shelter and the outside world as possible on a regularly scheduled basis. In the absence of information from management, shelterees will manufacture and transmit their own news, in the form of rumors. If left unchallenged, rumors can negatively effect the relationship between shelterees, the efficient operation of the shelter, and the authority of management. See Chapter 16, "Communications."

#### Preparation for recovery

A significant part of training activities during the routine phase should deal with preparation for post-shelter living. This will give individuals an acquaintanceship with survival techniques. But more than that it will lend support to a shift in shelteree orientation towards the future. Belief in a survivable, rebuildable future is one of the most important lessons that shelterees can learn during their temporary stay in shelter.

Maintaining social standards

The patterns of social behavior that emerge in the shelter, especially during the routine phase, will be greatly influenced by management attitudes and practices. For a number of reasons, the manager should attempt to maintain the laws and customs that pertain to the relationships between people, except where they interfere with necessary shelter operations that cannot be altered. This point is discussed in detail in Chapter 14, "Social Control."

**Preparation for Exit**

As the time for leaving the shelter draws near, the mood of the shelterees may likely change. The change will be due to two factors: one, an impatience to leave the shelter, and two, anxiety over what they will find when they exit, and what will happen to them after they leave. Leadership should be oriented towards keeping individuals from leaving shelter prematurely, and in allaying fears about the state of the world outside.

Before leaving the shelter, every effort should be made to communicate with the local control center, primarily to ascertain the radiation levels at various distances from the shelter. Full-time shelter egress should not be the decision solely of the shelter manager, but should be coordinated with the control center. The community recovery plans may call for people remaining in shelter (at least eating and sleeping there), until recovery actions have been carried out.

The problem of an individual who wants to leave before it is safe to do so, may arise in the shelter. The manager or a staff member should make perfectly clear to the individual the physical consequences of a trip to the outside and the impact his leaving may have upon the shelter population. The person should be discouraged from leaving. However, if appeals are to no avail, and the person insists upon leaving, he should not be kept from doing so.

Further information about shelter exit is presented in Chapter 22, "Post-Occupancy Management Responsibilities."

## Shelter Emergencies

Any system operating under wartime conditions must be prepared for occurrences that will seriously and sometimes rapidly threaten the existence of its members. While it is impossible to specify the exact nature of emergency situations that will arise in a shelter, the major causes of emergencies can be described. These are: structural damage to the shelter as a result of weapon effects, fire in the shelter, or in the surrounding area, dangerously high radiation levels in shelter, severely high temperatures, imbalances in atmosphere components (extremely high carbon dioxide concentration or presence of other noxious elements), depletion of essential supplies, such as water.

Any shelter emergency must be evaluated in relation to external radiation levels, leading to three types of command decisions: (1) to combat the emergency situation using the resources of the shelter, (2) to augment shelter resources by sending individuals or small groups from the shelter on emergency missions, and (3) to relocate population and resources if the shelter becomes uninhabitable. The latter two decisions are discussed below.

### Emergency Mission

Although the reasons for emergency missions will vary in urgency and type, there are at least four categories of emergency missions which may occur: (1) supply trips for such things as water, medicine, and food; (2) service missions for activities such as decontamination, repair, or recovery operations; (3) voluntary trips, such as medical personnel responding to a shelter call for medical aid; and (4) reconnaissance for availability of other critically needed shelter spaces.

### Management responsibility

The shelter manager will have to determine the priority for each individual mission by estimating the risk versus the need for the trip. The urgency of the mission can be determined by the consequences of delaying the trip until radiation levels are relatively safer. The primary risk is the radiation exposure which the team will receive. Where a mission will affect the well-being of the shelter, the manager must make a decision after considering all relevant factors. However, where trips are voluntary, the manager's responsibility is to indicate the risks involved for persons wishing to leave. While radiation levels are high, voluntary trips for personal reasons should be discouraged.

### Information needed

The decision to perform an emergency mission will be made by the manager based upon radiological monitoring information supplied by the monitor in the shelter and by the local control center.

One example of a decision which may face a shelter manager is as follows: If a shelter has water stored for 50 shelter spaces and the shelter contains 200 persons, the manager may need to find additional water sources while radiation levels are still dangerous, especially if temperatures are high. To decide when to send an emergency water supply team, the manager will have to consider the following factors: (1) how far will the water supply stretch; (2) how long can people survive without water after it is gone, (3) how close is a probable source of water, and (4) how long (i.e., how many trips), will it take to get an adequate supply. These factors must be weighed against the risk from outside radiation levels: (1) how much exposure the mission team has already received, and (2) how much more they or other teams can be allowed to receive.

The specific nature of the information the manager will need may vary from one situation to another. However, the manager should be sure to assess all relevant factors before making a decision. In general, he should remember that the longer the mission can be delayed without creating an emergency, the greater the radioactive decay of fallout and the less the exposure that will be received by the emergency mission team.

### Shelter Evacuation

Evacuation of the shelter, or remedial movement, is practical only under extreme conditions, and should be instituted as a last resort. However, under some conditions, such as fire (particularly a mass fire), heavy structural damage which allows fallout penetration, or highly inadequate ventilation, the shelter manager may have to evacuate a shelter for other shelter areas rather than face probable death of shelterees.

If at all possible, a reconnaissance mission should precede general evacuation of the shelter. A team should be sent out to locate alternative areas affording protection.

### Alternative shelters

Except in the case of a mass fire in which persons may have to flee from the entire surrounding area, the manager should attempt to find shelter areas in the following general priority: (1) areas adjoining the shelter

## Shelter Emergencies

which may offer lower protection, but which may be preferable to exposure to external radiation levels, (2) other areas in the same building such as upper floors, (3) buildings adjoining the shelter area which provide protection in passage from one to another, (4) building adjoining to the shelter which may require some passage through open areas, and (5) other buildings in the area. In all cases, an attempt should be made to minimize radiation exposure by finding the safest and fastest route.

### Management decisions

The decision to abandon a shelter must be made if the alternative to evacuation is death for all or large parts of the shelter population. However, if it is possible to delay the evacuation for 24 to 48 hours, the shelterees will receive considerably lower radiation exposure in the process of movement. For example, if a shelter has been so badly damaged that fallout is coming into the area, it may be possible to find certain protected areas in which all shelterees can be temporarily crowded (so long as ventilation does not become a fatal problem), even if most shelterees have to stand for the better part of a day. Or, using another example, if ventilation in a shelter is extremely inadequate, it may be possible to remain in the shelter temporarily by instituting the most rigid atmosphere and temperature control procedures. Although the in-shelter solutions in these examples are only temporary, they may make the ultimate evacuation a safer operation.

To determine when to abandon the shelter, the manager must consider the risks in moving, which are: (1) external radiation levels, (2) the exposure dose which the average shelteree has already obtained, and (3) the allowable doses. In turn, he must evaluate the danger in staying. He must locate another shelter area, if there is time, and try to determine whether the probable protection offered by the new shelter will compensate for the risks of radiation exposure in moving.

The safety, radiological and repair and maintenance teams should make an attempt to anticipate and handle other problems which may complicate an emergency evacuation. In the event of shelter damage, a free passage may have to be cleared, doorways unblocked, and perhaps shelterees extricated or rescued from debris. The hazard which forces the evacuation may itself create problems of escape, such as smoke and fire. Clearly marked exits and efficient emergency procedures will help shelterees to move safely. Finally, every effort should be made to move as quickly as possible and to take the least exposed route in order to reduce radiation hazards as much as possible.

### Evacuation procedures

The following steps should be considered in attempting shelter evacuation:

1. When time and communication facilities allow, the shelter manager should contact the local control center to advise them of the evacuation plan and to request recommendations in locating a new shelter area.



## Shelter Emergencies

2. A reconnaissance team, including radiological monitors, should survey to find the closest, most protected area available.
3. The shelter manager must orient shelterees in the evacuation procedures, and have the groups or Sections leave in an orderly fashion and as quickly as possible.
4. As many supplies should be taken as can be carried without slowing down the evacuation or the passage through areas of high radiation.
5. Shelterees should protect themselves as much as possible against contamination by fallout particles by covering themselves with anything that can be shaken off like a blanket or newspaper.
6. When they arrive at their new shelter, they should be decontaminated by whatever methods are appropriate.

**CHAPTER 13**  
**SHELTER ORGANIZATION**

## CHAPTER 13 OUTLINE

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## The Need for Shelter Organization

It is impossible for a system as complex as a community fallout shelter to accomplish its goals without a high degree of organization. This includes organization of time, in the form of a schedule of activities; organization of resources and space, in the form of a plan for the operation of the shelter; and what is, perhaps most important, organization of the population into the necessary shelter groups. It is the latter that is commonly referred to as shelter organization.

The formation of a shelter organization is vital for a number of reasons. Without organization, command of the shelter would be impossible. Organization establishes who is responsible for making and implementing decisions in the shelter, and clarifies the chain of command. In the absence of a clear-cut specification of authority, anarchy, in its literal sense, may be the likely result.

Furthermore, organization is required to carry out the many operations and activities related to survival and well-being. It is not necessary to spell out the obvious consequences if shelterees were not assigned to their tasks as members of groups or teams, but were allowed, as individuals, to select and change their own assignments at will, and perform their tasks as each person sees fit.

Thirdly, planning for an extended stay in shelter cannot be accomplished without organization of the population. In order to effectively allocate the resources of the shelter, the manager and his staff must deal with groups of shelterees rather than individuals. Feeding 1,000 individuals offers a more complicated planning and control problem than feeding four large groups, each composed of four smaller groups.

Finally, shelter organization is necessary, because of the emotional sustenance that humans receive from group belonging. This includes feelings of being liked, of identifying with the group, of giving and receiving aid and comfort. Group membership is the key to shelter morale. Through it, the will to survive and to rebuild can be maintained.

Because of the basic human tendency to form into groups, it may be assumed that some form of group structure will emerge spontaneously in the absence of guidelines concerning shelter organization. However, it cannot be taken for granted that the resultant organization will be adequate to deal with the extensive problems of shelter survival. The complexity and the uniqueness of the shelter system make it unlikely that unplanned, spontaneous organization can be very successful in any but the smallest community fallout shelter.

## Factors In Establishing a Shelter Organization

The following section contains a review of the general considerations that must be taken into account when organizing a shelter. Specific recommendations pertaining to the general points are presented in later sections of this chapter.

### Types and Functions of Shelter Groups

Four different types of groups are conceived of as components of a shelter organization. These are: core management, task teams, community groups, and the advisory committee.

#### Core management

Core management is a general term for the members of the management staff who have the major supervisory responsibility for running the shelter. This includes the Shelter Manager and his key deputies. In larger shelters, several leadership levels emerge. In addition to the Manager and his immediate staff, the supervisors of some of the task teams may have responsibilities that qualify them as members of the leadership group.

#### Task teams

Specific operations in shelter will usually be carried out by task teams. These are relatively small groups whose members are chosen primarily on the basis of past experience, training, or special skills.

#### Community groups

These are population groupings to which all shelterees will be assigned for the purpose of increasing manageability of the shelter, and increasing the motivation and morale of the shelterees. Community groups vary greatly in size. Unlike a task team, a community group does not have a specific function. Shelterees participate in all shelter activities as members of one or another community group.

#### Advisory groups

It is recommended that shelters contain at least one staff group whose primary function is to provide a liaison between the shelterees and the top level of shelter leadership. Frequently, such a group will be called "the advisory committee" or "advisory council."

## The Size of Shelter Groups

Each type of shelter group has its own size requirements determined by a wide range of factors, some of which are discussed below.

### The size of the core management group

For effective command/control, the top management group should remain fairly small, even in shelters with a large capacity. In a shelter of several hundred, the top management staff should usually not be more than three or four in number. In a shelter of 1000, the number of members in the top echelons of management should generally be about half a dozen (the Manager, Deputy Manager, Deputy for Operations, Deputy for Technical Services, and Deputy for Special Services).

### The size of task teams

The size of a task team depends upon the manpower requirements to carry out a specific task, and the number of trained people available in each task area. In a shelter, the size of task teams will also be greatly influenced by the goal of "full employment," which means providing a useful task for everyone who is physically able to assume one. Therefore, a number of task teams will be made larger than is optimally necessary, in order to keep everyone occupied.

### The size of community groups

The community groups are: the Unit, ranging in size from seven to twelve members; the Section with 40 to 60 members; the Division, with membership of between 200-300 persons; and the Department with around 1000 members.

Within each level of community grouping, the size of the group depends upon such factors as the size and configuration of the shelter, the extent to which shelter occupants know each other, or have similar social backgrounds, and the availability of trained management personnel as group leaders.

### The size of advisory groups

The advisory committee should be relatively small in size regardless of the size of the shelter. An advisory council of between five and seven members appears to be adequate for many shelters.

## Number of Shifts

The number of shifts into which each type of shelter group is organized is dependent upon three factors: (1) whether the shelter itself is on one or more shifts, (2) whether the activity that a specific group performs should

be done on a "round the clock" basis or just for part of the day, and (3) whether there are many or few shelterees whom management wants usefully occupied in carrying out a particular activity.

#### Core management group

Someone representing top leadership should be on duty at all times in a shelter.

In small shelters of about 200 or under, it is not necessary that an actual member of the core management staff be awake at all times if there are no outstanding shelter problems. Members of the night watch (see pp. 12-38) can represent core management with instructions to awaken the Manager should anything serious occur.

In larger shelters it is recommended that a member of top management be on duty at all times. If the shelter is operating on two shifts, it is reasonable to have either two co-managers, one in charge of each shift, or one Shelter Manager and two deputies, each deputy in charge of one shift. Because activities are continually going on in a multi-shift shelter, someone in command and on the job is required at all times.

In a large one-shift shelter, it is equally desirable to have someone of the management staff on duty continuously. However, because most of the shelter activities will be concentrated during the "daytime" hours, it is not necessary to have a co-manager for the night hours. One recommendation is to have a night manager with limited command authority. His responsibility would extend to dealing directly with minor shelter problems, but in the event of serious problems, his instructions should be to notify the Shelter Manager.

#### Task teams

In single shift shelters, teams such as communications, fire, security, sanitation, radiation, and perhaps, medical, should be on 24-hour duty in all large shelters. (In small single-shift shelters, several individuals may carry out the combined functions of the above mentioned teams at night.) This means that there should be two shifts, at the very least, of these teams during a 24-hour period.

In many cases, it may be feasible to make task team shifts fewer than eight hours in duration. One reason for this would be the unpleasant nature of the duties, as in the case of some aspects of sanitation. Another reason would be the desire to give everyone in shelter a useful job to perform.

Shelters operating on more than one shift require a full complement of necessary teams for each shift. Organizationally, this can be accomplished in two ways. The first is to have a single shelter-wide set of teams, all teams divided into sub-teams for each shift. The second approach is to have a separate set of task teams with separate team heads for each shift.

Community groups

It is generally not necessary to have more than one shift of community group leaders. However, group leaders may select someone from their group to represent them at certain times, if such a procedure is authorized by management.

Advisory Group

Only one shift of an advisory group will be necessary in most shelters.

**Time of Organization of Groups**

Core management group

If the full leadership complement of a shelter has been selected prior to occupancy, and is available at the time of shelter entry, that shelter has a great advantage. If only a few members of a pre-selected management staff are available in a shelter, they should choose additional staff members as soon as possible from among the incoming shelterees, based upon personal knowledge of the individuals, information gathered from the registration forms, and brief interviews with likely candidates. In the absence of any pre-selected leaders, someone from among the entering population will have to assume responsibility for initiating shelter operations pending the arrival of authorized staff members. If, for any reason, trained management personnel do not arrive, the emergent leader will be faced with the task of building a leadership structure from among the shelterees. Using the same techniques as above, knowledge, registration form data, and interviews, he should select a management staff as soon as possible.

Task team

The time that any task team should be organized depends upon when in the shelter stay the important responsibilities of that team begin and the length of time necessary to prepare the team to carry out its duties. The immediate services of a traffic assistant (members of the security team) will frequently be required to fill the shelter rapidly and without incident. If necessary, members of a traffic team should be selected from among the first adults entering a shelter. Likewise, a medical team should be organized early, as should an equipment operation and/or maintenance team. At the other extreme, a recreation team can be chosen well after entry time, without any ill-effects upon shelter morale.

Community grouping

The task of setting a shelter into operation is made more manageable if the incoming population is assigned to a community group upon entry or immediately thereafter. In most shelters, the group of initial assignment should



be either the Section (for smaller shelters) or the Division (for larger shelters). It should be made clear to shelterees that rapid organization is required to carry out the initial protective actions against the effects of nuclear weapons, and that there will be ample opportunity subsequently to reunite separated families or to group friends together.

#### Staff or liaison group

The advisory group is the last type of group to be organized. It is reasonable to expect that this group can be established around the middle or end of the first twenty-four hours in shelter.

### **The Selection and Assignment of Group and Team Leaders and Members**

This consideration is discussed for each type of shelter group in its respective section in this chapter. There are several recommendations of a general nature that can be made at this point.

#### The basis for initial selection

Unless a shelter has a full staff of pre-selected management personnel and task teams, it will be difficult to choose the best possible person for each shelter position upon entry. For the vital positions that require immediate staffing, the Manager should strive to select the first incoming shelterees who can do the job, as indicated by brief interviews, personal knowledge or information on the registration form. The initially selected individuals need not become the permanent team members; the latter can be chosen after the Manager and/or his staff have had an opportunity to assess the human resources of the shelter. The important thing is to initiate shelter operations with at least minimally qualified people in the necessary job positions.

#### Changing group assignments

Many shelters can expect a good deal of reassignment of people to community groups in order to reunite family and friends or to group shelterees with similar interests and backgrounds.

Under certain conditions, it may be advisable to consider shelteree reassignment from one task team to another, after a specified "tour of duty" on one team. This would most likely occur in task areas that do not require specialized skills. The purposes for task team reassignment on a planned basis are two-fold. Firstly, to insure that some of the unpleasant but necessary shelter tasks get accomplished, rotation of duties is feasible. Volunteers will be procured more easily for unpleasant tasks if they know that they will be reassigned after a period of time. Secondly, reassignment should introduce some variety into the individual's routine and may act, in instances, to perk up shelteree motivation.

## Core Management

Core management refers to the top level of leadership--the commanders of the shelter. It includes the Shelter Manager and his deputies. Ideally, those who hold core management positions will have been selected and trained prior to shelter occupancy. In the event that pre-selected and trained personnel are not present, management positions will have to be filled by incoming shelterees with the training and experience most appropriate to directing a community shelter.

The following materials relate largely to core management selection and responsibilities during the period of shelter occupancy.

### The Shelter Manager

#### Duties and responsibilities

The Shelter Manager is responsible for the survival and well-being of the entire shelter population. Although he will delegate authority to others in shelter, the ultimate responsibility for plans and decisions resides with him. The scope of the Shelter Manager's responsibilities encompasses the entire range of guidance materials covered in this document.

It is his responsibility to:

1. See to it that the shelter is filled in a rapid and orderly fashion.
2. Insure that the protective actions against the effects of nuclear weapons, that are within the capability of the shelter, are taken.
3. Develop and implement plans for the satisfaction of basic human needs--air, water, food, sleep, sanitation, and medical care, within the limits imposed by shelter resources and conditions.
4. Establish a shelter organization and a shelter schedule within which to carry out all shelter activities.
5. Maintain order and uphold the social standards of our society.
6. Develop and implement plans for the in-shelter training of the shelter population in subjects which will enhance their survival capabilities during and after the shelter stay.
7. See to it that the morale and motivation of the shelterees are as high as possible under shelter conditions by developing and implementing plans for religious, recreational, and social activities.
8. Prepare plans for in-shelter emergency situations, and implement plans if necessary.
9. Prepare for both temporary or permanent exit from the shelter.

### Qualifications

Requires experience managing an organization of comparable complexity to the shelter organization he shall head.

A quality of dynamic leadership is highly recommended. By this is meant an ability to communicate to people and to direct them by personal example and other means, to the accomplishment of group goals.

### Recommended sources

Likely occupational sources of Shelter Managers include: factory managers, industrial plant superintendents, department store executives, company officials, civil defense administrators, hospital administrators, bank managers, education administrators, construction superintendents, and other occupations requiring equivalent executive experience.

### When selected

Before shelter entry, if at all possible; if not, then immediately upon entry. If the pre-selected Manager is not in the shelter, another trained staff member, if available, or an incoming shelteree, should assume temporary command of the shelter, and carry out initial operational and organizational steps, using the available shelter management materials as guides.

## **Deputy or Assistant Shelter Manager**

The responsibility, qualifications, and likely occupational sources for the Deputy or Assistant Shelter Manager are the same as for the Shelter Manager.

The only possible difference lies in the time of selection. The immediate selection of a Deputy Manager from among the incoming population may not be as crucial as the selection of the Manager. Especially in small shelters, the selection of a Deputy Manager can be delayed until the formal organization of the shelter is established.

## **Deputy for Operational Services**

In small shelters, this position may not be necessary, or its functions may be combined with those of the Deputy for Technical Services and/or Deputy for Special Services.

### Duties and responsibilities

The Deputy for Operational Services is delegated the authority by the Shelter Manager to assume general responsibility for food and water, sanitation,

medical care, and shelter security. The heads of the above mentioned task teams report to the Deputy for Operational Services, who in turn, keeps the Manager informed of developments in the former's areas of responsibility.

The Deputy for Operational Services coordinates with the Manager, other Deputies, and task team heads in establishing programs for food and water, sanitation, and medical care.

### Qualifications

The Deputy for Operational Services stands high on the list, second only to the Deputy Manager, to take over for the Shelter Manager, should this be necessary. Therefore, his level of experience should not be greatly inferior to that of the Shelter Manager.

The attribute of dynamic leadership that is such an important component of the Manager's role, is also a relevant selection criterion for the Deputy for Operational Services, especially if one thinks of him as a potential Shelter Manager.

### Recommended sources

The larger the shelter, the more staff personnel will come under the Deputy's direction. Therefore, the occupations from which to recruit this Deputy must be compatible with his shelter status and responsibility. Likely occupational sources include: staff service heads in industrial, commercial, and community service organizations; e.g., managers of employee relations, advertising, public relations, industrial relations, sales, etc.; also middle-level administrators of hospitals, schools, banks, charitable organizations, hotels, etc.

### When selected

The Deputy for Operational Services should be selected as soon after entry as possible. Several of the tasks for which he is responsible (sanitation, medical care, water) should be set in motion very early in the shelter stay.

## **Deputy for Technical Services**

As a general rule, this position is one that is recommended in the organization of all shelters, regardless of size.

### Duties and responsibilities

The Deputy for Technical Services has the responsibility for planning and overseeing the activities concerned with radiological functions, communications, shelter safety, (fire, safety, rescue), maintenance, and supply. Like the other service deputies, he reports directly to the Manager.

### Qualifications

A professional background in engineering, construction, plant maintenance, or instrumentation would be an asset. An ability to work well under pressure and assess technical situations rapidly is desirable.

The same management qualifications that apply to the Deputy for Operational Services are also applicable to the Technical Services Deputy.

### Recommended sources

Likely occupational sources for a Deputy of Technical Operations include: staff service heads with a technical background, industrial consultants, construction, utility, and governmental organizations; e.g., heads of industrial engineering, construction engineering, plant maintenance, etc. Also valuable are: engineering consultants, physical laboratory administrators, construction superintendents, mining engineers, etc.; finally, middle-level production heads, such as departmental production heads. The recommendation is, then: middle managers with emphasis on technical services.

### When selected

If vacant prior to occupancy, this position should be filled as soon after entry as feasible. The tasks for which this deputy is responsible must be initiated early during the shelter stay.

## **Deputy for Special Services**

In small shelters, the responsibilities assigned to the Deputy for Special Services can be undertaken by community group leaders or other members of the management staff.

### Duties and responsibilities

The Deputy for Special Services has the responsibility for planning and implementing a training program, a recreational program, a wide range of service activities (for example, child care), and supervising religious activities in shelter; in summary, for activities aimed at maintaining the motivation and morale of the shelter population.

Qualifications

A professional background in training, education, social work, recreational work, or religion would be an asset.

Managerial experience should be the same as for other service deputies.

Recommended sources

Occupational sources for a Deputy for Special Services include: training and education directors, personnel managers, school administrators, employee services directors, directors of social services or welfare organizations, or religious leaders.

When needed

Selection of a Deputy for Special Services is not an essential requirement of the entry phase.

**Succession of Command**

It may frequently occur that a member of the core management staff is unable to assume or to continue with his duties. It is vital, therefore, that all shelters have a plan for succession of command, so that the position of the unavailable member can be filled rapidly and without incident.

A recommended chain of succession to the Shelter Manager:

1. First Alternate: Deputy Shelter Manager
2. Second Alternate: Deputy for Operational Services
3. Third Alternate: Deputy for Technical Services
4. Fourth Alternate: Deputy for Special Services
5. Fifth Alternate: A group leader from the highest level of community grouping.

## Task Teams

Task teams are the small groups whose leaders and members provide the operational, technical, and special services necessary for shelteree survival and adjustment. The task teams are also involved in the in-shelter planning of their respective activities. Generally, this will involve coordination between the team leader, the Shelter Deputy to whom he reports, the highest level community group leaders, and when necessary, the Shelter Manager.

Not all shelters will require the full complement of task teams described below. In smaller shelters, several different, but related tasks can be carried out by one team. On the other hand, the responsibilities that have been arbitrarily assigned to one team may, in very large shelters, require two or more different teams.

### Food and Water Team

A food and water team is essential in all shelters. In small shelters, one team can be responsible for both food and water. In larger shelters, or those with elaborate feeding facilities, a separate food and water team is recommended. In still other cases, it may be desirable to have several food teams, for example, a food preparation team and a food distribution team.

#### Duties and responsibilities

The food team assists in planning, and implements the program of food (and in many cases, water) preparation and distribution in the shelter.

Its duties consist of:

1. Determining the shelter food ration.
2. Scheduling meals and "snacks."
3. Preparing food for consumption.
4. Distributing food.
5. Monitoring food supplies.
6. Maintaining cleanliness in food areas.

Qualifications of food team head

If food and water stocks consist only of survival rations, there are no special qualifications for the food team head, other than the desirability of some supervisory experience and the necessity of good health.

If the shelter has an augmented food capability, the head of this team should have food preparation experience in an organization comparable in size to that of the shelter.

Recommended sources of food team head

An experienced food team head may be selected from the following occupations: chefs, cooks, kitchen supervisors, home economics teachers, restaurant managers, dieticians, nutritionists, short-order cooks, luncheonette owners, cafeteria supervisors, military cooks, and other related occupations.

Qualifications of food team members

If only survival rations will be served, no qualifications other than good health are necessary.

If any amount of food preparation is necessary, as in the case of food toppings, it may prove more efficient to use women for the preparation of food.

In the case of a fairly elaborate food capability, persons with commercial food preparation experience should be selected.

Because of the weight of the water drum when filled, it may be more effective to employ men for water tapping and distribution.

Size and composition of food teams

The number and types of food teams depend upon the size of the shelter, the nature of the supplies, and the planned feeding arrangements. The following table illustrates this relationship.



Table IX.  
Number and Types of Food Teams

	SIZE OF SHELTER			
	SMALL SHELTERS (50-300)	MEDIUM SHELTERS (400-800)	LARGE SHELTERS (over 1,000)	
NATURE OF FOOD SUPPLIES	OCD SURVIVAL RATIONS	1 team for all aspects of the food and water program	1 food team 1 water team	1 food team* 1 water team*
	AUGMENTED SUPPLIES (CANNED FOOD, HOT MEALS)	1 food preparation team 1 food distribution team 1 water team	1 food preparation team 1 food distribution team 1 water team	This type of shelter requires a food staff approximately that of a normal cafeteria.

\*Large shelters will likely have decentralized food preparation. Under such conditions, one may either think of one large shelter-wide food team with several sub-teams for each decentralized area, or several separate food teams.

The following is a sample of the food team composition for a small shelter, with centralized feeding arrangements, and using OCD survival rations.

Table X.  
Composition of Food Team

DUTY	NUMBER OF PEOPLE
Monitor and keep records of food supplies	1
Open boxes and tins	1
Distribute packages to group leaders	1
Monitor and keep records of water supplies	1
Tap water drums and fill tins or cups	2
Clean-up in food and water area	<u>1</u>
TOTAL	7

### Number of shifts

If cooking or similar operations are contemplated, requiring handling of opened food stocks, the number of shifts should be kept to a minimum to cut down on potential health hazards.

In shelters with survival rations only, the number of shifts is immaterial from the food and health point of view. From the standpoint of "full employment," it may be advisable to increase the number of shifts, to provide useful tasks for as many shelterees as possible. For example, in a large shelter, it may be advantageous to have a breakfast shift, a lunch shift, and a dinner shift.

### When selected

Although the first meal may not be served for a number of hours after entry, the food team head and members should be selected at least several hours prior to that, so they may begin planning the feeding program.

## **Medical Team**

A medical team is an organizational requirement in all shelters. In small shelters, this team can also perform the duties of the sanitation team.

### Duties and responsibilities

The medical team is responsible for maintaining the general health of the shelter population including treatment of illness and injury within the capabilities of the shelter, as well as prevention of the spread of disease. More specifically, the medical team is required to: (1) operate the sick bay and treatment area, (2) care for the patients, (3) control medical supplies, (4) coordinate with the sanitation team in maintaining high sanitary standards in the shelter, and (5) offer training of shelterees on first-aid procedures. Over-all planning and organization of medical facilities and procedures is a function of the medical head in liaison with shelter management.

### Qualifications of medical team head

Knowledge of medical diagnosis and treatment and of minor surgery is highly desirable. A professional medical background is increasingly important as the shelter capacity increases.

Recommended sources for medical team head

A physician is clearly the preferable person to occupy the position of medical team head. In shelters in which no physician is present, the following occupations should be considered: dentists, veterinarians, registered nurses, pharmacists, licensed practical nurses, trained medical corpsmen, podiatrists, and also students of medicine, osteopathy, dentistry, veterinary medicine, nursing and pharmacy.

Qualifications of medical team members

Knowledge of first aid techniques and practical nursing procedures is highly recommended. However, general good health, especially freedom from contagious disease, is a requirement.

Recommended sources for medical team members

In addition to the sources mentioned for the medical team head, the following backgrounds may also be examined: practical nurses and people with first-aid training. Some members of the medical team who will have the responsibility for the non-medical care of patients and for the control of medical supplies need no special qualifications other than good health.

The size and composition of medical teams

The size and composition of the medical team is dependent upon the number of patients, the medical capability of the shelter, and the availability of trained personnel. Usually the medical team will be divided into three categories:

1. Physicians or other highly-trained people who can diagnose medical problems and use the special medicines stocked in the OCD medical kits.
2. Medical assistants or people with some first aid training who can carry out minor medical procedures.
3. Medical aides or people with no training who can render non-medical patient care, monitor medical supplies, and maintain cleanliness in the medical areas.

### Number of shifts

In the absence of widespread medical problems, keeping shifts few in number may be practicable as a preventive medicine technique. The bulk of medical treatment will be given during the waking hours, largely concentrated during the sick call period. One or perhaps two daytime shifts will be adequate for routine medical care.

In a large shelter, or in one with widespread medical problems, the medical team will be operating on a twenty-four hour schedule. The number of shifts can only be determined by the specific conditions in a particular shelter. The medical team will be assisted by several of the service teams in administering the round the clock care required by seriously ill persons.

### When selected

If the medical team head has not been pre-selected, an appropriate head should be sought immediately after entry, so that the medical leader may begin selecting a staff and establishing the medical area.

## **Communications Team**

A communications team is a requirement in all shelters.

### Duties and responsibilities

The responsibilities of the communications team are largely directed towards communications between the shelter and external sources or destinations. Internal communications will be handled mainly through the community group leaders.

The communications team will:

1. Set up and maintain whatever communications equipment is available.
2. Monitor and record all incoming messages, and disseminate information to appropriate persons in shelter.
3. Transmit and keep records of any outgoing messages.

### Qualifications for communications team head

If radio and/or other electronic equipment other than a simple receiving set is to be used, a background in operating or repairing such equipment is essential. Otherwise, no technical background is required.

Some supervisory experience would be helpful for the team leader but not essential.

Recommended sources for communications team head

If electronic communications equipment is to be used, the communications team head should be drawn from occupations closely related to the operation and repair of such facilities, if possible. Such occupations include: radio repairmen, electronics technicians, aircraft control tower operators, radio dispatchers, electrical engineers, military communications, officers, message center operators, communications equipment repairmen, and "ham" radio operators.

Qualifications for communications team personnel

Unless electronic equipment is to be used, there are no technical qualifications. An absence of auditory and speech defects is required however.

Someone with stenographic experience would be a valuable asset to the communications team, to record shelter messages.

Size and composition of communication teams

The number and composition of communications teams depend upon the communications capability of the shelter and the amount of message traffic that is occurring or anticipated. In small shelters, it may be adequate to have only one communications person on duty at all times.

If the traffic load is heavy, or if the communication devices cannot be centralized in only one area, a member of the team should be assigned to each separate piece of equipment. Otherwise, one or two people on duty should be sufficient to maintain a communications capability.

Number of shifts

Someone should be on duty in the communications area at all times. In a small shelter, or one with very limited communications facilities, the task of monitoring incoming and outgoing messages can be combined with other night watch activities. If the shelter can expect a good deal of nighttime message traffic, the communication shift should be scheduled on a twenty-four hour basis. The night shift should consist of not more than two hours of duty for each member. During the day, the length of the shift is not crucial; however, communications team members should not be hindered from participating in other shelter activities, by too long a daily tour of duty.

When selected

One of the first organizational steps that should be taken after entry is to assign someone (or several people) to monitor shelter communications. The formation of a full communications team can occur at a point later in time as long as the communications equipment is "covered" by monitors.

## The Security Team

In small shelters the functions of the security team may be combined with those of the safety team.

### Duties and responsibilities

As directed by the Shelter Manager, the security team is charged with such tasks as:

1. Controlling the outbreak of disorder, should it occur.
2. Guarding persons who have committed serious breaches of order or persons with serious psychological problems who require restraint.
3. Guarding supplies or other shelter resources.
4. Directing the movement of shelterees, especially at time of entry, or during emergencies.

### Qualifications for security team head

Experience in the control of large numbers of people is highly desirable. The personal attributes of loyalty and impartiality should also be emphasized as the security team head may be called upon to support certain necessary but unpopular rules, and request obedience from friends and family.

### Recommended sources for security team head

Among the occupational backgrounds that are related to the duties of the security team head are: public law enforcement officers, industrial or governmental security guards, private detectives, former M.P.'s.

### Qualifications for security team members

The qualifications are the same as for the team head. If such persons are not to be found in a shelter, the security team should be selected from incoming male shelterees of imposing appearance and demeanor. If there are women who must be guarded or restrained in shelter, women should be added to the security team for this purpose.

### Size and composition of security team

The make-up of the security team is largely dependent on the size of the shelter, and on the extent of actual disorder, or problems that the manager has good reason to believe are imminent.

## Task Teams: Security Team; Sanitation Team

### Number of shifts

Maintaining social control is a "round-the-clock" activity. In small shelters, or those that are relatively free from disturbances, the night shift of the security team can be merged with another night watch activity, such as communications watch.

### When selected

Traffic assistants who properly are part of the security team, will frequently be required, at the time of entry, to help fill the shelter in an orderly fashion.

## Sanitation Team

In small shelters the duties of the sanitation team can be merged with those of the medical team.

### Duties and responsibilities

The responsibilities of the sanitation team include:

1. Establishing and maintaining toilet facilities.
2. Collecting and disposing of trash, garbage, and waste.
3. Maintaining cleanliness in all areas of the shelter.
4. Establishing procedures for personal hygiene for shelterees.

In addition, the sanitation team coordinates with the medical team in such matters as preventive medicine and body disposal.

### Qualifications for sanitation team head

Some knowledge of the techniques of disease prevention through sanitation is desirable.

If the shelter contains operable flush toilets, knowledge of the functioning of a building sanitation system may prove an asset.

Some supervisory experience would be beneficial, particularly if the sanitation team is large in size.

Recommended sources for sanitation team head

Occupational sources for a sanitation team head include: sanitary engineers, hygiene teachers, supervisors of hospital orderlies, public health engineers, hygienists, custodial supervisors of large buildings.

Qualifications for sanitation team members

No special qualifications are needed except general good health.

Number and composition of sanitation team

In larger shelters it may be necessary to divide the sanitation team into several sub-teams. These would include:

1. A toilet team: with at least one person on duty at each toilet area. If separate toilet areas for (men and women) exist, the sanitation personnel servicing each area should be of the same sex as the users.
2. A trash and garbage team: The shelter may be divided into geographical areas, either by natural barriers or management decision, and at least one person assigned to trash and garbage in each area.
3. Additional teams may be necessary to deal with body disposal and personal hygiene, for example, to ration water if washing facilities are available.

Number of shifts

Sanitation represents one shelter function for which the guideline is multiple shifts. Many aspects of shelter sanitation involve the performance of unpleasant duties. The shift for servicing toilet areas and body disposal should consist of not much more than two hours, under heavy duty conditions, and perhaps four hours under more normal conditions. In spite of the fact that multiple shifts may increase the probability of the spread of disease, longer shifts may result in difficulty in getting shelterees to perform sanitation tasks conscientiously. A half-hearted clean-up job is probably more conducive to the spread of disease than a multi-shift sanitation operation.

In larger shelters, or those with an above normal use of toilet facilities, the sanitation team should be scheduled on a twenty-four hour a day basis.



When selected

Setting up the OCD stocked toilets does not require the services of a sanitation team. Nevertheless, a sanitation team leader should be selected early in the occupancy phase to establish a sanitation plan in coordination with the medical team.

**Supply Team**

A separate supply team is desirable in large shelters or in shelters with extensive stocks of supplies. In other shelters, the functions of the supply team can be merged with those of the maintenance and/or security teams.

Duties and responsibilities

This team has the responsibility for the storage, security, inventory, and issuance of all shelter supplies, except where a portion of such responsibility has been specifically assigned to another task team. In addition, it must keep records pertaining to supplies and their use and provide shelter management with supply information on a regular basis.

Qualifications for the supply team head

There are no technical requirements for the supply team head. Previous supply room or warehouse experience, or military training in supply management will be an asset.

Recommended sources for the supply team head

Among the likely occupational sources are: supply or parts distributors, warehouse supervisors, former military supply officers or non-commissioned officers.

Qualifications for supply team members

No formal requirements apply; however, shelterees should be in adequate physical condition to lift and carry the stocked cartons and drums.

## Task Teams: Supply; Training and Education

### Size and composition of the supply team

The size and composition of the supply team depend upon such factors as the nature and amount of supplies in shelter, the location of the supplies, and the supply management procedures implemented in a particular shelter.

### Number of shifts

There are no limitations on the number of supply shifts desirable in a shelter. Someone should monitor the supply area at all times, especially after supply cartons have been opened and loose items may be lying around that can be torn, broken, lost, or taken without authorization. However, it is not necessary that the supply team itself carry out this duty at all times. The security team or the night watch may be assigned the task of monitoring supplies.

### When selected

Information on the amount, condition, and location of resources is of primary importance to the Shelter Manager when formulating a plan for shelter operations. Therefore, someone must be selected and assigned the task of making an inventory of shelter supplies as soon after the shelter is filled as possible.

## Training and Education Team

A separate training team is recommended in all but the smallest community shelters. In shelters of around 100 persons, the Shelter Manager or a member of his staff can serve as the training team head. Another alternative in a small shelter is to combine the training function with those of recreational and religious activities into one team.

### Duties and responsibilities

The training and education team is responsible for planning, organizing, and implementing an in-shelter training program, which should cover:

1. Training for in-shelter survival and adjustment.
2. Training for post-occupancy survival and adjustment.
3. Training basic management and technical skills necessary to carry out shelter assignments.
4. Ongoing education of school children.

Responsibilities include: creating lesson plans, developing a training schedule, locating training areas, monitoring or improvising training aids, assigning instructional personnel, and instructing the shelter population.

#### Qualifications for the training team head

A background in training and education is highly desirable. The ability to plan, organize, direct, and evaluate shelter training and education activities for adults and children is essential.

#### Recommended sources for the training team head

The training team head may be selected from among the following occupations: school teachers (public or private), college instructors, adult education instructors, plant training supervisors, training directors, and educational researchers.

#### Qualifications for training team members

The qualifications for the team members are basically the same as for the head. Team members must have the ability to communicate information to persons of widely varying backgrounds.

#### Size and composition of the training team

There are no special guidelines for the size and composition of the training team. The larger the shelter population or the greater the number of experienced teachers, the larger the training team should be.

#### Number of shifts

Training activities are interspersed throughout the daily activity schedule from shortly after breakfast until after dinner. Consequently, the training team should arrange its own schedule so that all training sessions are covered without too heavily overburdening any members of the team.

Among the various ways to allocate the training team time effectively are:

1. Giving training personnel responsibilities pertaining to a specific subject (for example, first aid, radiological).
2. Assigning training personnel to a specific element of the shelter population (for example, pre-school children, primary grade children, core management trainees).
3. Assigning members of the training team to cover the courses at a specified time of day and/or in a specified training area (for example, someone assigned to the morning session in location A, someone else to the afternoon class in location B, and so forth).

#### When selected

The selection of a training team is not an immediate organizational requirement. Personnel of this team must prepare and organize the training program. Therefore, they should be chosen as far in advance of the time when training activities are scheduled to begin as possible.

### **Recreation Team**

A separate recreation team is recommended for large shelters. In small shelters, recreation functions may be combined with those of the training, religious activities, and psychological first aid, into one or two teams.

#### Duties and responsibilities

This team is responsible for planning and implementing a program of recreational activities for different age groups, appropriate to the conditions of the shelter. This includes:

1. Planning a schedule of physical fitness activities, arts and crafts activities, small group games, spectator entertainments, reading activities, and other individual and group recreations.
2. Allocating the available recreational materials and improvising additional materials.

#### Qualifications of recreation team leader

An occupational background associated with planning and guiding recreational activities for adults and/or children is highly desirable in addition to some supervisory experience in the above areas.

Recommended sources for recreation team head

A recreation team leader may be chosen from the following occupational backgrounds: directors of youth groups, community welfare center workers, community recreation workers, YMCA and YMHA organization workers, directors of employee services, hospital recreation supervisors, playground supervisors, public and private school teachers, church youth leaders, scout leaders, personnel managers, physical education instructors, recreational therapists, and other occupations related to recreational activities.

Qualifications of recreation team members

Same as for the recreation team head with less emphasis on supervisory experience.

Size and composition of recreation team

The size and composition of the recreation team is dependent upon the size of the shelter population, and especially the number of children in shelter, the amount and types of recreational material in shelter, the space available for recreation, and the emotional state of the shelterees; that is, their willingness to participate in the aforementioned types of activities.

Number of shifts

Recreational activities of one form or another will be scheduled throughout the day, extending almost until "lights out" in the evening. The recreation team members can be assigned using the same alternatives that are recommended for the training team. (See page 242.)

1. One "shift" of recreation members can be assigned to a specific age-group.
2. Team members can be given the responsibility of organizing a certain set of activities, for example, arts and crafts or spectator entertainment.
3. Team members can be assigned on a three- (or more) shift basis, using time of day as the criterion. One person or sub-group is responsible for all morning recreational activities, another for afternoon activities, and so forth.

When selected

The selection of a recreation team can be delayed until the shelter is fully organized. A team should be selected prior to the scheduled initiation of recreational activities, so they may inventory the resources, sample shelteree opinion, and plan a recreational program.

**Fire Team**

In a small shelter, the fire team may be combined with the safety team. In a large shelter, however, fire preventing and fighting responsibilities may require a full-time team.

