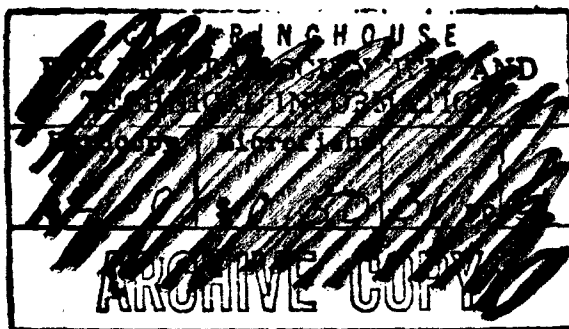


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INTEGRATED GUIDANCE FOR SHELTER MANAGEMENT

PLANNING A GROUP SHELTER A Technical Report



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Institute for Performance Technology
AMERICAN INSTITUTES FOR RESEARCH ☐ Pittsburgh, Pennsylvania

Integrated Guidance for Shelter Management

PLANNING A GROUP SHELTER

(A Technical Report)

Prepared for:

OFFICE OF CIVIL DEFENSE
DEPARTMENT OF THE ARMY
OFFICE OF THE SECRETARY OF THE ARMY
Under
CONTRACT NO. OCD-PS-64-57
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OCD REVIEW NOTICE

This report has been reviewed in the Office of Civil Defense and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Office of Civil Defense.

June 1965

Institute for Performance Technology
AMERICAN INSTITUTES FOR RESEARCH
Pittsburgh, Pennsylvania

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ABSTRACT

The field-verification and revision of guidance materials for individual shelter planning was the purpose of this report. The existing planning guidance was modified to reflect changes in technology and the shelter planning philosophy, and a Sample Basic Shelter Plan was developed for inclusion in the guide. The sample consisted of sixteen communities varying according to location, population, community disaster history, structure of the civil defense organization and application potential. Data collection was aimed at the following four potential inadequacies in the guide: insufficient information, inaccurate information, poor presentation, and extraneous information.

Four plans were written during the application of the guidance. Three of these plans adhered closely to the A-I-R guidance materials and the fourth plan dealt primarily with shelter procedures. The critical comments made by the reviewers indicated that (1) no technical inaccuracies were found in the guidance material, (2) the document might be too large for the average civil defense volunteer to read, (3) the technical background information in the guide and that provided in shelter management training overlapped, and (4) more information should be provided in several planning areas.

The findings in this study were reflected in a revision of the guide. The guide has greater emphasis on shelter management, a section dealing with planning for shelter security, and more information on closing the shelter. Minor revisions were made to reflect changes in technology and changes in the Federal program. Also, two sample plans have been included in the guide as appendices. A set of recommendations about shelter planning were developed and presented in a technical report.

ACKNOWLEDGMENTS

The assistance of Dr. James W. Altman, who made many valuable contributions to the content and organization of this report, is gratefully acknowledged. Thanks are due to all of the Region, state and local civil defense workers who helped in this research program. Special thanks are due to the five shelter planner who agreed to use the guidance materials. Mr. Fred Carr of the Office of Civil Defense made many helpful suggestions during the course of this project.

THE PROBLEM

During the course of a previous project for the Office of Civil Defense, the American Institutes for Research developed a guidance document for individual shelter planning entitled Planning Guides for Dual-purpose Shelters (Smith & Lasky, 1963). The information provided in that document was validated through review by knowledgeable civil defense authorities. The question remained, however, as to whether local civil defense personnel could successfully apply this guidance to the preparation of actual shelter plans. The purpose of this project was to conduct field verification of the planning guide and to revise the document as required.

APPROACH

This study involved four major steps:

1. Initial revision of the planning guide.
2. Selection of the research sample.
3. Data collection and analysis.
4. Final revision of the guide and preparation of the technical report.

A discussion of each of these steps follows. The general findings of the study are discussed under RESULTS (pages 9-18), and revisions of the guide are described under CONCLUSIONS AND RECOMMENDATIONS (pages 19-23).

Initial Revision of the Guide

The first step in the project involved modification of the planning guide to reflect changes in technology and the shelter planning philosophy which had occurred since its earlier publication. Changes in technical data were minor, since revision of the guide was initiated very shortly after it had been reviewed by OCD technical personnel for initial publication.