Duties and responsibilities

The responsibilities of the fire team are as follows:

1. Prevent the outbreak of fires in shelter through maintenance of a fire watch.
2. Detect immediately any fires which may start within the shelter.
3. Extinguish all fires, internal or external, which may endanger the shelter. These include fires started, both directly and indirectly, as a result of the nuclear detonation.
4. Train a fire team and all other shelterees in fire prevention and fighting procedures.
5. Conduct emergency drills.

Qualifications of the fire team head

A background in fire prevention and fire fighting or industrial safety is highly desirable. For a large shelter, some supervisory experience would be beneficial, although not essential, for a fire head must also organize, train, and direct actions. He must, however, be capable of forceful leadership in emergency situations.

Recommended sources for a fire team head

A fire team head may be selected from the following occupations: firemen, school fire instructors, industrial plant firemen, salesmen of fire fighting equipment, plant safety engineers.

### Qualifications of fire team member

All persons having experience in fire fighting or use of fire equipment in addition to professional and volunteer firemen may be placed on the fire team. Also, a fire watch may be recruited from the shelter population at large to monitor all shelter areas and to prevent fires from occurring.

### Size and composition of the fire team

The size of the team will depend upon the size of the shelter and the number of shelter areas to be monitored. However, a fire watch should be maintained in all parts of the shelter at all times. All shelter machinery should be monitored continually when in operation insofar as possible. Because people will require no training for the fire watch, many shelterees can be employed in this activity.

### Number of shifts

If there are many people in the shelter, the fire team can probably use a large number of people on many shifts; for example, one to two-hour shifts, two persons per shift for each shelter area to be monitored. However, it is possible if necessary to use one person on an eight to twelve-hour shift for an area in shelter, although this is not recommended.

### When selected

Because the fire team may be needed: (1) to locate and collect additional fire fighting equipment, and (2) to fight fires started from the effects of the detonation, at least the fire team head and a skeleton team should be recruited almost immediately after people begin to arrive. As soon as they have collected all the equipment possible and have prepared to fight fires, this team can also serve as reinforcement for the safety team.

## **Radiological Team**

The radiological team may be divided into several sub-teams in a large shelter to perform the following areas of radiological protection: (1) monitoring, (2) protective actions, and (3) decontamination. In a small shelter, however, one team may be adequate.

Duties and responsibilities

The responsibilities of the radiological team include:

1. Maximizing shelter protection against fallout and other weapon effects and minimizing radiation exposure by continual radiological monitoring inside and outside the shelter, and taking appropriate measures such as locating the population in the safest areas and preventing contamination of supplies, personnel, and shelter areas. Support for these activities should be received from the safety team and the repair and maintenance team.
2. Measuring and recording radiation exposure doses of the area and the shelterees.
3. Decontaminating those persons or things which become contaminated.
4. Operating and maintaining all OCD radiological instruments and related equipment.
5. Keeping management personnel advised of radiation levels at all times.
6. Providing emergency information and procedures concerning the desirability of alternative shelters and movements out of a shelter.
7. Helping to train shelterees for post-shelter survival.

Qualifications for radiological team head

To conduct radiological activities, a trained radiological defense officer should be available in each shelter. If an assigned radiological team head is not in shelter, a trained team member might be present to fill this position. In the event that there are no trained persons, the Shelter Manager must appoint a team head within the first few minutes of the shelter opening in order to give him time to read the instructions with the radiological kit.

Some knowledge of instrumentation or electronic repair is desirable as well as the ability to read instruments quickly. If the shelter is large, some supervisory experience will be helpful in order to plan, coordinate, and direct all the activities and to evaluate the radiological information reported. In addition, this person must be willing to risk radiation exposure if necessary.

Recommended sources for a radiological team head

Occupation sources for a radiological team head are as follows: electronic engineers or technicians, radio-TV repairmen, electronic equipment repairmen, instrument repairmen, X-ray technologists, X-ray repairmen, physicists, laboratory equipment technicians, physics teachers, electronics teachers, radiologists, and CBR warfare specialists.



### Qualifications for radiological team members

Because of the technical nature of the activities, a trained team is highly desirable. If, however, trained personnel are not available, a team should be chosen from persons willing to risk radiation exposure who have familiarity with electronic repair or reading instrumentation. In addition, support for protective actions should be received from the safety team and the repair and maintenance team, who have skills and knowledge in building construction and maintenance, as well as rescue and emergency procedures.

### Size and composition

The size of the team will depend upon the following factors: shelter size, shelter configuration, number of persons arriving after fallout to be monitored and decontaminated, as well as areas and supplies which need to be decontaminated. The larger the shelter and, particularly, the more areas to be monitored, the larger will be the team. For a single shelter area containing under 300 persons, a minimum of two trained monitors will be essential. For a 500-person shelter, a minimum of five monitors is recommended, again depending upon shelter configuration and need.

### Number of shifts

Radiological activities will be continuous throughout the shelter stay. Consequently, it is recommended that the most shifts compatible with trained personnel should be maintained for each twenty-four hour period. The length of the shift will depend upon the number of monitors available or recruited. Since the team may be exposed to radiation in monitoring and decontamination activities, the team should be large enough to distribute the exposure to avoid reaching maximum permissible doses.

### When to select

Because a radiological team should begin to monitor and initiate protective actions as soon as the shelter is open, this should be one of the earliest teams to be recruited. It must be remembered that the team and the team head will require time for orientation from the Handbook for Radiological Monitors and other instructions enclosed in the monitoring kit.

## Safety Team

In large shelters in cases where either many protective actions are to be taken or persons are to be rescued, a division of the team's personnel and duties into a rescue team, a protective actions team, and an emergency team might be necessary. In a small shelter, the safety team may, in addition to the above, also incorporate the fire team.

### Duties and responsibilities

The safety team will perform the following duties:

1. In cooperation with the repair and maintenance team, the safety team will rescue persons trapped within the shelter area as a result of structural failure, fire, flood, or other serious malfunctions. They will also keep shelter exits and evacuation routes clear and marked.
2. The safety team, in cooperation with other relevant teams and management, should prepare, orient, and drill shelterees in procedures to be observed during an emergency situation.
3. It should eliminate all safety hazards in the shelter, e.g., aisle obstructions, dangerous debris, etc.
4. Finally, it should support protective actions conducted by the radiological team.

### Qualifications of a safety team head

The safety team head should ideally have some radiological background, if not training, as well as experience in rescue and emergency work. Because this position will entail considerable planning, coordination, and managerial decisions, some supervisory experience is desirable. Background in industrial safety, police work, emergency maintenance or custodial work, or possibly military experience may be very helpful.

### Recommended sources of the safety team head

Such a person may be recruited from plant safety engineers, safety directors, policemen, maintenance or custodial supervisors.

### Qualifications of the safety team members

Since there are three possible sub-groupings of the safety team, a variety of skills will be necessary, many of which may overlap with other teams. In general, however, safety personnel should be able-bodied men with experience in building maintenance, trades, construction, police duties or volunteer rescue work.

### Size and composition

The size of the team will be relative to the size of the shelter and the shelter configuration. In general, protective actions may require that many persons be assigned to individual tasks, such as stacking concrete blocks and securing equipment. Rescue teams are usually composed of five to eight men.

### Number of shifts

Protective actions and rescue will principally be needed at the beginning of the shelter stay. Once the emergency procedures have been formulated and shelterees oriented to these procedures, this team will not have to be on duty at all times. However, they will conduct daily safety inspections and routine emergency drills.

### When to select

This team should be pre-trained, if possible. If not, it should be formed as soon after entry as is feasible.

## Repair and Maintenance Team

In a small shelter, the repair and maintenance team may be merged with the safety and fire teams.

### Duties and responsibilities

The repair and maintenance team should perform the following duties:

1. Assess damage and repair structural damage to the shelter caused by such things as fire or blast effects.
2. Maintain the operability of all essential shelter equipment by routine inspection, service, and repairs, if necessary.
3. Support the radiological team in augmenting shelter protection against fallout and other weapon effects.
4. Keep the Manager informed concerning important repair and maintenance problems.

### Qualifications of repair and maintenance team head

If the shelter has ventilation and air-conditioning equipment a background in the operation, maintenance, and repair of such equipment is essential. A general grounding in structural repair work and electrical maintenance is advantageous but not essential. Finally, supervisory experience, although helpful, is not required for this team head.

Recommended sources for the repair and maintenance head

The maintenance team head may be recruited from the following occupations: plant maintenance men, ventilation engineers, air-conditioning engineers, construction men, plumbers, electricians, motor repairmen, building superintendents, building repair, etc. Where ventilation, air conditioning, and auxiliary power equipment are vital for shelter functioning, the maintenance head should be selected on the basis of his experience with such equipment.

Qualifications and sources of the repair and maintenance team

Same as for the team head.

Size and composition

The size of the team will depend upon the available personnel and the shelter requirements. The more complex the shelter configuration and equipment, the larger will be this team.

Number of shifts

After the shelter has settled into routine operation, regular shifts should be maintained to monitor and sustain the shelter facilities. The number of persons will depend upon the amount and complexities of these facilities.

When to select the team

In the case where complicated equipment is used in a shelter, the head of repair and maintenance should be selected before the attack phase, so he may familiarize himself with the operation and peculiarities of such facilities. If there is no pre-selected team head, the most capable technical person should be chosen as early as possible after entry, and a temporary team recruited to carry out immediate responsibilities. After the shelter enters the routine phase, a permanent team should be formed from the most appropriate shelterees.

### Psychological First Aid Team

A psychological first-aid team should be organized in shelters where spontaneous recovery from the emotional reaction to disaster does not seem to be taking place among shelterees. In small shelters, or those with

## Task Teams: Psychological First Aid

relatively few problems, the activities that comprise psychological first aid can be undertaken by the religious activities and/or recreation team. The psychological first-aid team will be assisted in its efforts by community group leaders, and by volunteer service teams who will lend emotional support to shelterees in need of it, prior to and after psychological first-aid sessions.

### Duties and responsibilities

The goal of this team is to return persons who are moderately disabled psychologically to relatively normal functioning in a short time, and to help more serious cases to be as comfortable and non-disruptive as possible. Among the duties of the psychological first-aid team are:

1. To estimate roughly the nature and seriousness of an individual's problems.
2. To carry out the psychological first aid interview.
3. To coordinate with management personnel concerning group and task assignment for shelterees who are psychologically disabled.
4. To follow-up on the condition of shelterees who have received psychological first aid, and to coordinate psychological support efforts with Unit and Section heads.

### Qualifications of psychological first-aid team head

The head of this team should have previous training or experience in dealing with the emotional problems of an individual. In addition, the team head should himself be adapting adequately to the shelter situation.

### Recommended sources for psychological first-aid team head

Among the likely occupational sources are: psychiatrists, psychologists, physicians, social workers, clergy, nurses, vocational counselors, teachers, and lawyers.

### Qualifications of psychological first-aid team members

The qualifications of the members are the same as those of the team head.

### Size and composition of the psychological first-aid team

As many trained or experienced persons as are available should be assigned to this team. Psychological first aid will be most effective where one aid person can be assigned to a single shelteree at a time.

### Number of shifts

The largest psychological first-aid effort will probably be expended during the first several days of the shelter stay, with emphasis on the first day. For this period of time, it may be advisable to schedule psychological first aid as a 24-hour a day activity, if warranted by the number of cases of psychological disability. After the first few days, a member of this team should always be on call, if not actually on duty, to deal with new or recurrent psychological problems.

### When selected

The psychological first-aid team should be selected and be ready to operate during the first few hours of occupancy.

## **Religious Activities Team**

A separate religious activities team would be advantageous for large shelters. In small shelters, it may remain a separate team or its functions may be merged with those of other non-operational activities in a combined team.

### Duties and responsibilities

The religious activities team has primary responsibility for planning, organizing, and directing a program of religious activities compatible with the needs of the shelterees and the constraints imposed by shelter conditions. Among the duties of the team are the following:

1. Organize and conduct scheduled religious services.
2. Conduct non-scheduled religious services, such as last rites, and religious observances associated with birth.
3. Counsel and comfort shelterees.

### Qualifications for religious team head

A background as a minister, priest, or rabbi is highly desirable. If not a formal religious leader, the head of the religious team should be devout, have staunch religious convictions, be convinced of the importance of religious services in a shelter situation, and yet have a tolerant attitude towards people of other faiths or creeds.

### Recommended sources for religious team head

The religious team head may be selected from people with the following backgrounds: ministers, priests, rabbis, members of a religious order, members of a church board, Sunday school teachers, or lay religious leaders.

### Qualifications for religious team members

The members of the religious team should have deep religious convictions, knowledge of the traditions and rituals of their faith, and a belief in the value of an in-shelter religious program.

### Size and composition of the religious team

The composition of the religious team should tend to conform to the actual distribution of religious affiliations among the shelter population; that is, if the shelterees are predominantly of one faith, that faith should not be significantly under-represented in the membership of the religious team. On the other hand, religious minorities should, wherever possible, have representation on the religious team.

### Number of shifts

There are no special guidelines for the number of religious shifts. Someone from the religious team should be on duty, or on call at all times.

### When selected

The selection of a religious activities team is not an immediate organizational requirement. If a clergyman is present in the shelter, it may be advantageous to ask him to take on an immediate management task, prior to the formation of a religious activities team. Because of his likely experience and his recognized status, a clergyman may be an especially valuable staff member during the first hours of the shelter stay.

## **Administrative Team**

Even the smallest community shelter will have need of an administrative assistant to handle many of the details of shelter organization and operation. In larger shelters, it is recommended that an administrative team be formed to assist the Manager in carrying out his administrative responsibilities.

Duties and responsibilities

The administrative team is responsible for:

1. Maintaining the essential records of the shelter, such as the shelteree registration form, and the shelter log.
2. Providing the Manager and his staff with information from these records when requested.
3. Providing any additional support necessary in the area of shelter administration.

Qualifications of administrative team head

The head of this team should have some experience in supervising groups of people engaged in clerical or similar office work, but this is not an absolute requirement.

Likely sources for the administrative team head

Among the occupational backgrounds likely to produce an administrative team head are: office managers, corporate administrative assistants, executive secretaries.

Qualifications for administrative team members

Highly desirable in administrative team members is some experience as secretaries, stenographers, typists, file clerks, or similar positions.

Size and composition of the administrative team

There are no important constraints upon the size and composition of the administrative team.

Number of shifts

The administrative team should have at least one representative on duty at all times during the shelter day, that is, while shelterees are awake and activities are being conducted. Other than this, there are no regulations as to the number of shifts.

When selected

An administrative assistant or head of the administrative team should be selected before the shelteree registration card is distributed to the population for completion and return.



## Special Service Team

When the in-shelter situation calls for it, the Manager should recruit special teams to perform a wide variety of service activities. Some of the more likely special service teams are briefly described below.

### Child-care team

After the initial adjustment phase of shelter living, it will be to general advantage if children can be turned over to the care of others for short periods of time during the day. This activity may be under the direction of the recreation team; at the very least it should be coordinated with the recreation team.

It is recommended that the child-care team be composed of female adults with children of their own or with child-care experience. Some teenage females may be profitably used as assistants in child care, but as a rule, they should not be given sole supervisory responsibility over a group of children.

Among the responsibilities of a child-care team, if one is formed, are:

1. Locate a place in the shelter where children can stay with relative comfort.
2. Work out a schedule of activities to occupy the children.
3. Develop a schedule for assignment of child-care personnel.

### Non-medical patient care

Non-ambulatory patients who require regular attention will be cared for by their relatives, friends, and neighbors; and in many shelters, by a team of volunteers, who will render valuable services, along the following lines:

1. Keeping the patient as clean and comfortable as possible.
2. Changing dressings.
3. Applying medication (excluding special medicines) under the supervision of a member of the medical team.
4. Keeping the shelter area clean of medical wastes, vomitus, etc.

The volunteer patient care teams will serve the same functions as medical aides (page 234). The difference between the two groups is that medical aides have a permanent shelter assignment to the medical team, whereas the patient care team is a temporary grouping, recruited as the need arises and disbanded afterwards.

### Care of elderly and infirm

Elderly and infirm persons may have difficulty adjusting to the shelter confinement and may require assistance in such areas as eating, walking, sleeping, sanitation. If relatives, friends, or neighbors are not able to care for such persons, a team of volunteers similar to those described under "Non-Medical Patient Care" will perform such care and support as needed.

### Night Watch

From the moment that "lights out" is declared in the shelter, there should be at least two people on duty as a night watch. In a small shelter, under routine conditions, the two night watch personnel can combine the sleep watch, fire watch, communications, sanitation, supply, safety, and security functions. In larger shelters, however, representatives of some or all of the aforementioned teams may be on duty.

### Duties and responsibilities of the night watch

In a small shelter, under routine conditions, the night watch will have the following duties:

1. Monitor communications and maintain the communications log.
2. Maintain order in the sleeping area.
3. Assist shelterees who require aid in going to and from the sanitation area or medical area.
4. Monitor the use of toilet facilities.
5. Keep watch for fires and other potential hazards.
6. Keep watch over shelter supplies.
7. Be aware of the location of Shelter Manager and key staff members, and report all serious problems immediately.

### Size and composition of the night watch

There should be a minimum of two people on night watch at one time. There are several reasons for having at least this number. Firstly, should a major problem erupt in shelter, one person can direct his attention immediately towards overcoming the problem, while the other can alert the appropriate management and task team personnel. Secondly, the chances of anyone falling asleep during his night watch tour are reduced by having two people on simultaneous duty.

## Task Teams: Night Watch

The actual size of the night watch team in a particular shelter is based upon several factors. The size of the shelter is a major determinant, as is the emotional state of the shelterees. Under relatively quiet conditions, two people on night watch are very likely adequate for every 200 or so sleepers. Another influence upon the size of the night watch is the number of shelter operations that require implementation and the amount of equipment and supplies that must be monitored during the sleeping hours.

Concerning the composition of the night watch, it is recommended that there be at least one management representative on night watch duty at all times. To select night watch personnel only from among group leaders and management staff may very likely put an unnecessary strain on shelter leadership. It is, therefore, recommended that each shift of the night watch be composed of a night watch supervisor selected from among the group leaders or members of the managerial staff, plus one (or more) night watch assistants to be chosen from among responsible adult shelterees.

### Number of night watch shifts

The time that each person spends on night watch should not exceed two hours per night, and, if possible, should be limited to one hour. As many people as possible should be rotated on night watch so that each member of the night watch crew will have his sleep interrupted a minimum number of times.

## Community Groups

Community grouping can be defined as the process of organizing the entire shelter population. There are three major reasons why the shelter should be subdivided into population groupings.

One function of subgrouping is to provide the gratification that individuals receive from group membership. This includes feelings of being liked, of belonging, of giving and receiving solace and comfort, of becoming personally motivated to participate in achieving the goals of the group. A second purpose for organizing the population into groups is to permit the effective implementation of shelter activities. Sleeping, feeding, medical care, training, recreation are some of the activities in which shelterees participate as members of community groups. The third major purpose of population grouping is to allow management to exercise greater control over the resources of the shelter. In all but the smallest shelters, the lack of an organized population would make planning for optimum use of resources, and the systematic allocation of resources an exceedingly difficult task.

### The Unit

The Unit is the smallest formally-established shelter group. Within the Unit, the individual's emotional needs will be fulfilled. It is the group of family, friends, or neighbors who will recognize the individual as a person rather than a face or a number.

Except in small shelters in which it may be the only type of community group, the Unit does not serve any specific management functions.

#### Duties and responsibilities of the Unit head

The Unit head is responsible for the following:

1. Maintaining order and control of group.
2. Counseling, advising, and consoling individual shelterees.
3. Conveying complaints and problems of individual shelterees, that the Unit leader cannot resolve, to the Section leader.
4. Carrying out those duties to which the Section leader assigns him.

#### Size of the Unit

The recommended size range of the Unit is about seven to twelve persons. Seven is the lower limit because it appears to be the smallest size group for

which the need for leadership becomes obvious. Twelve is the "normal" upper limit, because above this size the Unit leader may have difficulty in providing all members of his group with equal opportunities for intensive interaction.

The selection of the specific size of the Unit should be left to the Section and Division heads. Among the factors that play a role in determining the size of the Unit are:

1. The natural grouping of the shelterees: The sizes of family, friendship, and work groups among the incoming population.
2. The size of the shelter: The larger the shelter, the larger all community groups will tend to be.

It is not essential that all Units within a Section be of equal size, as long as they do not exceed the recommended limits by much.

#### Organization of the Unit

All Units should have a leader. Additional formal organization within the Unit is not necessary; however, the Unit leader, at his discretion, may select an assistant Unit head, or further subdivide his Unit.

#### When to establish the Unit

Units should be formed after other groups have been established and permanent leaders appointed.

In very small shelters (50-100 people), in which the Unit is the only population grouping, the formation of Units may be delayed until after initial operations have been undertaken for the shelter at large.

#### Selection of Unit leaders

Generally, Unit leaders should be chosen by the members of the Unit. If Unit members cannot be expected to elect a head, as in schools where the shelterees are mainly children, the Unit head may be appointed by shelter management.

#### Assignment of shelterees to the Unit

Shelterees should be assigned to Units on the basis of kinship, friendship, and common interests.

Any informal grouping which occurs in the shelter prior to the formation of the Unit may be utilized in the assignment of individuals to Units.

Reassignment of shelterees from one Unit to another is likely to be minimal, since they are formed later in the shelter stay and on the basis of more information than the other community groups. Where it is necessary to unite families with friends, or to bring together persons with common interests, reassignment should be permitted. This will be especially likely in large shelters, or in cases where the population is entering the shelter over an extended period of time.

### The Section

The Section is generally the key community group in a shelter. Like the Unit, the Section serves the emotional needs of the shelterees by offering group identity and a sense of belonging, though at a less intense emotional level than the Unit. In addition to its morale function, the Section also occupies a key position in the social structure of the shelter. Its members participate in a majority of shelter activities as a group, including: sleeping, eating, training, and education. It is the group within which informal methods for social control can develop and operate, and it participates in making democratic decisions about shelter procedures.

#### Duties and responsibilities of the Section head

The Section is directly involved in carrying out community group activities. Consequently, the Section head almost always has direct operational supervision over his group. Operational supervision means that the Section head is responsible to his management superiors for the performance of all members of the Section in community group activities. The operational supervision of the Section head should not be confused with the responsibilities of the task team head. The relationships between community groups and task teams are discussed on page 272. In addition to operational supervision, the Section head is responsible to his superiors for the behavior and the well-being of all members of his group.

Typical operational responsibilities of the Section head include:

1. Insuring that the individual shelterees are provided with food, water, and other necessary supplies; insuring that sleep arrangements are made for all the shelterees.
2. Maintaining sanitary standards in Section area.
3. Supervising Section members' participation in training and education.
4. Supervising Section members' participation in social and recreational activities.
5. Supervising service activities, such as baby sitting, practical nursing for aged and infirm people.

6. Maintaining communication between management and the shelterees; including feedback of information on shelteree needs, complaints, etc.; filling out of registration forms.
7. Maintaining order among shelterees (although the Section leader does not invoke penalties for rule violations. This is normally the duty of the Division head or the Manager.)
8. Identifying Section members with psychological problems and referring them to appropriate persons for psychological first aid.

Under certain conditions, the Section head may also be vested with additional management responsibility, which includes planning and coordination of operations. This should be considered when:

1. The shelter is very small in size (no divisional level of grouping).
2. The shelter consists of small, non-contiguous areas at a distance from each other.
3. The Section heads are highly-trained or experienced personnel.

If the shelter is very large in size, or if there are no trained or experienced Section heads, operational supervision may be shared between Division and Section heads. This means that as far as the Shelter Manager is concerned, the Division head is responsible for community group activities, but within each Division, the activities are still immediately supervised by Section heads.

#### Size of the Section

The recommended size range of the Section is between 40 to 60 persons. The limits upon the size of the Section are fixed largely by the duties of the Section leader. He must know all the members of his group and be capable of observing their behavior. The maximum number of persons that a leader can so supervise under shelter conditions has not been empirically established. The available theoretical and empirical clues point to sixty as a reasonable and practical upper limit of the number of people over whom a single shelter leader can have direct responsibility.

If the size of the Section has not been determined prior to the time of entry, it should be decided upon by the Shelter Manager, or the Department head in large shelters, before or upon initiation of community grouping. This decision is dependent upon a number of factors which include:

1. Size of the shelter population: The larger the population, the more the size of the Section will tend towards the upper end of the recommended size range.

2. Shelter configuration: If the shelter consists of a number of small distinct areas (such as classrooms) each with approximately the capacity of a Section, the size of the Section should be adjusted, insofar as possible, to conform to the available space in each area.
3. Shelteree characteristics: If the shelter is composed of people who are all or almost all acquainted with each other, the size of all community groups, including the Section, can be made larger, without loss of effectiveness.
4. The presence of trained leadership: A Section leader who has been trained prior to the disaster or who has management experience will generally be able to exercise responsibility over a larger size Section than an untrained leader.
5. Level of supplies: If the level of supplies in the shelter is very low, the tendency would be to make the Section smaller in size, so that more effective control over the use of supplies can be exerted by the Section head.

#### Selection of Section leaders

Section leaders should be appointed by management. If they have not been pre-selected, they should be appointed by the Division leader, prior to initiation of community grouping. Selection should be on the basis of Division head's personal knowledge of the Section leader or on the basis of information in shelteree registration forms.

Section leaders should have some previous experience in supervising fairly large groups of people. Generally speaking, males would be more desirable as Section heads, but this is far from being a requirement. It may be assumed that a female group leader would encounter resistance from certain population elements in carrying out Section leader responsibilities.

If Sections are composed largely of people with similar backgrounds, it is recommended that a Section leader with characteristics similar to those of the vast majority be appointed when possible.

In small shelters, occupied by people who are largely friends and acquaintances (e.g., a shelter in a garden apartment basement), Section leaders may be elected by the shelterees.

If it is desirable to appoint people in charge of Sections before registration form data can be processed, and in the absence of experienced people known to shelter management, temporary Section heads can be selected by asking



for experienced management people to volunteer. The purpose of temporary Section heads is to get some operational supervision in order to carry out initial protective actions and shelter operations.

#### Assignment of shelterees to the Section

In most cases, people will be assigned to Sections on the basis of entry, that is, the first forty to sixty persons (depending upon the Section size) who enter will be directed to a location in shelter, the next forty to sixty to another location and so forth.

In large shelters in which persons are assigned initially to Divisions, Division heads, Section heads, or members of the management staff will divide the shelterees into the appropriate number of Sections.

In some shelters, whose occupants are largely of people belonging to the same organization, a plan may have been developed prior to occupancy in which individuals have been pre-assigned to Sections.

Reassignment of individuals from one Section to another should be permitted when necessary:

1. To reunite family and close friends who are in another Section.
2. To prevent individuals from becoming "isolates" within a Section. For example, if there are one or two old persons in a Section otherwise exclusively composed of younger adults, it may be advisable to reassign the former.
3. To maintain a balance of family groups throughout as many Sections as possible, in order to have them function as a source of stability.

#### Organization of the Section

A Section is organized into Units. Normally, the number of Units in a Section is from four to six. The actual number of Units in a Section is at the discretion of the Section and Division heads, and depends upon the Unit size that the group leaders have selected.

Under certain conditions, the number of Units in a Section may be as high as ten. Shelters with highly trained or experienced Section heads may have this capability. In shelters of under 150 capacity, the entire shelter may be thought of as a giant size Section. The only formal groups in such a shelter will likely be Units, as many as ten in a shelter. (See the sample organization chart for a 100-person shelter, page 276.)

### When to establish the Section

Under the following conditions the Section is established first, and other groups are the result of combining or dividing the Section.

1. The shelter is small (under 400).
2. Pre-selected management personnel are available at time of entry to fill position of Shelter head.
3. The shelter contains separate areas (rooms, floors) with a capacity within the size range of the Section.

Under the following conditions, the Section and the Division are organized almost simultaneously:

1. The shelter is of medium size (500-800).
2. The shelter is of large size, but there are pre-selected management personnel available as Section heads.

In very large shelters (over 1000), the Section is organized after shelterees have been initially assigned to Divisions.

### The Division

The Division is the level of community grouping that is essential for management control in shelters of 500 persons and over, and may be desirable for shelters of 300-400 persons.

It would be extremely difficult for a Shelter Manager to coordinate the activities of 1000 shelterees, organized into 20 Sections. However, by establishing four groups of 250 people each, and delegating management authority to the leaders of each group, the shelter becomes more effectively organized. The Division leader's function is to plan and oversee the activities of his group in coordination with top shelter management.

Although shelterees may commonly identify in some ways with their Division, this level of shelter grouping is primarily for management control rather than for shelteree morale.

### Duties and responsibilities of the Division head

The Division head is responsible to top shelter management for the well-being of all members of his Division. The Division head, in turn, delegates a good deal of direct responsibility to his Section heads.

Among the activities for which the Division head retains responsibility are:

1. Dispensing supplies to Sections (e.g., food and water).
2. Assignment of sleeping space.
3. Medical procedures (sick call).
4. Record taking and communication with core staff.
5. Invoking penalties for minor types of deviant behavior.
6. Training and education of shelterees.

An important aspect of the Division head's duties involves coordination with the Shelter Manager and his staff in organizational and operational matters that pertain to the Division, such as scheduling and staffing activities.

#### Size of the Division

The recommended size of the Division is around 200 to 300 persons. If the Divisions in a large shelter are much smaller than 200, over-all planning and direction of the shelter will be made more complicated due to the increased number of Divisions. If the Division is much over 300 in size, over-all shelter control may be simplified, but within each Division, the problems of coordinating the activities of an increased number of Sections may impair shelter efficiency.

If the size of the Division has not been pre-arranged at the time of entry, it should be determined by the Shelter Manager or the Department leader, upon initial organization of the shelter. Among the factors that influence the determination of the size of the Division are:

1. Size of the shelter population: The larger the population in the shelter, the larger the size of the Divisions.
2. Shelter configuration: If the shelter consists of a number of fairly large distinct areas, (such as separate floors or corridors), each with approximately the capacity of a Division, the size of the Division should be adjusted insofar as possible, to conform to the available space in each area.
3. The presence of trained leadership: If a Division head has been trained prior to shelter occupancy or if he has previous relevant management experience, he will, generally, be able to exercise responsibility over a larger number of shelterees than an untrained Division head.

4. Level of supplies: If the supply level of a shelter is low, the tendency would be to make the Division smaller in size, so that more effective control over shelter resources can be maintained.

#### The organization of the Division

A Division is organized into Sections. As a rule, the number of Sections in a Division should not exceed seven, and preferably be between four and six. The specific number of Sections within a Division is determined by the Division head, based largely upon the size of the Section.

If the Division head is trained or experienced, and Section heads are without such training or experience, it may be advisable to increase the number of Sections in a Division to keep each Section small sized.

#### When to establish the Division

Under the following conditions, the Division should be the first community group established:

1. The shelter is large (over 1000).
2. The shelter contains physically separate areas of a capacity within the size range of the Division.
3. There exists trained management at the Division level only. If possible, the group level that is organized first should have trained leadership.

#### Selection of Division leaders

If Division leaders have not been chosen prior to shelter occupancy, they should be appointed by management before or concurrent with the formation of the Division. This should be done on the basis of a preknowledge of the qualifications of the individual. If management has no prior information about the shelterees, temporary Division leaders may be selected from available technical staff members who do not have immediate responsibilities. Permanent leaders then may be chosen on the basis of information from registration forms, plus brief interviews with the likely candidates.

If no core staff is available and leaders have not been pre-selected, temporary leaders should be selected from early entrants and permanent leaders chosen later as above.

Division leaders should be males who have some previous experience in supervising large numbers of people. If trained or experienced females are in a shelter, they certainly should be given management responsibilities. However, in many shelters, authority vested in a male will probably be accepted more readily than in a female.

#### Assignment of shelterees to the Division

In most cases, people will be assigned to a Division based upon the time at which they enter the shelter.

In some cases, as in shelters in office or industrial buildings, many of the shelterees may have been assigned to a Division prior to occupancy.

Reassignments to other Divisions should take place if it is necessary to re-unite families, to provide a more equal distribution of the population to shelter areas, or to distribute skilled persons throughout the shelter.

### **The Department**

This grouping level will be necessary for shelters having populations exceeding 3000. It may also be desirable for populations of between 2000 and 3000. It provides another management level, and is, therefore, chiefly of benefit to core management. The term "department" usually refers to a large segment of an organization with a special set of functions. However, in a community shelter, all Departments will have similar functions. The term "department" has been selected because of its connotations of size and complexity; no connotation of specialization is intended.

#### Duties and responsibilities of the Department head

The Department head will exercise command/control over all Divisions and Sections within his Department. In many cases, Departments will function with almost complete autonomy in regard to daily activities. This is especially likely where each Department occupies a physically separate area in the shelter.

#### Size of the Department

The recommended size range of this level is around 1000-1500.

Organization of the Department

A Department should normally consist of four to six Divisions. Because of the large size of the Department, assistants to the Department head should be formally appointed, setting up, in effect, a core staff for this level.

Selection of Department leaders

If at all possible, Department heads should be selected prior to shelter occupancy, and provided with the same training as a Shelter Manager would receive. In the event that pre-selected Department heads are not available, they will have to be carefully chosen by the Manager, from the incoming population, using the same procedures that apply to the in-shelter selection of Division heads.

## The Advisory Committee

In every shelter regardless of size and form of group, advisory committees, representing the shelterees to management, should be established.

### Duties and responsibilities

The advisory committee is the liaison between shelterees and the Shelter Manager. The Committee presents the shelter population's problems and suggestions to the Manager and assists him in evaluating and resolving group and individual problems dealing with the maintenance of order, morale and motivation, shelter schedules and routine activities, the use of supplies, and other issues involving the shelter population.

### Number, size, and composition of the advisory committee

In order to operate effectively, the advisory committee should be relatively small in size, with not many more than seven members.

The advisory group should be composed of members elected by the shelterees plus one or two representatives selected by shelter management.

In large shelters, or those in which many of the shelterees are strangers to each other, it may be difficult to elect representatives to the advisory group on any meaningful basis. In such shelters, it may be desirable to delay formation of the advisory group until the shelter has settled into a routine phase. An alternative is to have each Division (or Section, in small shelters), elect its own candidate for the advisory committee.

Normally, one advisory committee per shelter is adequate. However, in shelters that have more than around 2000 persons, one such committee may be insufficient. If the very large shelters are organized into semi-autonomous, physically separated Departments, each Department can form its own advisory committee. The heads of committees can meet in a group with the Shelter Manager to discuss problems requiring his decision.

Another approach, and probably a more realistic one in very large shelters, is to have several levels of advisory committees. Thus, if a problem arises, the solution is first sought at the level of Divisional advisory committee. If it cannot be resolved within a relatively short period of time, it is referred to the Departmental advisory committee and ultimately to the shelter advisory committee. At each level the members of the committee would be representatives of the shelterees, in some way selected by them.

## The Advisory Committee

### Number of shifts

Only one shift of the advisory committee is necessary. The advisory committee should either meet at a specified time each day, with provisions set for emergency sessions at any time, or it should be assembled at the time that a situation requiring its attention develops.

### Qualifications for advisory committee head

The head of the advisory committee should either be elected by the members of the advisory committee, or be the ranking management person in the group.

### Qualifications for advisory committee member

Most of the members will be elected by the shelterees. One or two should be representatives of shelter management, either group heads, or deputies of the Shelter Manager.

### When selected

The advisory committee should be selected sometime during the first day of shelter occupancy, if it appears that shelterees know each other to the extent that they have a reasonable basis for electing their representatives. Otherwise, it may be necessary to delay the selection of the advisory group for as many as several days, until such a reasonable basis for election of representatives appears.



## The Relationship Between Shelter Groups

Everyone in the shelter will be assigned to community groups. Able-bodied shelterees will, in addition, have an assignment in one of a number of task teams, that are organizationally separate from community groups.

In organizing a shelter, the question of the jurisdiction of task teams and community groups and their priority in terms of shelter decisions should be faced. If this aspect of organization is ignored, the possibility of intra-shelter squabbles over responsibility for persons and activities is raised. In small shelters this should not be a problem, because the Manager will be able to directly supervise the relatively few shelter group heads. However, in shelters with a Division level of community grouping, or with a large number of task teams, some understanding of jurisdictional limits and priorities on the part of team and group leaders is necessary.

### The jurisdiction of community groups

The line from the Shelter Manager through the Division and Section heads represents the basic line of command in the shelter.

If the Manager wants to communicate with an individual shelteree, or wants information about him, the normal approach is through the community group heads. Similarly, if someone in shelter wants to communicate with the manager, it should be accomplished through the community group heads. Both in going up and down channels the Section head should be considered the formal organizational link to the individual shelteree.

If corrective actions must be applied, they should be the responsibility of community group heads, except in the event of a serious offense, in which case the offender may have to be guarded by the security team. Group re-assignments are handled by community group leaders, as are shelteree personal problems.

A Section consists of shelterees who participate in many activities together. When one speaks of the operational supervision of the Section head (page 261), what is meant is that he is responsible for the members of his group as they take part in shelter activities, that is, as they are fed, as they are given training, as they sleep, and so on. The Section head is not responsible for planning or implementing a particular shelter operation; that is the duty of the appropriate task team.

## Relationship Between Shelter Groups

This point can be clarified by an example. A training session has been planned by the training team to take place at a certain time and place, and to cover a specified subject. Either a member of the training team, or an expert (e.g., medical or radiological team member) is to conduct the session. The responsibilities of the Section head are to see to it that all members of the Section, except those on task team duty, attend the training session. After the training session the Section head may be asked to carry on further discussion of the subjects covered with his group members.

### Task team jurisdiction

Generally speaking, the appropriate task team head, or his supervisor in a large shelter, is the responsible person in matters dealing with a specific shelter operation. This covers the internal organization and operation of a task team, and includes such issues as the selection and specific assignment of task team members, the number of persons to be on duty at a specific time, the length of each shift. When a shelteree is "on duty" with his task team, the team head is responsible for him. Responsibility means knowing where the individual is, and what he is doing. Team head responsibility, except in an emergency, does not extend to applying corrective actions in the event a shelteree violates a shelter rule while on the job. Penalties and rewards are normally the responsibility of community group heads.

### Coordination between teams and groups

There are many decisions pertaining to shelter organization and operations that affect both task teams and community groups. One hypothetical, but not unrealistic, example is the number and timing of shelter meals. From the point of view of the team that prepares and distributes food, a certain number of meals served at certain times may appear to be the most efficient way of operating a feeding program. Community group leaders may argue that the feeding schedule that is optimal for the food team is not well tolerated by shelterees, and they may suggest a revised schedule. It is clear to see that this pattern can emerge in any number of ways in the shelter.

The primary solution is to have a shelter operational plan developed prior to occupancy, in which shelter planners spell out the procedures that should be adopted in relation to all operation and activities.

Because even the most comprehensive shelter plan may have to be modified in the light of actual conditions, a procedure needs to be established whereby jurisdictional disputes between shelter groups can be prevented or resolved.

## Relationship Between Shelter Groups

Essentially, such a procedure consists of two steps: (1) spelling out the duties and responsibilities of each task team and community group as clearly as possible, and (2) assigning the responsibility for resolving inter-group differences to specific management positions. For example, any problem involving an operational team (food, sanitation, medical, etc.) and a community group or groups that cannot be settled in short order might be handed over to the Deputy for Operational Services and the Deputy Shelter Manager. If the dispute involves two task teams, the appropriate deputy or deputies can be responsible for the solution. It is important that as many inter-group differences as possible be resolved without the shelter manager's intervention.

## Sample Organization Charts

The following charts are illustrative of the ways in which shelters of different sizes may be organized. The charts should be considered as guidelines to the organization of shelters. The optimum group structure for shelters depends upon the characteristics of that shelter. What is a perfectly reasonable structure for one shelter may be unwieldy in another shelter of the same size, but with a different physical configuration, organizational setting, or level of supplies.