Changes were made in the introductory chapter of the guide to provide more information on the nature of shelter planning. This included a description of the phases and steps involved in developing a shelter plan through the use of the A-I-R guidance.

To reflect more accurately the role of shelter management in shelter planning, the chapter on organization and management was relocated to become the second chapter in the guide and was revised considerably. This chapter includes information on the development of an organizational chart, descriptions of management responsibilities, and selection of the management staff.

A small chapter dealing with planning for non-operational activities also was incorporated into the revised guide.

The one major addition to the guide was a Sample Basic Shelter Plan. A sample plan for a hypothetical shelter situation was developed by the A-I-R project staff using the information available in the planning guide. This sample plan was prepared for two reasons. First, preparing a sample plan would provide information about the use of the guide before it was used in the field. Secondly, the sample plan was written to determine its value as a supplement to the guide. Such a sample plan could help the individual shelter planner establish the format and the level of detail for their shelter plans. The Sample Basic Shelter Plan was not physically bound to the planning guide during the field try-out, but was

available as a separate appendix (see page 7). Finally, the guide was printed on both sides of each page to reduce the impact of its apparent size.

An initial revision of Chapters I, II, and III and a draft of the Sample Basic Shelter Plan were included in the planning guide used by the shelter planners during the field study. They do not differ greatly from the versions of the first three chapters and the sample plan in the guidance document submitted as a part of this report. (The versions used during the field study were submitted to the OCD project coordinator as part of a volume of working papers).

Sample Selection

The "Shelter Planning Situation"

Each case in the sample can be called a "shelter planning situation." A shelter planning situation exists where an individual, or a group of individuals, is interested in developing a formal plan for a specific shelter facility. These individuals may hold positions in the community civil defense organization or they may be independent agents responsible for a particular shelter. The planning situation includes all the circumstances impinging upon shelter planning, including the physical characteristics of the building, the nature of the available resources, and the personnel involved.

An effort was made to verify the planning guide across a wide range of shelter planning situations. Variables of major concern were:

1. Geographic location of the shelter. A variety of geographically-related conditions were sought. These included climate and topography as well as location.

2. Shelter characteristics. A variety of shelter characteristics (i.e., shelter population, location in the building, peacetime use of the building, etc.) were sought for the sample.
3. Characteristics of the shelter planner. It seemed desirable to observe shelter planning by individuals who varied according to civil defense experience, educational background, etc.

Procedure

The directors of OCD Regions One, Two, and Five and several state officials were briefed on the research program and the sample requirements. Many of these Region and state officials helped develop the field sample by recommending communities with a high potential for individual shelter planning.

Specific shelter planning situations were usually identified through discussions with the local civil defense officials of these communities. Interest in individual shelter planning was shown by:

1. Local shelter officials who wished to prepare a "prototype" plan for use by other planners or who had a particularly large or important shelter within their jurisdiction.
2. Other individuals within the community responsible for a particular shelter facility.

The Planning Guides for Dual-purpose Shelters was reviewed by approximately 16 such individuals. All those who reviewed the guide were interviewed, and five communities agreed to prepare a basic shelter plan. Final decisions regarding who would prepare a formal plan were based upon the willingness and capability of the planners, as well as the characteristics of the shelter planning situations.

Nature of the Sample

Eleven of the sixteen who reviewed the guide were located in the northeastern part of the United States. The remaining five were located in Texas. These reviewers consisted primarily of local civil defense directors, shelter coordinators, and individual shelter planners.

Approximately one-half of the reviewers had been involved in civil defense work for only a few years. Of these reviewers, many became involved in civil defense at the beginning of the shelter program. The others had been connected with civil defense for many years. The reviewers included engineers, retired military men, businessmen, a hospital administrator, a newspaper man, and a city clerk. The reviewers were associated with hospitals, office buildings, schools, and a shopping center. A few were full-time civil defense employees.

The people who applied the guidance were drawn from those sixteen who reviewed the A-I-R materials. Table 1 summarizes the characteristics of the sample shelter planning situations.

Data Collection and Analysis

The data collected during this study was directed toward four potential inadequacies in the guidance materials. They were:

1. Deficiencies in the information presented.
2. Inaccuracies in the information presented.
3. Poor presentation of the information.
4. Extraneous information in the guide.

The three basic methods of data collection were (1) interviews with those who critically reviewed the guide, (2) interviews with those who prepared a basic shelter plan, and (3) review and analysis of the plans.

Table I**Sample Shelter Planning Situations**

Plan	Location	Type of Building	Shelter Pop.	Civil Defense Planning Char.	Planner's civilian Employment
I	Connecticut	Shopping Center Tunnel (Subterranean)	5,000 Spaces	Disaster Chief (Volunteer)	Engineer
II	Pennsylvania	City Building (Subterranean)	176 Spaces	Local CD Director (Volunteer)	Plant Manager
III	Texas	Hospital (High Rise and Subterranean)	2,999 Spaces	Local CD Director (Part-time, Paid)	City Clerk
IV	Texas	Post Office (Partial Subterranean)	265 Spaces	CD Operations Officer (Part-time, Paid)	City Electrician
V	New Jersey	Elementary School	135 Spaces	Asst. CD Director (Volunteer)	Electronics Instructor

Critique Interview

Copies of the Planning Guides for Dual-purpose Shelters usually were provided to the reviewers at least two weeks prior to the interview. The purpose of this loosely structured interview was to identify any of the four problem areas mentioned above. The individual's general experience in shelter planning and the specific needs of his particular planning situation was the basis of this criticism. Near the end of this interview the reviewers were asked if they felt that a sample plan would help them prepare a plan of their own. Following their initial response to this question, they were provided with copies of the Basic Sample Shelter Plan. They were to review it before again expressing an opinion.

Interviews with Planners

The five shelter planners who agreed to prepare basic shelter plans using the A-I-R guidance materials were completely free to choose the way in which they would approach their particular planning problems. Both during and following the critique of the guide they asked many questions about the best format of a plan, the desired level of detail, etc. Every effort was made to avoid answering these questions in any way other than referring the individual to the guidance materials.

Once an individual had agreed to write a plan the research staff avoided applying any "pressure" to get him to complete it. It was felt that a person's willingness to complete the preparation of a plan was a reflection of both the planning guidance and the general stress involved in individual shelter planning.

Most of the planners were visited by project personnel at least twice while preparing their plans. During these visits, they were again asked to comment on the format and content of the guidance materials. This time the comments were in more specific terms, based on their actual experience in preparing a plan.

Determining the sources of information that the planners used in developing the plan was an additional and extremely important aspect of these interviews. An attempt was made to identify the source of every method included in the plan. Knowing that the source of an item of information was or was not in the planning guide was insufficient. If the item came from both the planning guide and another source usually available to all shelter planners, for example, it might be reasonable to exclude that information from the guide.

The planners also were asked to estimate the time spent preparing their plan. These estimates were made in terms of the time spent studying the shelter situation, reading the guidance material, and actually writing the plan.

Review and Analysis of the Plans

All of basic shelter plans prepared during the study were carefully examined by the project staff as soon as the plans were completed. Of primary interest was the extent to which the plans encompassed the planning areas and planning factors involved in shelter planning. The methods suggested for dealing with each planning factor were noted and investigated to determine whether they corresponded with the methods included in the planning guide. This helped to verify information provided during the interviews with the planners regarding the source of their information. It was recognized that a planner could learn of a method suggested in the guide from some other source, and this possibility was investigated where appropriate in the interviews with the planners.

Each method suggested in a plan also was evaluated with regard to its general applicability to the planning situation. Inappropriately applying a method to a particular planning situation would indicate a poor presentation of that method in the guide or inaccuracies in the guidance.

RESULTS

The Plans

The project staff had considerable difficulty in recruiting even a small number of people to actually prepare a basic shelter plan. This may be explained in part by the current status of the national fallout shelter program. Most of the civil defense organizations contacted during the course of this study were concentrating on marking and stocking their shelter facilities and on selecting, recruiting, and training their shelter managers. The need for a well-organized written plan for every shelter, while generally recognized as important, is presently not being emphasized by these civil defense officials.

The apparent complexity of the job of shelter planning also might have served to discourage some potential planners. A number of individuals felt that they had neither the staff nor the time required to prepare a formal, written shelter plan. It is important to note that the task was preparing a single plan for one shelter in a community with many shelter facilities.

Four basic shelter plans were prepared by local civil defense personnel during the course of the study. A fifth individual who had agreed to write a plan was hospitalized for a serious illness and was understandably not able to meet his commitment.