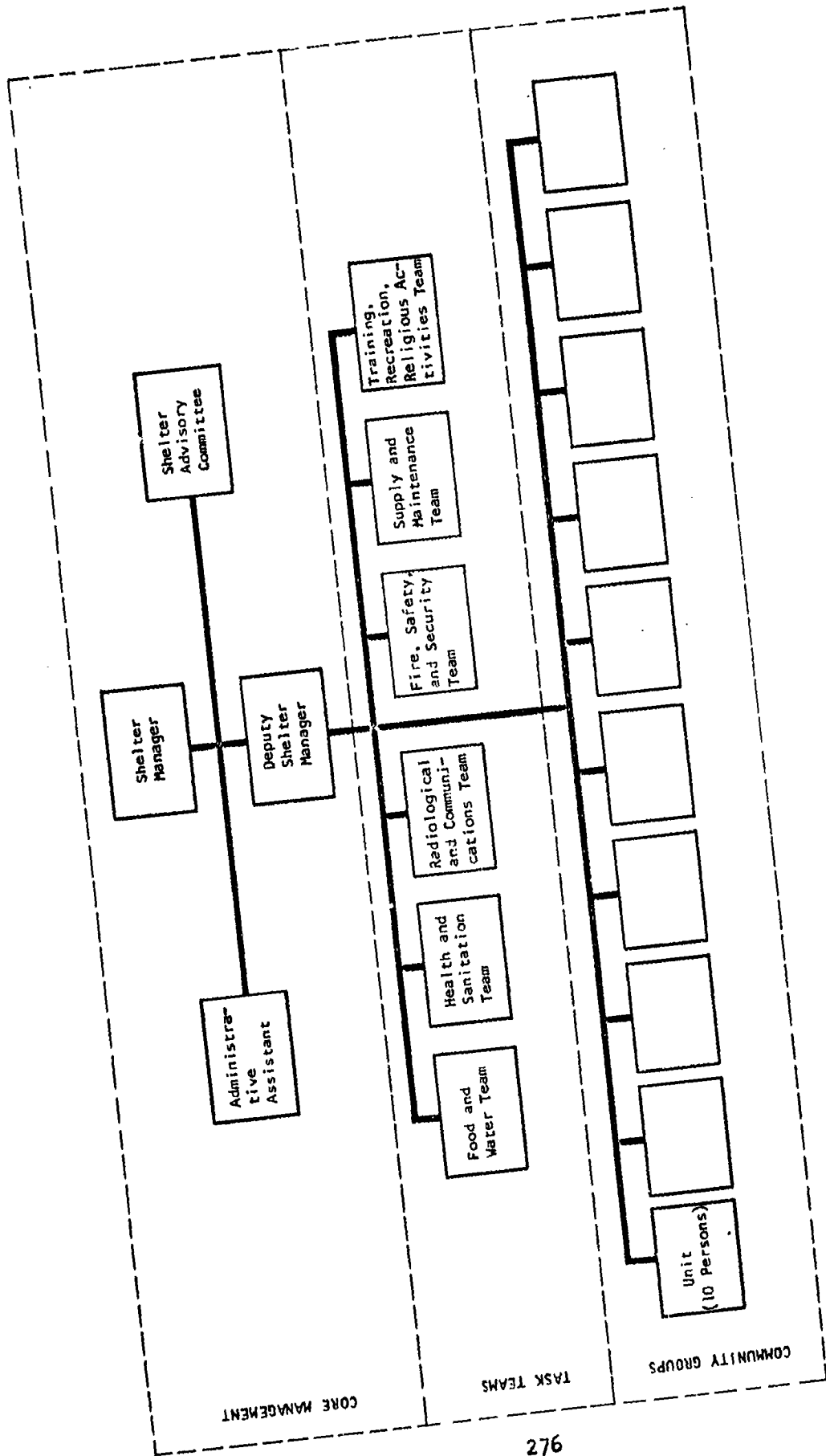


Figure 3. Sample Organization of a 100-Person Shelter

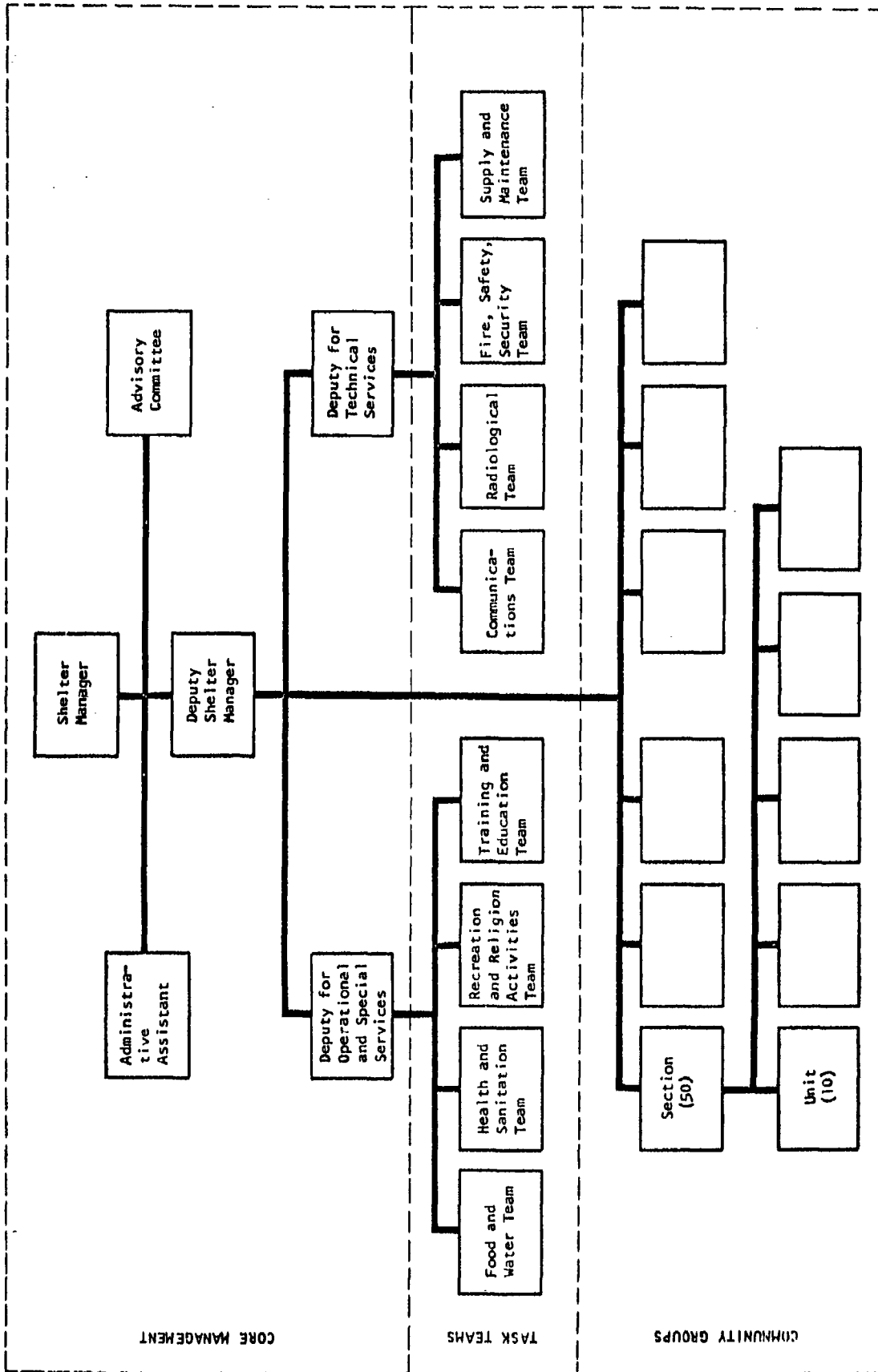


Figure 4. Sample Organization of a 300-Person Shelter

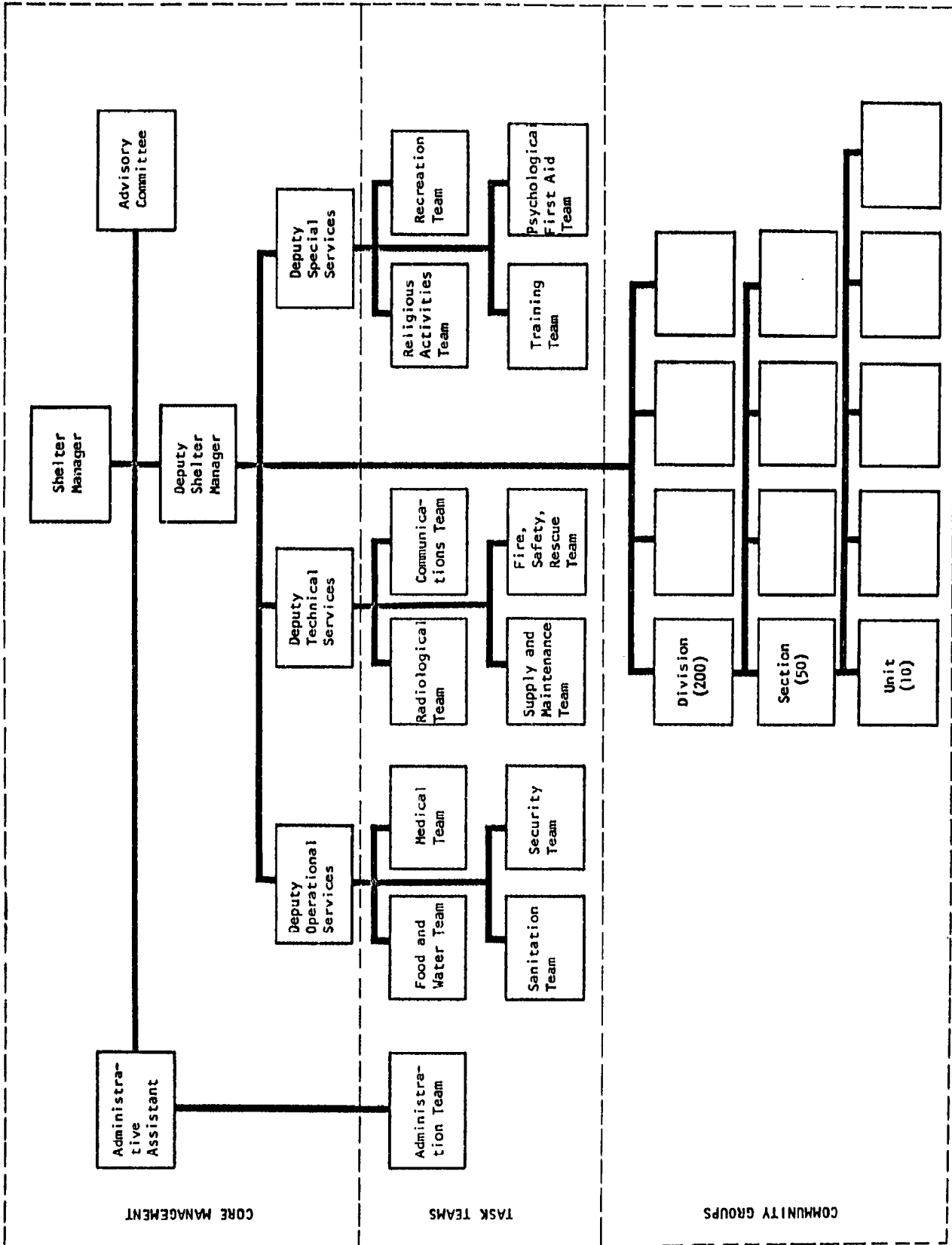


Figure 5. Sample Organization of an 800-Person Shelter

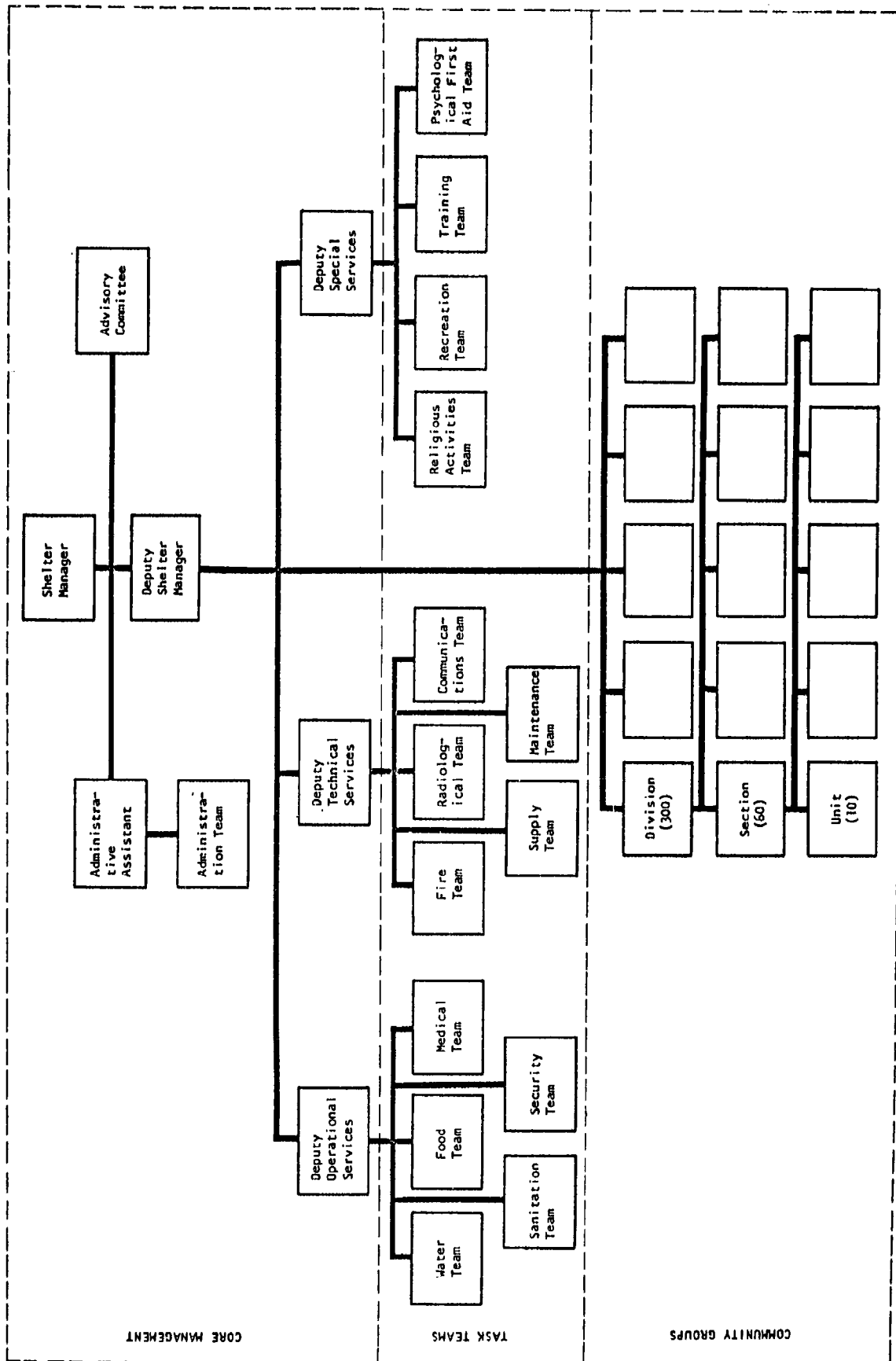


Figure 6. Sample Organization of a 1500-Person Shelter



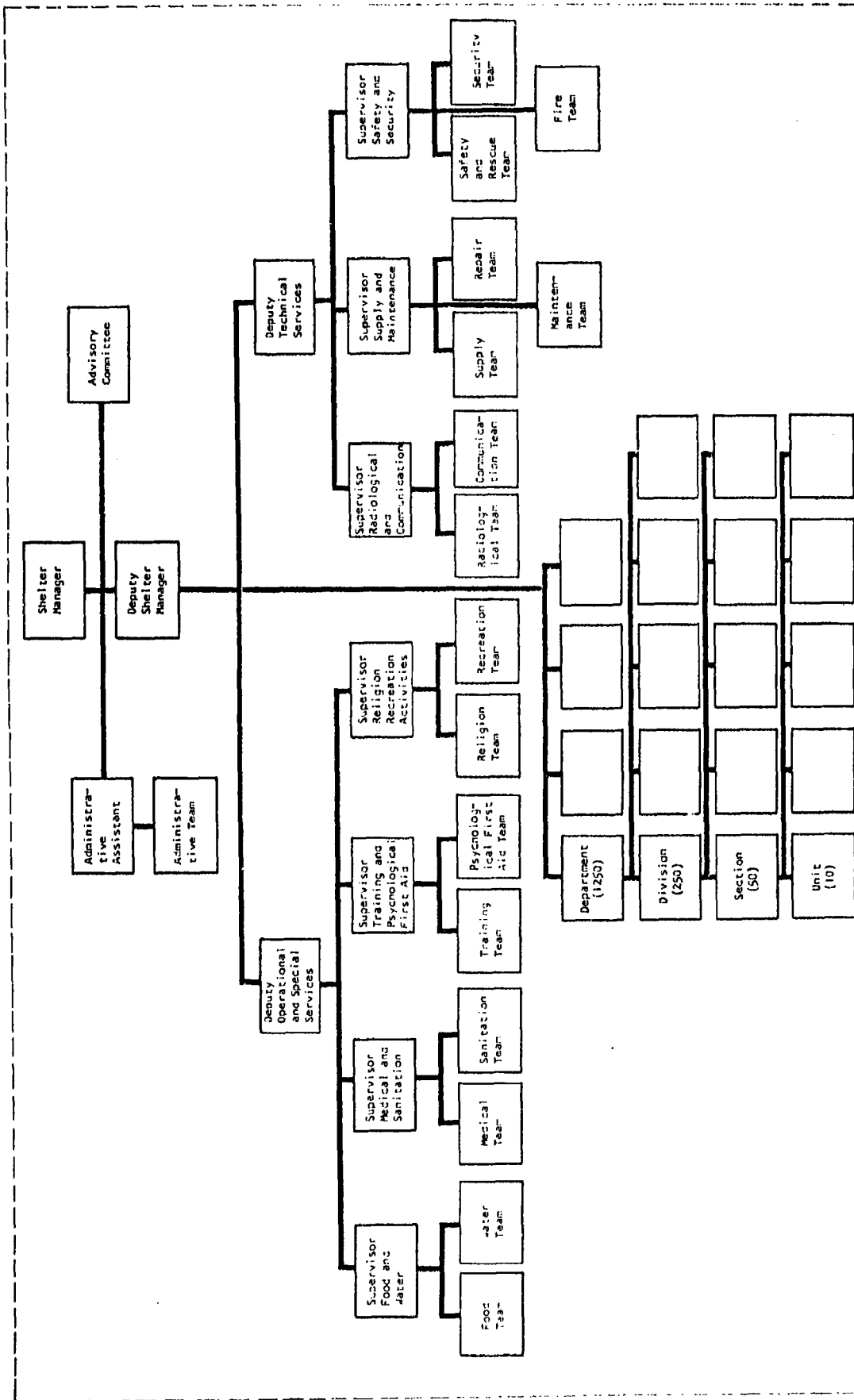


Figure 7. Sample Organization of a 5,000-Person Shelter

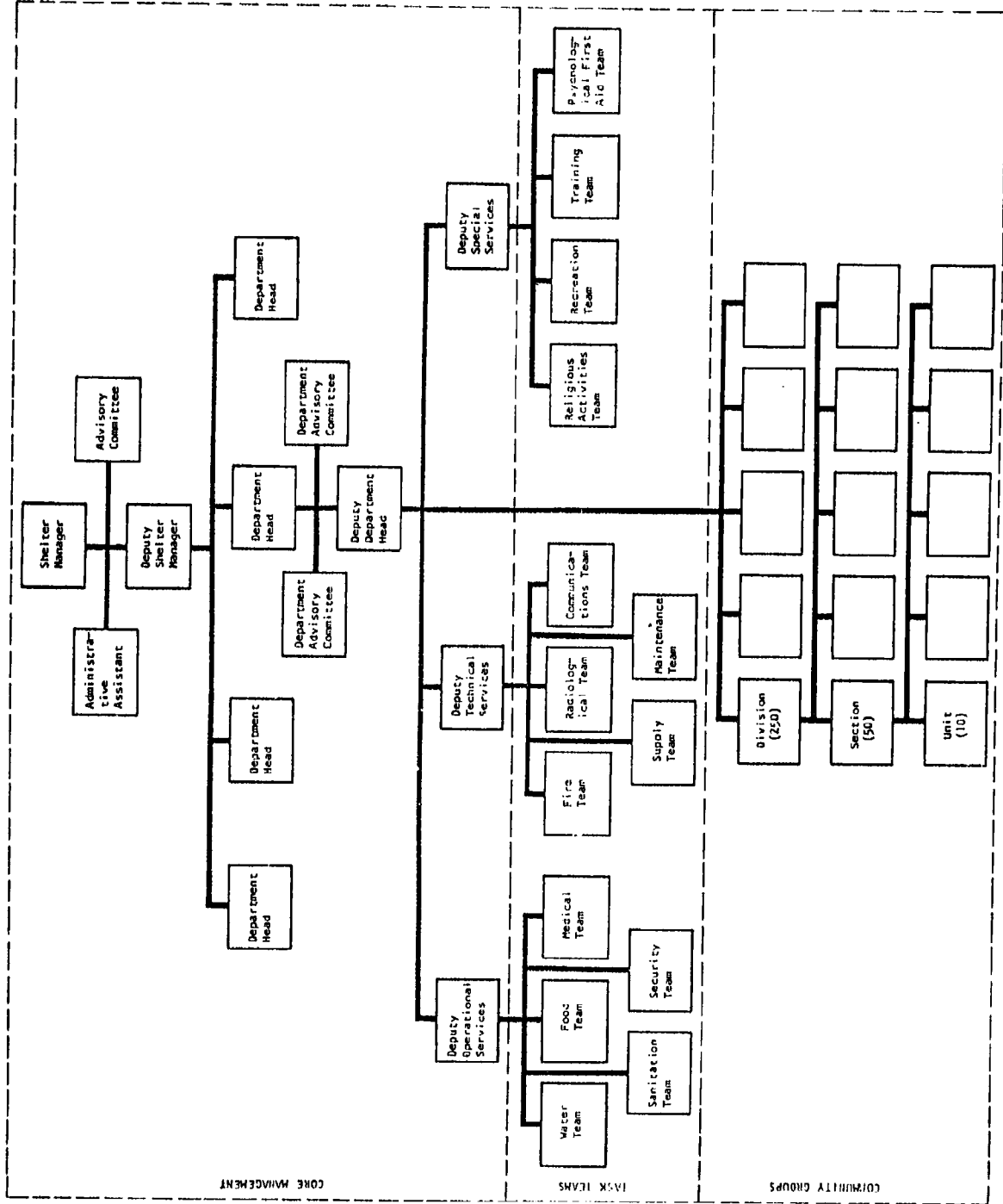


Figure 8. Alternative Organization of a 5,000-Person Shelter, in which the Department head functions as subshelter manager, with responsibility over both community groups and task teams.

**CHAPTER 14**  
**SOCIAL CONTROL**

## CHAPTER 14 OUTLINE

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## The Basis of Social Control In Shelter

Every group, from the small family to the entire society, has rules that must be adhered to over the long run by the members of the group if it is to achieve its goals. Social control refers to the ways in which a group maintains order, by establishing rules, communicating them, insuring that they are obeyed and applying corrective actions in the event of violations.

Because a community fallout shelter during its period of occupancy represents a temporary, miniature version of our society, one can examine the basis for maintaining order in a shelter by comparison with the basis of social control in the larger society.

The rules of a society are of many different types, ranging from the habits and conventions of daily routine living to the deeply held moral principles for which people are prepared to sacrifice everything, including their lives. When rules are broken, the response of the society may range from raised eyebrows when a convention is violated, such as eating with the wrong utensil, to imprisonment or death when a major offense is committed.

The rules of the society are obeyed, for a number of different reasons. Because we are taught them from infancy on, many of the important rules have become internalized; that is, they have become part of our way of thinking and behaving. We obey them with little or no questioning, regardless of whether people are watching us or not; regardless of whether, at a given moment, the rules are to our advantage or not.

Rules are also obeyed because of the direct influence of other persons. Other persons include family, friends, authorities, everyone with whom we interact. We conform because we know that in so doing we strike a responsive chord in other persons with whom we associate or wish to associate, and are rewarded by them in deeds or words, or merely by the knowledge that they think well of us.

The influence of other persons upon our conformity to rules is felt in an additional important way. We know how others will respond if we violate the rules. From a look of disappointment to a prison term, the reaction of others to a group member's failure to conform is a factor in maintaining order in any group.

We follow rules for still another important reason. As rational beings, we can frequently recognize that a certain way of doing things will lead us to our intended goal more rapidly, efficiently, or economically. We follow a pattern of behavior because it makes sense to do so.

In spite of the fact that some of the customs and laws are contradictory, archaic, or not enforced, an overwhelming proportion of the population conforms without incident to the rules of the society. All indications are that our system of laws and our patterns of conformity to them will not be shattered by a nuclear attack upon our country. It can be expected that a large majority of the population taking shelter, will be pre-disposed to obey the rules of the shelter, for the reasons discussed above.

However, there are factors associated with a disaster that create a potential for social control problems. These include the immediate danger in which people are placed or imagine they are placed, concern for the safety of loved ones, the belief that nuclear attack represents the end of civilization of our society, the unfamiliar and austere nature of shelter living.

Overcoming the potentially disruptive effects of the above-mentioned factors is a major task of shelter management. The remainder of this chapter deals with the requirements and methods for accomplishing this; that is, for maintaining order in shelter. In brief, the manager's responsibilities are: to construct a social situation within the shelter which insofar as possible is modeled upon the characteristics of the pre-shelter society; to motivate people to behave appropriately by continually reinforcing the "rightness" of democratic values and beliefs; to sustain faith in the continuing existence of the society and in its capability to recover and rebuild.

## Type of Shelter Rules

This section deals with the content of shelter rules, that is, the aspects of shelter life that must be governed by regulations. It also discusses types of rules with respect to their origins in shelter, prescribed by management or elected by shelterees.

### Aspects of shelter life that require rules

Shelter entry and exit must be controlled by rules, covering:

1. When people can enter and leave the shelter.
2. Who and how many can enter and leave.
3. Entry and exit procedures.

All daily operations such as feeding, sleeping, medical care, sanitation, must be organized on the basis of rules that specify:

1. When the operation is to be carried out.
2. Where it is to be carried out.
3. How frequently it is to be carried out.
4. The specific procedures for carrying it out.
5. The personnel required to carry it out.

The use of all shelter equipment such as power, communications, ventilation, heating, lighting equipment must be governed by rules. This includes:

1. Who is to operate and maintain equipment.
2. When equipment is to be operated.
3. Specific procedures for operating and maintaining equipment.

Many aspects of the personal relations between shelterees are also subject to rules, to prevent the outbreak of disorders that can affect the survival capability of the shelter. The following types of behavior are among those that must be strictly controlled.

1. Criminal behavior: It is safe to say that many shelters will not experience incidents of criminal behavior. Nevertheless, it should be indicated to all persons that the normal criminal codes will also govern in-shelter behavior. The manager should not administer penalties in the name of society. In the event that a felonious act such as murder, rape, or assault, occurs in the shelter, the offender should be turned over to the appropriate authorities as soon as it is possible to leave the shelter.

2. Sexual behavior: All forms of overt behavior, even between married couples, should be discouraged in a community shelter. Public sexual expression can result in a serious breakdown of order.
3. Use of alcohol and drugs: Both alcohol and drugs should be turned over to the shelter management upon entry. An exception to this is medication (e.g., insulin) that an individual must take for a specific medical condition. As a general rule, the use of alcohol and drugs in shelter should be used only in connection with medical treatment.
4. Fighting: Fighting is an example of an act that has graver implications in a shelter than in normal life. Group leaders should be on the alert to prevent fighting between shelterees and to control such outbursts should they occur.
5. Gambling: Gambling is normally a widespread activity which will be difficult to curb completely in a shelter. Management should be on the alert for professional gamblers or for games of chance played for high stakes, or for shelter supplies. Such activities can easily lead to feelings of hostility among shelterees.
6. Hoarding and inappropriate use of supplies: Taking more than necessary and misusing supplies causes a double problem in shelter. Not only does it result in a further depletion of already scarce supplies, which, in some cases, can jeopardize physical survival, but it can also create strong and widespread feelings of anger and resentment in a shelter.
7. Smoking: Under a wide variety of conditions, smoking at specified times and places in-shelter, may be permitted, but whenever it constitutes a possible fire hazard or atmosphere problem, it must be prohibited. Where smoking is permitted, all efforts should be made to evolve democratic agreement within and between shelter community groups concerning the distribution and use of cigarettes.
8. Unwillingness to obey rules: A grave threat to the stability of the shelter is created by shelteree resistance to obeying the established rules. Management should stress throughout the stay that regulations are designed to maximize the survival capability. Before applying corrective actions to the recalcitrant shelterees, the basis for their reluctance to obey orders should be determined, if possible.
9. Personal belongings: The personal belongings that the population brings into the shelter pose a potentially serious management problem. Rules must be established about the disposition and control of private property. A policy must be established determining which items remain with the owner, which should be centralized under management control. See section on "Private Property," Chapter 15.



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## Types of Shelter Rules

### Prescribed rules and elective procedures

Shelter rules can be divided into prescribed rules and elective procedures. Prescribed rules concern the safety and well being of shelterees. They are established by management and can be altered only by management. Examples of prescribed rules are:

1. Regulations pertaining to use of equipment.
2. Rules pertaining to ventilation, water and food, medicine, and similar shelter problem areas.
3. Rules about closing and opening the shelter.

Elective procedures are rules that are determined by the shelterees. A number of questions of shelter living can be left to shelterees for solution, according to their wishes, as indicated by some form of democratic procedure. Examples of elective procedures are:

1. Selection of Unit leader.
2. Assignment and reassignment of shelterees to specific tasks (if deemed feasible by management).
3. Participation in recreational, social, and religious activities.
4. Determination of time for "lights out," smoking, and other activities within limits imposed by management.

## Developing Shelter Rules

### Procedures for developing rules

Develop rules early. Wherever possible, specific rules should be made in advance of a shelter problem, rather than in response to it. The early development of a set of rules will tend to strengthen the image of management authority and capability.

Determine whether elective or prescribed rules. As a step in the development of a system of shelter rules, the manager must decide which rules can be left to the determination of shelterees, and which must be established by management.

Consider purpose of rules. The manager must evaluate the purpose of each rule--what it is supposed to accomplish. He must determine whether it applies to all or to some shelterees, or whether it is to be in effect at all times, or selected times, in all locations or in specified locations.

Coordinate the development of rules. Because of the complexity of the shelter system, rules pertaining to one facet of shelter life will have effects upon other aspects of the shelter. It may be the case that a procedure that is required to solve one in-shelter problem may create another problem. For example, the toilet area should be located close to the shelter exhaust. So should the food preparation area, if serving of hot food is contemplated. Locating them both near the exhaust is an attempt to solve the problem of odor and heat control. But locating the toilet facilities near the food preparation area creates an undesirable health and psychological condition. Therefore, the manager and his advisors should evaluate the consequences of a specific rule, not only in relation to the particular problem for which it was written, but also in relation to other specific shelter rules and to the system of rules as a whole. This will lead to the most consistent and effective body of rules possible in shelter.

Make only necessary rules. The manager should consider whether a formal rule is necessary for a particular shelter problem, or whether the informal pressures applied by group leaders and shelterees are sufficient to control the problem. Examples of situations that may be handled by means other than formal rules are noise in the shelter and personal cleanliness. There are some shelter situations for which rules must be established in spite of the difficulties that may arise in enforcing them. Overt sexual behavior is an example of such a situation. It involves a basic moral principle and a potentially disruptive force in shelter, and management must take a stand on the issue.

## Developing Rules

Pre-established rules. If rules have been written prior to shelter entry, they should be listed and described in an operations guide for a specific shelter. The pre-established rules should be reviewed for their applicability to actual shelter conditions, and modified accordingly.

### Informing shelterees about rules

Many rules will not be obeyed if shelterees are not made aware of them. Through the means described below, shelterees should be informed about rules, and the reasons for them, as well as any changes in rules.

Early in the shelter stay, the manager should conduct a general shelter orientation session with all shelterees. At that time, he should describe the important shelter regulations, and the reasons for them. In very large shelters, it will be impossible for the manager to brief everyone simultaneously. The orientation session in such cases should be conducted by members of the core management staff.

The various group and team leaders should be briefed in detail by the manager about the rules pertinent to their areas of responsibility, and they, in turn, should discuss the rules in all necessary detail with the shelterees in their groups.

If a shelter has the necessary facilities, copies of key regulations can be distributed to the management staff, and perhaps even to all shelterees. Also, key shelter rules may be posted in prominent places in the shelter. Rules for using equipment should be posted on or near the piece of equipment. Not all rules in shelter must be written. Many rules for personal behavior may be transmitted and maintained orally.

### Responsibility for developing rules

The manager is responsible for the establishment and modification of all shelter regulations. In practice, he may delegate some of his authority to other members of the management team.

The advisory group selected from among the population to make shelteree wishes known to the manager, assists him in developing and interpreting shelter rules.

Members of the technical staff in shelter provide the manager with information on the necessary rules in operational areas, such as ventilation, medicine, food and water.

## Developing Rules

Division and Section leaders have the duty of explaining shelter rules to the population, and also have prime responsibility for seeing to it that rules are obeyed. In addition, group leaders supervise the determination and implementation of shelter elective procedures.

The entire population participates in developing elective procedures. If a rule is not accomplishing its purpose or is causing unforeseen consequences, shelterees are expected to notify members of management staff to this effect.

## Preventing Social Control Problems

One of the best ways of maintaining order is to identify and respond to potential social control problems before rules are actually broken. Although preventive measures will not likely solve all problems of social control, they should lessen the chances of occurrence of major rule infractions.

### Procedures for preventing deviance

Repeated explanation of rules to shelterees. Two sources of social control problems are ignorance and forgetfulness. These may well be a factor in a shelter situation where people will have to adjust to many new patterns of living. The rules that pertain to these patterns and the reasons for the rules should be explained repeatedly to all shelterees by all levels of shelter management.

Post-shelter corrective actions: A potent factor in maintaining order in a shelter is the knowledge that lawbreakers will be prosecuted after the shelter stay. Shelterees should be reminded, if it is necessary, that records of major rule violations will be kept, that these will be transmitted to municipal control centers during the shelter stay, if communication lines are open, or after the shelter has been opened. The suggestion that martial law may prevail in the post-attack period can in itself be a deterrent to rule violations.

Awareness of problem-producing situations. Certain in-shelter conditions will tend to lead to social control problems. Although awareness of these conditions will not solve the problem directly, such information, nonetheless, is quite valuable in planning to deal with contingencies. Some examples of potential deviance-producing situations are:

1. Inequality in distribution of important shelter resources, such as food, water, medicines.
2. Severe shortages of shelter resources.
3. Extremely pessimistic status reports about the external world.
4. Overcrowding.

Outlets for shelteree complaints. Shelterees must have an outlet to communicate their problems to management. The presence of such outlets, in the forms of an advisory committee made up of the representatives of the population, a counseling team in large shelters, and community group leaders who are willing to listen, may allow minor conflicts to be resolved before they erupt into serious breaches of order.

Maintenance of social standards. A major task of shelter management is to convince the population that a shelter stay does not signal the end of civilization as we know it, but is a transition stage of a continuing, although changed, society. If the population can be led to this understanding, the chances of widespread violations of rules will be diminished. An important way of demonstrating that the shelter is part of a continuing, viable society is to insist upon the maintenance of high social standards while in shelter. Sexual expression, gambling, profanity, disrespectful behavior, lack of cleanliness, and selfishness are forms of behavior that should be discouraged because of their divisive, demoralizing tendencies. All evidence indicates that if the manager and his staff vigorously uphold high moral standards, the shelter population will be influenced to behave in a similar fashion. This will have a significant positive effect upon the maintenance of order.

Firm leadership. In situations where shelterees feel that management is disinterested in their welfare or incapable of solving basic survival problems, the tendency for individuals to "take things into their own hands" will increase. Demonstrations of capability and interest on the part of the manager and his staff may prove to be a factor in maintaining order.

Control of weapons. Weapons, in the hands of individual shelterees, constitute a potential threat to order. Weapons should be under the control of the shelter manager or the security team. Very careful judgment must be exercised in any action dealing with weapons. People who carry weapons on their person will frequently be reluctant to part with them, even temporarily. Confiscating weapons against the owner's will cannot be recommended as a general procedure, except in cases where the weapon-wielder constitutes a direct threat to other shelterees. Neither can searching the person and property of all shelterees be considered as a general guideline. Control of weapons will require the manager's most persuasive skills.

Control of valuables. Almost all supplies will become very valuable items in shelter, and persons may be tempted to appropriate them. Supplies, therefore, should be under constant watch. In addition, such items as medicines (especially drugs) and weapons should be kept under lock and key wherever possible. Finally, if there is space available in the locked supply area, shelterees may want to store their personal valuables there as a safety precaution. Such a procedure is more probable in a small shelter than in a large one.

Night watch. As a means of maintaining social standards, representatives of shelter management should be on duty at all times during the night. In addition to their other duties, night watch personnel will be expected to spot cases of potential disorder, to prevent the problem from emerging if possible, and to notify the shelter manager, the security team, and appropriate group leaders if the situation gets out of hand.



## Evaluating the Significance of Rule Violations

### Criteria for defining social control problems

Social control problems can be thought of as behavior on the part of one or more persons that jeopardizes the survival or adjustment chances of all or many of the shelterees. In-shelter behavior should not be considered an offense only because it violates a pre-existing moral or legal code. Overwhelmingly, however, serious violations of legal or moral codes will also constitute threats to group survival.

Some violations of the rules are more critical in shelter than they would normally be. Such problems as disobedience of the rules, hoarding supplies, general uncooperativeness, may assume greater importance in shelter than would usually be attributed to them. Other forms of behavior, usually frowned upon, will have to be tolerated within limits in shelter. Scanty dress is one example; lack of privacy, another.

### Serious in-shelter offenses

A serious management problem can result from the cumulative impact of minor violations of rules. Under certain conditions, a social control problem will pose a threat to the shelter in spite of the fact that the specific violation may be closer to being a petty annoyance than a criminal act. What makes this a serious situation is the number of people who are violating the rule, and the time and the conditions under which they have chosen to do so. For example, if one person on one occasion drinks more water than his ration calls for, it might be considered a minor problem; whereas if a number of shelterees refuse to abide by the rules for water rationing over a period of time, shelter survival may be jeopardized.

The second type of major in-shelter offense is that of the unpredictable individual violent act. Certain violations pose grave problems for management, regardless of how infrequently they might occur. A single criminal act, such as murder, rape, or other felony can instantaneously upset the stability of the shelter.

### Evaluating deviant behavior and its effects

If a social control problem arises in shelter that is more than a personal quarrel between two or three shelterees, a rapid assessment of the situation must be made. The evaluation should include the following points:

## Evaluating Rule Violations

1. What is the nature of the disorder (exactly what is happening)?
2. What are the immediate effects upon shelter survival?
3. What are the apparent causes of the situation?
4. What are the appropriate corrective procedures?
5. How many shelterees are actively involved?
6. Does the situation appear to have an organized basis?
7. If so, who are the leaders and whom do they appear to represent?
8. What is the "mood" of the shelterees who are not actively involved at the moment?
9. What are the longer range implications of the disorder?

### Keeping records of social control problems

Major violations should be entered into the shelter log. Information about the violation and the violator should be listed, including the corrective action that was administered by the shelter manager. After the shelter stay, this information should be turned over to the appropriate authorities, who will determine whether the violator(s) should be held for further action.

## Applying Corrective Actions

### The basis for in-shelter corrective actions

The shelter manager is not a judge. It is not within his responsibility to inflict penalties on wrongdoers in the name of society. What he can and must do is to protect shelterees by preventing the occurrence or recurrence of deviant behavior. Corrective action, therefore, is not "punishment," but is verbal or physical action, necessarily imposed, to prevent or control the effects of a breach of shelter regulations.

### The shelter manager's justification in imposing corrective actions

In many communities, the shelter manager's legal status as a representative of local government during an emergency situation has been established by proclamation or ordinance. Notice to this effect should be conspicuously posted in the shelter.

### Types and examples of corrective actions

Corrective action for minor infractions by a first offender:

1. Ask friends or relatives of the offender to talk to him about his problem.
2. Ask group leaders to speak to the offender.
3. Ask member of the counseling team or a religious leader to speak to the shelteree.

Corrective action for minor infractions by a repeated offender:

1. Shelter manager should speak to offender.
2. Change offender's job assignment or his location in the shelter.

Corrective action for more serious but non-criminal violation by a first offender:

1. All of the corrective actions for repeated minor infractions, plus the warning of isolation (being placed in a special segregated area in shelter).

Corrective action for more serious but non-criminal violation by a repeated offender:

## Corrective Actions

1. Warning of isolation.
2. Isolation.

### Corrective action for criminal acts (felonies):

1. Isolation.
2. Isolation under restraint.
3. Threatened expulsion from shelter.
4. Expulsion from shelter area. Expulsion means removing the offender from the shelter area. In most cases, there will be other areas in the building providing some radiological protection, so that expulsion from the shelter is not the equivalent of a death sentence. An alternative is to expel a shelteree from the actual building after radiation is no longer at a fatal level.

### Considerations in imposing corrective actions

The examples of corrective actions described above are not meant to suggest a rigid code that is applied inflexibly in every case. Because the shelter manager is concerned with group survival and not with administering justice, he must weigh the effects of corrective actions upon the group. For example, isolation as a corrective action which can be imposed upon a single offender for a specified violation, might create a dangerous situation if an attempt were made to impose it upon a large number of shelterees.

Corrective action should include an attempt at making the deviant aware of the consequences of his act, and of the importance of his cooperation to group survival.

Before expelling anyone from the shelter, consideration must be given to the possible damage that the offender could wreak upon the shelter, from the outside.

### Corrective actions to be avoided

There are certain penalties that should be avoided because of the possible effect upon shelterees. These actions include:

1. Floggings, beatings, physical penalties in general.
2. Denying or limiting food, water, sleep; in general, taking away privileges.
3. Humiliating penalties, such as shaving the head, wearing special clothing or symbols.

Responsibility for imposing corrective actions

The administration of corrective action is a duty of the shelter manager. He may seek the advice of members of his staff, but the responsibility is his. Such procedures as mock trials with shelteree juries determining guilt or innocence are not recommended. From the legal and practical point of view, the administration of corrective actions best remains in the hands of the shelter manager. This does not mean that the manager should not be advised by members of the shelter staff in the matter of corrective actions. Especially valuable would be the advice of professional persons in the legal field, for example, lawyers. The manager may also want to sample shelteree opinion, through the advisory committee before applying corrective actions.

The actual implementation of corrective actions is the task of the security team. See Chapter 13, "Shelter Organization" for further information about the security team.

If communication is possible between the shelter and the control center, the shelter manager should inform the control center of instances of major deviance, and of the corrective actions that have been taken. Before the end of the shelter stay, the manager should coordinate with the control center about the disposition of individuals who have committed serious offenses while in shelter.

**CHAPTER 15**  
**SHELTER ADMINISTRATION**

## CHAPTER 15 OUTLINE

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## The Scope of Shelter Administration

### Definition of shelter administration

The term "administration" is used in this document in a more limited way than usual. Shelter administration, here, refers to a set of management procedures that must be carried out in support of the organization and operation of the shelter. For the most part, these procedures deal with records and schedules, although they also include other management responsibilities that do not strictly fit under either shelter organization, Chapter 13, or shelter command, Chapter 12.

### The need for shelter administration

The complexity of the shelter system and the requirements of post-attack recovery operations require that certain administrative procedures be undertaken during the course of the shelter stay. The elementary forms of record keeping and scheduling that are suggested in this chapter should prove of value to the shelter manager in staffing his facility and controlling its resources, and to governmental authorities, after the occupancy period, in regrouping the population and initiating the reconstruction of the society.

The major aspects of shelter administration dealt with in this chapter are: the shelter schedule, the registration and identification of shelterees, shelter records, and private property brought along by shelterees.



## Registration and Identification of Shelterees

### The Shelteree Registration Form

In few shelters will it be the case that management knows all the occupants of a shelter and has all the necessary information about them with which to organize the shelter efficiently. Even if such is the case, a permanent record is needed of each shelter occupant to pass along to the appropriate authorities after shelter exit.

The shelteree registration form serves these functions. It provides management with data on the manpower resources within the shelter, by indicating the distribution of skills and talents. Secondly, it identifies immediate or special problems of particular shelterees. It provides information which can be used as a basis for assigning shelterees to community groups. Finally, it serves as an aid in such recovery operations as location of lost family members, return of personal property, and population census.

#### Description of the registration form

A 5" X 8" index card is the ideal size and material for the form. A sample registration card is presented in Figure 9 on page 305.

#### Explanation of items in registration form

Item 1. The name or number of the shelter in which the individual is located. In a larger shelter, the individual's location in shelter such as floor, room, or Division to which he has been assigned, should be entered on the form to enable management to locate him.

Item 2. The registration card number to be filled in by the administrative team. Used for cross referencing registration cards with other shelter records such as the shelter log, and for administrative control of registration forms.

Items 3-7. Self-explanatory.

Item 8. The Social Security number is to facilitate post-shelter use of the registration form, as part of the governmental records for each shelteree. The Social Security number is the most widely used official basis for identifying individuals.

Item 9. If the entire family is in shelter together, only the head of the family need fill in this item. Others can write "See card of (name of head of the household)."

**REGISTRATION FORM**

SHELTER **1** \_\_\_\_\_

NAME: **3** \_\_\_\_\_ ADDRESS: **4** \_\_\_\_\_

AGE: **5** \_\_\_\_\_ SEX: **6** \_\_\_\_\_ OCCUPATION: **7** \_\_\_\_\_ SOCIAL SECURITY NO. **8** \_\_\_\_\_

OTHER MEMBERS OF IMMEDIATE FAMILY: **9**

Name	Relation	Age	Check if with you	Elsewhere Indicate Where If Known

MILITARY SERVICE DATES: **10** \_\_\_\_\_ RANK: **11** \_\_\_\_\_ MILITARY JOB: **12** \_\_\_\_\_

MEDICAL PROBLEMS REQUIRING IMMEDIATE OR SPECIAL ATTENTION: **13** \_\_\_\_\_

CHECK THE FOLLOWING ACTIVITIES IN WHICH YOU ARE SKILLED, IN ADDITION, CIRCLE ANY ACTIVITIES THAT ARE PART OF YOUR NORMAL OCCUPATION: **14**

Administrator/Supervisor _____	Electrical Repair _____	Food Preparation _____
Teacher/Instructor _____	Equipment Repair _____	Police/Guard _____
Medical/First Aid _____	Communications _____	Chaplain _____
Fire Fighting _____	Secretarial _____	Child Care _____
Plumbing _____	OTHER: _____	

HAVE YOU HAD ANY CIVIL DEFENSE TRAINING: **15** \_\_\_\_\_ WHAT TYPE: **16** \_\_\_\_\_

EDUCATION (Circle last year of school complete): Grade School: 1 2 3 4 5 6 7 8 **17**

High School: 1 2 3 4 College: 1 2 3 4

Other Education: **18** \_\_\_\_\_

RELIGIOUS PREFERENCE: **19** \_\_\_\_\_

LIST ANY HOBBIES, TALENTS, SKILLS OR INTERESTS NOT MENTIONED ON OTHER SIDE OF FORM: **20** \_\_\_\_\_

DO NOT WRITE BELOW THIS LINE

GROUP ASSIGNMENT: **21** \_\_\_\_\_

TASK ASSIGNMENTS: **22** \_\_\_\_\_

PERSONAL PROPERTY:

<u>Items</u>	<b>23</b>	<u>Items</u>	<u>Items</u>

REMARKS: **24** \_\_\_\_\_

Rear Side

Figure 9. Registration Form

## Shelteree Registration and Identification

Items 10-12. Shelterees who have had recent active or reserve military duty may be skilled in some of the tasks necessary to organize and operate a shelter. Officers and non-commissioned officers are likely candidates for leadership positions in shelter.

Item 13. Some serious injuries and many serious illnesses will not have readily visible symptoms associated with them. This item will provide management and the medical team head with an estimate of the health status of the shelter, as far as acute medical problems are concerned.

Item 14. This item should be used as a major basis, but preferably not the sole basis for selecting task team leaders and members and community group leaders. If at all possible, brief interviews should be held with the "applicants," to maximize assurance of capability.

Items 15-17. Self-explanatory.

Item 18. Other education refers to graduate or professional education, military schools, other courses that may be useful in the shelter stay (e.g., first aid and rescue).

Item 19. Religious preference is for use by the head of the religious team in establishing a program of religious activities in shelter.

Item 20. This item is used to recruit a recreation team, to provide the team leader with information with which to plan a recreation program, and to use as a possible basis for sorting out shelterees with common interests to assign them to the same Units.

Item 21. The community group(s) to which the shelteree has been assigned.

Item 22. The task team(s) to which he has been assigned.

Item 23. Personal belongings which shelteree has lent to the shelter, or which individual retains but can be used in an emergency.

Item 24. This item encompasses all remarks that should become a part of the permanent record of the individual. It includes: births, deaths, major illnesses or injuries, heroic actions, major violations of rules.

### Filling out the registration form

It can be expected that a number of people will require assistance in filling out the registration forms, even if the items on the form are explained to them. If it appears that shelteree registration will be a time consuming task, it may be advisable to divide registration into two periods. Using this approach, only certain questions pertaining to immediate organization and operations (for example, items 3, 5-7, 9-16) need be answered initially. After shelter groups have been organized, the form can be returned to shelterees for completion.

Maintaining the registration form

A major responsibility of the administrative team is to keep shelter records up-to-date and as accurate as possible. It will be almost impossible to enter every change in the status of an individual. Certain vital information, however, should be recorded. These include: births, deaths, serious illnesses or injuries, major violations of rules, heroic actions, and important information that the shelter manager might wish to convey to control centers or keep as a permanent record for the future. After emergence from shelter, the forms should be turned over to the appropriate authorities for use in community recovery operations.

Improvising a shelteree registration form

In the event that registration forms have not been stocked in the shelter and there does not exist sufficient paper for all shelterees to use as a substitute form, it is still important to get certain types of information from the population in written form shortly after shelter entry. On almost any scrap of paper, shelterees can be asked to write their names, occupations, and special skills. This will at least allow for rapid organization of task teams. The other types of information on the registration form will have to be verbally elicited by Unit and Section leaders in interviews with their group members.

**Identification of Shelterees**

In only the smaller community shelters will the possibility exist that everyone knows everyone else, including shelter leaders, by sight. Most shelters will need some type of identification system, to serve the following purposes: (1) indicate at a glance who the members of the management staff are, (2) possibly indicate the members of task teams that must have rapid unhampered movement in shelter, and (3) identify individual shelterees and their community group assignments.

Identification of management personnel

The command capability of the manager and his top staff will be enhanced if they are constantly visible to shelterees. Visibility would be at a maximum if the manager and his staff wore complete uniforms. However, this is not a likelihood. Plausible alternatives are hats and/or armbands. Headgear is more effective than an armband because it can be distinguished by a greater number of people. Because it is simpler to improvise an acceptable armband than a piece of headgear, the former may prove to be the more popular method of leadership identification, in the absence of stocked hats or helmets.

Identification of individual shelterees

If the shelter contains an adequate stock of adhesive tape or other tape with a surface that accepts writing, each shelteree should be given a piece upon which he can write his name and indicate the groups to which he has been assigned. This would then be placed on the shelteree's outer garments.

In the absence of tape, a piece of paper or cardboard with the shelteree's name and group numbers can be attached to a pocket or lapel with a pin, paper clip, hair pin, piece of string, or other improvised methods.

An individual's name and group assignment can be written directly on an article of clothing with a lipstick, if no other alternative presents itself.

Whatever the method employed for the identification tape or tag, it should contain more than just a series of numbers. Interaction among shelterees is facilitated if peoples' names are on their tags or tapes. In addition, identification by name is more satisfying to the individual than is a series of impersonal numbers or letters.

## The Shelter Schedule

Given the multiplicity of tasks to perform in a shelter, a formal schedule of activities is a requirement for effective management. A schedule also serves a basic purpose for shelterees. It introduces a rhythm, an order into shelter life; it tells the individual what he can expect and when. Being able to predict what happens next can be a potent factor in the adjustment of the population, and a schedule provides such predictability.

### When to establish and implement a schedule

In many instances, a schedule of shelter activities will have been designed prior to shelter entry. In such cases, it is necessary to evaluate its adequacy in the light of actual shelter conditions. If a schedule has not been prepared before shelter-taking, it should be developed early during the first day of occupancy by the manager and his top level staff.

Some activities must be carried out in the immediate post-entry phase. These include: sanitation, medical care, provision of water, communications, radiological protection. For these reasons, a schedule should be drawn up as soon as possible, especially in large shelters or those organized on two or more shifts. However, the full schedule of shelter activities should not be automatically put into effect at the outset of the shelter stay. Certain activities, such as training and recreation, might be profitably delayed until shelterees indicate a willingness to accept them.

### Modification to the schedule

A shelter schedule should not be used as a rigid inflexible guide to daily activities. Inherent in the shelter systems are factors that will produce changes in the schedule. Emergency situations may arise, requiring all or many shelterees to redirect their efforts temporarily. Heat and lack of ventilation may affect the pace at which activities can be carried out. Activities will very likely take longer to implement at the outset, as shelterees are learning how to perform new tasks. These factors bring about unscheduled modifications.

In addition, there are reasons for purposely modifying the schedule. One is to provide some variation in daily activities during the routine phase of shelter occupancy. Also an evaluation of the schedule may reveal that an activity originally planned for in the morning, may be much more effective in the afternoon or evening.

It should be kept in mind that a shelter schedule that is too flexible and changeable can have equally undesirable consequences. From the management point of view, activities will be more difficult to coordinate if the schedule is altered too frequently. From the shelteree standpoint, the order and meaning that a schedule introduces into shelter life may be negated if the pattern of activities changes too frequently.

0700	Reveille	
0730	Receive breakfast rations	
0800	Eat breakfast	
0830	Clean-up	
0900	Sick call	
0930	Training session or group meeting or continuation of sick call or recreation	
1000	Water and biscuit break	
1030	Training session	Ongoing education for children
1100	Training session	
1130	Free time for quiet activities	
1200	Receive lunch rations	
1230	Eat lunch	
1300	Clean-up	
1330	Information and Training session	Nap for children
1400	Information and Training session	Ongoing education
1430	Emergency drills	
1500	Water and biscuit break	
1530	Recreational activities	
1600	Recreational activities	
1630	Free time for quiet activities	
1700	Receive dinner rations	
1730	Eat dinner	
1800	Clean-up	
1830	Daily briefing	
1900	Training session	
1930	Planned recreational activities	
2000	Planned recreational activities	
2030	Free time for quiet activities	
2100	Free time for quiet activities	
2130	Water and biscuit break	
2200	Free time for quiet activities	
2230	Prepare for sleep	
2300	Lights out	

Figure 10. Sample Daily Schedule for Single-Shift Shelters

Factors influencing the shelter schedule

The following points should be taken into consideration in developing a shelter schedule:

1. Short attention span: Under the physical and psychological conditions prevailing in the shelter, it will be more difficult than usual for shelterees to focus their attention upon a person or persons for an extended period of time. Consequently, no scheduled activity should last longer than one hour without a break. In an hour long session, it will be desirable to have a short break at the half-way mark to allow shelterees to stretch and relax. If shelterees appear to be having difficulty in maintaining attention, it may be necessary to schedule sedentary activities (such as training) for 45 minutes or half an hour at a time, instead on one hour.
2. Spread activities throughout the day: Such activities as training and recreation should not be concentrated in one part of the shelter day, but rather should be blended into the schedule so that morning, afternoon, and evening each contain training and recreation sessions.
3. Schedule training activities when shelterees are most alert: Because of the importance of in-shelter training, training sessions should be scheduled when shelterees are freshest, and have the greatest attention span. In shelters with survival food stocks, mealtime and clean-up can be regarded as a relaxing activity. Therefore, it is recommended that training sessions for adults take place shortly after meals or breaks, when shelterees should be rested, and hunger and thirst are not competing for the individual's attention.
4. Naps and daytime rest periods: A nap for children is indicated on the schedule for the hour after lunch and clean-up. It may be desirable to schedule an additional nap for children in the morning. In addition, daytime naps for adults may be put into effect if management considers it necessary.
5. Water and biscuit breaks: Mid-morning, mid-afternoon, and evening water and biscuit breaks are recommended in the schedule previously cited. The food and water consumed in breaks will be subtracted from the daily individual ration, and does not constitute a caloric bonus. The advantages of food and water breaks are threefold:
  - a. The palatability of the survival ration may be enhanced if individuals eat only a few biscuits at a time.
  - b. Feelings of hunger and thirst may be assuaged by having a number of small meals at shorter intervals as opposed to eating and drinking larger portions only three times a day.
  - c. The "coffee break" as a cultural phenomenon in our society can be carried over to the shelter as a relaxing, cohesion-producing portion of the morning and afternoon.



## Shelter Schedule

SHIFT A	TIME	SHIFT B
Reveille	0700	Recreation
Receive breakfast rations	0730	Recreation
Eat breakfast	0800	Free time for quiet activities
Clean-up	0830	Prepare for sleep
Sick call	0900	Sleep
Group meeting/sick call	0930	
Water break; opt. biscuit break	1000	
Training session	1030	
Training session	1100	
Free time for quiet activities	1130	
Receive lunch rations	1200	
Eat lunch	1230	
Clean-up	1300	
Training session	1330	
Training session	1400	
Water break; opt. biscuit break	1430	
Quiet recreation	1500	
Quiet recreation	1530	
Free time	1600	
Receive dinner ration	1630	
Eat dinner	1700	Reveille
Clean-up	1730	Receive breakfast rations
Free time	1800	Eat breakfast
Recreation	1830	Clean-up
Recreation	1900	Sick call
Shelter briefing	1930	Shelter briefing
Training session	2000	Training session
Emergency drills	2030	Water break; optional biscuit break
Water break; opt. biscuit break	2100	Emergency drills
Free time for quiet activities	2130	Free time for quiet activities
Free time for quiet activities	2200	Receive lunch rations
Prepare for sleep	2230	Eat lunch
Sleep	2300	Clean-up
	2330	Training session
	2400	Training session
	0030	Water break; optional biscuit break
	0100	Quiet recreation
	0130	Quiet recreation
	0200	Free time for quiet activities
	0230	Receive dinner rations
	0300	Eat dinner
	0330	Clean-up
	0400	Training session
	0430	Training session
	0500	Free time for quiet activities
	0530	Free time for quiet activities
	0600	Group meeting
	0630	Water break; optional biscuit break

Figure 11. Sample Daily Schedule for Two-Shift Shelters

### Factors influencing the two-shift schedule

Largely due to lack of space for sleeping; some shelters will have to be organized and operated on a two-shift basis. The two-shift schedule is more than just the single-shift schedule (Figure 10) carried out at two different times for two shelter groups. There are several reasons why modifications must be made in the timing of activities for the two-shift schedule. These are:

1. Optimum use of common time: There are eight hours in the day when members of both shifts are awake. Because most of the daily activities are carried out on a shift basis, a major use to which the common time can be put is to instill in shelterees a feeling of identification with the entire shelter. The daily briefing at 1930 is an example of an activity that may profitably be held for all shelterees at the same time. Although it is not suggested that the short training session (at 2000) consists of a single lecture to the entire shelter, the fact that all community groups are simultaneously engaged in the same activity at the same time enhances the identification with the shelter as a whole.

2. Noise and other distractions: An important consideration in making up a two-shift schedule is the extent of physical separation that can be obtained between the waking shift and the sleeping shift. If the two shelter groups are located in physically separate areas (different rooms, separate floors), then the activities of each shift can be carried out almost independently of the other. However, if the waking and sleeping areas are separated by improvised or flimsy barriers through which sound and light can readily pass, the problem of developing a workable two-shift schedule is made more complex. In the latter case, the scheduling goal is to give the sleeping shift maximum opportunity to get to sleep and remain asleep by assigning the awake shift to reasonably quiet activities insofar as possible.

## Shelter Records

In addition to the shelteree registration form, described in the previous section, several other types of in-shelter records are necessary to maximize management control of shelter resources, and rapid reconstruction of the society in the post-shelter phase. Not all shelters will have the same record-keeping needs. The records described below should be viewed as examples.

### The Shelter Log

The shelter log is the document that will contain a listing and a description of all the significant events that occurred during the shelter stay.

#### Description of the log

Any notebook or pad can be used as the shelter log. Because this is a document that will be turned over to the authorities after the shelter stay, it is suggested that the most substantial book or pad available be used for this purpose. A sample shelter log is presented in Figure 12.

#### Explanations of items in shelter log

Shelter. The name or number of the shelter for which the log is being kept.

Number. Each entry in the log should be given a number for administrative purposes, and to provide an estimate as to how many events have occurred between any two points in time.

Date/time. The date the event occurred and the closest estimate as to the time it occurred.

Type of event. In order to make the log a more useful summary for management, while in shelter, and for governmental authorities after the shelter stay, each entry should be keyed by the type of event that is being described, for example: "Birth," "Death," "Illness," "Fire," "Act of heroism," or "Felony."

Description of the event. This should be a terse, to the point statement of what took place. Names of persons involved should be printed.

SHELTER LOG

SHELTER \_\_\_\_\_

NO.	DATE/TIME	TYPE OF EVENT	DESCRIPTION OF EVENT	REG. FORM

Figure 12. Shelter Log

Registration form number. Many of the events entered in the log will also be entered on the shelteree registration form of the individual(s) involved in the event. The registration form number is a cross-reference to the control number at the top of each shelteree registration form.

Initial each entry. After every event has been entered, the initials of the person who wrote down the event description should be placed in the "registration form number" column at the extreme right of the page.

### Maintaining the shelter log

The task of maintaining the shelter log is one of the key responsibilities of the administrative team. At night when the administrative team may not be on duty, the responsibility of keeping the shelter log up-to-date rests with the member of the management staff who is on duty or the night watch.

It will not be feasible to describe every occurrence in the shelter log. Entries should be limited to such events as:

1. Changes in vital statistics (births, deaths)
2. Other important medical events (cases of major physical or emotional illness).
3. Serious violations of shelter rules and corrective actions applied.
4. Major management decisions.
5. Daily summaries of shelter status and problems.

## The Communications Log

Messages entering or leaving the shelter should be entered in the communications log. This log should be maintained by the communications team, on a 24-hour basis. Separate sheets should be used for incoming and outgoing messages.

### Description of the communications log

A sample communications log is presented in Figure 13.

### Explanation of items in communications log

Number. Consecutively ordered number assigned to each incoming or outgoing message for administrative purposes.

COMMUNICATIONS LOG (INCOMING)

NO.	DATE/TIME	TYPE	SENDER	RECIPIENT	CONTENT	INIT.

COMMUNICATIONS LOG (OUTGOING)

NO.	DATE/TIME	TYPE	SENDER	RECIPIENT	CONTENT	INIT.

Figure 13. Communications Log

Date/time. Date and time the message was received or sent.

Type. The communications medium used--radio, phone, runners, teletype, etc.

Sender. For incoming messages--who sent the message; for outgoing messages--who formulated or communicated the message.

Content. A very brief description of the contents of the message.

Recipient. For incoming messages--who on the management staff was given the information or who was on duty when the message came in; for outgoing messages--to whom is message addressed.

Initials. The initials of the member of the communications team who entered the information in the log.

### The Radiation Monitoring Log

The radiation monitoring log will contain the periodic readings of radiation level for a given time for specified areas within a shelter, and the accumulated doses for each area.

A sample of this log is presented in Figure 14.

#### Explanation of the log

Date/time. Record both the date and the time that the reading is taken.

Shelter areas. Either a number or an identifying word should be assigned to each area of the shelter where readings are to be taken. These numbers or names should be indicated on a diagram of the shelter and kept with this monitoring log to avoid confusion.

Dose rate. Enter the current readings for each date and time under the correct area.

Accumulated dose. Enter the total accumulated dose up to the time of the last reading in each area.

Remarks and initials. The monitor should enter any pertinent comments after taking readings for a given time. The monitor should initial the log after completing the periodic readings.

#### Procedures for taking readings

See Handbook for Radiological Monitors (Office of Civil Defense, April 1962), for specific procedures.

RADIATION MONITORING LOG

SHELTER \_\_\_\_\_

Shelter Areas	Date: 7/16		7/16		Remarks/Initials	
	Time: 1200		1800		Dose Rate	Accum Dose
	Dose Rate	Accum Dose	Dose Rate	Accum Dose		
Area 1	1 r	1 r	.9 r	1.9 r		
Area 2	1.5 r	1.5 r	1.3 r	2.8 r		

Figure 14. Radiation Monitoring Log



## Shelteree Radiation Exposure Record

This form is used to record daily radiation exposure doses which shelterees may receive.

### Purpose of the exposure record

This record can be utilized in several ways:

1. Monitors and all persons who may be exposed to high radiation for operational reasons should have a personnel radiation exposure record. It may be maintained individually or by a clerk assigned to this function.
2. At the discretion of the manager, each shelter occupant can be issued a radiation exposure record. As approved by the shelter manager, persons can be advised once daily through group announcements of their estimated exposure during the previous 24-hours. This may become complicated, however, if the shelterees have been rotated to keep radiation exposure evenly distributed.
3. Before emergence from the shelter, each person should be informed of the accumulated dose he has received through the shelter stay.

### Description of the exposure record

The name and address of the shelteree should be filled in. Filing in alphabetical order may facilitate the completion of these forms.

The date of exposure and the daily dose should be entered in the appropriate square. This should be added to the total dose already received in order to complete the column in the far right.



## Private Property

Everyone will bring personal items into the shelter, if only the contents of pockets and purses. Some people who have prepared themselves prior to the attack may bring in many items of survival equipment and supplies. The materials that shelterees carry into shelter with them may constitute an important shelter resource, especially in those operational areas in which little or no equipment or supplies have been stocked.

### Materials likely to be brought into shelter

The following represents a partial list of useful items of personal property that can reasonably be expected to be carried into shelter, without advanced preparation on the part of shelterees:

1. Pocket knives
2. Nail clippers and files
3. Pens, pencils, writing pads (especially if the shelter is located in an office building).
4. Cosmetics (for use as improvised writing materials)
5. Pen-lights
6. Non-prescription medicines such as aspirins
7. Hair pins, clips, tie clips
8. Portable radios
9. Lighters and matches
10. Handkerchiefs, scarves, belts, ties
11. Paperback books

### Private property to be excluded from the shelter

It may be necessary to ban certain possessions from the shelter, either temporarily or for the duration of the shelter stay. Pets may be a fairly common example of this category. For reasons of sanitation, ventilation, food and water, pets should not be allowed in the shelter. However, it may be possible to harbor them in less-well equipped areas of the building in which the shelter is located.

Large bulky items, such as suitcases or trunks, may also have to be excluded from the shelter at least temporarily, as they require a good deal of storage space. On the other hand, trunks, suitcases, and their contents may serve useful purposes in shelter. A flexible rule should be established, therefore. If only a small fraction of the population brings possession with them, there may be no problem in finding space for the potentially useful items. However, if a large proportion of the population take shelter with large suitcases, trunks, duffle bags, etc., it may be necessary to store such items in less protected parts of the building for a time.

#### The basis for volunteering personal possessions

Personal items brought in by the population should not be confiscated from their owners; they should be requested by shelter management and volunteered by their possessors. The basis for the request should be the value of personal possessions to the survival of the group. Many people will understand the value of their possessions to group survival without appeals from management, and will volunteer them as soon as asked. Others may have to be shown that, when used for the common good, an item can contribute more to everyone's survival (including the owner's) than if the owner were to keep it solely for his own purposes.

Even such items as weapons, liquor, and drugs should be requested by management as elements contributing positively to survival rather than as potentially dangerous possessions that may cause in-shelter problems.

#### Procedures for dealing with private property

Requesting private property: The shelter manager or a member of the top management staff should make the initial request for the useful personal belongings of shelterees. The types of items that would be of value and their intended uses should be indicated to the population. The actual collection of personal possessions might best be carried out within the Units and/or Sections. The Unit or Section heads can canvas the members of their groups for the items that have been requested.

Broad base of contributions: A list of specific items of potential value should be made up and communicated to the shelterees. The list should be as broad as possible, so that as many shelterees as possible will have something to contribute. If only a handful of people, who had the foresight to prepare themselves for a shelter stay are asked to contribute, they may be resistant. However, if there is a broad base of contributions, everyone offering what he has, the resistance may be lessened.

## Private Property

Keeping records of personal belongings. The shelteree registration form (page 305) contains space for listing the possessions that shelterees have volunteered. It is unreasonable to expect that every last tin of aspirin be listed on the form. However, items to be returned to the owner after the shelter stay should certainly be entered; also expendable items whose contribution the manager wants to put on record should be listed.

Resistance to volunteering personal belongings. Some shelterees will not want to offer their personal belongings for the benefit of the group. The fact that such items have not been volunteered does not mean that they should not be entered among the shelter resources. A management task is to identify all potentially useful belongings, even those that have not been offered for group use.

It is possible to allow the owner to retain possession of some items of private property and to use them to carry out group survival activities. An example of this is the possible appointment of the owner of the only radio in the shelter as the communications monitor.

Refer to Chapter 18, "Psychological Support," page 364, and Chapter 14, "Social Control," page 288, for further information about personal belongings.

**CHAPTER 16**  
**COMMUNICATIONS**

## CHAPTER 16 OUTLINE

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## Communication Sources and Recipients

The following describes in general terms the important communication links that are necessary to maintain an effective shelter communications system.

### From external sources to shelter management

External sources of communication may supply the manager with information as to the general state of the nation, prevailing conditions in nearby areas, and the status of other shelters. This information should aid the manager in carrying out shelter operations, meeting various contingencies as they arise, and planning for emergence from the shelter.

### From shelter management to external points

If adequately equipped with transmission facilities, the shelter manager should send out reports which will relay critical information to control centers. Reports should describe over-all shelter status, special problems, assistance needed, and any plans which might affect other shelters.

### From shelterees to shelter manager

The shelter manager should be kept informed of all developments in his facility, including the effectiveness of shelter operations, the emotional state of the shelterees, and actual or potential problems that may threaten shelter stability. Information about the shelter should reach the manager through a communications chain, from shelterees or group leaders, to higher echelon group leaders and ultimately to the manager.

### From shelter manager to shelterees

The shelterees will eagerly seek as much information as they can receive in order to interpret in-shelter and external events. From the management point of view, communication to shelterees is necessary for shelter command/control. Rules and procedures must be explained, orders given, and status information presented. Communications from shelter management can be transmitted directly to the entire population in the form of a daily briefing, or it can be transmitted through the chain of command in the form of information or instructions to the various levels of group leaders.



## Establishing a Shelter Communications Capability

The type and amount of information received from the outside is contingent upon the provisions for communication that have been developed in a shelter. Currently, shelters are not stocked with communications equipment by the Office of Civil Defense. However, many shelters will have some devices available for communicating with the outside world. In addition, items of communication equipment such as radios may be brought into the shelter by the population. As far as intra-shelter communication is concerned, simple devices can be improvised from materials commonly available in the shelter.

The guidelines in this chapter cover the communication equipment and procedures that can be reasonably found in most community fallout shelters. If a shelter has a greatly expanded communications capability, it also very likely has among its resources, personnel who can operate and maintain the equipment.

### Establishing an External Communications Capability

External communication includes any form of contact between a particular shelter and some point outside, such as civil defense control centers, broadcast centers, radiological defense monitoring stations, and other shelters in the area.

#### Equipment for external communications

Although OCD does not stock communication equipment, many shelters will nevertheless have some means of communicating with the outside world. Some of the more common devices are described below.

Phone. A phone is a valuable two-way communication device, simple to operate and offering a wide range of communication possibilities. However, its effectiveness depends upon the existence of stable conditions external to the shelter which would permit lines and circuits to remain intact and operable.

Portable radios. Portable radios will be a primary source of information from outside the shelter. They require no experience to operate and will run for long periods of time on a small amount of battery power. However, they only provide one-way communications capability.

Two-way radios and other devices. The increased popularity of portable Citizens' Band radio and walkie-talkies may mean that some shelterees may bring portable two-way communication devices with them into the shelter. These may be valuable communications aids, if they are used in accordance with a community plan that allocates times and frequencies of Citizens' Band broadcasts.

## Establishing A Shelter Communications Capability

Runners. Once the radiation has been reduced to a safe level, runners may be sent out on short trips to obtain information or transmit information to other nearby shelters or control centers.

### Procedures for establishing a communications capability

Inventory and check equipment. Upon entry or shortly thereafter, the shelter should be surveyed for communications equipment. These should be checked for operability. If not in operating order, a determination should be made as to the reparability of the equipment.

An inventory should be taken of all available pieces of equipment which have been brought into the shelter and are operable. The manager could request that transistor radios or other equipment that may be used in communication should be lent to the management staff, for use during the shelter stay. He should indicate the reason for his request, emphasizing the vital need for communication and contact with the outside. Teenagers may be common sources of portable radios.

Establish a communications center. A communications center should be established as soon as possible. It should be located in the management area, or as close to it as possible, so that the manager or his representatives are nearby as messages are received, or can be contacted as quickly as possible when emergency information is received.

Select communications staff. A communications team should be established to monitor, operate, maintain, and repair the equipment. Some shelter organizations may have provision for trained personnel and maintenance crews to accompany certain installed facilities. If such are not present, the shelter manager should take inventory of personnel capabilities to determine persons best suited to begin initial communications operations. The selection would be made from among those who had previous communications experience, or have related training in electronics. The responsibility for the entire communications system, will be in the hands of the communications team head. He, therefore, should have some communications experience, especially if the shelter is equipped with transmission equipment.

Maintain control over equipment. Stringent control over the equipment is necessary. Only authorized personnel should be permitted near the communication equipment. Service and maintenance groups should be assigned to protect the instruments when they are not in use.

Establish plan of action. The shelter manager should assign at least one individual immediately upon shelter entry to monitor and record incoming messages. After the communication team has been selected, duty schedules should be worked out. It should be remembered in setting up a schedule that the communication watch is a 24-hour a day task.

## Establishing an Internal Communications Capability

Internal communication refers to the exchange of information occurring within the confines of the shelter itself among the shelter manager, shelter staff, and shelterees.

### Equipment for internal communication

Voice. The manager or other staff members may be able to project their voices enough to be heard by the entire shelter population. In larger shelters, this method will not be adequate because of the increased distances and levels of activity. When communication with a large audience is necessary, paper, cardboard, or magazines rolled into cone shapes can be used as an improvised megaphone. In most large shelters, the manager will have little contact with all the shelterees as a group. Hence, the role of the Division and Section leaders will be vital in effectively transmitting information to the shelterees.

Written material. Written notices may be posted on regular or improvised bulletin boards. In addition, signs and posters dealing with shelter rules and procedures may be hung in strategic locations in the shelter. If normal writing materials are not available, they may be improvised from common materials (for example, newspaper for writing paper).

Intra-phone. Some shelters will be equipped with extension phones for intra-shelter communication. Other shelters will have the capability to utilize the normal phone system, with adjustments at the switchboard as intra-shelter extension phones. This assumes that a power source will be in operation.

P.A. system, battery-powered megaphones, intercom systems. Shelters equipped with this equipment will require additional persons to maintain and operate them. Equipment depending on electricity should not be used in those cases where it would constitute a serious power drain on auxiliary power sources.

### Procedures for establishing internal communications capability

Evaluate internal communication facilities. An immediate communication capability from shelter management to the incoming population is essential for filling the shelter, initiating organization, and carrying out protective actions. Upon entry, the manager should determine what intra-shelter communication facilities are available to him, and what is the most effective way to transmit instructions to the entering population.

## Establishing A Shelter Communications Capability

Established internal communications plan. As part of the organization of the shelter, a communication chain should be planned. Procedures should be determined for disseminating information from management down to the shelterees, as well as for the movement of information up channels from the population to the leaders. The communication plan should cover:

1. How different categories of information should travel up and down channels. Examples of categories of information are (a) routine--non-essential information; (b) operational immediate--important information necessary to carry out shelter activities; (c) emergency--critical information pertaining to danger or threat to survival.
2. When specific categories of information are to be transmitted.
3. Prohibitions on types, methods, channels of communication.

The need for controls on communication and the specific communication procedures should be conveyed to the population during the shelter orientation session.

### Personnel

Internal communications will largely be handled within the framework of the shelter community groups. The links in the communications chain between the shelter manager and the individual shelteree are the group leaders--especially the Division and Section heads. In a small shelter of several hundred or less, direct communication between the manager and the shelter as a whole can be effective. In larger shelters, or shelters composed of non-contiguous areas, group leaders will be the communication intermediaries between shelter leaders and the population.

## Operating an In-Shelter Communications System

The procedures for handling information will depend in large measure on the availability of equipment in the shelter. All shelters, however, will have to deal with the problem of the exchange of information, for the duration of shelter living. The following guidelines are for shelters with equipment which can be reasonably assumed to be present in many shelters.

### Communication From External Sources to the Shelter

#### Sources and types of information

Emergency Broadcast System (EBS). This system replaces CONELRAD. Through it, various types of emergency information can be disseminated to the public including messages from the President, National, regional, state, and local programming.

The radio stations that are part of the EBS, will continue to broadcast on normal frequencies at normal power during civil defense emergencies. However, they will not use their call letters. EBS stations have, or will have, fallout protection built into key operating areas of the stations, and will be provided with emergency generators to assure an uninterrupted power supply.

Control centers. In time of attack, the various levels of government will be operating within control centers. The local control center will be linked with shelters in the area, radiological monitoring stations, medical centers, and emergency operating centers of higher government. Among the types of information that a shelter may receive from the control center are:

1. Information on local environmental conditions.
2. Information pertaining to time of shelter exit and recovery operations.
3. Decisions reached by government concerning in-shelter and/or recovery problems.
4. Requests for specific information.

Other shelters. Under certain conditions, and given the existence of the necessary equipment, information exchange will take place between shelters directly. For example, a shelter may lose communication with the control center but may retain a capability to reach a nearby shelter.

Procedures for handling incoming messages

Monitoring incoming communication. A member of the communication team should be assigned at all times to monitor incoming messages. If incoming information is received at scheduled times, a member of the management staff should be in the communication area to monitor the broadcast. If the shelter contains people with stenographic training, it would be useful to assign them to the communication area to obtain as accurate an account of information as possible.

Maintaining a communications log. A communications log should be kept of incoming messages. See page 316 for description of the communications log.

Assessment of incoming information

Incoming messages are intended primarily for shelter management. The content of messages from external sources containing important information must be evaluated by the manager, based upon the source of the information, other information available to management, and the possible effects of the messages upon the shelter population. As a result of this assessment, decisions should be reached as to when and how information should be presented to the population. For one thing, it will be exceedingly difficult in all but the smallest or most elaborately equipped shelters to establish arrangements so that all shelterees can listen to incoming broadcasts. Secondly, much of the information may be technical in nature, beyond the understanding of the average person. But most important is the point that the content of specific messages may be misinterpreted by the population with unfavorable consequences for shelter morale, and possibly for the maintenance of order.

**Communication to External Points**

The following is applicable if communications equipment is available for contacting points outside the shelter.

Recipients and types of information

Control center. Most of the communicating emanating from the shelter will be directed to the control center. In a number of communities, an emergency operation plan indicates the types of communication that local government in a control center expects to receive from a shelter. This would include:

1. Emergency information or requests for assistance.
2. The over-all status of the shelter.
3. The status of the environment directly outside the shelter, to the extent that this can be determined.
4. Responses to specific inquiries by the control center.

Other shelters. Communication to other shelters will, in all probability, not occur frequently. However, it is not unrealistic to suggest that information exchange will take place between shelters in cases where one shelter can communicate with a control center and the other does not have this capability.

#### Procedures for communicating to external points

Constraints upon communication to control centers. The responsibilities of the control centers are so extensive, they should not be burdened with inappropriate communications from individual shelters. The emergency operations plan for a community may specify the types and timing of communication between shelters and control centers. In the absence of pre-planned procedures, control centers may inform shelters after the attack, of communication requirements and constraints. In any event, management personnel should keep in mind the level and extent of control center responsibilities in dispatching specific information to the center or requesting information from it.

Control of external communication. Only authorized personnel should be allowed to use the equipment for communication transmission. This equipment should not be left without supervision at any time.

Use of runners. Before runners should be used, radiation levels in the area, the status of other shelters, and the radiation dosage that a runner has received should be ascertained. The runner should be informed of how long he can safely remain outside the shelter. If possible, he should be given a dosimeter. Runners should only be employed if a dire emergency situation prevails and no other means of communication could be substituted or if radiation levels have subsided to a level that permits temporary egress from the shelter.

### **Communication from Shelter Management to Shelterees**

An important phase of conducting an orderly shelter is maintaining an effective communication system that transmits information to the shelterees rapidly and accurately. One measure of an effective shelter manager will be the extent to which he is able to satisfy the information needs of the shelter population, and control the development and spread of rumors.

#### Types of information

##### Information pertinent to the phases of shelter entry and initial orientation:

1. Directions to proper location within the shelter as the shelterees enter.

## Operating a Communications System

2. Introduction of manager and staff--establishment of the authority of the manager.
3. Reassurance about the protective capabilities of the shelter.
4. Reassurance that the changes in initial organization will be made later on as needed (for example, uniting families).
5. Statement of important rules that must be put into effect immediately.
6. Assignment to initial duty posts of vital significance.
7. Basic protective actions that all shelterees can take.

### Information pertinent to the post-entry and routine phases:

1. Review of general conditions in the shelter.
2. Review of conditions external to the shelter.
3. Reports on radiation levels at indicated intervals from official civil defense broadcasts.
4. Reports on the state of the nation.
5. Local damage reports.
6. Special emergency notices issued from civil defense.
7. Description of shelter facilities and available supplies.
8. Statement of manpower requirements needed in shelter.
9. Reassurances and compliments to shelterees and review of shelter-wide problems.
10. Deflation of rumors that may have spread through the shelter.

### Information pertinent to the pre-exit phase:

1. External radiation levels, including remaining "hot spots."
2. Estimated time for shelter egress, and how long it is safe to stay out.
3. Information as to where shelter supplies may be replenished.
4. Post-attack plans, detailing where people should go and what they should do, after shelter egress.
5. Review of training highlights in such fields as decontamination and first aid.



Procedures for communicating to shelterees

Initial instructions. As the shelter is being filled, instructions will be provided to the population concerning where they should proceed, and what they should do. In small shelters, this can be carried out by one person--the shelter manager or a staff member. In larger shelters, or shelters with physically separated areas, more people will be needed, unless there is a P.A. system or an electric megaphone. People recruited from among the first incoming shelterees as traffic assistants, to assist in the orderly loading of the shelter, can be used to pass along necessary information at entry time.

Initial orientation. After the shelter is filled, there is a great deal of important information that must be presented to the population within a short period of time. The types of topics to be covered in the initial orientation are listed above, under Information Pertinent to Shelter Entry. In shelters in which it is possible for one person to speak directly to the entire group, the manager should give the orientation briefing. In other shelters, the orientation should be given by other members of the top management staff.

In cases where the manager cannot speak directly to all shelterees, it is advisable that early in the shelter stay, he should arrange to speak to every group in shelter, if only briefly to introduce himself.

The initial orientation should not go into great detail about rules, duties, and the like. After the briefing, further meetings may be held by the Division or Section heads, in which the general statements made by the manager are translated into the specific requirements.

Daily briefings. At least once a day, a briefing should be given to all shelterees covering the topics listed on page 335, under post-entry information.

The briefing should be a scheduled activity. It is important that shelterees know that at least once a day, at a specified time, they will be brought up to date on the shelter and environmental conditions. Even if there is no new information to report, the daily briefings will have important purposes. For one, the news that there is no new information, no change in the situation is important information. Secondly, the daily briefing can be used to puncture the rumors that will inevitably arise in the shelter. Also, a scheduled briefing serves as a sign to shelterees that management recognizes the importance of communication to the population.

The daily briefings should be given by the shelter manager, or by members of the top management staff.

Unscheduled communications. Information pertaining to emergencies, or requiring immediate action, cannot be postponed until the next scheduled briefing. These must be communicated to the population as and when the situation arises.

One possible procedure is to select a simple code word to preface important unscheduled information. During the initial orientation, shelterees can be informed that when they hear this word or phrase announced by an authorized person, they should immediately quiet down, stop activities, and listen for an announcement. In a shelter of several hundred or fewer, a procedure whereby whenever the manager raises his hand everyone else raises his hands and quiets down, will accomplish the same end.

Posters, signs, charts. Most of the communications in the shelter will be oral. If there are writing materials available, signs, posters and charts can serve as important reminders to the population of such things as:

1. Important shelter rules.
2. Location of activity areas.
3. Instructions for operating equipment, or carrying out any activity.
4. Survival and recovery goals.

### **Communication from Shelterees to Management**

Shelterees will supply a great deal of information to the management staff concerning conditions existing in shelter.

#### Types of information from shelterees to management

The following are typical kinds of information that the management will want to receive from the population:

1. Information obtained from the registration forms which will supply the basic information on the background, special skills of the population, etc.
2. Reports on the routine status of various instruments within the shelter.
3. Reports on inadequacies in material, shortages, or breakdowns in procedures.
4. Social adjustment of the shelterees; health status.
5. Requests for changes in the organization of the shelter.

6. Requests for assistance in carrying out shelter duties.
7. Reports on the general progress of routine shelter operations.
8. Reports on any emergency occurrences.

### Communication procedures

Individual communication. Group leaders will be available at most times during the day to communicate with shelterees, but additional times should be identified as needed for personal consultation. This will provide shelterees with the means to indicate their problems or propose solutions to various problems. Religious or other staff members should also indicate the times that they are available for consultations.

Utilizing the chain of command. It should be made clear to the population that it is impossible that every problem be taken directly to the shelter manager and solved by him. In order that he may concentrate on his responsibilities for the over-all direction of the shelter, he should be insulated, to a degree, from the individual complaints of the shelterees. It is the function of the group leaders and of management staff members to provide the insulation.

The population should be informed that a set of procedures governs communication up channels, and that shelteree satisfaction will be obtained more readily if the procedures are observed. One standard approach to handling shelteree problems is made up of the following steps:

1. Shelteree talks first to Unit or Section head.
2. If he receives no satisfaction, he may see the Division head or a staff member (religious leader, counseling leader).
3. If the problem is still not resolved, and requires further communication, he may see the shelter manager or deputy shelter manager.

This chain of command does not necessarily hold for all types of shelteree problems. A medical emergency, or a serious crime will require the immediate attention of the manager and the appropriate team leaders.

Advisory group. The advisory group constitutes an important link between shelterees and management. The advisory council represents the shelterees to the manager and his immediate staff and aids shelter leaders in solving problems dealing with shelteree attitudes and behavior.

Group sessions. In addition to individual communication between shelterees and management, it may be beneficial to have occasional group sessions in which a Section, a Division, or even an entire small shelter may discuss

problems with its leaders. Group sessions may provide management with a better over-all picture of the state of the shelterees, and the nature and extent of their problems. Group sessions present the shelter manager or his representatives with the opportunity to discuss, in some detail, answers to questions, solutions to common problems, and statements of shelter policy, directly with a fair-sized number of shelterees.

Although group discussions can be a valuable management tool, such sessions should not be made a scheduled part of the day's activities, unlike the daily briefing. A group session should be called upon shelteree request and/or if management feels it will serve a useful purpose.

Group sessions should be handled with care. The size of the group should not be too large, so that what is planned as a discussion, turns into a lecture. Nor should group sessions be held if management feels that a particular shelter situation will be aggravated, and management control threatened by the formation of what starts out as a large discussion group.

**CHAPTER 17**  
**SUPPLY MANAGEMENT**

## CHAPTER 17 OUTLINE

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## Elements of a Supply Management Program

Certain provisions must exist in all shelters in order to sustain life for the duration of the shelter stay. Other provisions are necessary to provide shelterees with the physical and emotional strength that will allow them to contribute toward recovery operations after the shelter stay. A list of supplies provided by the Federal government and other desirable provisions may be found in Appendix C.

The goal of a supply management program is to achieve maximum efficiency in the use of shelter resources. This requires a plan for the procurement, inventory, storage, control, and distribution of all supplies in the shelter. Such a plan should be developed for every shelter prior to occupancy, based upon the physical design of the shelter and the amount and types of available supplies. If a supply plan has not been developed during peacetime, it should be considered as one of the major management duties very early in the shelter stay.

The shelter manager is responsible for all elements of the shelter supply program. The direct operational supervision over the supply program will be delegated either to a supply team head, or will be maintained by the heads of the task teams who utilize the supplies.

### Procurement of supplies

Shelter supplies may be procured in a number of ways, which, however, fall into two basic categories: supplies procured prior to the occupancy of the shelter, and those added at the time of entry or thereafter. The first two items below fall into the pre-occupancy category, the remaining four into the "entry or thereafter" category. All of the items should be covered in the plan developed prior to shelter occupancy.

1. OCD stocks: In most shelters, the stocks of food, sanitation kits, medical kits, radiological kits, and water containers provided by the Federal government, will constitute the major source of supplies.
2. Locally provided: Supplies to augment the Federally provided survival stocks may be added by local government or by the owners of the building in which the shelter is found.
3. Augmented from building supplies: At the time of shelter entry, valuable resources may be added to shelter stocks by the process of

bringing in items that are normally kept and used outside the shelter, but within the confines of the building. Some particularly useful items in this category include: fire extinguishers, tools, first aid kits, and other medical supplies, flashlights, radios, writing materials. Ideally, such a shelter should establish a pre-occupancy plan for bringing valuable items from the building into shelter at the time of an emergency. If a plan does not exist, the first incoming shelterees who are familiar with the building should be requested to pick up specified items of utility and bring them back into the shelter.

4. Personal belongings of shelterees: The pockets and purses of incoming shelterees may contain many items of potential use, including knives, pens and pencils, pocket lights, lighters, books, etc. In addition, some of the shelterees may bring a more elaborate set of personal belongings with them, including: blankets, medicines, food, etc. Management responsibilities with regard to personal belongings are discussed in Chapter 15, 'Shelter Administration,' pages 322 to 324.
5. Improvised supplies: Many useful items can be improvised from materials that are common to all or most shelters. The cartons and containers in which supplies are packed are a potential source of a wide range of improvised items. See page 346 of this chapter for more specific examples of supply improvisation.
6. Replenishing stocks: When radiation levels permit persons to leave the shelter for short periods of time, it will be possible to replenish shelter supplies and provisions in accordance with the local community plan covering such operations. In some cases, it may be necessary to make emergency trips to the outside while radiation still constitutes a hazard, in order to replenish essential provisions, such as water.