A brief discussion of each of the four plans is presented below.

Plan 1

This plan was prepared by the volunteer disaster chief (not synonymous with civil defense director) of a Connecticut community with a population of 10,000 people. The shelter area is a subterranean tunnel running the full

length of a shopping center and contains 5,000 shelter spaces. The tunnel is large enough for delivery vehicles and provides access to a great many of the buildings in the shopping center.

The organization of the plan closely follows the chapter heading of the planning guide as well as the format of the sample shelter plan. The last three planning areas discussed in the guide are not included in the plan and therefore, it is incomplete.

The planner recognized the need for a chapter on shelter security (which was not covered in the planning guide or the sample plan). He also suggested that plans be made for a "shelter business office" to keep track of private resources within the shopping center which are commandeered for shelter use. Neither of these points, however, were included in his plan. The planner felt that plans for maintenance were not required since complex equipment would be at a minimum in his shelter. He pointed out that the personnel who drive the auxiliary power truck to the shelter will be capable of maintaining the power unit. (In-shelter maintenance was covered in the planning guide, but was not considered in the sample shelter plan).

Management organization also was not included in Plan I. The planner indicated he would "fill in the blanks" of his organization chart after the rest of his plan had been implemented.

All of the methods discussed for each planning factor seem sound. The planner had a great deal to work with in the shopping center and seemed to make full use of the facilities.

Of the sixty-six methods in the plan, fifty-three paralleled methods recommended in the planning guide. In spite of this, the planner claimed that he had reviewed the guide only in a very cursory fashion due to its size. He obtained most of his ideas from:

1. His shelter management training, which he said closely paralleled much of the information in the guide.

2. His engineering training and his varied experience, which included navy fire-fighting, electrical work, mass feeding, and camping.
3. A very thorough review of the Sample Basic Shelter Plan.

Analysis revealed that in only a dozen or so instances did the planner use the actual method provided in the sample plan (e.g., vehical headlights for shelter lighting). Apparently the sample plan provided the planner with the cue that he must have some method for dealing with a planning factor. For example, where the sample plan calls for overstocking peacetime materials used for personal hygiene, the author of Plan I plans to use the large supplies normally available from various locations in the shopping center. The fact that he should do something about personal hygiene, and information regarding what materials would be useful, could have been obtained from the sample plan.

The planner felt that in his case the sample plan had more value than the guide. However, he felt that the guide would be very useful for someone who had not had the shelter manager's course. He felt that a revised guide which presented only the methods to be used in planning would be more useful to shelter management trained people.

The disaster chief estimated that he spent about 10 hours in preparing the plan, four hours of which were spent in identifying his planning problems and reading the guidance materials.

Plan II

Plan II was prepared by the volunteer civil defense director of a community of 15,000 people located in northwestern Pennsylvania. The shelter area for which this plan was written is located in the basement of the Municipal Building. It contains 176 shelter spaces. The peacetime use of this shelter includes a pistol range for the local police force and storage of borough playground equipment.

The organization of this plan, as in Plan I, followed that of both the planning guide and the sample shelter plan. This plan does not contain a discussion of protection against weapon effects other than fallout, since the planner felt that the purpose of the shelter was purely that of fallout protection. The only other planning area recommended in the guide which was not discussed at all in the plan was the organization of shelter management. The planner regarded recommendations in this area as generalizable to all shelters. He said that he would prepare a section on shelter management following the completion of several shelter plans.

Plans for both auxiliary power and shelter security were reflected in several chapters of the plan, but they were never given separate treatment. The planner felt he would have written a separate chapter on security if this planning area had been covered in the planning guide.

Although he reviewed both the guide and the sample plan, this planner said he relied on the guide in his chapter-by-chapter preparation of a basic shelter plan. Only one of the more than sixty methods included in the plan could not be attributed to the planning guidance. This method, drawing outside air into the shelter via unused rooms to remove fallout, quite possibly came from the planner's shelter management training. All of the methods discussed in Plan II seem appropriate for the planning situation in question.

While this planner felt that the background material in the guide was essentially the same as that received in his shelter management course, he felt it was useful as a "refresher."

The planner said that he spent approximately one hour per chapter in preparing his plan (13 hours). Less than an of this time was spent studying the shelter area, but he could not separate the time spent in writing the plan from that required for reading the guidance materials. He felt he would have spent more time reviewing the guidance had he not received shelter management training.