### Inventory

After the shelter population has entered, the manager, his appointed staff members, or the supply team head should begin a careful inventory of all supplies present in the shelter. This includes stocked supplies and all resources brought in by shelterees--personal belongings as well as supplies normally stored in the building. The inventory data will then serve as a basis for planning supply distribution. In addition, a continuous assessment of shelter supplies must be maintained and careful records kept of the depletion of supplies, remaining amounts, rates at which they are used. (See Supply Status Summary Chart, page 355.)

Initial management decisions concerning the distribution of supplies should be based on the assumption that no additional supplies will be obtained for up to two weeks. Careful planning and rigid control over supplies are necessary to prevent severe shortages at the end of the in-shelter period. Consideration



should also be given to the possibility of using the available supplies for a short time in the recovery phase, since the shelter may remain the temporary base of recovery operations.

### Storage and control

A decision must be made concerning the location and subsequent distribution of supplies in the shelter. Pre-shelter planning may have provided for the functional arrangement of items, that is, placing them in those areas where they will be used most of the time (e.g., food in the kitchen area). In other shelters, the stockpile may occupy one central location. In both cases, it will be essential to maintain a constant check on all items and their disposition. The responsibility for this check will reside with the supply team, the security team, the specific task teams that use the supplies, or a combination of several or all of these teams.

If possible, storage space may also be provided for personal effects that shelterees have requested be stored for them. These may include such things as medicines requiring special handling (e.g., refrigeration), and valuables.

### Distribution

Regardless of the type of supply system a particular shelter has adopted, several procedures should be followed in order to maintain equitable and controlled distribution of all supplies during the in-shelter period. These include:

1. Recording the kind and amount of supplies allocated and the recipients of such items.
2. Keeping a master summary of the shelter supply status.
3. Establishing schedules for time and rate of distribution.
4. Evaluating with the manager and his aides, requests for remaining items and planning for further disposition or rationing of supplies under both normal and emergency situations.

### Control of non-expendable items

A bulk of the material in this chapter deals with supply resources that are expendable, that is, consumed or depleted in the course of normal operation. Every shelter will contain some items that are not used up in operation, such as tools. The use of such items must be controlled as strictly as that of expendable supplies. The location of the items should be known at all times-- they should be signed out whenever they are taken from the area in which they are normally kept. Furthermore, their use should be limited to authorized personnel.

Dual-purpose use of supplies

A major ingredient of a shelter supply program is the effective use of shelter supplies for purposes not originally intended. This refers solely to purposes that are "in addition to" and not "instead of" the original planned use. Further examples of supply improvisation are presented in different chapters of this document, based upon their additional use. Some examples of the use of more common dual-purpose supplies (mainly their cartons) are listed below.

1. Filled cartons can be employed as building materials to erect a temporary barrier for a separate management, medical, sanitation area, or whatever else is deemed desirable.
2. A large number of filled cartons stacked together may have enough density to provide some radiation protection.
3. Cardboard from empty cartons, placed over metal water drums, can make a seat or table, or even sleeping space.
4. An empty cardboard carton placed over two metal food containers makes a sturdy seat.
5. Empty cardboard cartons and metal food containers can be used to collect and store all types of objects, from garbage to personal belongings.

## Basic Approaches to Supply Management

There are three general approaches to a supply management program in a fallout shelter. These may be referred to as the centralized, decentralized, and combined approaches. Of all the methods of supply management, the combined approach, discussed last, appears to be the most efficient supply management method for the widest range of shelter types.

### Centralized Supply Management

Centralized supply management means that shelter resources are located in one major area of the shelter, under the supervision of the supply team or other persons appointed by the manager.

#### Procedures for centralized supply management

Supplies are issued to appropriate group and team leaders or individual shelterees upon presentation of a requisition or other form of authorization. The recipient signs for the supplies that he has been issued.

In distributing medical supplies, the patient is given his medication or supplies upon presentation of a slip signed by an authorized member of the medical team, or in the presence of a member of the medical team.

If medicine is involved, the recipient should consume the medication at the time and place it was issued.

In order to reduce the crowding and milling about the supply center, group and team heads can report for their regular supplies on a scheduled basis, as many at one time as the supply team is equipped to handle.

#### Advantages and disadvantages of a centralized supply system

Among the advantages of this approach are:

1. Generally, less total floor space is required because of stockpile capability.
2. Facilitates inventory, control, and record keeping.
3. Requires fewer people to handle and guard supplies.
4. Easier for shelterees to find the supply area.

Among the potential problems associated with this approach are:

1. The length of time and the red tape involved in issuing supplies to appropriate people.
2. Crowding around the central distribution area.

#### Recommendations for use of centralized supply

Although the centralized supply approach has several advantages, it cannot be recommended as the supply method for many types of shelters. The cost, in terms of time spent in distributing supplies is a strong limiting factor.

Where all or most of the following conditions are met, the centralized supply management may be the method of choice:

1. The shelter is small and comprises either a single space or several separate but contiguous areas.
2. All supplies have been stacked, prior to occupancy, in a single location in the shelter.
3. There is a room or an area in shelter that is ideal for storage, inventory, and distribution of supplies; perhaps an existing supply room.
4. The size of the shelter population relative to the dimensions of the shelter puts floor space at a premium.
5. The supplies are of a nature that they can be directly used by the recipient without requiring elaborate preparation.

#### Personnel

The centralized approach requires the services of a supply team to store, inventory, issue, and monitor supplies.

### **Decentralized Supply Management**

There are two different decentralized supply approaches. They are the functional approach and the area approach. The former calls for locating the supplies dealing with each specific task (for example, feeding or medical care), in a separate place in shelter under the responsibility of the appropriate task team. The area decentralization method is to set up a number of supply areas in different parts of the shelter, each stocked with the full

range of shelter supplies and responsible for the supply needs of a designated segment of the shelter population.

#### Procedures for functional decentralization

Each task team stores, inventories, distributes, and monitors its own supplies. After each team has established its own location in shelter, all the supplies associated with the particular task are brought together to the special team area.

Community group leaders or individuals authorized to pick up supplies, go to a different team area for each type of material resource they desire to obtain. The procedure for requisitioning and acknowledging the receipt of supplies are identical to those described under "Centralized Supply Management," page 347.

In some instances, shelterees may come in a group to the task team area and receive supplies directly without the group leader. Such an approach, in the operational area of feeding is described on pages 92 and 93 or the "Food" chapter.

The task team head is responsible for providing the manager with up-to-date information on the status of his resources.

#### Advantages and disadvantages of functional supply decentralization

The advantages of a functional decentralized supply system are:

1. More rapid distribution of supplies.
2. More accurate information on the status of each type of supply resource (however, not necessarily of the total resources of the shelter).
3. Closer connection between a type of supply resource and the task team that utilizes that type of resource in shelter operations. This may result in more efficient use of supplies.

Among the apparent disadvantages of the functionally decentralized approach are:

1. An increase in shelter traffic.
2. Greater difficulty in ascertaining the total supply picture rapidly at any given time.
3. Greater difficulty for management in supervising supply operations.

Recommendations for use of functional decentralization

Functional supply decentralization is recommended if one or preferably several of the following conditions are present:

1. The shelter contains separate rooms or areas that have been planned and equipped for use by specified task teams (for example, a medical area, a food preparation area, a training area).
2. Supplies need preparation before they can be used by the individual shelteree (for example, food toppings).
3. Different types of supplies have been placed in different shelter areas, for convenience or other reasons, without the areas having been planned for use by a specific task team.

Personnel for functional decentralization

Under this system, a separate supply team is no longer necessary. Each task team should be increased in size to accommodate the additional supply duties. Someone on the management staff should be given the assignment of maintaining the over-all supply records of the shelter, based upon the receipt of supply data from the task team heads at regular intervals.

Procedures for area decentralization

Area decentralization is essentially the same approach as the centralized method discussed on page 347. The only difference is that instead of one shelter-wide supply "depot" in a shelter, the area decentralization approach calls for several such "depots" each one serving all the supply needs of a segment of the population.

The head of a supply team or sub-team that services one "depot" sends his inventory data to a central source, where the total remaining resources of the shelter are calculated.

Advantages and disadvantages of area decentralization

An advantage of area decentralization is that it reduces the time and the "red tape" associated with supply distribution. Unlike the functional approach (page 349), area decentralization also lessens the traffic problem somewhat.

The above disadvantages are not gained without cost. The area decentralization approach suffers from two of the disadvantages of any decentralized system: greater difficulty in supervising supply operations and in getting data on the total supply picture. In addition, more supply team personnel are required on duty at a given time. However, this may sometimes be a desirable feature if management wants to employ many people in useful tasks.

This approach is recommended for two types of shelters. The first is the shelter whose physical configuration consists of widely separated areas, floors, rooms. The second type is the extremely large shelter (over 3000 in capacity). In neither case would the centralized or functionally decentralized system be efficient. From the supply point of view, one must regard the two types of shelters as two or more sub-shelters, each with its own supply area.

#### Personnel requirements for area decentralization

This approach calls for the largest manpower assignment of any supply method. Each decentralized supply area must have its complement of team personnel to conduct all supply functions. Whether each supply group should be given the status of a separate supply team, or whether it should be considered a sub-team of the shelter supply team, is a matter for each shelter to decide.

### **The Combined Supply Management Approach**

This supply management method is generally the most efficient approach to the supply problem for the greatest number of shelters, and should be given first consideration when the supply plan is devised. The combined approach incorporates elements of both the centralized and decentralized systems. Shelter resources are kept under the supervision of a supply team at a designated supply area and issued to task teams who, in turn, in the task team area, distribute the items to the shelter population.

#### Procedures for combined supply management

Instead of issuing supplies to team leaders, group leaders, and individuals as in the centralized approach, the supply team gives each task team its quota of supplies at regular intervals. This may be daily, twice a day, every two days, or whatever is determined as necessary. The procedures for requisitioning and acknowledging receipt of supplies remain unchanged from the centralized approach.

The task team carries the materials to its own location in the shelter, and there dispenses it to individuals or a group of shelterees, or community group leaders.

Each task team keeps records of its own supplies, while the supply team maintains inventory control over all shelter resources, taken as a whole.

Advantages and disadvantages of the combined supply approach

The combined approach permits rapid access to the total supply picture in a shelter; it should cut down the supply distribution time considerably over the centralized approach, especially if each task team can pick up enough supplies at one time to last a day or more. The combined approach also allows the task team to distribute its own supplies, which as previously indicated may lead to a more efficient use of resources.

The combined approach is not without its potential problems. By introducing an additional stage between supplier and consumer, the possibility of supplies being lost, damaged, or misappropriated, is increased. Also the combined approach requires more people working with supplies, than does either the centralized or the functionally decentralized.

Recommendations for use of combined approach

Except in the very large or multi-area shelter for which the combined approach is inefficient, or for the very small shelter for which it is unnecessary, the combined method is recommended as the most reasonable approach to supply management.

Personnel requirements for the combined approach

This system requires both a separate supply team, and a supply representative on duty each time that shelter resources are handled.



## The Supply Status Summary

A prime responsibility of shelter management is to allocate the supplies of the shelter, both efficiently so that they last until opportunities arise to replenish them, and equitably so that every shelteree receives his due amount. In order to accomplish this, the shelter manager, his aides, and the supply team head must be given up-to-date information on the over-all status of shelter supplies. The Supply Status Summary provides this information.

### Description of the Supply Status Summary

A sample of this form is presented in Figure 16. In addition to the Supply Status Summary for OCD stocks, a similar chart should be prepared for locally provided stocks, and for additional supplies brought into shelter, where these categories are applicable.

### Preparation of the Supply Status Summary form

Ideally, copies of this form will have been prepared prior to shelter occupancy. In fact, one of the uses of the Summary is to keep a record of the pre-occupancy supply inventory. If copies of the Supply Status Summary are not available at the time of shelter entry, the format can be drawn up by the administrative team, and given to the supply team head. The latter will be responsible for keeping the record current and for distributing the information to the appropriate management staff member(s).

### Explanation of items

Shelter. The name or number of the facility, or that part of the shelter for which the supply form applies.

Pre-occupancy inventory; date of inventory. In this column are listed all the items that make up the supply resources of the shelter, stocked prior to an attack; the quantity of each item is filled in the blanks to the left of the item. The date at which the last inventory of supplies was carried out is entered at the top of the column after Date of Inventory. This column provides a listing of all the supplies that are supposed to be in shelter at the time of entry.

Initial in-shelter inventory (date/time). Very shortly after entry, the shelter manager should select appropriate personnel to conduct an inventory of supplies that actually are in the shelter. The difference between the pre-occupancy and initial in-shelter figures may be due to damage, spoilage, or unauthorized use of supplies. The date and time the initial in-shelter inventory was taken should be entered in the box under Date/Time.

## Supply Status Summary

Available as of \_\_\_\_\_ ; (date/time). Each sheet of the Supply Status Summary has seven columns in which the total remaining quantity of each item as determined at the daily or more frequent inventories is entered. During the first few days of shelter stay or when the supply level is low, it may be desirable to undertake several inventories a day. The date and time of each inventory should be placed at the top of the column under Date/Time.

Remarks. This column should be used to explain any discrepancies in the numbers, to indicate supply losses and the reasons for them, and to signal possible future supply problems.

If more than one person will be performing supply inventories, each availability column should be initialed by the person responsible for that particular inventory.

**SUPPLY STATUS SUMMARY (OCD STOCKS)**

SHELTER \_\_\_\_\_

PRE-OCCUPANCY INVENTORY	INITIAL IN-SHELTER INVENTORY	AVAILABLE AS OF:										REMARKS		
		DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE			
DATE OF INVENTORY:	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
<u>BISCUITS</u>														
— <u>Cases, 2.5 gal. cans per case</u>														
— <u>Cases, 5 gal. cans per case</u>														
<u>WATER</u>														
— <u>Drums, 17.5 gal.</u>														
— <u>Cartons, poly-ethylene liners 20 each</u>														
<u>SANITATION KITS</u>														
— <u>Kits, Model III 25 persons</u>														
— <u>Kits, Model IV 50 persons</u>														
— <u>Drums, fiber (1 drum per kit)</u>														
<u>CONTENTS OF KITS</u>														
— <u>Toilet tissue Rolls</u>														
— <u>Can Openers</u>														
— <u>Sanitary napkins, heavy duty, doz.</u>														

Figure 16. Supply Status Summary

**ADJUSTMENT  
TO  
SHELTER LIFE**



**PSYCHOLOGICAL SUPPORT**

**IN-SHELTER TRAINING**

**RELIGIOUS, RECREATIONAL,  
AND SERVICE ACTIVITIES**

**CHAPTER 18**  
**PSYCHOLOGICAL SUPPORT**

## CHAPTER 18 OUTLINE

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## The Problem of Reaction to Disaster

Nuclear attack will subject shelterees to many stresses--actual and feared weapon effects, loss or possible loss of loved ones, disruption of normal patterns of living and communication, shelter confinement, and an uncertain future. Most of the operation of the shelter will be carried out under conditions of real danger. So long as the effects of the conflict continue, the shelter will be in danger from residual radiation, fire, and supply shortages. In such a situation, it will be a difficult matter to distinguish between warranted fear and over-reaction to disaster.

It will be only normal for many persons so involved to react, both emotionally and physically. Most people should be able to adapt to the realities of the situation with relatively mild and temporary symptoms. Included among such symptoms are increased physical tension (trembling, difficulty in speaking), physical upsets (for example, nausea, diarrhea or constipation, fatigue), and psychological reactions (including fear, irritability, stunned helplessness, excitability). Some shelterees, however, may suffer more prolonged and serious reactions to the stresses of nuclear attack. This is discussed in more detail on page 371 of this chapter.

In addition to dealing with the above-mentioned reactions to disaster, the shelter manager will have to cope with the special needs of children and old people as well as problems which some shelterees may bring with them to the shelter, such as alcoholism, drug addiction, and mental illness.

Shelter management should strive to provide psychological support which will buoy up the morale and mental well-being of shelterees, insofar as possible under conditions of a nuclear attack.

This may best be accomplished by: (1) helping to alleviate the mental anguish of individuals who are suffering from reactions to disaster, and (2) preventing psychological problems from creating a dominant mood or attitude which could be detrimental to the adjustment and organization of the entire shelter.

Shelter management must be aware of an important realization concerning psychological support activities. There are very real limitations on what can be accomplished in shelter with limited staff and facilities. Shelter management should try to help as many shelterees as possible to adjust to the realities of the disaster situation. It cannot hope to provide a totally effective program to eliminate reactions to disaster. However, even the brief, unsophisticated steps recommended in this chapter can be of major assistance to the well-being of shelter occupants.

## General Principles of Psychological Support

The steps which management can take to provide psychological support may be grouped into the following four general areas:

1. Effective management: which includes providing strong management, with particular attention to those routine operations that may help to reassure shelterees and to convey information that can assist shelterees to define the new situation in which they find themselves.
2. Interaction with others: which emphasizes management's role in encouraging shelterees to discuss problems with each other and to provide mutual sympathy and reassurance.
3. Goal-oriented behavior: which includes management's responsibility for defining goals and assigning work compatible with the individual's mental condition.
4. Control measures: which include use of drugs, confiscation of dangerous items, and physical restraint to minimize the effects of maladaptive behavior.

### Effective Management

Probably the most important source of psychological support to shelterees will be an effective management; that is, one which provides: (1) strong personal leadership, (2) successful conduct of organized shelter activities, and (3) the dissemination of information.

#### Personal leadership

In a crisis, people will seek and readily follow a leader who can provide direction, inspire confidence, and help to structure a disordered situation. Initially, a manager who can be a strong authoritative-type leader will, by his example, aid the psychological adjustment of many shelterees. As the shelter situation is clarified and routine operations begin, the manager should be sensitive to the need for a more democratic approach.

#### Organized activities

Operational routines, such as feeding, sleeping, medical care, adequate sanitary provisions, etc., will help to define the new environment as well as establish as much continuity as possible with previous routines. However, during early periods of organization and adjustment to disaster conditions, these routines should be kept simple and flexible to accommodate those who are confused or who are having difficulty adapting to the new environment.



For example, meals, particularly if they include some hot food, can be an important boost to morale following the initial impact of attack. Feeding should not occur during an acute phase of anxiety and fear, however, lest it result in widespread nausea.

Sleep and rest may be very important to shelterees in gaining control following initial reactions to a nuclear attack. As early in the shelter stay as reasonable, management should attempt to provide an opportunity for a quiet rest period for all shelterees, especially for those with obvious adjustment problems.

In addition, organized recreational and spiritual activities can help to reduce stress and raise morale of many shelterees.

### Information

To help shelterees to define what has happened, what is happening, and what can be expected to happen, the shelter management should provide a continual flow of information to shelterees. This information should include an explanation of:

1. The shelter environment, such as will there be enough food and water; where the toilets are located; how long people may have to remain in shelter.
2. Knowledge of what is happening outside the shelter and what dangers they are facing.
3. The protection which the shelter offers including protective procedures to be implemented.

In short, all information which can clarify the situation and can reassure shelterees that they are being protected as much as possible will give psychological support.

In addition, information from management will be the best way to prevent rumors which are likely to be a problem among people faced with a radical and difficult adjustment. Unchecked rumors may generate unwarranted fears and initiate foolish and potentially dangerous group action. The manager's best weapon against rumor is a clear and candid presentation of the situation as he knows it. Even where there are critical issues about which he has no information, it is better to state that the answer is not known than to permit rumor to suggest an answer generated out of fear.

Anxiety over missing loved ones is likely to be the most unresolvable and disturbing problem for shelterees as a whole. The manager should give an honest estimate of when shelterees may be able to receive information about loved ones.

## Interaction With Others

Sympathetic and friendly interactions with others is one of the keystones of successful psychological support. The manager may enhance such interactions in several ways, particularly by: (1) forming a compatible social climate, (2) strengthening group associations, and (3) allowing groups to express and exchange problems and ideas.

### Social climate

The total social climate or mood will be significantly influenced by the tone which management will reflect to shelterees. If management is able to indicate through communications and interactions with shelterees that it is a resource for physical and mental well-being, as well as a source of authority, it will set an atmosphere for understanding and mutual accommodation among shelterees. To accomplish this, explicit instructions should be given to all levels of command to encourage sympathetic exchanges among shelterees, especially with persons having obvious adjustment difficulty. It should be emphasized here that no one should have expressions of sympathy forced on him, nor should anyone be pressured to talk about his fears or other problems.

### Grouping

Those interactions among people which provide the most effective psychological support generally come in the context of small, close-knit primary groups. The formation and functioning of such groups are to be encouraged by the management organization. In the organization of the shelter population into community groups, the purpose of the small group called the Unit is to provide opportunities for such intensive interactions. Within the Unit, friends and families should be kept physically and functionally together insofar as possible. (See Chapter 13.)

New primary groups should be formed for individuals obviously needing and lacking such association. For example, mothers and fathers separated from their children may be asked to care for children who are separated from their parents.

### Group discussions

An excellent opportunity for individuals to express their unresolved problems relating to their attack experiences, their gripes and difficulties with in shelter adjustment, and their fears for the post-shelter world is in group discussions at the Unit or Section level.

Unit and/or Section leaders should be encouraged to schedule informal discussion periods which provide an opportunity for shelterees to express some of their common personal problems. The chapter on "Communications," page 338 indicates further guidance on this topic.

## Goal-Oriented Behavior

When an individual is under stress, two important sources of psychological support are having something useful to do and knowing how to do it. To employ goal-oriented behavior, that is work or recreational activities, as an aid to psychological support, the manager must be aware of the therapeutic potential and limitations of these activities and be alert to possibilities of how they can be used to prevent or alleviate maladaptive behavior. These include operational routines, service, recreational, or spiritual tasks.

The following guidelines may help the manager to recognize the effects which stress may have upon the performance of useful activities and to indicate some means to ameliorate these effects.

1. Many persons under stress will tend to act impulsively and with a feeling of inappropriate urgency. The setting of definite and deliberate goals may tend to divert random activity into useful action.
2. Under stress, people tend to concentrate their attention on the immediate task and have a lack of awareness of larger problems. The shelter manager must not only be aware of this tendency in himself and resist it, but he must also be aware of this problem when assigning tasks which involve broad or flexible attention, or which require anticipation of problems. The manager must also act as a source of information and guidance for persons suffering from narrowing of attention.
3. Under stress, confusion, and inadequate information, people also tend to lapse into old habits of response; that is, they may forget what they have been trained to do under disaster conditions. The shelter manager must be alert to this in himself and his key staff members to insure that the appropriate trained responses are applied, rather than the more natural, but quite possibly inappropriate, ways of responding.
4. Complex and skilled performance tends to be more adversely affected by stress than the performance of simple tasks. As a result, management should provide individuals, recovering from disaster symptoms, with useful but not too demanding duties to perform. Care should be taken not to overburden people who could easily handle assigned tasks under normal circumstances, but who are unable to cope with them until more recovered.

## Control Measures

Psychological support in the shelter should emphasize kindness, reassurance, and sympathy. Actions which might be interpreted as threatening or punishing should be avoided whenever possible. Extreme measures should be

taken only if maladaptive behavior is dangerous to the individual or others, or is so disturbing to the shelter operation as to be intolerable. These measures should be limited to the use of drugs, confiscation of potentially dangerous property, and physical restraint.

### Drugs

Phenobarbital is supplied in OCD-stocked shelters. Directions for its use are located in the medical kit. If a qualified medical person is available to prescribe and administer, its use may be considered more or less routine rather than extreme.

Tranquillizers may be stocked in some shelters as supplementary items. However, they are likely to be of limited effectiveness in alleviating severe symptoms of psychological problems. Also, when water and food are severely rationed, tranquillizers may have certain detrimental cumulative effects, particularly on children.

Drugs sometimes have the reverse effect from that intended. For example, instead of quieting a disturbed person, administration of phenobarbital may actually cause him to become more excited. In such cases, it is usually better to discontinue use rather than to increase dosages to potentially dangerous levels.

### Confiscation of potentially dangerous property

In the following cases, shelterees may have or obtain property which will have to be confiscated. Disturbed persons, particularly those with delusional symptoms will, at times, appropriate items that can be used as dangerous weapons. Persons who are alcoholics and drug addicts may go to great lengths to obtain alcohol or drugs. Other disturbed persons may appropriate essential shelter supplies as a source of security.

In deciding to confiscate an item, the manager should determine that one or more of the following applies:

1. There is a serious threat to the well-being of the individual or to others in the shelter.
2. The item is essential for other important shelter functions.

To confiscate property, the following general steps are recommended, with such individual variations as are necessary in specific situations.

1. Have a management representative or individual with appropriate experience explain why the item cannot be retained, and ask that it be released.

2. The security team should be used to confiscate potentially dangerous property. In the absence of a security team, assemble a team of able-bodied persons (men, if it is a male from whom the item is to be confiscated, and women, if it is a female) sufficient in number to represent an overwhelming show of force. No more than six persons should be required, one to restrain each arm and leg, one to prevent the disturbed person from biting others or injuring his own head, and a coordinator who will confront the disturbed person and actually accomplish the confiscation.
3. Make assignments and brief the team.
4. Confront the individual and again explain why the item cannot be retained and ask that it be released.
5. If all else fails, confiscate by physical force.

### Restraint

The use of restraint should be avoided, if at all possible, not only because it can be interpreted as punishment but also because it will frequently antagonize disturbed persons and make them more violent and noisy. Only if an individual is endangering himself or others or is seriously disrupting the shelter, should restraint be employed.

Wrapping a person in sheets and blankets is probably the most effective and safest method. Strips of cloth wrapped around wrists and ankles and tied to something solid can be an effective restraint, but must be used with care and checked frequently to insure that circulation is not cut off. Use of rope, belts, and ties should be avoided, if possible, because of the likelihood of interfering with circulation.

A restrained person should be removed to a separate area, if such is available. If he is making sufficient noise to seriously disrupt the shelter, particularly sleep, a gag may be used. However, discomfort and the slight danger of suffocation pose hazards for such a measure.

Individuals under restraint should be constantly attended and kept as comfortable as possible. They should be released as soon as medical personnel or the manager judge acute danger to have passed.

When partial removal of restraints for toilet purposes is necessary, at least two able-bodied persons should attend the disturbed person.

## Psychological First Aid

### The Need for Psychological First Aid

Symptoms of psychological reaction to disaster will normally begin to decrease spontaneously within a few hours. Whenever this spontaneous recovery fails to occur, the individual may require the assistance of "psychological first aid" to help to speed recovery.

Psychological first aid is the immediate support provided for individuals in emotional trouble. In general, the earlier that psychological first aid is given, the more effective it will be. Through a brief interview, sympathetic encouragement, and job orientation, an attempt is made to return moderately disabled persons to relatively normal functioning in a short time, and to help more serious cases to be as comfortable and non-disruptive as possible.

There are two broad groups to be treated. The first includes those with very distressing symptoms who will need assistance to prevent them from becoming a source of serious disturbance to others. Persons suffering from dissociative (out of contact), overactive, and delusional reactions are likely to be in this category. The second group is composed of those individuals who will respond most quickly to treatment and be able to assume a productive role in shelter. These will probably be persons who show depressed, physical, or fear reactions.

Although those who are most disturbed will usually be the most difficult to help, they will probably have to be treated first to prevent or reduce the problems that they will be likely to create.

### Personnel and Facilities

#### Personnel

Shelter management should select mature, responsible adults who are apparently adapting well to the situation to give psychological first aid to fellow shelterees. In general, persons with the following background should be most suitable: psychiatrists, psychologists, physicians, social workers, nurses, clergy, vocational counselors, teachers, lawyers, and supervisors.

See Chapter 13, "Shelter Organization," page 251 to 253, for further information on psychological first aid team.

### Facilities and equipment

It is neither necessary nor desirable to provide a centralized facility or a special medical area for psychological first aid treatment. Rather, psychological first aid should be conducted in a way that emphasizes the individual's continuing participation in the shelter life. By treating him within the shelter proper, it is implied that he is suffering from a temporary disability and is not considered a permanent casualty. Therefore, each aid person should attempt to locate an appropriate area providing maximum privacy for talking. If privacy is not possible, however, an effort should be made to talk with the disturbed person even in the midst of other shelterees.

Cigarettes or hot drinks can be important psychological first aid tools. If shelter management has access to a vending machine, or similar source, it may be advisable to place some of the cigarettes or hot drinks at the disposal of the medical or psychological first aid teams.

### **Problem of Administering Psychological First Aid**

In administering psychological first aid, aid personnel should be prepared to cope with the following difficulties:

1. Their own reactions: Almost all personnel administering psychological first aid will themselves be suffering from concern about loved ones, fear, and other reactions to disaster. They must be able to submerge their own problems to help others. They must, for example, avoid a feeling of, "I have managed to get myself under control, why can't they?"
2. Fatigue: Psychological first aid personnel will have limited time and energy. Listening and responding appropriately to other people's problems is a difficult job for trained personnel under the best of conditions. When psychological first aid personnel feel that they have "had enough," they will require respite and rest. Fatigue can interfere with attention and cause irritability, which will destroy any chance of helping people with psychological problems.
3. Hostility from shelterees: Personnel attempting to provide psychological first aid may meet with unreasonable hostility on the part of those whom they are trying to help. As the shelter stay is extended, some shelterees may become increasingly hostile toward shelter management, and some of this hostility may be directed at the aid person. If the aid person can refrain from responding with a hostile retort, such an expression of hostility may provide a useful safety valve.
4. Non-responsiveness: Some persons will not respond to attempts at psychological first aid. Even though the gains may seem small, aid personnel should continue to talk with disturbed persons for a time, unless the attempts actually seem to be doing more harm than good.

## The Interview

The basic technique of psychological first aid is a relatively brief (up to ten minutes) interview with each person having difficulty recovering from disaster reactions. A single session may be sufficient for some persons; a series over a period of days may be required for others.

### Purposes of the Interview

The major purposes of the psychological first aid interviews are:

1. Permit expression. Shelterees may be able to see ways of coping with problems if they can discuss them with the aid person, whereas they may feel overwhelmed if they cannot talk them out.
2. Provide reassurance. Many persons may be helped over the worst aspects of their disaster reactions by the knowledge that someone cares, that others are faced with the same problems, and that as much as possible is being done to see the shelter through the crisis.
3. Identify potential danger. Strongly expressed beliefs of persecution or thoughts of self-destruction may help to identify persons who may become imminently dangerous to either themselves or others.
4. Identify capabilities. The ultimate aim of psychological first aid is to aid the individual in becoming a useful member of the shelter and post-shelter society. The aid person should be alert to potential contributions which the recovering individual can make.

### Conducting an Interview

A typical psychological first aid interview might be conducted according to the following guides:

1. Initiation of the interview. The interview should be initiated upon request of the person seeking aid, or upon request of a group leader or staff member who perceives that a shelteree is having difficulty adjusting. The aid person should introduce himself and indicate that the purposes of the interview are: (a) to discuss any aspects of the disaster situation or shelter life about which there might be questions, and (b) to identify the ways in which the individual might contribute to in-shelter and post-shelter activities.
2. Experiences. The interviewee should be encouraged to tell his account of the disaster in his own words. He should be particularly encouraged to express any fear, anxiety, or depression which has resulted from this experience. Even a few minutes of free talking may help to remove some of the feeling of despair and helplessness.



3. Discussion of problems. In general, the interviewee should not be interrupted while he is relating his experiences and reactions. Rather, items worthy of discussion should be noted and the interviewer can refer to them again in a subsequent discussion and reassurance period.
4. Work discussion: Toward the end of the interview, some time should be devoted to discussing the role which the interviewee is playing in shelter operations, how he might play a more productive role, and what potential contributions he may make to post-shelter society.

### Principles of the first aid interview

The following general principles are to be observed in the conduct of psychological first aid interviews:

1. Aid personnel should be prepared to accept attitudes, values, and feelings which may be at variance with their own. They should not try to change a person's basic feelings, but rather help him to establish more acceptable, useful behavior. No matter how odd a person's beliefs or attitudes may seem, he should never be criticized or ridiculed.
2. Aid personnel should accept the individual's symptoms as real, but temporary, limitations. They must guard against resenting the intangible disabilities, which are associated with psychological reactions to disasters. Exhortations such as "Snap out of it" and "Pull yourself together" have no place in psychological first aid. The individual probably does not want to be disabled emotionally. Psychological first aid should help him to overcome this disability and to make maximum use of his available assets at any given time.
3. Aid personnel should not underestimate the potentialities of disturbed persons. Many can be of real assistance in the shelter community if given an opportunity to perform a useful task.

## Assigning a Useful Role

### Purpose of work assignment

Psychological first aid interviews should identify individuals who are ready for, and indeed may need, a useful role in the shelter. Participation in very simple tasks, such as clean-up and routine clerical activities, may provide a valuable first step toward full readjustment and participation.

### Assignment procedure

The following recommended procedure may be employed to assign shelter tasks to persons recovering from disaster reactions:

1. Aid personnel should recommend operational roles for individuals on the basis of interview results.
2. Every effort should be made to find work which will have continuity with abilities or roles that the individual performed before the disaster.
3. In general, these persons should work with sympathetic team members who should be briefed in how to encourage them without pressure.
4. Initially, persons recovering from disaster reactions should not be given sole supervisory responsibility in their assignments.
5. For those individuals who continue to have persistent reactions, simple tasks fitted to their abilities and needs may occupy them and help to minimize the disturbances which they can create.

## Types of Maladaptive Responses

Maladaptive responses, as used in this document, refer to behavior which interferes with an individual's adjustment to the disaster situation or with the shelter's organization and operation.

A simplified classification of responses to disaster is presented here to suggest some of the ways in which psychological support might be varied for individuals exhibiting grossly different types of responses. Although diagnosis of maladaptive responses should not be attempted in any sophisticated sense except by a qualified psychiatric team, personnel dealing with these disturbed persons should be aware of the different methods of treatment which are appropriate to different reactions.

Personnel providing psychological support should deal with each person needing help on the basis of individual needs, and should refer to this section only for general guidance.

### Fear Reactions

#### Description

In a nuclear disaster, almost everyone will be afraid to varying degrees, certainly so long as hostilities continue, and quite possibly, throughout the shelter stay. To counteract this fear as much as possible, the shelter must be organized and operated to demonstrate that all reasonable protective measures have been taken to insure physical survival and mental well-being. However, the fear reactions of some people will be so acute that they will be seriously incapacitated and may interfere with shelter operation and morale.

Fear will be expressed in many ways. It may include: inability or unwillingness to leave a particular place, cringing at noises or sudden movement, a need to avoid certain people or almost total dependence on others. It may take the form of screams, moans, or verbal expressions. In its most extreme and potentially dangerous form, it may be expressed as panic or uncontrollable flight. Although panic is not very common, it can become highly contagious under certain situations of stress, and must quickly be controlled, if necessary, by force.

#### Treatment

It is most important that persons with excessive fear reactions be given reassurance and an opportunity to do something useful within their capacities. People with fear reactions are likely to be quite cooperative and amenable to suggestion as long as they do not feel threatened. No matter how foolish and unreasonable their fears may seem, they must be respected, since arguing with the person may only increase the threat.

## Physical or Somatic Reactions

### Description

In a disaster, most people will suffer briefly from some physical symptoms, such as: muscular tension and trembling, difficulty in talking, headache, nausea, diarrhea, and urinary urgency. In addition, chronic conditions, such as stomach ulcers, high blood pressure, and asthma may become aggravated by disaster stress. For a few people, however, disaster stress may result in more severe and long-lasting physical symptoms, including completely debilitating stomach distress, imaginary symptoms of radiation sickness, functional blindness, or loss of the use of arms and legs.

### Implications for treatment

Because a diagnostic capability in terms of medical facilities and personnel is likely to be limited in most shelter, it may be difficult to determine whether there is a physical origin to the symptoms. Regardless of whether the symptoms have their origin in physical illness or injury, to the person suffering from the symptoms, they are real. Unless there is medical evidence to the contrary, the disability should be considered temporary, and the individual encouraged to participate in shelter activities insofar as the physical symptoms will permit.

## Depressed Reactions

### Description

The mere fact of a nuclear attack on the United States without any direct, personal experience of disaster will be sufficient to make most citizens feel hopeless and depressed. It would, in fact, be abnormal not to react in this way. Most people, however, will not let these feelings interfere for a very long time, or in a major way, with their potential usefulness in the shelter.

There will be some people who may be so overwhelmed by grief over the loss or potential loss of loved ones and feelings of helplessness in the face of such a major disaster that they may be unable to function in any coherent fashion. They may either withdraw from social contact or may constantly impose an expression of their own problems on others.

### Treatment

Those suffering from a depressed reaction may be among the most responsive to psychological first aid, particularly since this group is quite

amenable to suggestions. Persons providing psychological support to depressed persons will have to guard against a tendency to become annoyed by individuals who give way to uncontrolled grief or depression. In general, persons who are compelled to express their grief and feelings of depression should be kept away from other shelterees who react antagonistically to them.

Loss of will to live and thoughts of suicide may be common among persons with depressed reactions. Persons with obvious tendencies toward self-destruction should be attended constantly.

Work assignments for depressed persons will generally have to be routine sedentary tasks such as record keeping.

## Overactive Reactions

### Description

Many people will react to disaster stress by being unable to concentrate, sit still, or remain at any one task. When this reaction becomes extreme, persons may wander aimlessly or may engage in activity violent enough to endanger themselves, property, or other people.

### Treatment

Severely overactive persons are likely to hurt themselves without actually intending to do so. They are also likely to criticize, interfere in the affairs of others, and get involved in arguments and fights. Someone should be assigned to stay with such severely agitated individuals to prevent them from harming themselves or others insofar as possible.

Because overactive people are also likely to be a source of annoyance, they may become scapegoats. Management and psychological first aid personnel should be alert to the incipient formation of groups to persecute these individuals in order to: (1) divert activities of both group and overactive individuals away from a confrontation, and (2) indicate to the group that the problem is not a personal issue but one of psychological adjustment.

Some individuals suffering from reactions of overactivity may, at least temporarily, become leaders of militant action groups; that is, groups that may want to do something about the problems facing the shelter either without knowing what to do or wanting to take actions which are inappropriate. The manager should try to direct the activities of such groups toward useful goals.

Appropriate work assignments should include a good deal of physical activity and as much variety as possible.

## Dissociative (Out of Contact) Reactions

### Description

Although dissociative reactions may be easily confused with depressed reactions, dissociated persons will appear to be "out of contact" and will tend to be much less responsive to those around them than will depressed persons. Persons with dissociative reactions will seem to be generally overwhelmed by the situation. In mild cases, they will give an impression of shocked helplessness, or of having been temporarily stunned, while in severe cases, they may be totally mute and not react at all to other people or to physical needs.

### Treatment

Unlike those with depressed reactions, persons with dissociative reactions will generally not welcome and may actively resist attempts at interaction or encouragement. Occasional words of encouragement, an indication of friendliness, such as offering food, and mild invitations to participate in activities, should probably be the limit of psychological support.

## Delusional Reaction

### Description

The fallout shelter situation will have a definite element of unreality for everyone, even those trained in shelter management. To some shelterees, this note of unreality may become dominant. Normal cautiousness and doubt about a new, ambiguous, and stressful situation may give way to deep-rooted suspicion of fellow shelterees. In extreme cases, the individual may believe that some of the shelterees are in league with the enemy or are trying to convince him that a nuclear disaster has occurred when this is not the case.

### Treatment

Psychological support should include providing accurate information in lieu of the individual's false beliefs. Because persons with delusional reactions are likely to be a rich source of rumors and agitators for special interest groups, shelter management should be aware of this possibility and provide accurate information that clearly weakens the credibility of the deluded individuals.

However, it will probably be futile and potentially dangerous to try to argue the individual out of his beliefs. Stress may be reduced

## Types of Responses

if the aid person appears to accept his false conceptions as long as this does not result in inaccurate information being spread through the shelter. In general, the way in which the individual acts out his beliefs should be of more concern than the accuracy or inaccuracy of those beliefs. That is, he should be encouraged to behave in a socially acceptable way even though he may genuinely believe in his delusions.

## Special Problems

The shelter manager will be faced not only with the problems of psychological reactions to disaster and shelter confinement, but also with the many unresolved individual problems and needs which existed prior to the attack and which may be amplified by disaster. Three major classes of individual or personal problems which shelterees may bring with them to the shelter are alcoholism, drug addiction, and mental illness.

### The Use of Alcohol

The use of alcohol in a shelter is generally to be discouraged because it may interfere with the effective organization and operation of the shelter. A number of persons, however, may bring a supply of alcoholic beverages with them to the shelter, particularly those who are dependent upon alcohol in their normal lives.

If any significant quantity of alcohol is present in the shelter, the manager is faced with the following choices:

1. Confiscate all alcohol and hold it to be returned to the owners upon shelter leaving.
2. Confiscate all alcohol and have someone from the medical team ration it among those who require it.
3. Make no effort to confiscate or control the use of alcohol.

None of these alternatives is likely to be ideal. Confiscation may pose a real threat of serious conflict and challenge to authority. Failure to use supplies of alcohol when a number of individuals may feel a definite need for them may create serious and continuing tensions between shelter management and a substantial portion of the shelter population. This would be particularly unfortunate when the depressant effect of small amounts of alcohol may help to calm some disturbed persons and alleviate some fears and anxieties.

If persons who bring in alcoholic beverages are permitted to use them as they see fit, excessiveness may result which could seriously disrupt the shelter. Also, other shelterees who feel the need for alcohol may go to rather extreme measures to obtain a share. If this alternative is chosen, shelterees must understand that excessive users will have their supplies confiscated and rationed to them.

If a person who is an alcoholic is without a source of supply in shelter, he may attempt to drink hair tonics, medicinal alcohol, or other harmful substances, and may have to be forcibly restrained from doing so. He may also try to leave the shelter in search of supplies. The external danger should be fully described to him and an effort made to dissuade him from leaving. However, he should probably be permitted to leave if persuasion fails.



An alcoholic suffering withdrawal symptoms is likely to be a distraction. He should be separated from the main body of shelterees insofar as possible and kept as comfortable as conditions permit. Mild doses of tranquilizers may help to calm him.

### The Use of Drugs

Drugs stocked in the shelter will be required for medical purposes and for calming badly disturbed persons. If there is a drug addict in shelter who is experiencing withdrawal symptoms, doses of stocked drugs adequate to minimize withdrawal symptoms should be prescribed by a medically trained person, if an adequate supply exists.

Attempts on the part of an addict to appropriate drugs stocked in the shelter should be forcibly resisted.

Although seldom fatal, withdrawal symptoms are very painful and disturbing to those who witness their effects. The persons suffering such symptoms should be kept as quiet and comfortable as possible. He should constantly be attended by at least one and preferably two able-bodied persons.

The addict beginning to suffer or fearing withdrawal is very likely to leave the shelter in search of supplies. He should be warned of the danger, but, in general, should not be restrained.

### Mentally Ill

Persons who were marginally psychotic or seriously neurotic before the nuclear attack may have their conditions worsened by disaster stress. It will usually be difficult to distinguish between persons whose psychological symptoms were present prior to the attack and those whose symptoms are entirely a result of the disaster experience. In general, of course, the less well adjusted the individual is prior to disaster experience, the more severe and prolonged his reaction is likely to be.

The distinction between pre-attack and disaster reaction symptoms will not be of critical importance to the manager or others providing psychological support. The care and treatment are essentially the same. The principal difference is that persons suffering disaster reactions will usually improve spontaneously and relatively rapidly, while persons with psychotic and neurotic symptoms of long standing are unlikely to be improved over the period of the shelter stay. Psychological support in the shelter should aim at helping the mentally ill through the shelter stay with minimum difficulty and with minimum interference to other shelterees and to the total shelter operation.

## Children and the Aged

Two classes of shelterees for whom the shelter manager may have to consider somewhat specialized psychological support are children and the aged.

### Children

Children are often more psychologically resilient than adults, particularly if they can face a trauma in familiar surroundings with members of family and friends. In general, children will tend to take their behavior cues from the expressions of adults, particularly parents and friends. If these adults exhibit fear or grief, the children will, in most cases, show similar reactions. If, however, children have been directly exposed to the effects of a nuclear attack, they may become severely upset even if adults remain outwardly calm. Such children will need special care and support.

#### Care of normal children

To reduce the emotional stress which children will experience, the following guidelines are suggested:

1. Whenever possible, keep children with their parents or friends. For the first day or two, mothers of pre-adolescent children should be encouraged to stay with their children unless other duties are essential.
2. If the parents are suffering from reactions to disaster, psychological support and reassurance should be given to the parents so that they will be able to care for their children.
3. Parents should be encouraged not to indoctrinate their children with their fears and problems. Instead, parents may find considerable relief in talking with groups of other parents.
4. If children wish to discuss their experiences with parents or adults, they should be given frank and truthful answers. However, at the same time, an effort should be made to reassure the children about their present and future. If children are not ready to discuss their experiences, it is best not to insist on it, for it may increase their difficulty.
5. Those children who enter the shelter without parents or close family members will probably suffer the most severe psychological upsets. Pre-adolescent children separated from their parents should be assigned to a substitute parent. Older children, who will probably adjust better in a group of children, should be organized under the supervision of one or more adult counselors.

6. Substitute parents and counselors should be chosen on the basis of their experience; that is, mature adults who know the basic physical and emotional needs of children of the assigned age or ages. Most children will adjust rapidly and with least disturbance to familiar people whom they like. Consequently, first choice in assignments should be given to adults who are known to the children in question, such as relatives, neighbors, friends, or teachers.
7. As soon as the shelter is organized, supervised recreation and educational activities may help children to adapt and may help to control the noise and activity level of the children. Creative outlets, such as stories, drawings, clay, and spontaneous drama may be used to aid them in discussing their experiences. It may be very difficult for children to concentrate on intellectual activities for some time.
8. As with adults, an educational program should be established to help prepare children for the post-shelter period. In addition, older children, particularly teenagers, should be given useful shelter tasks to do whenever possible.

#### Behavioral problems

In spite of all efforts to alleviate stress for children, some will be disturbed to varying degrees. Anxiety symptoms will appear in the form of regression, such as bed wetting and soiling, destructive reactions and withdrawal. Because bed wetting and soiling may be complicated by lack of clothing and lack of water for washing, social pressures in the form of scolding or ridicule from adults may increase the stress on the child.

Some emotionally disturbed children will become behavior problems by withdrawing from all others or by being deliberately disobedient. Although, normal children may become overwhelmed by the disaster, they can, generally be reassured of their safety. Disturbed children will continue to be upset.

The following behaviors may be expected of disturbed children of different ages:

1. Under two: Lack of responsiveness, restlessness, rocking, head banging, or constant serious difficulty eating, sleeping, and playing.
2. Two to four: Nightmares, refusal to drink from a cup and to eat unfamiliar things, bed wetting, withdrawal, overdependence on mother, and over-all uncontrolled behavior.
3. Four to six: Inability to get along with other children, overdependence on mother, intense fear of noise and dark, temper tantrums, stuttering, bed wetting, and soiling.

4. Six to twelve: Bed wetting, thumb sucking, fear of illness or bodily injury, recurrent symptoms with no direct physical cause, e.g., vomiting, diarrhea, headache, or panic-type reactions especially among ten to twelve year olds.
5. Twelve to fourteen: Insatiable appetites or no appetites, excessive rebellion to authority, refusal to take responsibility, inability to accept limits, crying and withdrawal.

Unless the shelter has skilled personnel, little can be done to treat disturbed children. The following guides, however, may help to minimize their disturbances:

1. Children with special social, physical, and emotional problems will need considerable and frequent reassurance regarding their own safety and the safety of their family.
2. These children should not be scolded, threatened, or blamed.
3. They will require kind firmness from the adults in charge.
4. Association with undisturbed children in group activity should be encouraged.
5. Sufficient sleep is important. Because children are likely to be restless, quiet period before bedtime may help them to settle down.
6. Children should be kept occupied in manageable activities under close supervision.

### The Aged

Elderly people are likely to present special psychological problems in the shelter particularly in the following respects:

1. Some old people are especially likely to be confused in new surroundings and situations. Because it is often not possible to clear up this confusion, someone should help to prevent its development into dangerous or disruptive behavior.
2. Some elderly people are likely to "be in the way" of shelter operations and activities. This can be very annoying to other shelterees. Consequently, persons skilled in dealing with older people should be assigned to assist those who seem to be especially out of tune with the mood and tempo of the shelter.
3. Some of the elderly may find it more difficult to accept the realities of a nuclear attack than younger people. This will be a problem only if expressions of disbelief result in hostile exchanges with other shelterees who are having difficulty in assimilating their own acceptance of the situation.

4. Some old people tend to be somewhat rigid and conservative in their views with respect to appropriate behavior on the part of others. Expression of these views can be quite annoying at times. The attention of older people should be directed away from pointless confrontations with younger shelterees concerning appropriate standards of behavior.

**CHAPTER 19**  
**IN-SHELTER TRAINING**

## CHAPTER 19 OUTLINE

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## Elements of a Training Program

### Purpose of a shelter training program

There are several reasons why training is an essential activity in a shelter. Firstly, through training, shelterees will be provided with eagerly anticipated information about their current status, and what is likely to occur in the future. Such information can be a potent positive morale factor, for in the absence of accurate information rumors abound, doubts may grow, and shelteree resistance to management authority may increase.

A second purpose of training is to increase the survival and adjustment capability of the shelter by providing the entire shelter population with the information that each person needs to know to survive, to do his job, and to get along with his fellows.

Thirdly, during the occupancy period, a good deal of training time should be taken up with preparing the population for survival in a potentially hostile post-shelter world.

Training and education activities provide a realistic and useful way to occupy shelterees during the day, and is an especially worthwhile way to channel the energies of school-age children.

Finally, ongoing educational activities for children represent the society in continuity, and symbolize the recognition that shelter existence is a transient phase of a civilization that has survived and will recover.

### Content of training courses

The courses recommended for shelteree instruction are outlined on page 391 of this chapter. Generally, the content will fall into the following categories:

1. Training for in-shelter living: What each occupant of the shelter should know about the shelter and its facilities, emergency procedures, first aid, psychological problems and similar subject matter.
2. Training for post-occupancy living: What each shelteree should know about the recovery period, including where to obtain food, water, medical care, and shelter, or how to provide for these needs on one's own.
3. Training for management and technical positions: What each untrained shelteree who has been selected to fill a management or task team position must know about his job and its relation to the functioning of the shelter.
4. Ongoing education for children: A limited continuation of schooling for youngsters, primarily of grade school age.



### Training methods

The method of training that is most effective for a particular course depends upon the content of the course, the size and configuration of the shelter, the educational level of the shelterees, the membership composition of the training team, the educational materials and aids available in shelter. Among the training methods that will find use in a shelter are:

1. Lecture and/or demonstration by one or several instructors to a large unselected shelter group.
2. Lecture and/or demonstration by one or several instructors to a small selected group who, in turn, become the instructors for other larger groups of shelterees.
3. Lecture and/or demonstrations followed by small group discussions of the material covered in the lecture. This appears to be the most effective way to transmit information to shelterees, with retention of the information on their part.
4. Lecture and/or demonstration to a small group who have been selected to receive certain types of training (for example, radiological monitors).
5. On-the-job training for previously untrained members of task teams or the management staff.
6. Individual instruction, in which trained persons teaches one pupil at a time, such as a team head training his alternate or deputy.
7. Self-instruction from available documents and other materials.

### Training materials

Few shelters will have elaborate supplies and equipment with which to implement a training program. However, in almost all shelters some materials will be available or can be improvised for use in training. These include:

1. Stocked or commonly available materials
  - a. Manuals, handbooks, guides covering various aspects of shelter living, either stocked in shelter or brought in by previously trained personnel.
  - b. Textbooks.
  - c. Children's books for ongoing educational activities.
  - d. Blackboards or bulletin boards.
2. Materials useful for improvisation of training supplies
  - a. Newspapers, magazines, cardboard for writing paper.
  - b. Lipsticks, other cosmetic sticks for crayons.
  - c. Magazine rolled up for a megaphone.
  - d. Cardboard for bulletin board.

### Location of the training area

For certain types of training, the issue of where the training should take place does not arise. For example, self-instruction, individual instruction, and small group training can be given almost anywhere in shelter. However, when it comes to instruction for a larger group of shelterees, the question of where to hold the training sessions must be considered. This is not a problem in some shelters because they already contain ideal training areas, such as classrooms or auditoriums.

In shelters that do not have this built-in capability, a place in shelter for training should be selected that is as conducive as possible to effective communication on the part of the instructor and attention on the part of the "students," while at the same time offering minimum interference with other shelter operations. The actual selection of a site for training sessions will involve a "trade-off" between training and other shelter goals; however, from a training point of view, the area selected should have the following characteristics:

1. As free as possible from the noise and other distractions of on-going shelter activities.
2. Enough room so that shelterees can sit comfortably, without being cramped. If bunks, cots, or beds are used to seat people during training sessions, shelterees should be so seated that they will be comfortable, but will not be able to lie down.
3. Located so that all shelterees attending a training session can both see and hear the instructor.
4. Amply illuminated so that shelterees can take notes, see the training aids, and keep from falling asleep.
5. Amply ventilated so that people will be able to remain awake and focus their attention on the instructor.

### The training schedule

To get the most out of an in-shelter training program, a schedule of training events and assignments should be developed. Ideally, such a schedule should be prepared prior to the occupancy phase. If this has not been done, it should be made one of the first responsibilities of the training team head after he has been selected.

Some of the points to keep in mind in setting up a schedule have been discussed in Chapter 15, "Shelter Administration," in the section on the Shelter Schedule, pages 309 to 313. They may be reviewed here in the specific context of a training schedule.

## Elements of a Training Program

1. Keep each training session short, preferably under an hour. If an hour session is planned, at least one break should be scheduled within that period.
2. Spread training sessions throughout the day, rather than concentrating them in one portion of the day.
3. Schedule training sessions when shelterees are likely to be most alert.
4. Generally speaking, the evening training sessions should be less formal than the other training periods. Evening sessions should be used for group discussions, individual and self-instruction, or review of previous materials.

### Training procedures

It is most important that the instructor keep in mind the environmental and psychological setting in which training is being conducted. In order for a training program to be successful, training procedures must be geared to the needs and conditions of the shelter and its occupants. The following are a few procedural guidelines that are applicable to a wide range of shelter training situations.

1. Make the training content meaningful and useful: For training to achieve its goals, the instructor must present materials that are directly applicable to the problems or information needs of the shelterees. Instruction must stress what the individual or group should know or do in the shelter or post-shelter situation. Also, training content must be delivered in terms that can be understood by the population. Under disaster conditions, people may have greater difficulty in understanding information presented to them, and may be prone to misinterpret remarks. For example, a harmless witticism might be completely misunderstood by shelterees and rebound to the instructor's disadvantage. The instructor should carefully choose his methods of expression and the examples that he uses to maximize understanding and minimize possibilities for misinterpretation.
2. Maintain a slow pace: Although there will be a great deal of information to transmit to the population during the course of shelter occupancy, it should be recognized that the pace at which training materials can be accepted by shelter "students" will be much slower than under normal conditions. The instructor should not cram a single training session with too much new information. In addition, he should consistently stress and review the major points of his material, until he feels that they have been understood by the population.

3. Invite shelteree participation: Acceptance of in-shelter training will be increased if shelterees receive an opportunity to participate directly and actively in the training program. Participation may be verbal, where shelterees are given a chance to ask questions, answer questions posed by the instructor, or make comments, or it may be physical, where shelterees can themselves try out certain procedures they have been taught (for example, first aid techniques, radiological monitoring procedures). The appropriate form of shelteree participation depends on the content and teaching methods of the course. Whatever form it might take, active participation by the population should be encouraged.
4. Vary the training method: It will be difficult for people to maintain a high degree of attentiveness to an hour-long lecture in the shelter, even with several short breaks. It is advantageous to modify teaching methods in order to maintain shelteree interest. For example, a brief lecture may be followed by a demonstration, then shelteree comments, then some lecture material again, and so on. Or a topic may be introduced by a small discussion group which has been briefed on the topic prior to the training session. This could be followed by shelteree comments, with the instructor summarizing the main points and tying the session together by his final lecture comments. The number of variations in training methods is great. The effectiveness of the training program will be enhanced if the instructional staff exhibits flexibility in its presentation of course materials.
5. Use all available visual aids: The effectiveness of the training program will be increased if shelterees can see what it is the instructor is talking about. If procedures are being taught, wherever possible, they should be demonstrated by the instructor or some students for the entire group. If vital information is being conveyed, it should be written down on a blackboard, wall, newspaper, or whatever is available, for everyone to see.
6. Relate training program to estimated duration of shelter stay: If a short shelter stay is predicted, the training program should stress post-shelter content at the expense of extensive orientations on in-shelter adjustment. If a long stay is envisioned, that content of the initial training sessions should emphasize in-shelter needs.
7. Recognizing limitations of in-shelter training: Under the best of circumstances, not all students will listen or participate in training sessions. Under disaster conditions, the extent of interest and participation in training may initially be fairly low. The training team's goal is not to achieve 100 per cent attendance and participation. A more reasonable goal in-shelter is to activate the interest of as many people as possible, while minimizing the distractions and disturbances that non-participants may cause.

### Training personnel

A bulk of the formal training responsibilities will fall upon four groups of shelter personnel. Members of the training team will be responsible for organizing the training and education program, and for supervising ongoing training activities, as well as for instructing a number of courses. Members of the management staff, including the manager himself may very likely conduct some aspects of a training course. Leaders and members of task teams with specialized skills, should be utilized in instructing shelterees in such areas as first aid, radiological protection. Finally, community group leaders will carry out certain training activities, with emphasis upon group discussions within the group after a lecture presentation by a member of the training team.

### When to begin training courses

Although much information must be conveyed from management to the shelter occupants from the moment they arrive, this will be accomplished initially by methods other than formal training sessions. Generally, training sessions should begin after the shelter is organized, a schedule has been developed and implemented, and a training team has been selected and given an opportunity to establish a training program.

Among the first types of training that should be carried out in shelter are the courses in management and technical fundamentals for previously untrained management or task team personnel. Also important in the early stages is instruction to the population at large pertaining to shelter rules and procedures.

Training for post-shelter living and ongoing educational activities for children can begin after the shelter has settled into a routine phase, perhaps several days after entry.

## In-Shelter Training Courses

### Management and Technical Training

The goal of management and technical training is to develop knowledgeable and reasonably skillful core management staffs, task teams, and community group leadership. If the shelter organization has been selected prior to the time of occupancy and all or most members are present in the shelter, this form of training can consist of instruction for the new staff people, and a review of duties and responsibilities for the previously selected staff.

#### Training content<sup>1</sup>

The following are examples of the content in this general area of training:

1. Core management personnel
  - a. Definition of job responsibilities.
  - b. Fundamentals of shelter leadership and management.
  - c. Identification of shelter facilities and resources.
  - d. Identification of actual or potential shelter strengths or weaknesses, from the standpoint of the physical structure, the number and characteristics of the population, and the available resources.
2. Task team leaders
  - a. Identification of facilities.
  - b. Identification of primary responsibilities and primary functions.
  - c. Appropriate in-shelter techniques for carrying out duties.
  - d. Orientation to organizational structure in shelter-- persons to contact in the communications chain.
3. Community group leaders
  - a. Identification of group management principles.
  - b. Orientation to basic shelter rules and regulations.
  - c. Identification of organizational structure.
  - d. Identification of potential community problems in shelter.

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<sup>1</sup>Detailed outlines of management and task team training content are presented in The Recruitment, Selection, and Training of Shelter Managers and Core Staffs (Enginger & Fetter, 1963).

Training methods, procedures, and personnel

Much of the materials in this area of training will be conveyed by individual instruction, self-instruction, or instruction in small groups. In order that the shelter be efficiently organized, it is important that in-shelter management and technical training begin as soon as possible after entry. Because the services of a training team are not necessary for this type of instruction, it should be possible to begin management and technical training as soon as the job positions are filled.

In the task team training, where equipment or supplies are involved, trainees should receive some opportunity for trying out the equipment or testing procedures.

**Training for In-Shelter Living**

The primary purpose of training for in-shelter living is to instruct shelterees in the policies, procedures, and rules governing their stay in the shelter, and to inform them of what to expect during the period of shelter occupancy.

Training content

The training program for in-shelter living should include the following subjects (not necessarily in the following order):

1. The nature of the attack and the protective capabilities of the shelter, and the protective actions that shelterees must undertake.
2. The equipment in the shelters and the rules governing its use.
3. Policies pertaining to shelteree behavior and property, maintenance of order. etc.
4. Procedures for obtaining supplies or access to facilities such as food and water, medical care, sanitary supplies, a place to sleep.
5. The organization and management of the shelter.
6. Shelter means of communications.
7. Procedures for handling complaints and grievances.
8. The free-time activities available to shelterees.
9. Rudimentary instruction in first aid, nursing care, radiological protection, rescue, psychological support.
10. Procedures for coping with emergency situations such as:
  - a. Outbreak of fire.
  - b. Shelter flooding.
  - c. Failure of all sources of power.
  - d. Infiltration of fallout.

- f. Temperature extremes.
- g. Depletion of food and water.
- h. Outbreak of epidemic disease or mass injury.
- i. Serious overcrowding of the shelter.

### Training methods, procedures, and personnel

Much of the above training content can be presented to the shelterees initially in lecture form using whatever training means are available, followed by demonstrations, question and answer periods, or small group discussions as appropriate.

Practical exercises are especially important in the area of emergencies. The shelter schedule devotes a half-hour daily to emergency drills.

Topics such as shelter rules and regulations, complaints and grievances, or the organization and management of the shelter are best presented by members of the management staff. Training in first aid, rescue, psychological support, etc., should be carried out by members of the task teams. Other subjects can be taught by members of the training team or community group heads.

## Training for Post-Shelter Living

In-shelter training for survival in the recovery period serves two valuable purposes. It will orient shelterees to the hardships they may face upon emerging from the shelter. In addition, the training contributes to shelteree morale and motivation by demonstrating that individuals will not be helpless in the face of post-shelter uncertainties.

### Training content

The following list contains many of the topics that should be covered in the training for post-shelter living:

1. Medical and sanitation
  - a. Basic principles of first aid.
  - b. Common remedies for common illnesses.
  - c. Precautions for illness prevention.
  - d. Symptoms and care of radiation sickness
  - e. Area emergency medical facilities.
  - f. Disposal of refuse.
  - g. Disposal of human waste.
  - h. Burial of the dead.



2. Radiological protection
  - a. Likely sources of radiation hazards.
  - b. Detection of radiation hazards.
  - c. Reporting radiation hazards.
  - d. Marking radiation hazards.
  - e. Decontaminating radiation hazards.
3. Food and water
  - a. Community sources of food.
  - b. Safe and unsafe edible foods.
  - c. Food spoilage and water contamination.
  - d. Purification of food and water.
  - e. Budgeting food and water supplies.
  - f. Collection and use of rainwater.
  - g. Preserving water supplies.
  - h. Planting survival gardens.
  - i. General safe practices.
4. Safety and rescue
  - a. Electrical hazards.
  - b. Fire hazards.
  - c. Structural hazards.
  - d. Rescue operations.
  - e. Cleaning debris safely.
  - f. General safe practices.
5. Community organization
  - a. Emergency organization of community.
  - b. Role of citizens in reconstruction.
  - c. The citizens and martial law.
  - d. Shelter as a social control unit.
  - e. Authority of deputized civilians.
  - f. Community services in emergency.
6. Miscellaneous topics
  - a. Evacuation plans and procedures.
  - b. Volunteering needed skills.
  - c. Care for the homeless.
  - d. Reporting missing persons.
  - e. Care of mentally disturbed.
  - f. Use of improvised heating devices.
  - g. Cleaning without soaps or detergents.
  - h. Clothing donation for the community.
  - i. The will to survive.
  - j. Government plans for reconstruction.

Training methods, procedures, and personnel

The methods, procedures, and personnel for this type of training are the same as for training for in-shelter living (page 393). For such training to be truly effective, shelterees should have the opportunity to try out their newly learned skills, in shelter exercises that simulate post-shelter conditions.

**Ongoing Education for School-Age Children**

Educational activities for children have several purposes. One is to keep children occupied by absorbing their attention in a set of activities that are familiar to them. Secondly, educational activities provide an opportunity to explain to children in language and concepts they can understand what has happened, what the shelter means, and what is expected of children and why.

Training content

Although ongoing education in a shelter represents a continuity with pre-attack schooling, the full curriculum of the school should not be duplicated in a shelter. Educational activities should emphasize group participation rather than formal instruction, and should focus upon the "lighter" aspects of the curriculum, such as educational games, skits, storytelling, singing, and the like. Certainly, within this framework, children can be taught some of the content of traditional school subjects, but the serious teaching of traditional school courses is, in most cases, best avoided.

The information for children concerning the shelter situation can be based upon the materials presented to shelterees in their training for in-shelter living (pages 392 and 393). Care should be taken in the presentation of this material, that it be kept at a level that children can understand. In addition, children will undoubtedly ask an unending number of questions about the attack, the shelter, and similar topics. Question and answer periods can be used as an approach to the orientation of children in shelter.

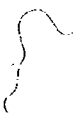
Training methods, procedures, and personnel

If experienced school teachers are to be found among the shelterees, they should be given the task of supervising children's educational activities.

The schedule of ongoing educational activities should be very flexible. Although many children will eagerly participate in activities that are familiar to all and pleasurable to most, their attention may be easily diverted after a short period of time by other events in shelter.

The educational methods and procedures will be determined by the specific activities. In general, training methods that call for group participation, are recommended over those that depend upon a single instructor and a listening group.

If a sizable number of children are in a shelter, consideration should be given to grouping the school-age children according to age, for training and education purposes. Likely age divisions are five to six, seven to nine, ten to twelve, and thirteen to fifteen. Age grouping will permit the training team to plan and implement activities to fit group interest and capabilities.



**CHAPTER 20**  
**RELIGIOUS, RECREATIONAL, AND**  
**SERVICE ACTIVITIES**

## CHAPTER 20 OUTLINE

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## Benefits of an Activity Program<sup>1</sup>

An organized effort by shelter management to engage the shelterees in spiritual, service, and recreational activities during their prolonged shelter stay may result in increased morale and greater motivation on the part of the population. Such activities include: religious services, physical fitness activities, arts and crafts, small group games, shelteree service activities, discussions, spectator entertainment, reading, quiet hours. Training and education activities are discussed in a separate chapter.

### Reduction of negative emotional states

Negative emotional states refer to such mental states as fear, worry, grief, depression, anxiety, nervous agitation, irritability, hostility, and privately kept grievances. Such states can often be dissipated or reduced to tolerable limits by pleasurable activities which focus the affected person's attention elsewhere. The reduction of such emotional states is very much a prerequisite for developing group morale and maintaining social control.

### Quicker breakdown of interpersonal barriers

While it is to be expected that interpersonal barriers will, to some degree, be broken down by the common circumstances of shelter living, the breakdown process will be more quickly and favorably achieved if opportunities for pleasurable, mutually beneficial interaction are created. The breakdown of interpersonal barriers tending to increase resentment, uncooperativeness, and even active hostility is another essential prerequisite to group morale.

### Improved readiness to respond to shelter leadership

Participation in shelter management planned and organized activities from which the participants feel they have gained "benefits," leaves the participants with a greater readiness to respond cooperatively with the shelter leaders. There is likely to be increased confidence that shelter management knows what it is doing, that things have been thought out in advance.

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<sup>1</sup>Much of the material in this chapter is taken from Planning and Organizing Shelter Non-Operational Activity Programs (Siroky & Eninger, 1963)

Better control over shelteree behavior

Planned social and recreational activities provide shelter managers with better control over shelter environmental conditions. Left to their own devices, shelterees may create a multitude of problems for shelter management. Gambling, for example, may lead to quarreling. Aimless milling about may rob needed space and interfere with operational activities. Unorganized activities by minority groups may be resented by other shelterees. Noise-producing activities may raise the noise level to intolerable limits for some shelterees. Such problem behaviors are much less likely to occur when management controls activities by planning them.

A sense of faster time passage

Left to their own devices, some shelterees may experience time passing as a slow, depressing drag after the first few days in the shelter. Such feelings can accumulate tensions and other undesirable mental states. Planned recreational activities and other meaningful types of in-shelter activities may help in making time pass more quickly.

A sense of contributing to the common good

Participation in service-type activities makes many people feel a sense of having contributed something worthwhile. Often the very people who get no tension relief from so-called recreational activities, do so from work or service activities. Thus, not only are there the benefits of specific services rendered, e.g., children cared for, injured and ill attended, the anxious and worried given comfort, etc., but the morale of those who render the service is increased.

A restoration of "inner strength" and spiritual resources

The strength-giving value of religious faith in situations of great human stress has been demonstrated beyond question. It would be remiss of shelter management not to stimulate religious and spiritual feelings in shelterees. The stresses will be intense for many. Religious activities will, undoubtedly, be a source of comfort and strength to many.

## Factors to Consider in Establishing an Activity Program

### Conditions In the Shelter

#### Physical and environmental conditions of the shelter

An activity program will be greatly affected by the physical conditions prevailing in the shelter. Among the conditions that must be assessed prior to initiation of social, recreational, and other activities are: available space, physical configuration, temperature, ventilation, illumination, and food and water status. If, for example, relatively high temperatures are found in the shelter, activities such as group instruction, informal group singing, and entertainment may be substituted for activities, such as physical exercise, which induce heat.

#### Shelteree characteristics and needs

Free-time activities in shelter should be closely tied to the needs of the population. Early in the shelter occupancy, predominantly voluntary activities are likely to include service activities, such as providing aid and comfort to ill, injured, or emotionally upset shelterees, and religious services. Spectator entertainment, for example, would be an inappropriate activity to schedule during the initial hours of occupancy.

After the first few days of the shelter stay, or when the manager deems appropriate, lighter and more relaxing activities, such as games, can be introduced into the schedule of activities.

An essential consideration in the establishment of an activity program are the characteristics of the shelter inhabitants. These include such factors as age, sex, socio-economic, ethnic, and religious backgrounds.

In order to establish an activity program that is compatible with the desires and needs of the shelterees, shelter management must be provided with information about the population. This is accomplished through the shelteree registration form, which is described on pages 304 to 307. Relevant in this connection are the items on the registration form dealing with age, sex, education, religious preference, and particularly the question on hobbies, talents, skills, and interests.

As individual personalities differ, so too do their ideas of how to spend their free time. Even in a shelter situation, if a variety of activities



are offered, the selection of which to follow should be left, within limits, to the shelterees. These activities should be entered into by shelterees on a voluntary basis. They should be encouraged but never coerced to participate in the program of free-time activities.

## Facilities and Personnel

### Facilities and supplies for free-time activities

Although supplies for social, recreational, and religious activities are not being stocked at present by the Federal government, many shelters will have provided themselves with minimal material for free-time activities, including Bibles, paperback books, and board games. If not actually stocked, such materials may be brought into shelter from the building in which the shelter is located or be among the personal belongings of the incoming population.

The ingenuity of shelterees in improvising materials for free-time use will be an important factor in the success of a social and recreational program. For example, checkerboards and pieces can be made from a wide variety of materials commonly available in a shelter, as can decks of cards, dominoes, "semi-musical" instruments (e.g., tissue combs). Not only are the improvised materials useful to play with, but the mere act of creating and making them provides a valuable cohesion-producing experience.

### Personnel for free-time activities

In small shelters, the entire set of religious, recreational, social, and service activities will be under the direction of one team head, who may also bear the responsibility for the in-shelter training program.

Large shelters will very likely require a separate team for religious activities and one for social and recreational activities. Further information on these teams is presented in Chapter 13, "Shelter Organization."

## A Schedule of Activities

Although participation in free-time activities will be on a voluntary basis, the activities should be made available to shelterees on a formal, scheduled basis. The reasons for a formal schedule of free-time activities are as follows:

1. To insure that free-time activities do not interfere with shelter operations and other ongoing activities.

## Establishing an Activity Program

2. To optimize the use of available materials for free-time activities.
3. To allow management and group leaders to monitor the movement of shelterees and to keep traffic problems down.
4. To increase the value of a free-time program by making specified activities available at times of the day when they will be most appreciated and accepted.
5. To lessen the chances of exceeding the environmental limits of the shelter. (e.g., heat and ventilation).

Some of the activities for various aged groups that can be incorporated in the shelter activity schedule are:

Infants and young children: Supervised care.

Nursery and kindergarten aged (3-6): Organized group calisthenics; improvised arts and crafts; informal group singing and stories; recitations, plays, and skits; demonstrations, feats, tricks, and skits; and chorus-chorales and musical instruments.

Children (7-12): Same as for nursery aged, with the addition of small group social games; reading; and crossword and other puzzles.

Teenagers and adults: Organized group calisthenics; care of infants and small children; care of ill, injured, and aged infirm; shelter environment improvement (housekeeping); small group social games; organized group discussion; demonstrations, feats, tricks, magic; recitation, plays, skits; chorus-chorales, musical instruments; reading books and magazines; and crossword and other puzzles.

## Specific In-Shelter Activities

### Shelteree Service Activities

#### Purpose and examples of service activities

The primary purpose of these activities is to render a needed service, which gives people a sense of contributing to the common good of the shelter. Therefore, these activities should be planned and organized to involve large numbers of people for short time periods. Service activities include: caring for infants and young children when parents/families are temporarily absent, caring for the ill and injured, medical support activities, enhancing the appearance of the shelter, and assisting the psychological first aid team in caring for emotionally disabled shelterees.

#### Space for service activities

With the exception of caring for infants and young children, space is not an important consideration with service activities. One may read to a sick individual at almost any time in any location of the shelter without disturbing others. Caring for infants and children, however, requires special space, mainly so that their boisterous activities do not interfere with necessary shelter activities such as training.

#### Personnel for service activities

For all of these activities, it is best to establish a roster of personnel interested in participating. This may conveniently be done by means of the shelter registration form, periodically drawing from the personnel pool as time and need require. When scheduling volunteers, the principle of maximal use of all shelterees should be taken into account.

### Physical Fitness Activities

#### Purpose and examples of physical fitness activities

There is no evidence to support the view that significant physical impairment results after a two-week shelter stay in a relatively inactive environment. However, it may be desirable to condition shelterees to face the rigors of post-shelter life by incorporating physical fitness exercises into the shelter activity program. Such activities also tend to counteract mental sluggishness and moodiness, help shelterees dissipate unused energies, and may be conducive to better sleeping.

The two types of physical fitness activities most suitable for the shelter environment are: (1) self-initiated mild exercises, and (2) small group calisthenics led by trained group leaders and for short periods of time.

#### Limitations to physical fitness activities

There are severe limitations to a physical fitness program in the shelter, all engendered by the fact that vigorous physical activity will liberate unwanted heat into the shelter area. Also, shelterees may need to conserve their body energy and fluids because of rationed food and water.

The recreation team should organize a physical fitness program within the limits suggested by shelter conditions prevailing at the time in his shelter. Therefore, when temperature approaches the intolerable and food or water are scarce, such activities should be suspended.

### Religious Activities

There is considerable evidence that people, in general, turn to religious beliefs and activities under severe stress. It is for this reason principally that religious activities should be included in a shelter activity program. Such activities help people control their fears and anxieties.

Depending upon circumstances, three kinds of religious activities seem appropriate for the shelter situation: (1) non-denominational services, (2) denominational services, and (3) self-initiated prayer and meditation.

#### Non-denominational services

When formal religious leaders; i.e., priests, ministers, and rabbis are not available to conduct denominational services for the religious denominations represented in the shelter population, non-denominational services are the practical solution. Under the circumstances, virtually all religious faiths sanction participation in non-denominational services.

Such services may incorporate non-denominational prayers, inspirational talks by a layman or religious leader, periods of silent meditation, and the singing of non-denominational hymns. Most religious leaders are capable of conducting a non-denominational service. The type of service conducted in the U. S. military services is an excellent guide to what will be acceptable in the shelter.

A brief, quarter-hour daily service is recommended, with the possibility of a longer service on one day of the week. Attendance should be voluntary. In large shelters, it may be necessary to hold several daily services in different shelter locations.

### Denominational Services

Denominational services are preferred because they are more likely to stimulate religious feelings in people who have strong ties to their customary religious service. Therefore, when recognized religious leaders are present, they should be invited to conduct their denominational service.

If at all possible, denominational services should be conducted privately so that participants are not subject to the stares of the non-participants. A separate room or sem-enclosed space would be suitable.

The scheduling of denominational services should be worked out with the shelter manager or his deputy. With limited private facilities, it may be desirable to schedule such services at different hours of the same day or on different days of the week.

### Self-initiated prayer and meditation

Self-initiated prayer and meditation cannot be planned and organized as can religious services. However, with the use of planned "quiet" hours, there would be ample opportunity for such religious activity. One way such self-initiated activity can be stimulated is by providing prayer or retreat chapels in different shelter locations. A small room, for example, might be set aside for this purpose, providing the space is not more urgently needed for other shelter purposes.

## Arts and Crafts

### Purpose of arts and crafts

Arts and crafts appeal to school-aged children, and sustain their interest for relatively long time periods. They require little physical exertion, thereby generating little heat or noise, and products can be shown, admired, and complimented. However, adults and teenagers should also be encouraged to participate. As part of arts and crafts programs, participants may be encouraged to make posters and signs that can be placed in the shelter to remind the population of important shelter rules, or to signal the location of special areas in the shelter.

### Types of arts and crafts activities

Emphasis must be placed on improvisation using available materials. Activities such as: pencil sketching, cutting designs from paper, folding paper into objects (Origami), constructing wire figures, making mobiles,

building paper-board models and other objects, cutting silhouettes, making miniature panoramas, and many other "arts and crafts" can be improvised in a shelter. Ingenuity and/or guidebooks would be most useful here.

#### Arts and crafts personnel

An activity leader with prior knowledge, skill, and interest is preferable, and such a person may be selected on the basis of information contained on the registration form.

#### Procedures for arts and crafts activities.

These activities should be performed in a group, although they may be done individually. Supervision of this group of participants would insure effective participation, conservation of materials, lessening of commotion, minimal interference with other shelterees, and clean-up of the "activity" area after completion of the activities.

### Social and Recreational Activities

#### Purpose of social activities

Social activities are interactions between individuals for recreation and relaxation. The recreation team should capitalize on the shelterees' readiness to socialize and utilize it as an available means for breaking down social barriers and inhibitions.

#### Types of social activities

Social activities considered appropriate to most shelter situations include:

1. Small group games: Small group games which require materials that can be improvised serve a dual purpose. On the one hand, individuals can be put to work developing the required materials, and once constructed, these improvised games can be enjoyed by a number of players.

While small numbers of individuals may play at one time, these games generally attract onlookers (e.g., spectators of charades). In addition, they are "re-usable" by previous or new participants. Interest in a game may run high for a period of days (e.g., chess).

2. Discussions: Generally, the success of organized group discussions depends on a discussion leader who is able to steer the discussion into useful channels and topics and evoke positive responses.

Discussions can serve several purposes. By focusing attention on methods for coping with post-shelter living, this activity assumes meaning for the discussants. It also may be a valuable source of information feedback to shelter managers who may detect heretofore unvoiced complaints or criticisms of shelter management.

3. Group singing: The therapeutic, emotion-relieving value of group singing should be recognized by shelter management. In the past, individuals sharing adversities and hardships have often turned to song as a temporary measure of relief. Group singing is an excellent mechanism for developing a spirit of comradeship, providing an emotional outlet, and a source of spiritual uplift.

Group singing may occur spontaneously. If it does not interfere with necessary shelter operations, it should be encouraged. For occasions when singing does not spontaneously develop, shelterees experienced in leading group singing could be prevailed upon to suggest lists of appealing songs and lead group participation.

## Spectator Entertainments

### Purpose and examples of spectator entertainment

Management should make full use of the talents of professional or amateur entertainers, e.g., singers, instrumentalists, magicians, etc., in the shelter. The morale value of these diversion has long been recognized by the armed services and should be considered by shelter management.

Skits, plays, and similar entertainment serve the dual roles of keeping participants occupied for a long period of time, while ultimately providing entertainment for larger groups of spectators.

### Timing and location of entertainment

Entertainment activities are best held in the evening. The evening period is likely to be a time when most shelterees will feel the accumulated fatigue of their day's activities, when spirits are generally lower, and when the need for some non-active entertainment is greatest.

Location of such entertainment may be an important consideration, especially in larger shelters. It may be undesirable or impossible to crowd the shelterees into one large viewing area. Thus, entertainers may have to circulate in the shelter facility, putting on two or three "shows" per evening.

## Free-Time Quiet Activities

### Purpose of quiet activities

Quiet periods and periods of no organized activity are essential for a number of reasons. People need to have relief from organized activities and each other in a shelter environment. Quiet periods also reduce the shelter noise level and commotion, thereby providing an atmosphere more conducive to rest. They are particularly helpful at nap-time periods scheduled for young children.

Naps and quiet periods are discussed in the "Sleep" chapter, pages 130 and 131.

### Reading

Reading can be restful, relaxing, and pleasurable. A reading shelf should be established at one or more locations in the shelter. It should contain the books that were stocked in the shelter and those that shelterees brought with them. Shelterees should be permitted to take only one book, magazine, or paperback at a time to increase the availability of such items. Also, shelterees should be required to return what they have read before being given another

### Other activities

A considerable number of the activities mentioned previously are suitable for free-time quiet activities. Adult volunteers may spend such periods making games, puzzles, and toys for the children in the shelter.

It should also be recognized that many adults will want to nap or occasionally simply be by themselves. The recreation team and group leaders should respect the wishes of those who seek this type of withdrawal from other shelterees and from shelter activities. People do not want to be active all the time.



**MANAGEMENT  
RESPONSIBILITIES  
BEFORE AND AFTER  
SHELTER OCCUPANCY**



**PRE-OCCUPANCY  
MANAGEMENT RESPONSIBILITIES**

**POST-OCCUPANCY  
MANAGEMENT RESPONSIBILITIES**

**CHAPTER 21**  
**PRE-OCCUPANCY**  
**MANAGEMENT RESPONSIBILITIES**

## CHAPTER 21 OUTLINE

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## The Nature of Pre-Occupancy Management Responsibilities

A major purpose of this document is to summarize useful information and action recommendations for shelter management between the times of shelter entry and exit. In every chapter of this Guide, it has been made abundantly clear that the survival capabilities of any shelter can be increased significantly by plans made and actions taken prior to shelter occupancy to achieve and maintain a state of operational readiness.

An amount of planning and implementation is necessary before an edifice or part of one can be considered a community fallout shelter. This includes assessing its protection against radiation, establishing the population capacity, making arrangements for stocking the essential supplies to sustain life during an extended period of confinement. But above and beyond such minimum actions, there are a number of steps that can be taken prior to occupancy, at little or no cost, to reach the fullest survival potential contained within a particular fallout shelter.

The pre-occupancy responsibilities are not analyzed in detail in this chapter, merely reviewed in general terms. There are two reasons for this. As indicated previously, this guide is focused primarily on the in-shelter phase. Secondly, many of the pre-occupancy tasks will frequently not be the responsibility of the Shelter Manager; that is to say, there may be a shelter planner or a planning committee responsible for reaching a state of operational readiness, in coordination with local and other civil defense personnel.

For detailed information on pre-occupancy planning, refer to Planning Guides for Dual-Purpose Shelters (Smith & Lasky, 1963).

## Steps In Establishing Operational Readiness

Establishing operational readiness means bringing the shelter to a state of preparedness, so that it can be put in use at a moment's notice, should the need arise.

### Determine Shelter Requirements and Capabilities

The first stage in the plan to bring the shelter to a state of readiness is to determine what survival capabilities the structure provides as it stands; and what is required to reach the desired level of survival capability, which at the very least must be equal to the standards established by the Federal government in the marking and stocking program. Among the factors to be evaluated are:

1. The radiological protection afforded by the shelter, and the ways it can be increased.
2. The air exchange requirements, and the means with which to accomplish them. Air exchange requirements must be evaluated in terms of the likely temperatures that will be found in a particular shelter.
3. The available methods for controlling temperature and humidity.
4. The problem of the balance between oxygen-carbon dioxide in shelter air, and the possible presence of noxious gases, such as carbon monoxide. Consideration should be given to methods of prevention and detection.
5. The amount of water necessary under different conditions of crowding and temperature, and the likely sources of water.
6. The amount and types of food desirable during an extended period of confinement.
7. The medical care capability desired in the shelter; including supplies, facilities and personnel, and consideration of both physical and emotional illnesses.
8. The sanitation requirements given the number of expected shelter occupants.
9. The lighting requirements of a shelter considering (a) the operability of commercial power, and (b) the absence of power.
10. The power requirements necessary to support the equipment available in a shelter, under conditions of commercial power operability and failure.
11. Sleeping arrangements and facilities for the number of expected shelter occupants.

12. The communications capability desired in the shelter, for both internal communications and information exchange with external points.
13. The needs of a particular shelter in regard to fire prevention and control.
14. Requirements for rescue and repair.
15. Security requirements for safeguarding both persons and property.
16. Shelter needs in regard to training, recreational, and spiritual activities.
17. Administrative requirements, in terms of record keeping.
18. Evaluation of the number and types of shelterees likely to seek entry at different times of the day and under different attack conditions.

### Stock the Shelter

After determining the requirements necessary to achieve the desired capability level, the necessary equipment and supplies must be procured. The basic issue is how much and what kinds of equipment and supplies are necessary to supplement the Federally-provided survival stocks, in order to provide the desired level of survival capability.

#### Valuable supplemental supplies

A list of desirable supplies to supplement the OCD stocks is presented in Appendix C. Consideration should be given to adding the following to the shelter stock.

1. Additional sources of water, commercially purchased, obtained from wells, or trapped in the building water system would be an invaluable shelter resource.
2. Emergency lighting equipment, sufficient to carry on should the normal power sources fail.
3. Communications equipment, at least a radio receiver, and preferably equipment that provides a two-way communications capability. A battery-powered device for communication within the shelter is highly recommended.
4. A set of basic tools, for use in repairing shelter and its equipment, and for rescue operations in the event of damage to the shelter.
5. Some sleeping materials. If cots, bunks, or beds are out of the question, at least a layer of material (blankets, mattresses, pads) to place on the floor should be procured. All evidence points to the fact that any such materials will enhance sleep.

## Establishing Operational Readiness

6. Training and administrative materials, such as writing materials, blackboards, bulletin boards, training manuals.
7. Recreational materials, such as books and games.
8. Additional medical supplies.
9. Additional food supplies, to complement the OCD survival rations. A capability to provide hot foods, or at least hot liquids, would be quite valuable, as well as special foods for infants, pregnant women, aged and ill persons.
10. Additional sanitation supplies for personal hygiene and shelter cleanliness. Extra sanitation supplies are especially desirable if additional water supplies can be provided.
11. Emergency power sources to provide the energy to operate essential shelter equipment, in the event the public power system is inoperable.