Plan III

This plan was prepared by the city clerk of a Southwestern community of 125,000 people. The planner served as civil defense director for the community as part of his city clerk job.

The shelter area is the basement and the core of three floors in a 250 bed hospital. It contains 3,000 shelter spaces.

The format of this plan again was quite similar to that of the planning guide and the sample plan. The planning areas were discussed in a different order than their presentation in the guidance materials, and the discussion of each planning factor was not organized according to the "need" and the "plan". Plans for shelter lighting were included in a chapter dealing with auxiliary power. Non-operational activities were not dealt with in the plan, and the planner claimed this as an oversight on his part. (A chapter on non-operational activities appeared in the planning guide, but not in the sample plan).

This plan also omitted shelter maintenance. The planner felt that such a discussion was unnecessary, since highly trained maintenance personnel would be on duty in the hospital at all times and were in fact assigned to the shelter management staff. He also felt no need to discuss the organization of shelter management in his plan since the management staff had already been designated.

All of the methods incorporated into this plan were discussed in the planning guide and appeared feasible in this particular planning situation. The planner stated that he reviewed both the planning guide and the sample plan. He indicated that he referred primarily to the sample plan in his step-by-step preparation of his plan. He felt that much of the technical detail in the guide was not necessary for the average shelter planner.

The planner reported that he spent four to five hours studying the guidance. He then spent about 4 hours at the shelter facility examining the planning situation. The actual writing of the plan reportedly took approximately eight hours.

Plan IV

Initial arrangements for preparation of this plan were made with the full-time paid civil defense director of another southwestern town; this one with a population of 67,000 people. The shelter area is a U. S. Post Office Building containing 265 shelter spaces. Since this is a government building, the civil defense director felt his plan should be compatible with the requirements set forth by the General Services Administration (GSA). Thus it was agreed that he would use the document Building Organization for Self-Protection (GSA, 1959) as a supplement to the A-I-R guidance materials.

The civil defense director did not write the plan himself. He turned the GSA guide and the A-I-R materials over to his operations officer, a city electronics maintenance man who held this civil defense post as part of his regular job. This man has received training as a shelter management instructor (SMI) through a university extension course. Project personnel had no contact with this individual until his plan was close to completion.

The format of Plan IV is quite different from that of the sample plan and does not follow the major headings of the A-I-R planning guide or the GSA guide. Its primary organization follows a chronological description of shelter activities and management responsibilities from shelter entry to shelter exit.

Most of the planning areas discussed in the planning guide are considered in some way within this plan. The methods set forth in the plan say very little, however, concerning the use of physical resources in developing shelter capability. Rather, the plan concentrates upon procedures and personnel requirements associated with the use of whatever facilities might be available for meeting shelter needs. For example, while the plan details the procedures necessary for effective shelter communications, no recommendations are made regarding the nature of communications equipment for the shelter. Although it was developed

for a particular shelter, this plan would be applicable to almost any shelter situation, but only in terms of the requirements for shelter management.

Before preparing his plan the operations officer reviewed all of the guidance available to him. He decided to use the GSA guide as his primary reference, and also drew heavily upon hand-out materials given to him during his SMI course. Analysis of the resulting plan reveals that almost 2/3 of its contents are drawn from the shelter management materials. Almost all of the remaining information in the plan was taken from the GSA guide. The planner indicated that during the preparation of the plan he referred to the A-I-R planning guide to see if he had forgotten anything. No additions were made to his plan as a result of this review. The planner felt that a plan prepared on the basis of the A-I-R guide would be too detailed for his purpose, which was to provide a model plan to be used by other shelter planners.

This planner said he spent forty-five (45) hours reviewing various guidance materials before beginning work on his plan. He reported that an additional sixty-four (64) hours were spent in writing the plan.

Summary

All five of those who agreed to prepare a basic shelter plan for this study had received shelter management training. Also, all of these individuals had some general responsibility for shelter planning within the community in addition to their responsibility for a single shelter. Except in one case of extenuating circumstances, all those who committed themselves to preparation of a plan did so. It should be noted that all of the planners regarded this commitment as involving support of a Federally-sponsored research program, as well as a responsibility to their own local civil defense organization.