### Sources of supplies

Additional to basic OCD survival stocks, supplies may be procured in a number of ways. They may be:

1. Provided by local government.
2. Volunteered by community service agencies.
3. Purchased by the building owner(s).
4. Already available in the building for normal use, and adaptable for use in the shelter.
5. Brought into the shelter by the incoming population, preferably with prior instructions as to what to bring.
6. Improvised for purposes other than normally intended.

### Supply arrangements

Getting supplies to the shelter. After determining what supplies are necessary or desirable, and the procurement source, arrangements must be made to get the supplies to the shelter. This may be accomplished by:

1. Arrangements with local government to provide transportation (for moving Federal stocks from warehouses to the shelter). Military units and municipal agencies, including public works, parks, prisons, have been used to move supplies.
2. Arrangements with volunteer organizations, such as veterans and service organizations, to move supplies.

3. Using the building staff and transportation resources to move supplies.
4. Commercial hauling. In some communities, truck unions and trucking companies have volunteered their services.

Locating supplies. An important question that must be resolved is where to locate the supplies in the shelter. Recommendations about shelter supply management that may help determine where to place supplies in shelter are to be found in Chapter 17, "Supply Management."

### Staff the Shelter

The selection and recruitment and training of a shelter staff prior to occupancy is the subject of a recently published document by Eninger and Fetter, entitled The Recruitment, Selection, and Training of Shelter Managers and Core Staffs.

Some of the factors to consider in staffing the shelter are:

1. The optimum organizational structure: Shelters vary widely in the size and composition of their optimum organizational structure. A first step in staffing the shelter is to determine what type of organization is best suited to a particular shelter. The evaluation should take into account such points as:
  - a. The size of the shelter.
  - b. The extent of shelter facilities and resources.
  - c. The training and experience of the prospective staff members.
  - d. The background of the prospective shelter population (the extent to which they know each other, work with each other).

Refer to Chapter 13, page 276 for sample shelter organization charts.

2. The desired pre-selected staff: After having determined the desired organizational structure, a question that follows is which of the staff positions should be filled by people who have been selected and trained prior to shelter taking. Generally, the greater the extent to which shelter staff positions can be filled prior to occupancy, the more effective the operation of that shelter will tend to be during disaster conditions. However, many shelters by their nature will not be able to select and train a full complement of



core management personnel, task leaders and community group leaders. Therefore a minimum goal for any shelter is to pre-select at least a core management staff (the shelter manager and his deputies) and team leaders requiring specialized qualifications (radiological, medical).

3. The basis for selecting a shelter staff: The training and experience desirable for shelter staff positions, and the likely occupational backgrounds that will offer such experience, are presented in Chapter 13, pages 225 to 230. Selection criteria for shelter staff positions fall into three general categories: (1) technical knowledge and skill requirements, (2) managerial knowledge and skill requirements, and (3) desired personal characteristics.
4. The basis for recruiting a shelter staff: There are many different methods for appealing to the population to volunteer its services. These include:
  - a. Appeals through the mass media to the individual.
  - b. Appeals through direct mail to the individual.
  - c. Personal appeals to individual and small groups.
  - d. Appeals to organizations.

Whenever the facility housing the shelter is occupied by a single company or a number of companies, the recruitment problem is simplified if the regular occupants of the building can provide management personnel who have the necessary qualifications to direct operations in a fallout shelter.

5. How many people to recruit: It is not enough to select only one person for each organizational position. Allowances must be made for:
  - a. Staff members not being able to reach the shelter in time of emergency.
  - b. The daytime work week versus the night time and weekend location of prospective staff members.
  - c. The unavailability of staff members due to travel, illness, or other reasons.

Consequently, several persons ought to be chosen for each pre-selected position in the shelter organizational structure.

6. Training the shelter staff: One of the major purposes for selecting a shelter staff prior to shelter taking, is to make it possible to provide some form of training to those who will manage and operate the shelter. Training a shelter staff involves five basic training problems:
  - a. What content to include in the training.
  - b. How to conduct the training.

- c. Whom to train.
- d. When to train.
- e. Where to train.

Guidelines and recommendations pertaining to these problems can be found in The Recruitment, Selection, and Training of Shelter Managers and Core Staffs (Eninger & Fetter, 1963).

### Develop A Shelter Management and Operations Plan

A shelter management and operations plan is a set of specific and detailed procedures, rules, task assignments, and the like, pertaining uniquely to the organization and operation of an individual shelter. The more complete and detailed the shelter plan is prior to occupancy, the greater will be its usefulness to shelter management in time of disaster.

A complete shelter management and operations plan would spell out:

1. How to get the population to the shelter, and into the shelter.
2. How to assume and maintain command of the shelter, with special guidance for the untrained manager.
3. The resources of the shelter, with brief instructions on how to use them.
4. How to organize the shelter into core management staff, task teams and community groups, indicating the specific duties and responsibilities of each position in the organization structure.
5. How to schedule and carry out shelter operations and activities, indicating the activities that are necessary or appropriate at different stages of shelter occupancy.
6. Possible emergencies in shelter, and how to cope with them.
7. Preparation for exit, and procedures for handling temporary emergence and full-time exit from shelter; also, management responsibilities in the post-shelter phase.

If a complete operational plan cannot be prepared for a shelter, some written guidance pertaining to the specific shelter should be provided for management use. At the very least a checklist of management responsibilities in a particular shelter should be developed (see Sample Checklist in Appendix A). The checklist should be supplemented by stocking reference manuals or handbooks pertaining to management and operations in the shelter.

### Coordinate With Other Organizations and Agencies

In developing a shelter capability it may be necessary to check and coordinate with local authorities in regard to zoning laws, or regulations

## Establishing Operational Readiness

pertaining to such matters as water supply, storage of fuels, sanitation. A shelter where capability will be based solely on OCD stocks, will require little, if any, coordination concerning local ordinances. A shelter with augmented equipment capability will require more extensive coordination.

### Emergency organization coordination

In addition to checking out legal requirements, shelters should coordinate with governmental and other agencies in developing and testing procedures for operation in emergencies. This includes plans for emergency communications between shelters and control center(s), for emergency location of shelterees should a shelter become uninhabitable, for replenishment of supplies when temporary exit from the shelter becomes possible. All these questions should be covered in the emergency operation plan for the local community.

## Maintaining Operational Readiness

Once the shelter has been brought to a desired level of preparedness, it will be necessary to periodically review all elements of the shelter system to insure that the operational readiness of the shelter is maintained.

### Check and Evaluate Equipment and Supplies

#### OCD stocks

The materials supplied by the Federal government are intended to have a long-shelf life. However, they should be checked at regular intervals to assure that they have not been damaged by atmospheric conditions, or that they have not been appropriated without authorization. The radiological instruments should be checked for operability.

#### Other supplies

Many of the supplies that have been locally provided to supplement the OCD stocks will have a long-shelf life. Others such as many types of canned foods will have to be rotated periodically.

Battery-powered appliances should be checked and batteries charged at intervals or charged when necessary. The operability of shelter power ventilation and communication equipment should be periodically checked and test run, and the fuel supply monitored regularly.

### Determine New or Modified Shelter Requirements

There are a number of possible occurrences that call for a re-evaluation of the shelter system. These include:

1. Changes in the structure of the building.
2. Changes in the occupancy and use of the building.
3. New or revised municipal regulations.
4. The availability of new types of equipment and supplies.
5. New or modified guidance from OCD.
6. Changes in shelter staff personnel.

### **Test Procedures and Train Personnel**

If changes have been made in the shelter system, these must be reflected in the shelter management and operations plan, and in all other guidance materials applicable to the specific shelter. To support the shelter modifications, new procedures may have to be developed, and communicated to the shelter staff, appropriate local authorities, and if possible, to the prospective shelterees.

Even if modifications to the shelter have not taken place, management and operational procedures should be periodically tested, preferably by operational exercises (actually filling the shelter and simulating in-shelter operations).

In addition to simulating shelter occupancy, "paper" exercises may be held for shelter staff members, in which they work through various shelter problems that have been prepared in advance, without spending any extended period of time in shelter.

### **Communicate Shelter System Information**

All members of the shelter staff should be kept informed of changes in the shelter system, especially changes that pertain to someone's specific job assignment in the shelter.

In many cases, some communication with potential shelterees will be possible. Industrial firms, schools, and other large organizations which have shelter space may communicate vital information concerning the shelter plan and its relation to the individual shelterees.

### **Coordinate with Other Agencies**

Participation in local alerts or other disaster exercises constitutes a valuable method for maintaining operational readiness of a shelter.

**CHAPTER 22**  
**POST-OCCUPANCY**  
**MANAGEMENT RESPONSIBILITIES**

## CHAPTER 22 OUTLINE

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MANAGEMENT RESPONSIBILITIES DURING THE FULL EMERGENCE PHASE. . . . .	428

## Management Responsibilities in the Temporary Emergence Phase

At this point, radiation levels permit egress from the shelter for short periods of time ranging from minutes to several hours. This is the period when volunteer task teams may leave the shelter for brief periods, in order to accomplish tasks necessary to support continued shelter habitability. Notification of the relative safety of exit from external sources should be obtained before anyone is permitted to leave the shelter. In addition, the maximum allowable exposure to radiation should be calculated for the exiting team members, and they should be informed as to how long they may remain outside. If radiological monitoring instruments are available, they should accompany the volunteers on missions.

### Reduce "stored-up" in-shelter problems

During the shelter stay, a number of problems may arise as a result of confinement. A considerable effort should be made to clear the shelter of factors which interfere with the attainment of the general shelter goals of physical survival and mental well-being.

This includes such activities as:

1. Removing waste and garbage: All refuse should be removed from the shelter and disposed of in such a manner that it does not become an additional breeding source for vermin. If possible, wastes and garbage should be buried.
2. Burial of dead: Any dead should be removed from the shelter and buried or cremated, according to the emergency plan of the community, and the wishes of the deceased's survivors. It is important that the shelter staff maintain records of such deaths and burials so that the records of the local government may be adjusted at a later period of reorganization.
3. Relocation of sick and injured: If hospitals or other medical facilities are close by, if they are functioning, and if they have available space, it may be possible to transfer seriously ill or injured persons to these facilities. This would include the emotionally, as well as physically ill.
4. Transfer of problem shelterees: It might also be possible, if the need arises, to transfer criminal offenders or serious disciplinary cases, to appropriate agencies.

### Replenish shelter supplies

A crucial function for this period is the restocking of vital shelter supplies in accordance with the pre-planned procedures of the community. Among the supplies that will be in greatest need are:



1. Water: The greatest emphasis is on replenishing the shelter water supply. If uncontaminated or unpolluted drinking water is not available at this time, various packaged drinks and liquid-packed foods will satisfy individual water needs and should be stocked in abundance. Decontamination procedures should be carried out where necessary.
2. Medical supplies: Very many shelters will be in need of medical supplies after an extended stay in shelter. Among the supplies that will probably have a high priority are bandages, antiseptics, non-prescription medicines such as aspirin. Drugs requiring special handling should be brought into the shelter only if there are trained medical personnel available. An exception to this might be commonly self-administered drugs such as insulin.
3. Sanitation supplies: Sanitation supplies are high on the list of restocking requirements. Toilet paper, paper towels, sanitary napkins, disinfectants, and hand cleaners, plastic bags of all sizes, garbage cans or other containers which can be sealed, and any other items deemed necessary and available should be stocked.
4. Food: Although food is not essential for physical survival over the short run, foods that can be brought in to vary the survival ration may have a potent positive effect on morale.
5. Equipment: Certain types of equipment that have been used up, or are not operating should be replenished. This includes fire suppression equipment, communications equipment, illumination equipment, power supplies (batteries, small motors).

#### Contact local officials

If little or no communication has been possible during the in-shelter phase, an initial objective will be to establish contact with the local government officials, who will be responsible for the community. Information concerning the state of the nation, radiation and damage in nearby areas, projected time for safe general exit, and any further instructions, should be gathered and passed on to the shelterees. In turn, local officials should be informed of the status of the shelter and its occupants,

#### Persuade shelterees to remain

After an extended stay under confined conditions, there may be those who feel it necessary to leave the shelter to see their homes, attempt to find relatives, or simply escape. It is important that such activities be held in check and that the shelterees be made fully aware that the external radiation level is still dangerous if one is exposed for more than short periods of time. In all cases of shelter exit, task team or otherwise, total doses received by the individuals involved should first be determined.

All should be required to return to the shelter before the maximum safe exposure period is reached. When returning to the shelter, individuals should be decontaminated and their total dosage recorded and evaluated again.

Location of family members

In addition to the tasks mentioned above, there still remains the location of shelteree family members who may have taken shelter elsewhere. The knowledge of the whereabouts and welfare of separated family members would be of considerable value to the morale of individual shelterees. If it has been impossible to communicate information on missing family members up to this point, efforts should be made, in communication with control center or with other shelters in the area, to exchange information concerning missing persons.

Damage assessment

The task teams may also bring back information concerning the extent of damage, in the immediate area. This information, in conjunction with similar information from other shelter areas, can aid the local government in community damage assessment and the planning of recovery efforts. Such data should include differentials in radiation levels at various locations, should they exist.

Supply of manpower data

Finally, the shelter manager should supply all available manpower data to the local government for their use in implementing the recovery plan. Information on types of skills possessed by shelterees, both men and women, would greatly assist authorities in obtaining the skills necessary for the various recovery operations.

Determining priorities of short-term egress tasks

To carry out all of the above tasks would possibly require task teams to stay outside the shelter longer than would be safe. In this event, replenishing the water supply would normally take precedence over all other considerations. Completion of the other tasks may be delayed until it is possible to leave the shelter for longer periods of time.

## Management Responsibilities During the Full Emergence Phase

Full emergence will occur when radiation conditions will be such that the shelterees may leave the entire day and return to the shelter, as necessary, for meals and sleeping. In this period the shelter becomes a base of operations for the implementation of recovery and reconstruction plans. During this transition, many changes in both the tasks and the role of the shelter manager may be expected. Local authorities will assume the responsibilities for maintenance of law and order, mass feeding and shelter, and general restoration of the community. In doing so, however, they may wish to work directly through the shelter manager in use of shelter facilities and the existing shelter organization. The manager and staff, therefore, may be asked to continue as administrators and managers of large groups of people even though their primary leadership responsibilities have been generally fulfilled.

It is difficult to specify the exact duties of shelter management during this time period. The detailed responsibilities will vary from community to community, depending upon the recovery plans of a specific locality.

### Reorganization and restocking the shelter

If damage to dwellings is heavy, or if other reasons for not returning to homes prevail, the shelter may be used to house portions of the population during the recovery phase. If this eventuality is not covered in the community recovery plan, it may be necessary to coordinate further shelter stay with building owners in cases where the shelter is located on private property. This would require reorganization by the shelter staff in terms of augmenting the shelter supplies and facilities including:

1. Water, bedding, food, and sanitation: Water may still have to be stocked; bunking facilities and materials would be augmented or supplied; substantial and varied foods would replace the survival rations; and additional or more adequate sanitation procedures would be introduced.
2. Additional space: It should be possible to obtain additional safe space, since the fallout hazard is no longer prominent. Such space would permit more comfort and privacy among shelterees and would minimize the risks to health.
3. Reorganization of shelter activities and task teams: Various task teams could be dissolved; others may be augmented. If recovery operations are in progress around the clock, feeding and sleeping schedules must be worked out to accommodate the various working shifts. Children's activity schedules, including resumption of schooling, may be developed and implemented.

Communication

Governmental authorities may desire to use the established shelter organization as a means for rapid and accurate dissemination of information, both local and national. Because they have already been accepted as authorities, shelter staffs will be a valuable means of communication between the local government and the people.

Depopulation of shelter

In this phase, more and more people will leave the shelter, especially as the radiation level becomes negligible. This will require continuous activity by the shelter administration to adjust supply requests, fill openings in the shelter organization, and maintain accurate records of those still present and those having permanently left the shelter.

Dismissal of staff members

The relocation of the shelter population as reconstruction proceeds, will probably permit the shelter manager to consider dismissing many of the shelter staff so that they may assume other responsibilities.

Pre-war use of building

It is possible that the building which houses the shelter will again be used or be prepared for use in its pre-attack functions even though the shelter area continues to function. A shelter in a telephone company building may be such a case. Such a situation requires coordination among building owner, the shelter manager (if other than a representative of the owner), and the local authorities.

Closing the shelter

With the progressive success of recovery activities and with the diminution of radiation to a safe level, there remains a large area of administrative responsibility for the shelter manager before his job is finished. When so notified by the local officials, the manager must begin the process of closing the shelter. This is not simply a matter of declaring the shelter to be no longer functioning as such and closing the doors. The following items must be dealt with before the shelter manager's responsibility is fulfilled.

Shelterees: There may still be individuals who have no place to go when the shelter is closed. Local authorities must be supplied with names and other information relevant to these people so that they may aid in the process of relocation and rehabilitation of these people.

Supplies: The problem of remaining shelter supplies may be considered. The local recovery plans may make provision for the disposition of supplies in the recovery period. If not, on-the-spot plans should be coordinated with local authorities. Much of the food was probably obtained locally and should be returned to the contributor. Water should not constitute a problem unless it was also obtained from local groceries in the form of bottled or canned liquids. Unused medical supplies should be returned if obtained locally. Special care must be taken with drugs. Any drugs which were previously supplied as part of the shelter stocks should be turned over to appropriate authorities upon closing the shelter. Additional drugs obtained locally should be returned only to persons qualified to handle them.

Cots, bedding, and other equipment such as radios, batteries, and emergency generators should be returned to the sources from which they were obtained.

#### Clean-up

An important task is the final clean-up of the shelter before it is officially closed. Cleaning crews may be organized to remove all garbage and other waste; wash down and disinfect the entire shelter area.

#### Records

Finally, all shelter records such as the shelter log lists, and other pertinent data should be turned over to the local government for processing.

**APPENDICES**

**CHECKLIST OF  
MANAGEMENT RESPONSIBILITIES**

**REVIEW OF SHELTER REQUIREMENTS**

**LISTS OF STOCKED AND  
RECOMMENDED SUPPLIES**

**BIBLIOGRAPHY**

**APPENDIX A**

**CHECKLIST OF SHELTER  
MANAGEMENT RESPONSIBILITIES**

FOR USE IN AN EMERGENCY:

UNTRAINED MANAGER: TURN TO PAGE A-3,  
"INTRODUCTION."

TRAINED MANAGER: TURN TO PAGE A-5,  
"IMMEDIATE ACTIONS."

## Preparing and Using the Checklist

This Appendix contains a sample of a checklist that can be placed in a shelter as a booklet or, with a good deal of modification, as a wall chart, to assist the manager in organizing and operating a fallout shelter. The Checklist serves in large measure as a reminder of the important steps in shelter organization and management.

A checklist cannot cover all aspects of the management task, nor can it go into detail on any one aspect. It is designed to be used in conjunction with other guidance materials, in this case, with the Guide to Shelter Organization and Management.

Not all the steps in this Checklist are to be performed by the shelter manager. Many will be carried out by other members of the shelter staff. However, the shelter manager must be aware of the duties of other personnel, for he is ultimately responsible for all actions taken in the shelter.

In order for this Checklist to be useful, the many boxes which contain information about the resources of a particular shelter must be filled in prior to an emergency. Each box should contain the type and location of a particular shelter resource and, where appropriate, the amount of that item available. Location can be indicated by reference to the map of the shelter, or by a brief description of a coded, specific area in shelter.

It should be kept in mind that this is a sample Checklist. The items in it, and the order in which they appear should be evaluated by each shelter manager or planner in preparing a checklist for a specific shelter. However, in an emergency, the sample Checklist can be a valuable management aid as is, with the understanding that not all items apply to all shelters.



# INTRODUCTION FOR THE UNTRAINED MANAGER

Until you are relieved by the appointed shelter manager, or a member of his staff, you are the manager of this shelter.

There are a number of important steps that you must take within a very short period of time. To accomplish them, you should:

1. Follow the steps in this Checklist, beginning on the next page with "Immediate Actions."
2. Appoint some people to assist you in your immediate duties. If possible, these should be persons whom you know to be mature and responsible. Use your deputies to (1) carry out specific actions indicated in the Checklist, and (2) find detailed instructions for you in the management materials available in shelter, while you concentrate on the over-all command of the shelter.
3. As you have time, look through Appendix B of the Guide to Shelter Organization and Management, for a review of shelter requirements. As soon as possible, familiarize yourself with the Guide to Shelter Organization and Management and other available guidance materials;

# IMMEDIATE ACTIONS

## A. Open the shelter and prepare for occupancy.

- 1** Turn on all lights necessary for filling shelter.

LIGHT SWITCHES are located at

EMERGENCY LIGHTING consists of

- 2** Open all doors planned for use in filling shelter. Check doors of the building as well as shelter.

DOORS AND ENTRANCEWAYS to be used in filling shelter are located at

KEYS for normally locked doors can be found at

- 3** Clear entranceways and remove barriers to filling shelter (e.g., desks, tables, shelves, bunks, stacks of supplies).

IF PEOPLE ARE ENTERING THE SHELTER PROCEED IMMEDIATELY TO PAGE **A-8** OF CHECKLIST "FILL THE SHELTER", AND FOLLOW STEPS **1** TO **7** . If shelterees have not arrived, continue with steps **4** to **12** of Section A, until shelterees arrive.

- 4** Check operability of ventilation system, if applicable. If blast is not expected immediately, turn ventilation on.

VENTILATION EQUIPMENT consists of

- 5** Test operability of public water system.

WATER SYSTEM VALVES are located at

- 6** Check operability of auxiliary power, and emergency lighting equipment, if applicable.

AUXILIARY POWER SUPPLIES consist of

EMERGENCY LIGHTING SUPPLIES:  
See Page A-5, Number 1.

- 7** Turn off heat in shelter.

HEATING EQUIPMENT CONTROLS are located at

- 8** Check location and condition of fire fighting equipment.

FIRE FIGHTING EQUIPMENT located in shelter  
consists of

PORTABLE FIRE EQUIPMENT located nearby that can be  
brought into shelter consists of

- 9** Check location and condition of OCD survival stocks.

- 9.1** Radiological Monitoring Kits

SHELTER RADIATION KITS, located at

See P. A-20 for inventory.

**9.2** Water Supplies

WATER DRUMS located at

See p. A-28 for inventory.

**9.3** Food Supplies

FOOD SUPPLIES located at

See p. A-30 for inventory.

**9.4** Sanitation Supplies

SANITATION KITS located at

See p. A-33 for inventory.

**9.5** Medical Supplies

MEDICAL KITS located at

See p. A-31 for inventory.

**10** Check location and condition of communication equipment.

COMMUNICATIONS equipment located at

See p. A-34 for inventory.

- 11** Check location and condition of repair and rescue equipment.

TOOLS AND OTHER EQUIPMENT located at

See A-25 for inventory.

ADDITIONAL NEARBY EQUIPMENT that can be brought  
into shelter located at

- 12** Check location and condition of atmosphere monitoring devices, if applicable.

ATMOSPHERE MONITORING DEVICES consist of

## **B. Fill the shelter**

- 1** Select personnel from among first incoming shelterees to assist in filling the shelter.
- Instruct traffic assistants as to where to direct population, and on maintaining order and calm.
- If pre-selected members of shelter staff are available, use them as traffic assistants.
- 2** Direct shelterees away from entranceways, and away from supply or equipment areas.
- Fill parts of shelter that are furthest away from entrances first.
- Keep traffic moving smoothly.
- 3** Try to get shelterees formed into rough groups of about 50 persons each in small shelters, and 200 persons each in large shelters.

- 4** Instruct shelterees to sit down, to remain calm, and to follow instructions.
- 5** If technical specialists (e.g., maintenance men, people with medical training) are needed immediately, ask for volunteers from the incoming population. After brief interview to check experience, assign them to their duties.
- 6** Bulky items or potentially dangerous items of personal belongings should not be allowed in the shelter or should be placed under management control.
- 7** Ask shelterees who are familiar with the building to volunteer to bring in vital supplies (first-aid kits, fire extinguishers) that are in rooms or corridors near the shelter.

### **C. Assume command of the shelter**

- 1** As manager of this shelter, introduce yourself to the shelterees and state the basis of your authority.  
Introduce other key members of your staff.
- 2** Make sure that you can be seen and heard by all shelterees.  
Stand on a platform, table, bench etc., and use a megaphone made from cardboard or a magazine, if no other communication device is available.  
If you have any symbols of your authority (arm band, helmets) show them or wear them.
- 3** Very briefly explain to shelterees the protective capabilities of this shelter.  
Indicate to them what they will be expected to do in the next few minutes.

Assure shelterees that very shortly there will be a full briefing to orient them to shelter.

Assure them that families and friends who have been separated entering the shelter will be reunited shortly.

- 4 If communication lines to Emergency Operations Center are open, inform center of over-all shelter status.

#### D. Secure the shelter.

THE CAPACITY OF THIS SHELTER IS

- 1 When the capacity has been reached doors or entranceways to the shelter should be closed.

If there are people outside who cannot be accommodated in this shelter, direct them to the nearest shelters.

THE NEAREST FALLOUT SHELTERS ARE

- 2 If other shelters are filled to capacity, or cannot be reached without extreme danger from radiation, AND if the building in which you are located has areas that offer some radiation protection, persons should be allowed to enter the less protected area.

Such persons should be clearly informed of the potential dangers of an extended stay in building areas offering limited protection.

LIMITED PROTECTION AREAS in the building are

## **E. Carry out initial protective actions.**

**If nuclear detonation is expected nearby:**

- 1** Open windows, if any, to minimize the danger of flying glass.
- 2** Place equipment and supplies away from shelter openings .  
Place them where they would be least likely to be moved rapidly by the blast.
- 3** Locate shelterees in the safest structural part of the shelter, away from openings, and away from objects that may be moved rapidly and unpredictably.  
  
Avoid boilers, stoves, furnaces that might burn or scald.
- 4** Seat shelterees in a series of double rows, back to back.  
  
Inform them to avoid looking out the windows, and to close their eyes at the first sign of the flash.
- 5** Shut down equipment, shut off utilities, stoves, boilers, furnaces.
- 6** Close doors.
- 7** Instruct shelterees to cover as much of their body as possible. Use a light colored cover.

**As soon as nearby detonation has occurred:**

- 8** Assess damage to the shelter, and if possible to the area surrounding the shelter.



- 9** Repair damage, extinguish fires, rescue personnel to the extent possible.
- 10** After damage is under control, proceed to item 13 on this page.
- 11** If shelter is no longer habitable, shelterees and supplies should be relocated to a nearby facility.

THE NEAREST FALLOUT SHELTERS ARE

See p. A-10.

- 12** If communications lines to the Emergency Operations Center are open, inform Center of the emergency.

**If nearby detonation is not anticipated,  
or after it has occurred:**

- 13** Locate shelterees in the part of the shelter offering greatest protection against radiation.
- 14** Monitor for the arrival of fallout.
- 15** Wherever feasible increase shielding, particularly by covering doors, windows, and other shelter openings with sandbags, earth, or other dense material.
- 16** Close up shelter openings through which fallout can enter, insofar as possible.
- 17** Decontaminate personnel, shelter areas or supplies, as necessary.
- 18** If the Checklist of Section A, "Preparing Shelter for Occupancy" has not been completed, resume rundown of items in Section A.

# SHELTER ORGANIZATION

## INITIAL ACTIONS

- 1 After initial protective actions have been taken, hold initial briefing session for shelterees. Review the capabilities of the shelter; briefly outline the equipment and supplies that are available.

Announce the basic rules and procedures of shelter living. Mention that some rules pertaining to safety and well-being of all shelterees will have to be prescribed by Manager; others will be based upon shelteree wishes.

Refer to MANAGEMENT GUIDE, Chapter 14, pages 287 to 292 for examples of SHELTER RULES.

Indicate that the next step is to organize the shelter into a number of groups, and to give each able-bodied person a job to do. Inform shelterees that as soon as organization is complete, shelterees will be given a complete briefing about the shelter, and their many questions will be answered. Stress again the interdependence of all shelterees and the need for cooperation.

- 2 Distribute shelteree registration form to population.

Describe purposes of the form:

1. Reveals skills and talents in shelter for assigning persons to jobs.
2. Provides data for locating families and friends and grouping persons with similar interests.
3. Identifies persons needing special care.

4. Used by government after shelter stay, in reconstructing society.

REGISTRATIONS FORMS are located

PADS AND PENCILS ARE located

For details about REGISTRATION FORMS, see MANAGEMENT GUIDE, Chapter 15, pages 304 to 307.

- 3** Appoint members of core shelter management staff, if pre-appointed leaders were not selected prior to occupancy, or if they are not in the shelter.

Select core management staff on basis of previous management experience as indicated by registration form data, or by your personal knowledge.

For details on CORE MANAGEMENT STAFF, see MANAGEMENT GUIDE, Chapter 13, pages 225 to 229.

See CHECKLIST, Page A-44 for sample SHELTER ORGANIZATION CHART.

- 4** Select leaders of shelter community groups; Division leaders (heads of approximately 200 person groups) and Section leaders (heads of approximately 50 person groups).

Select leaders on basis of personal knowledge, or registration form data, plus brief interview.

Assign each Division and Section to specific living areas.

For details about DIVISIONS and SECTIONS, see MANAGEMENT GUIDE, Chapter 13, pages 261-267.

See Map for Shelter, page A-44, for group locations.

- 5** Within each Section, allow shelterees to form Units (groups of about 10 persons each).

Announce that Units will be formed on basis of kinship, friendship, or common interests, and that changes can be made later.

Members of each Unit elect a Unit head.

For details about UNITS, see MANAGEMENT GUIDE, Chapter 13, pages 259 to 261.

- 6** Organize task teams that must begin immediate shelter operations.

If team heads have not been selected prior to occupancy, select heads on basis of personal knowledge or registration form data plus brief interview.

Select members of task teams in coordination with team heads.

The following teams should be organized as soon as possible:

- 6.1** Food and water team

See MANAGEMENT GUIDE, Chapter 13, pages 230 and 231.

- 6.2** Sanitation Team

See MANAGEMENT GUIDE, Chapter 13, pages 238 to 240.

- 6.3** Medical Team

See MANAGEMENT GUIDE, Chapter 13, pages 233 to 235.

- 6.4** Radiological Team

See MANAGEMENT GUIDE, Chapter 13, pages 246 to 248.

**6.5** Communications Team

See MANAGEMENT GUIDE, Chapter 13, pages 235 to 237.

**6.6** Safety and Security Team

See MANAGEMENT GUIDE, Chapter 13, pages 237 and 248.

**6.7** Maintenance repair and rescue team

See MANAGEMENT GUIDE, Chapter 13, page 250.

**6.8** Supply Team

See MANAGEMENT GUIDE, Chapter 13, page 240.

**6.9** Administration Team

See MANAGEMENT GUIDE, Chapter 13, pages 254 to 256.

**7** Establish schedule of operations for next few hours in shelter. Assign space in shelter for following operations.

Plan for:

**7.1** Provision of food and water

See CHECKLIST Page A-28 and A-29.

**7.2** Provision of medical care (and psychological first aid)

See CHECKLIST Page A-31.

**7.3** Setting up sanitation facilities

See CHECKLIST page A-33.

**7.4** Radiological monitoring

See CHECKLIST page A-20.

**7.5** Fallout decontamination (if necessary)

See CHECKLIST page A-21.

**7.6** Rescue and repair (if necessary)

See CHECKLIST page A-24.

**7.7** Fire watch

See CHECKLIST page A-26.

**7.8** Communications monitoring

See CHECKLIST page A-34.

**7.9** Inventory of all shelter resources, including personal belongings of shelterees

See CHECKLIST page A-37.

**7.10** Arrangements for sleeping and night watch

See CHECKLIST page A-35.

**7.11** Shelteree orientation

See CHECKLIST, page A-27.

**8** Establish and maintain log of important shelter events.

See MANAGEMENT GUIDE Chapter 15, page 314,  
for details about Shelter Log.

## SUBSEQUENT ACTIONS

**9** Organize required task teams that as yet have not been established. For example:

**9.1** Religious activities team

See MANAGEMENT GUIDE, Chapter 13, page 253.

**9.2** Training Team

See MANAGEMENT GUIDE, Chapter 13, pages 241 to 243.

**9.3** Recreation Team

See MANAGEMENT GUIDE, Chapter 13, pages 243 to 245.

**9.4** Service Teams

See MANAGEMENT GUIDE, Chapter 13, page 256.

- 10** Set up full schedule of shelter activities.

For SCHEDULE details, see, MANAGEMENT GUIDE  
Chapter 15, page 309.

See CHECKLIST, Page A-43 for sample SHELTER  
SCHEDULE

- 11** Assign space in shelter for all activities.

- 12** Give shelterees complete briefing on shelter organization and operations.

- 13** Establish advisory committee (small group of persons elected by shelterees to represent them to management).

See MANAGEMENT GUIDE, Chapter 13, page 270  
for further information on ADVISORY COMMITTEE

- 14** Allow shelterees to change their group assignments, where necessary to re-unite still separated families and friends, or to bring together people with common interests.

- 15** Make periodic reports to Emergency Operations Center on shelter status.



# SHELTER OPERATIONS

## A. Radiological Protection.

OCD STOCKED RADIOLOGICAL EQUIPMENT consists of
-----
ADDITIONAL RADIOLOGICAL EQUIPMENT AND SUPPLIES consist of
-----
TRAINED RADIOLOGICAL MONITORS are
-----
For detailed information about RADIOLOGICAL PROTECTION, see MANAGEMENT GUIDE, Chapter 2. Also see <u>Handbook for Radiological Monitors</u> .

### INITIAL ACTIONS

- 1** Continue to monitor and report the arrival and amount of fallout.

IF RADIATION LEVELS RISE TO 10 ROENTGENS PER HOUR OR MORE, OR MORE THAN 75 ROENTGENS ACCUMULATE IN A 2-DAY PERIOD, CONSIDER SHELTER IN AN EMERGENCY STATE.

IF POSSIBLE NOTIFY EMERGENCY OPERATIONS.

TRY TO FIND AREAS IN THE SHELTER OR IN THE BUILDING WITH LOWER RADIATION LEVELS AND LOCATE SHELTEREES THERE. TAKE MAXIMUM ADVANTAGE OF BEST AREAS, OVERCROWDING TO EXTENT POSSIBLE, FOR AS MUCH TIME AS POSSIBLE.

- 2** If shelter doors and entranceways have not been closed previously, close them now if fallout makes it necessary.

- 3** Continue to locate personnel in the shelter areas offering protection against radiation. Provide best available protection to pregnant women, children under 18, and persons assigned to early emergency operations.
- 4** Monitor and decontaminate personnel arriving after fallout has descended.

### SUBSEQUENT ACTIONS

- 5** Decontaminate areas in shelter if necessary.  
Decontaminate food and water if necessary.
- 6** Continue regular schedule of fallout monitoring.
- 7** Keep records of actual or estimated cumulative dose rates for shelterees.
- 8** If there is a difference in radiation levels in the shelter greater than 10 roentgens, rotate the shelterees between the high and low areas, so that exposure is distributed evenly.
- 9** Estimate the time until:
  - 1. Full-time exit is possible
  - 2. Part-time emergence is possible
  - 3. Emergency trips are possible

## B. Atmosphere and temperature control

VENTILATION EQUIPMENT consists of.
-----
ATMOSPHERE MONITORING INSTRUMENTS consist of.
-----
INSTRUCTIONS FOR OPERATING AND REPAIRING EQUIPMENT are located at
-----
For detailed information about ATMOSPHERE AND TEMPERATURE CONTROL, see MANAGEMENT GUIDE, Chapter 5.

### INITIAL ACTIONS

#### IN SHELTERS WITH NATURAL VENTILATION (NO VENTILATION EQUIPMENT)

- 1** Strictly regulate the use of heat producing appliances and equipment, and curtail completely if temperature rises excessively.
- 2** Control smoking in shelter, and curtail if temperature or carbon dioxide goes up.
- 3** Restrict physical activities of shelterees if temperature goes up.

IF TEMPERATURE CONTINUES TO RISE TO A DANGEROUS POINT, IT MAY BE NECESSARY TO SACRIFICE SOME RADIATION PROTECTION AND LET MORE AIR INTO THE SHELTER, OR MOVE TO BETTER VENTILATED AREAS OF THE SHELTER OR THE BUILDING.

## IN SHELTERS WITH MECHANICAL VENTILATION

- 1 Operate ventilation system until blast is imminent.
- 2 Shut down equipment if anticipating a nearby detonation.  
Prepare ventilation equipment so that it is not subject to rapid, unpredictable motion.
- 3 Prepare to hook up equipment to auxiliary power in the event of public power failure.
- 4 Locate and install filters if available.

## SUBSEQUENT ACTIONS IN ALL SHELTERS

- 5 Continue regulation of heat producing activities in shelter
- 6 Check atmosphere monitoring instruments and monitor the atmosphere.

## C. Emergency power and light

AUXILIARY POWER EQUIPMENT:  
See CHECKLIST, Page A-6, Number 6.

EMERGENCY LIGHTING EQUIPMENT, see CHECKLIST  
Page A-5, Number 1.

See MANAGEMENT GUIDE, Chapter 11 for further  
information on EMERGENCY POWER AND LIGHTING

## INITIAL ACTIONS

- 1** Locate and test operability of power and light equipment.
- 2** Place emergency lighting equipment in accessible locations.
- 3** Do not burn open flame lighting devices without adequate ventilation.
- 4** Prepare to hook up shelter equipment to auxiliary power supply.
- 5** In event of commercial power failure, switch essential shelter equipment to auxiliary power.
- 6** If nearby nuclear detonation is expected shut down auxiliary power equipment, and secure equipment against rapid and unpredictable movement.

## SUBSEQUENT ACTIONS

- 7** Estimate length of time that emergency lighting and power equipment can operate without replenishing fuel supplies.  
If necessary, conserve power and light by shutting off equipment intermittently if shelter conditions permit.

## D. Rescue and repair.

RESCUE REPAIR EQUIPMENT consists of

See MANAGEMENT GUIDE, Chapter 4 for further information on RESCUE AND REPAIR.

## INITIAL ACTIONS

- 1** If shelter has been damaged, assess:
  - 1. Whether the shelter can be repaired in time to give adequate fallout protection.
  - 2. If repairs cannot be completed before fallout, whether repairs should be continued or the shelterees relocated to other areas or shelters.
  
- 2** If persons have been trapped in the shelter:
  - 1. Locate persons to be rescued.
  - 2. Decide on methods of rescue.
  - 3. Improvise rescue equipment if none is available.
  
- 3** Inform shelterees as to what they can do so as not to hinder repair or rescue operations.

## SUBSEQUENT ACTIONS

- 4** Keep all shelter exits marked and free of debris.
- 5** Monitor repaired areas for fallout leakage.
- 6** Rope off, or otherwise keep shelterees away from potentially dangerous areas in shelter.
- 7** Prepare and familiarize shelterees with shelter evacuation plan.  
Hold frequent emergency drills.

## E. Fire prevention and control.

Fire fighting equipment:  
See CHECKLIST, Page A-26.

For additional information on FIRE, see  
MANAGEMENT GUIDE, Chapter 4, page 45.

### INITIAL ACTIONS

- 1** Locate and check condition of fire equipment.
- 2** Suppress all fires in the shelter immediately. Suppress fires in the building housing the shelter. If possible, suppress other fires that threaten the shelter.
- 3** If feasible, assign personnel to bring in portable fire fighting equipment located near the shelter.
- 4** Establish a fire watch to monitor all areas in the shelter, especially those with potential fire hazards (smoking areas, machine rooms).

### SUBSEQUENT ACTIONS

- 5** Orient shelterees to rules pertaining to fire prevention:
  - 1. Smoking regulations.
  - 2. Rules about using and keeping flammable materials.
- 6** Instruct shelterees in procedures should fire break out. Hold frequent drills in fire fighting and evacuation.

## F. Social control (maintenance of order).

For further information on SOCIAL CONTROL, see  
MANAGEMENT GUIDE, Chapter 14.

- 1 Many of the rules of the shelter may be new and strange to shelterees at first. Brief shelterees thoroughly about necessary rules. Have them discuss rules in their group sessions. Wherever possible, demonstrate procedures for shelterees.
- 2 Write down all shelter rules and regulations, so that there will be consistency in implementing them over a period of time.
- 3 Allow shelterees to develop their own rules in activities where the safety and well-being of shelterees or the efficient operation of the shelter are not affected.
- 4 Most persons will conform to the rules of the shelter. In cases of minor violations, have group leaders or friends talk to the violators. For repeated minor violation, change the violator's group assignment.
- 5 In the event of a serious offense, corrective actions should be applied to safeguard shelterees (including the offender) but NOT to punish the offender. Isolation and restraint may be required in such cases.
- 6 Any major offense should be recorded in the shelter log, and the offender turned over to the appropriate authorities after the shelter stay.



## G. Water

OCD WATER SUPPLIES consist of
(Each drum contains 17.5 gallons of water or 3.5 gallons per shelter space)
ADDITIONAL WATER SUPPLIES consist of
See CHECKLIST, Page A-43 for WATER DISTRIBUTION TIMES.
For further information about WATER, refer to MANAGEMENT GUIDE, Chapter 7.

### INITIAL ACTIONS

**1** Assign personnel to carry out necessary actions to obtain and trap additional sources of water (from storage tanks, water pipes, filled tubs and sinks).

**2** Take inventory of total water resources in shelter. Estimate the per-person water ration for a two-week period.

Evaluate water needs in relation to food available and estimated temperature in the shelter.

**3** Locate areas of shelter in which to set up water drums.

If filled drums must be moved, exercise great care in doing so.

**4** Determine appropriate water distribution system and set it up.

- 5** Instruct personnel, if untrained, in proper procedures for distributing water. Refer to instructions included with OCD stocks.
- 6** Orient shelterees on water use procedures and rules.
- 7** Distribute water cups and initial serving of water to shelterees, after initial shelter organization is under way, or when general desire for water is indicated.

Water should be distributed to shelterees at regular intervals five or six times a day, in accordance with the shelter schedule.

### SUBSEQUENT ACTIONS

- 8** Purify and/or decontaminate water supplies, if necessary.
- 9** Allocate water for uses other than drinking if water supplies are adequate or if some water is not drinkable.
- 10** Evaluate water supplies daily.
- 11** Replenish water supplies, if necessary and if radiation levels permit brief exit from shelter.

### H. Food.

OCD SURVIVAL RATIONS consist of

(10,000 calories of survival rations are stocked for each shelter space)

OTHER FOOD SUPPLIES consist of

See CHECKLIST, Page A-43 for FOOD DISTRIBUTION TIMES.

For further information about FOOD refer to MANAGEMENT GUIDE, Chapter 7.

- 1** Take inventory of total food resources in shelter.  
Estimate the per-person food ration for a two-week stay.
- 2** Establish location(s) in shelter for food preparation, distribution and eating area(s).
- 3** Determine appropriate food preparation and distribution procedures.
- 4** If augmented food capability exists, plan food schedule and menus.
- 5** Distribute first meal to shelterees, preferably in conjunction with a water serving.
- 6** Orient shelterees on food procedures, and need for rationing.

The first meal should be served after initial organization is well under way, and when shelterees indicate a desire to eat.

Food should be served at regular intervals during the day, five to six times a day, in accordance with the shelter schedule.

## SUBSEQUENT ACTIONS

- 7 Clean-up food preparation and eating areas thoroughly after each meal.
- 8 Decontaminate food, if necessary.
- 9 Replenish food supplies, if necessary, and if radiation levels permit exit from shelter.

## I. Medical care

OCD MEDICAL SUPPLIES consist of
-----
OTHER MEDICAL SUPPLIES in shelter consist of
-----
MEDICAL SUPPLIES OUTSIDE THE SHELTER that can rapidly be brought in are located
-----
For further information about MEDICAL CARE, See MANAGEMENT GUIDE, Chapters 10 and 18.

## INITIAL ACTIONS

- 1 If possible, assign personnel to bring in medical supplies located near the shelter.

- 2** Assess the nature and extent of illness and injuries among incoming shelterees.  
  
Classify types of illness and establish priority for treatment.
- 3** Set up emergency treatment center, if necessary. Direct seriously ill or injured shelterees to emergency treatment center upon entry or after they have entered.
- 4** Provide "psychological first aid" for emotionally upset shelterees.

### **SUBSEQUENT ACTIONS**

- 5** Evaluate medical information on shelteree registration form.
- 6** Set up "permanent" treatment area and sick bay.
- 7** Establish sick call procedures.  
  
Brief shelterees on sick call.  
  
Hold daily sick call.
- 8** Organize volunteer service teams to care for ill and injured.
- 9** Maintain high sanitary standards to prevent spread of infectious disease.
- 10** Exercise strict control over use of medical supplies. Take daily inventory of supplies.

- 11 If necessary, replenish medical supplies from outside sources, when radiation levels permit.
- 12 If death occurs, cover body, remove from shelter as soon as possible, and bury when radiation levels permit.

## J. Sanitation.

OCD SANITATION SUPPLIES consist of
-----
ADDITIONAL SANITATION SUPPLIES consist of
-----
For further information on SANITATION, See MANAGEMENT GUIDE, Chapter 9.

### INITIAL ACTIONS

- 1 Check operability of normal washroom facilities, if they exist.  
  
Before using normal facilities, check adequacy of water supplies.
- 2 Set up OCD commodes, preferably in separate areas for each sex. Locate commodes in separate rooms, or screen off from rest of shelter. Establish procedures for use of commodes and brief shelterees.

### SUBSEQUENT ACTIONS

- 3** Use empty water drums for commodes, as needed.
- 4** Establish shelter clean-up procedures, including clean-up after every meal.
- 5** Store wastes, garbage in appropriate places in shelter, away from living areas, and remove from shelter as soon as feasible.
- 6** Improvise sanitation supplies from empty cartons, tin cans, rags, etc.
- 7** Brief shelterees on personal hygiene in shelter. Unless water supplies are low, allow occasional sponge bathing.
- 8** Closely monitor the use of sanitation supplies. Ration supplies, if necessary.

Replenish sanitation supplies, if necessary and if radiation levels permit.

## K. Communications.

COMMUNICATIONS EQUIPMENT, consists of

For further information on COMMUNICATIONS  
See MANAGEMENT GUIDE, Chapter 16.

## INITIAL ACTIONS

- 1** Inventory available communications equipment, including portable radios that shelterees may bring with them.
- 2** Set up communications watch; monitor all incoming messages and enter in communications log.
- 3** If equipment for external communication exists, contact operations center as planned or as necessary and inform them of shelter status and special problems.

### SUBSEQUENT ACTIONS

- 4** Carry out daily briefing for shelterees. Provide them with latest available information on status of shelter, and on external developments.

Combat rumors that may have spread.

- 5** Advise shelterees of procedures for communication with shelter management, through group leaders and advisory committee.
- 6** Hold frequent group meetings with shelterees, if feasible.
- 7** Use bulletin boards or otherwise post routine information for shelterees to view.

### L. Sleep.

SLEEPING FACILITIES consist of

For further information on SLEEP, see MANAGEMENT GUIDE, Chapter 8, page 123 and Chapter 13, page 257.



- 1** Determine whether all shelterees can sleep at one time, or whether two or more sleep shifts are required.
- 2** Determine location of sleeping areas.
- 3** Assign shelterees to sleeping areas. Assign unmarried men and women to different sleeping areas. If separate rooms are not available, assign unmarried men and women to sleep spaces at opposite ends of the shelter with family groups between them.
- 4** Standardize sleeping positions, using double rows of sleepers, lying head to toe.

Leave sufficient aisle spaces for movement within the sleeping area.

- 5** Improvise pads and other bedding from available materials.
- 6** If possible, improvise tiered bunks, using tables, bookshelves, other furniture.
- 7** Set up a night watch in the sleeping area.
- 8** Provide daytime naps for children and rest periods for all shelterees.
- 9** If bunks, cots or beds are available, establish procedures for their nighttime and daytime uses.

## M. Supply management.

For further information about SUPPLY MANAGEMENT,  
See MANAGEMENT GUIDE, Chapter 17.

For further information about PRIVATE PROPERTY,  
See Chapter 15.

- 1** Carry out initial inventory of all shelter resources, and daily or more frequent inventories thereafter.
- 2** Ask shelterees to volunteer personal belongings that will be useful for group survival. This includes radios, flashlights, knives, pocket tools.
- 3** Weapons and other potential dangerous items should not be retained by individual shelterees.
- 4** Establish a supply management plan; determine who is to be responsible for supply control.
- 5** Distribute supplies carefully and only to authorized persons.
- 6** Calculate rates of supply use and determine when shortages will occur.
- 7** Replenish depleted supplies as opportunities for exit from shelter arise.

## N. Training.

TRAINING MATERIALS consist of

For further information about TRAINING,  
See MANAGEMENT GUIDE, Chapter 19.

- 1** Establish training program consisting of:
  - 1 Training for in-shelter survival and adjustment (first aid, nursing care, psychological support).
  - 2 Training for post-shelter survival (decontamination food and water sources, first aid, local recovery plans).
  - 3 Training for previously untrained shelter management and technical staff members.
  - 4 Ongoing education classes for school-age children.
  
- 2** Inventory available training materials (books and pamphlets, papers, pencils, blackboards).

Improvise materials if none are available.
  
- 3** Develop a training schedule and carry out daily training sessions, at times when shelterees should be most alert. Keep each session relatively short in duration.

## O. Religious activities.

For further information about RELIGIOUS ACTIVITIES,  
See MANAGEMENT GUIDE, Chapter 20.

- 1 Establish a program of religious services, either or both denominational or non-denominational depending upon the wishes of the shelterees.
- 2 Assist management in maintaining order in the shelter.
- 3 Provide counseling for shelterees in need of it.
- 4 Carry out religious services for the dead or dying.

## P. Social and recreational activities.

RECREATIONAL MATERIALS consist of

For further information on SOCIAL AND  
RECREATIONAL ACTIVITIES, See MANAGEMENT  
GUIDE, Chapter 20.

- 1 Inventory recreational resources, including items that shelterees may have brought in with them, and improvised games.
- 2 Develop a program of voluntary social and recreational activities, for different shelter groups, consistent with shelter conditions. Possible activities include:

Arts and crafts, small group games, group discussions, singing, spectator entertainments, physical fitness activities, individual and group reading, quiet hours.

- 3** Determine the appropriate time to initiate the social and recreational activities.

## Q. Shelter exit.

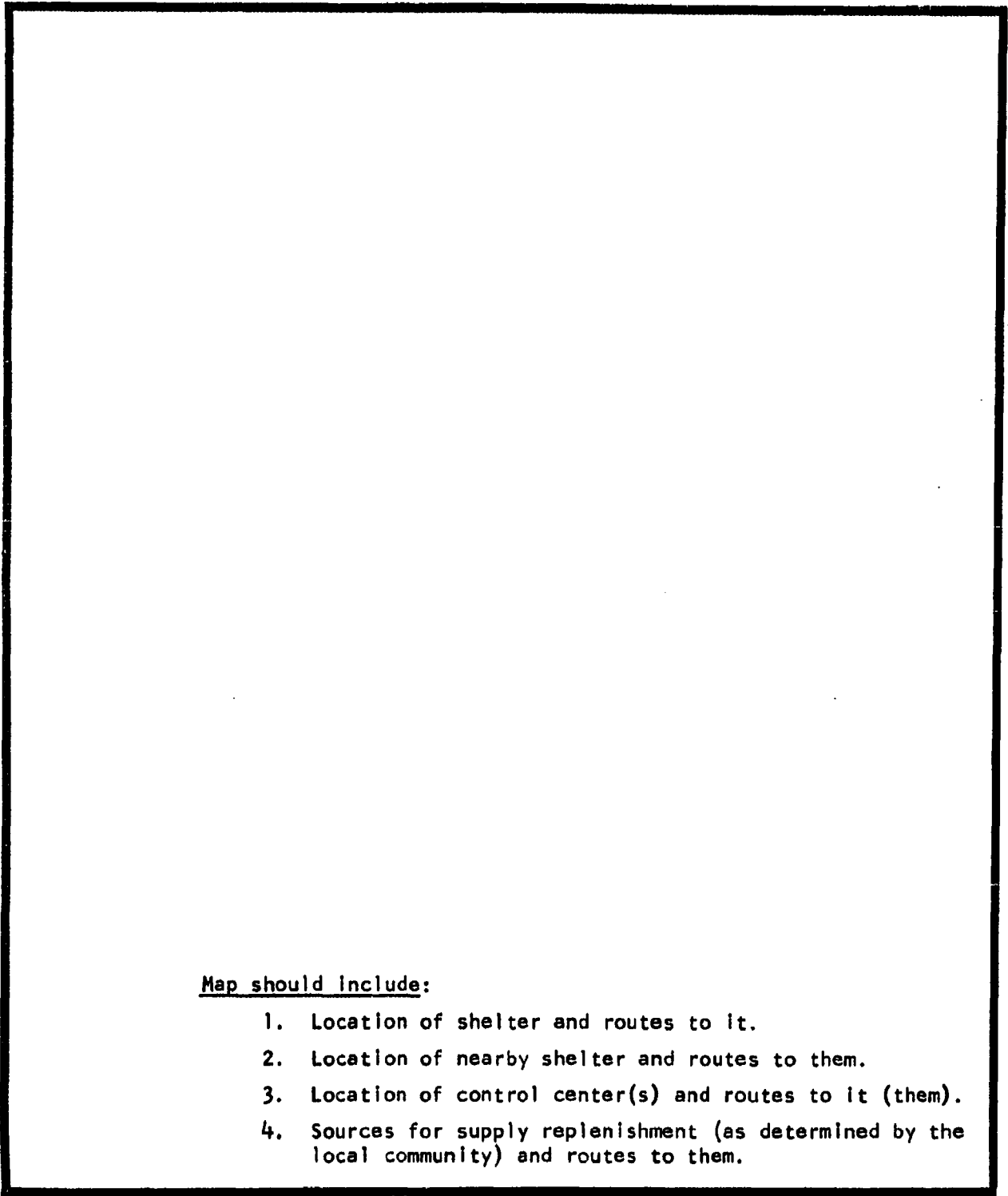
For further information about shelter exit, See MANAGEMENT GUIDE, Chapter 22.

- 1** Shelter exit should normally occur upon authorization from appropriate government authorities, when the radiation levels no longer constitute a threat.
- 2** Emergency exit should be considered only when the shelter becomes uninhabitable due to a condition such as fire, temperature, structural damage to the shelter, or when supplies essential to the support of life are depleted.
- 3** If at all possible, the Emergency Center should be contacted before emergency exit.
- 4** Temporary exit when conditions are less hazardous than those that require emergency exit may occur in order to: bury the dead, remove waste and garbage from shelter, replenish supplies, communicate with outside world, and prepare for recovery operations.
- 5** Persons participating in temporary emergence operations should be provided with radiological monitoring instruments if available, and instructed as to how long they may remain outside the shelter.

Map should include:

1. Location of doors and entranceways, windows, other structural features.
2. Location of shelter resources and facilities.
3. Assigned living space for each Division and Section.
4. Assigned location for each shelteree activity.
5. An indication of other areas in the building offering some radiological protection and routes to them.

Map of the Shelter



Map should include:

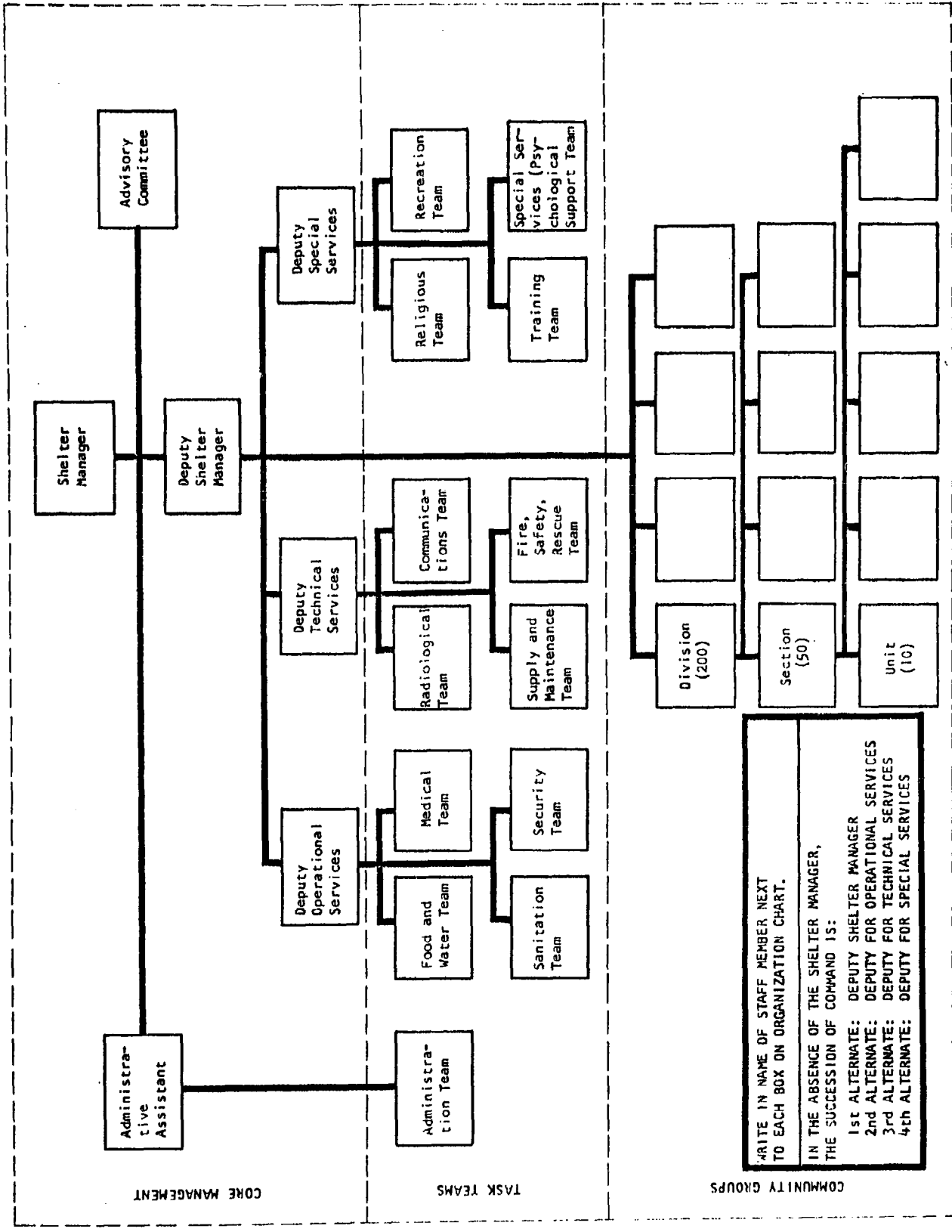
1. Location of shelter and routes to it.
2. Location of nearby shelter and routes to them.
3. Location of control center(s) and routes to it (them).
4. Sources for supply replenishment (as determined by the local community) and routes to them.

Map of Surrounding Area

## Sample Shelter Schedule

0700	Reveille	
0730	Receive breakfast rations	
0800	Eat breakfast	
0830	Clean-up	
0900	Sick call	
0930	Training session or group meeting or continuation of sick call or recreation	
1000	Water and biscuit break	
1030	Training session	Ongoing education for children
1100	Training session	
1130	Free time for quiet activities	
1200	Receive lunch rations	
1230	Eat lunch	
1300	Clean-up	
1330	Information and training session	Nap for children
1400	Information and training session	Ongoing education
1430	Emergency drills	
1500	Water and biscuit break	
1530	Recreational activities	
1600	Recreational activities	
1630	Free time for quiet activities	
1700	Receive dinner rations	
1730	Eat dinner	
1800	Clean-up	
1830	Daily briefing	
1900	Training session	
1930	Planned recreational activities	
2000	Planned recreational activities	
2030	Free time for quiet activities	
2100	Free time for quiet activities	
2130	Water and biscuit break	
2200	Free time for quiet activities	
2230	Prepare for sleep	
2300	Lights out	





Sample Shelter Organization Chart

**APPENDIX B**  
**REVIEW OF SHELTER REQUIREMENTS**

## PURPOSE OF THE REVIEW

The primary purpose of this Appendix is to provide the untrained shelter manager with a brief overview of the scope of his responsibilities. The "Review of Shelter Requirements" represents in a sense, an emergency introduction to the Guide to Shelter Organization and Management.

In a disaster it may be quite awhile before the untrained manager can find the time to study the Guide to Shelter Organization and Management. It is much more likely that he will be able to read the "Review of Shelter Requirements," early in the shelter stay, or assign others to read it and brief him within a short time of entry.

## Review of Shelter Requirements

The following is an introduction to the more important shelter requirements for which you are responsible. In conjunction with the Checklist of Management Responsibilities and the appropriate chapters of The Guide to Shelter Organization and Management, it should provide you with an overview of the scope of your duties. If possible, you should read this yourself. If you cannot spare the time, let others read it and brief you on its contents.

### Shelter Command

CHECKLIST ITEMS: Pages A-9 and A-10.

Especially in the first few crucial hours of shelter occupancy, your actions as the shelter leader will be decisive in determining how effective the shelter can mobilize itself to solve the many problems of survival.

You must assume leadership as soon as possible; you must demonstrate your capabilities by carrying out your tasks in a direct, forceful fashion. You must set a personal example in your behavior for the shelter population. By watching you, shelterees can learn what is expected of them.

Don't try to do everything by yourself. Delegate authority for specific operations and activities. Your duties should emphasize the over-all direction of the shelter, rather than the detailed specific tasks of shelter operations.

MANAGEMENT GUIDE REFERENCE: Chapter 12.

### Shelter Organization

CHECKLIST ITEMS: Pages A-13 to A-20.

A key to meeting the requirements for survival in the shelter is to establish an effective organization.

You will have to select several deputies to aid you in managing the shelter.

In addition, you will have to choose heads of task teams to implement specific shelter operations. The task team heads in coordination with you or your deputies will select other members for their respective teams.

All shelterees should be formed into community groups which, so to speak, are the families, neighborhoods, and towns of the shelter. You will have to select group leaders for the various levels of community groups.

MANAGEMENT GUIDE REFERENCE: Chapter 13.

## Social Control

CHECKLIST ITEMS: Page A-27.

Social control refers to the maintenance of order in shelter. Because many shelterees will be upset by the emotional impact of the disaster, and because many of the shelter rules will be new and strange to them at first, you must make it very clear, by repeated statements and by demonstrations, what shelterees are expected to do.

Most people under disaster conditions will follow the rules of the shelter, if they understand the reasons for the rules.

In the event rules are broken, or a criminal offense occurs, you must apply corrective actions; not to punish the offender, but to insure that group survival is not jeopardized.

MANAGEMENT GUIDE REFERENCE: Chapter 14.

## Radiological Protection

CHECKLIST ITEMS: Pages A-20 to A-22.

Radiological protection will be of immediate and continuing concern. The basic protection against radiation is provided by the structure of the shelter. However, there are some measures that you can implement to increase the protection against fallout.

It will be vital to understand the nature and effects of radiation and the types of radiological protection before making decisions or beginning any monitoring or decontamination procedures. If there are no trained radiological personnel in shelter, assign some with related experience to read the available material on radiological protection (especially the Handbook for Radiological Monitors, OCD, 1963), and initiate monitoring operations.

Remember one thing: Radiation is not contagious!

MANAGEMENT GUIDE REFERENCE: Chapter 2.

## Other Weapon Effects

CHECKLIST ITEMS: Page A-11 to A-13.

The primary goal of a fallout shelter is to protect the occupants from exposure to fallout radiation. You must also be aware of other effects of nuclear weapons including blast, initial radiation, and thermal radiation.

A slight degree of protection against these weapon effects can be provided in many shelters using procedures and materials identical or similar to those that are employed in the defense against radioactive fallout.

MANAGEMENT GUIDE REFERENCE: Chapter 3.

## Safety and Rescue

CHECKLIST ITEMS: Pages A-24 to A-26.

One of your concerns is with the protection of the shelter and its occupants against potential damage or destruction from the effects of the attack. The major threat is fire, either in shelter or external to the shelter and threatening it. Fire may make the shelter uninhabitable, and all efforts should be made to suppress fires in shelter.

The rescue and repair measures that you can implement are rather limited. However, by the use of improvised equipment and available manpower, more rescue and repair operations can be successfully carried out.

MANAGEMENT GUIDE REFERENCE: Chapter 4.

## Water

CHECKLIST ITEMS: Page A-28.

Water is also absolutely essential for survival. It will be your responsibility to utilize all available sources of water in the shelter area, to provide at least minimum requirements of drinkable water, to ration and distribute it equitably, with a minimum of waste.

The amount of water people need to survive is dependent upon the temperature in the shelter and the amount and nature of the food supplies. You may also have to make decisions involving risks in order to obtain additional water. For example, you may have to send emergency teams outside the shelter for water in spite of high radiation levels or use water which may have impurities that make it not completely safe to drink.

MANAGEMENT GUIDE REFERENCE: Chapter 7.

## Temperature and Atmosphere Control

CHECKLIST ITEMS: Pages A-22 and A-23.

A tolerable shelter atmosphere is essential for survival; this requires an adequate circulation of fresh air in order to keep shelter temperature and humidity within acceptable limits. In addition, carbon dioxide must be kept within acceptable limits, and other noxious gases must be kept from the atmosphere.

You should become familiar with the method or methods of ventilation incorporated in the shelter. Most shelters will depend upon natural ventilation; ultimate responsibility for the monitoring of atmospheric conditions and operation and maintenance of the ventilation system (if one exists) will rest with you. Should the atmosphere and temperature conditions approach a dangerous level, you must institute procedures to increase air supply and/or lower the temperature in order to keep the shelter habitable.

MANAGEMENT GUIDE REFERENCE: Chapter 5.

## Food

CHECKLIST ITEMS: Pages A-29 to A-31.

Healthy individuals should be physically able to survive a shelter stay without any food. However, such deprivation will result in a weakened physical condition and a likely increase in emotional problems among shelterees.

Procedures for efficient preparation and distribution of the shelter food stocks must be developed soon after shelter entry. Your immediate responsibilities in this area will be to see that food is (1) equitably rationed, (2) prepared under sanitary conditions, and (3) distributed without waste. You must evaluate all possible food sources, establish per-person allotments, and see that the established procedures are observed.

Overcrowding, food loss or spoilage, or an extended shelter stay will pose additional problems in this area. You should also be prepared to modify food schedules, per-person rations and distribution procedures as conditions in the shelter require.

MANAGEMENT GUIDE REFERENCE: Chapter 6.

## Sanitation

CHECKLIST ITEMS: Pages A-33 and A-34.

Garbage, trash, and human waste are all by-products of group living which require sanitation action in shelter. Garbage is an ideal breeding place for vermin of various sorts, many of which may carry diseases. Inadequate or improperly used toilet facilities may lead to the same problem. Accumulated trash becomes a fire hazard. Add to all this the normal accumulation of "household" dirt plus the probability that there will be no water for bathing or cleaning, and the need for stringent sanitation procedures becomes obvious. The maintenance of high sanitation standards in shelter will also have important implications for shelteree morale.

Using such means as are available, you should establish and implement sanitary procedures with respect to toilet facilities, waste and garbage disposal, maintenance of general shelter cleanliness, and personal hygiene.

MANAGEMENT GUIDE REFERENCE: Chapter 9.

## Medical Care

CHECKLIST ITEMS: Pages A-31 to A-34.

Together with medical personnel (if they are in the shelter), you should consider certain factors before beginning a medical care program in shelter. Items of information which determine how the program will operate include (1) the amount and type of illness and injuries, if any, from weapon effects; (2) other illnesses--especially communicable diseases; (3) the characteristics of the incoming population that have bearing on health, such as age and general physical conditions; and (4) the available medical facilities and personnel.

In the absence of qualified medical personnel, you will be responsible for allocation of shelter medical supplies. Select a medical team head with the most appropriate background to supervise medical care in shelter, and coordinate with him on major medical care decisions.

In addition to medical treatment, disease prevention or control will require high sanitary standards and isolation of patients, if possible. Death in the shelter has medical and psychological consequences, and procedures for body disposal must be implemented with consideration of the psychological impact upon the survivors and the potential shelter health problems that bodies may cause.

MANAGEMENT GUIDE REFERENCE: Chapter 10.



## Sleep

CHECKLIST ITEMS: Pages A-35 to A-37.

In-shelter sleeping arrangements can affect all other activities. Sleep requires more time and space than other activities and therefore influences the physical organization of shelter space and the scheduling of other functions.

Sleeping facilities will probably be austere, providing minimum comfort, initially, and little privacy.

Shelter leadership will be an important factor in the adjustment of the population to in-shelter sleeping. You must be alert to problems associated with sleeplessness and take remedial action insofar as possible. Suggestions for bunking arrangements and further information is supplied in Chapter 8.

MANAGEMENT GUIDE REFERENCE: Chapter 8.

## Power and Light

CHECKLIST ITEMS: Page A-23.

Interruption of commercial power may be expected in many shelters. Though not Federally supplied, auxiliary power equipment may be available in your particular shelter. On shelter entry, you should determine whether auxiliary power system is available, its type, location, adequacy, and other implications for use.

Because commercial power failure may be the rule rather than the exception, you should take action to insure at least some light source while commercial power is unavailable.

MANAGEMENT GUIDE REFERENCE: Chapter 11.

## Supply

CHECKLIST ITEMS: Page A-37.

You will find the shelter equipped with a limited amount of supplies. Close supervision and careful procedures for distribution of these supplies should be maintained throughout the shelter stay to discourage waste and prevent the development of serious shortages. In the event of depletion of vital supplies, emergency trips from the shelter may be necessary to replenish shelter resources.

Essential shelter supplies will be provided by OCD. You should first locate these supplies and check them against the list of OCD stocks as presented in Appendix C. Additional items may be locally provided, augmented from building areas near the shelter, or brought in by the shelterees. Many items may also be improvised from existing materials.

Your major responsibility pertaining to supply is to set up a general approach to the control and distribution of shelter resources.

MANAGEMENT GUIDE REFERENCE: Chapter 17.

## Communications

CHECKLIST ITEMS: Page A-34.

A communications capability provides you with an instrument for coordinating every phase of shelter living and allows you to establish and maintain your authority.

Communication contributes to the improvement of shelter morale by alleviating the tension of the unknown. Information that you provide to the shelterees serves to control rumors and lessen anxiety and fear. Communications in the form of instructions provide shelterees with knowledge of their duties, and of the rules and regulations that apply in the shelter. In turn, information from the shelterees will aid you in the anticipation and elimination of shelter problems.

MANAGEMENT GUIDE REFERENCE: Chapter 16.

## Shelter Administration

CHECKLIST ITEMS: Pages A-13 and A-14.

The complexity of the shelter system requires that certain administrative procedures be undertaken during the course of the shelter stay. Elementary record-keeping and scheduling should prove of value to you in staffing your shelter and controlling its resources, and to governmental authorities, after the occupancy period, in regrouping the population and reconstructing the society.

The major aspects of shelter administration include establishing the shelter schedule, registering and identifying shelterees, keeping shelter records, and handling the personal belongings of the shelterees.

MANAGEMENT GUIDE REFERENCE: Chapter 15.

## Training

CHECKLIST ITEMS: Page A-38.

Training and orientation will be a valuable tool in the adjustment of shelterees. After the basic shelter organization has been established, several types of training should be initiated:

1. Training for in-shelter living.
2. Training for post-shelter occupancy living.
3. Training for management and technical positions.
4. Ongoing education for children.

Such training enables persons to more clearly perceive the responsibilities in shelter and become better prepared to face their responsibilities in the post-shelter environment.

The elements of a training program should consist of instructional content, training methods, training materials, and personnel.

MANAGEMENT GUIDE REFERENCE: Chapter 19.

## Religious, Recreational, and Service Activities

CHECKLIST ITEMS: Page A-39.

In addition to operational shelter activities and the training and education programs, an organized effort by you and your staff to engage shelterees in meaningful activities during their prolonged shelter stay may result in increased morale and greater motivation on the part of the shelter population.

These activities include religious services, arts and crafts, small group games, shelteree service activities (e.g., child care), discussions, spectator entertainment, reading, physical fitness activities, and quiet hours.

They should be offered to the shelterees as planned activities after the shelter has been organized. However, participation should be on a voluntary basis.

MANAGEMENT GUIDE REFERENCE: Chapter 20.



**APPENDIX C**  
**SHELTER EQUIPMENT AND SUPPLIES**

The following tables contain lists of the supplies currently provided by the Federal government as part of the shelter stocking program. In addition, useful supplies that may be available in some shelters from sources other than OCD stocks are listed. For the most part the additional supplies are limited to those that may be reasonably expected to be stored in some shelters prior to an emergency, and available in many shelters after an attack.

The supplies that are asterisked are those recommended by OCD as desirable items in the Guide for Community Fallout Shelter Management (Office of Civil Defense, June 22, 1962).



**SANITATION EQUIPMENT AND SUPPLIES**

STOCKED BY OCD	ADDITIONAL SUPPLIES			
	Locally Provided	Augmented from Nearby Supplies	Shelteree Belongings	Improvised Supplies
Hand Cleaner Kit III - 1 can Kit IV - 1 can Gloves, polyethylene Kit III - 1 pair Kit IV - 1 pair Spout Kit III - 1 Kit IV - 1 Tie wire Kit III - 1 Kit IV - 1 Seat, commode Kit III - 1 Kit IV - 1 Cups and lids, plastic Kit III - 40 Kit IV - 80 Instruction sheet Kit III - 1 Kit IV - 1 Commode, chemical Kit III - 1 Kit IV - 1	Sanitary napkins Rubber gloves Privacy screens  Garbage grinder and ejection system  Incinerator  Garbage cans  Litter cans  Quicklime	Sanitary napkins Rubber gloves  Use of existing system in other part of building when radiation level permits. Use of existing system in other part of building when radiation level permits Garbage cans  Litter cans	Blankets, table cloths, drapes, etc., hung around toilet area.  Empty food tins, boxes, desk drawers, plastic bags.	

**SANITATION EQUIPMENT AND SUPPLIES**

STOCKED BY OCD	ADDITIONAL SUPPLIES			
	Locally Provided	Augmented from Nearby Supplies	Shelteree Belongings	Improvised Supplies
	<p>Brooms, mops, dust pans, trash or litter cans, cleaning rags.</p> <p>Sweeping compound</p> <p>* Paper towels</p> <p>Bathing facilities with additional water supply</p> <p>Waterless hand cleaner</p> <p>Cleansing cream</p> <p>* Disposable individual washcloth packages</p>	<p>Brooms, mops, dust pans, trash or litter cans, cleaning rags</p> <p>Sweeping compound</p> <p>* Paper towels</p> <p>Existing washroom facilities if operable</p>	<p>Soap</p> <p>Nail files</p> <p>Tooth brushes</p> <p>Hairbrushes and combs.</p> <p>* Deodorant</p> <p>* Talcum powder</p>	<p>Cardboard scrapers for "brooms" paper towel for cleaning rags, empty food tins and boxes for litter cans.</p> <p>Mops made from rags and stick.</p>



**MEDICAL EQUIPMENT AND SUPPLIES**

STOCKED BY OCD	ADDITIONAL SUPPLIES			Improvised Supplies
	Locally Provided	Augmented from Nearby Supplies	Shelteree Belongings	
Two types of medical kits are stocked by OCD: Medical Kit A for 50 people Medical Kit C for 300 people	Cots for medical area Bandages--gauze or muslin cloth bandages *Small supply of insulin or other special medicines *Germicidal solution *Pans *Washcloth *Paper towels, tissues Thermometers Plastic bags Stretchers (form fitting litter for special cases)	First aid supplies Containers Paper towels Scissors Stainless steel knives Plastic bags Material for bandages Alcohol Curtains, rags, or any material Magazines Soap Blankets	Special medicines (insulin, digitalis)--dressings Tissues Alcohol Band-aids Aspirin Diapers Tweezers Pins Scissors Magnifying glass Special foods Saccarin tablets Soap	
Aspirin 5 gr/100s Kit A - 5 Kit C - - Aspirin 5 gr/1000s Kit A - - Kit C - 3 Cascara Sagrada ext. 4 gr/100 Kit A - 1 Kit C - 6 Eugenol, 1 oz. Kit A - 1 Kit C - 1 Eye, nosedrops, ½ oz. Kit A - 3 Kit C - 18 Isopropyl alcohol, 1 quart Kit A - 1 Kit C - 6				

\*See page C-3.

MEDICAL EQUIPMENT AND SUPPLIES

STOCKED BY OCD	ADDITIONAL SUPPLIES		
	Locally Provided	Augmented from Nearby Supplies	Shelteree Belongings
Kaolin and Pectin Mixture, 1 pint Kit A - 1 Kit C - 6 Penicillin G Tablets, 250,000 Units/100s Kit A - 2 Kit C - 12 Petrolatum, White, 1 pound Kit A - 1 Kit C - 3 Phenobarbital Tablets, ½ gr/100s Kit A - 5 Kit C - - Phenobarbital Tablets, ½ gr/1000s Kit A - - Kit C - 3 Soap, surgical 1-3/4 oz. Kit A - 6 Kit C - 36 Sodium, Bicarbonate 1 pound Kit A - 1 Kit C - 2 Sodium, chloride, 1 pound Kit A - 1 Kit C - 2			Improved Supplies

MEDICAL EQUIPMENT AND SUPPLIES

	ADDITIONAL SUPPLIES			
	Locally Provided	Augmented from Nearby Supplies	Shelteree Belongings	Improvised Supplies
STOCKED BY OCD				
Sulfadiazine Tablets, 7½ gr/500s Kit A - 1 Kit C - - Sulfadiazine Tablets, 7½ gr/1000s Kit A - - Kit C - 3 Bandage, gauze 2" X 6 yds 12s Kit A - 1 Kit C - 6 Bandage, muslin 37" X 37" X 52" trian. Kit A - 1 Kit C - 6 Cotton, purified 1 pound Kit A - 1 Kit C - 3 Pads, gauze 4" X 4"/200s Kit A - 1 Kit C - 6				

WATER SUPPLIES

STOCKED BY OCD	ADDITIONAL SUPPLIES			
	Locally Provided	Augmented from Nearby Supplies	Shelteree Belongings	Improvised Supplies
<p>3.5 gallons of water per person. Metal containers approximately 16" in diameter and 22" in height with 70 quart capacity. weighs approximately 150 pounds.</p>	<p>*Extra quart of water per person Canned water Well water Storage tanks Canned fruit juices Extra drinking cups or canteens</p>	<p>Water cooler, boiler, storage tanks, vending machine drinks, cafeteria juices, other drinks, concessions-- soft drinks</p>		<p>All containers that can be filled with water-- sinks, waste baskets, washing machines, pots, coffee urns, empty bottles</p>

**FOOD SUPPLIES AND EQUIPMENT**

STOCKED BY OCD		ADDITIONAL SUPPLIES			
		Locally Provided	Augmented from Nearby Supplies	Shelteree Belongings	Improvised Supplies
<p>10,000 calories wheat biscuits or crackers per person packaged in two sizes of fiberboard containers:</p> <ol style="list-style-type: none"> <li>26" X 12" X 13.5" (47 lbs.) includes 6 tins (6 lbs. each) to provide 7 persons with 10,000 calories each.</li> <li>19" X 9-5/8" X 14-3/8" (31 lbs.) includes 2 tins (12.5 lbs. each) to provide 5 persons with 10,000 calories each.</li> </ol>		<p>*Baby formula Easily stored and prepared foods Canned goods Food toppings *Food heating equipment, utensils, paper plates and cups</p>	<p>Food heating equipment, utensils, paper plates and cups Foods from vending machines, concessions</p>	<p>Baby formulas and special foods for dietary problems Chewing gum Candy</p>	<p>Utensils for cans, cardboard Improvised table chairs, work areas</p>

\* See page C-3.

**SLEEP FACILITIES**

STOCKED BY OCD	ADDITIONAL SUPPLIES			Improved Supplies
	Locally Provided	Augmented from Nearby Supplies	Shelteree Belongings	
None stocked at present.	<ul style="list-style-type: none"> <li>* Blankets</li> <li>* Cots</li> <li>Bunks</li> <li>* Sleeping bags</li> <li>* Air mattresses</li> </ul>			<ul style="list-style-type: none"> <li>Storage shelves (collapsible and movable)</li> <li>Tables, desk and chairs</li> <li>Newspaper or cardboard for bedding</li> <li>Shirts, coats, jackets for bedding</li> </ul>

**COMMUNICATIONS EQUIPMENT**

STOCKED BY OCD	ADDITIONAL SUPPLIES			
	Locally Provided	Augmented from Nearby Supplies	Shelteree Belongings	Improved Supplies
None stocked at present.	Battery operated AM radio receiver Extra batteries or spare parts for portables Loud speaker Public Address system Megaphone Manuals for maintenance, general procedures Transmitters with either electrical, battery, or manually generated power	Microphones Megaphones Telephones Writing materials Paper Blackboard Chalk	Transistor radios Paper Cardboard Newspaper Note pads	Rolled up paper for megaphones Cosmetics for crayons Cardboard or newspaper for writing paper

ATMOSPHERE AND TEMPERATURE CONTROL EQUIPMENT

STOCKED BY OCD	ADDITIONAL SUPPLIES			
	Locally Provided	Augmented from Nearby Supplies	Shelteree Belongings	Improvised Supplies
None stocked at present.	* Oxygen indicator * Carbon dioxide indicator with dry bulb hygrometer Supplementary oxygen supplies Carbon dioxide absorbers * Carbon monoxide detector Filters Air conditioner Mechanical ventilation Heaters Exhaust fans Dehumidifier	Pans Portable air conditioners Portable heaters Dehumidifier Thermometer	Blankets	Fans

\* See page C-3.



RADIATION PROTECTION EQUIPMENT

STOCKED BY OCD	ADDITIONAL SUPPLIES			
	Locally Provided	Augmented from Nearby Supplies	Shelteree Belongings	Improvised Supplies
<p>The following radiation protection kits are stocked by OCD:</p> <ul style="list-style-type: none"> <li>1 CD V 700 (Low-range survey meter)</li> <li>1 CD V 715 (Gamma dose survey meter)</li> <li>2 CD V 742 (Personnel dosimeter)</li> <li>1 CD V 750 (Dosimeter charger)</li> </ul>	<p>Sandbags, concrete blocks, plywood</p> <p>Decontamination facilities:</p> <ul style="list-style-type: none"> <li>Water</li> <li>Brushes</li> <li>Soap</li> <li>Clothes for monitoring and emergency teams</li> <li>Extra dosimeter and batteries, or film badges</li> <li>Hoses</li> </ul>	<p>Sandbags, concrete blocks, plywood</p>	<p>Brushes, combs, knives for decontamination</p>	<p>Piled earth</p> <p>Heavy solid equipment</p> <p>Paper towels--</p> <p>filter radio-active particles from water</p>

**REPAIR AND RESCUE EQUIPMENT**

STOCKED BY OCD	ADDITIONAL SUPPLIES			
	Locally Provided	Augmented from Nearby Supplies	Shelteree Belongings	Improvised Supplies
None stocked at present.	<ul style="list-style-type: none"> <li>* Wrecking bars</li> <li>* Hatchets</li> <li>* Saws</li> <li>* Rope</li> <li>* Shovels</li> <li>* Screwdriver</li> <li>* Wrenches</li> <li>Wood</li> <li>Stretchers</li> <li>Cots</li> <li>Jacks</li> </ul>	Shovels, pliers, screwdrivers, wrenches, hammers, rope, machine oil, picks, etc.	Pocket knives, belts, ties, blankets	Boards and stones--leverage Furniture for bracing door to close opening Furniture to close opening (bookcases) Cardboard to close up windows

\* See page C-3.

SAFETY EQUIPMENT (INCLUDING FIRE)

STOCKED BY OCD	ADDITIONAL SUPPLIES			
	Locally Provided	Augmented from Nearby Supplies	Shelteree Belongings	Improvised Supplies
None stocked at present.	* Pails of sand Sandbags StIRRUP-type water pumps Pumps * Dry-chemical fire extinguisher Luminous tape: to mark hazards, stairwells, etc. Hoses All-purpose gas mask (emergency) Fire fighting suits	Pails of water StIRRUP-type water pumps Dry-chemical fire extinguisher Hoses Rope	Whistles	Blankets, rugs, etc. to smother fires

\* See page C-3.

FURNITURE

STOCKED BY OCD	ADDITIONAL SUPPLIES			
	Locally Provided	Augmented from Nearby Supplies	Shelteree Belongings	Improvised Supplies
None stocked at present.	Demountable or collapsible folding bunks and chairs, tables and cots	Chairs, tables Desks Cardboard cartons Auto seats Sofas, roll-aways Card tables Benches File Cabinets Doors		Boards (or heavy cardboard) placed over water drums will seat two or three persons Disassembled bunks or folding stools used as tables Filled cartons Cartons with paper as infant beds Cartons as tables, stools, workbenches Desk drawers as cribs Desks placed together for large table surfaces

**EMERGENCY LIGHTING EQUIPMENT**

STOCKED BY OCD	ADDITIONAL SUPPLIES			
	Locally Provided	Augmented from Nearby Supplies	Shelteree Belongings	Improvised Supplies
None stocked at present..	Emergency lighting unit with auxiliary power supply Manually operated generator such as bicycle light generator. Storage batteries and adaptable light cords Drycell emergency lights Flashlights and lanterns	Lamps Light bulbs Extension cords Wiring Batteries Flashlights	Flashlights	Mirrors for reflecting light Bicycle with light-generator accessory Auto battery and sealed-beam headlight Flashlight bulbs arranged on large reflecting surface

**AUXILIARY POWER EQUIPMENT**

STOCKED BY OCD	ADDITIONAL SUPPLIES			Improvised Supplies
	Locally Provided	Augmented from Nearby Supplies	Shelteree Belongings	
None stocked at present.	<p>Auxiliary power unit with fuel supply for generator engine</p> <p>Manually operated generators, i.e., bicycle-type light generator</p> <p>Storage batteries with activating fluid</p> <p>Dry cells</p>	<p>Public power system if available</p> <p>Dry cells</p>		<p>Automobile gas for generator engine or, if diesel, diesel fuel from tractor-trailor</p> <p>Bicycle with light-generator accessory</p> <p>Automobile batteries</p> <p>Flashlight batteries</p> <p>Batteries from automobile emergency flash-warning flashlight</p>

TRAINING AND RECREATION SUPPLIES

STOCKED BY OCD	ADDITIONAL SUPPLIES			
	Locally Provided	Augmented from Nearby Supplies	Shelteree Belongings	Improvised Supplies
None stocked at present.	Instructional materials--pamphlets on emergency operations, medical care, etc. Extra equipment for demonstration purposes, e.g., models, audio-visual aids * Games, books, puzzles, simple toys, handcraft materials, cards, Bibles Auto-instructional equipment Blackboards, chalk, bulletin boards	Paper Writing equipment Books Pamphlets	Paper Pencils Books Pamphlets	Newspaper, lipsticks, papers, pencils

\* See page C-3.

**APPENDIX D**  
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