Three of the plans which were prepared adhered closely to the A-I-R guidance materials. The fourth plan dealt only with shelter procedures,

regardless of available equipment, and was taken to a large extent from the GSA guide and shelter management training materials. The project staff had no contact with the author of Plan IV until the plan was completed.

The planning areas which were omitted in the three plans patterned after the A-I-R guidance, are summarized in Table II. Shelter security, which was not discussed in either the planning guide or the sample plan, was omitted from all three basic shelter plans. Three planning areas--management organization, maintenance, and non-operational activities--were included in the planning guide, but were not dealt with in the sample plan. Two of these areas, maintenance and non-operational activities, were omitted from two of the basic shelter plans. The organization of shelter management was not included in any of the three plans.

A great majority of the methods included in all three plans paralleled those presented in the planning guide. All of these methods seemed appropriate for application to the particular shelter planning situations involved.

Although three of the plans were quite similar, the planners varied the use of the planning guidance. Valuable comments regarding both the strengths and weaknesses of the guidance materials were provided by the planners, as well as those who reviewed the guide and sample plan. These comments are discussed in the following section.

Review Comments

No technical inaccuracies were identified in the guidance materials as a result of this study. That is, inaccuracies were not pointed out in any review of the materials, nor were any reflected in the plan through inappropriate application of methods discussed in the guidance.

Table II

Omitted Planning Areas

Plan	Management*	Other Weapon Effects	Maintenance*	Sleeping Facilities	Security**	Warning & Entry	Non-operational Activities*
Plan I	X		X	X	X	X	X
Plan II	X	X			X		
Plan III	X		X		X		X

Key: *Not included in the sample plan.

**Not included in the planning guide or the sample plan.

Several of those who reviewed the document felt that some technical information was presented at a level which would make comprehension difficult for the average shelter planner. This comment came most frequently from state and Region personnel rather than the planners themselves.

All the reviewers were impressed by the size of the document. Most of the reviewers thought that the document might be too time-consuming for the average civil defense volunteer to read. A few felt that the size was necessary to provide adequate planning guidance.

All of the reviewers and planners recognized an overlap of the technical background information presented in the guide and the information provided in the shelter management training. All but the author of Plan II felt that much of this material could be omitted from a guide to be used by trained shelter managers.

Five of the reviewers noted a need for planning guidance pertaining to security in the shelter. Several reviewers asked for more guidance dealing with closing the shelter. Although the decision of when to close the shelter was an individual shelter management problem, it was felt that more information should be provided in the guide on the factors to consider in making this decision, i.e., temperature, food and water supply, etc. It was also felt that more planning information should be provided on methods for closing the shelter.

All of the planners felt that the guide did not provide adequate guidance on how to prepare a basic shelter plan with regard to format, level of detail, etc. The sample shelter plan was apparently a great help in this respect. All of the reviewers felt that the sample plan would be quite useful as a model for their own plan. The validity of this opinion was attested to by the extent to which those who prepared shelter plans used the sample plan to support their efforts (see page 16). It was felt that the guide itself also could be modified to present a clearer picture of the nature of shelter planning.

CONCLUSIONS AND RECOMMENDATIONS

Nature of the Guide

Modifications and Additions

The findings in this study were reflected in a revision of the guide, now entitled Planning A Group Shelter (Smith & Lasky, 1965). Experience in the field indicated that the changes made during the initial revision of the guide (see pages 2-3), were appropriate. In at least two cases, however, these changes apparently had not been sufficient to achieve the desired effect. First, in spite of an attempt to clarify the nature of shelter planning in the first chapter of the guide, it was clear that further revisions were required. Toward this end, the nature of a basic shelter plan was described in even greater detail in Chapter I of the guide, and a topical outline was presented for use by the planner. The steps involved in developing a plan were carefully described, as was the method by which the planner could proceed from an initial basic shelter plan to a point of operational readiness for his shelter. The final revision of the introductory chapter also defines both when and by whom a shelter plan should be prepared. Other information including the purpose, nature and use of the planning guide, was retained within this chapter.

The second chapter of the guide dealing with shelter management was further revised as a result of the field study. This planning area obviously needed further emphasis in order to receive proper consideration by shelter planners. This emphasis was provided in several ways. First, this chapter now includes a more direct discussion of why shelter management must be considered as an integral part of shelter planning. It also specifically outlines the responsibilities of the shelter planner in developing a shelter management organization. Finally, a discussion of the management area and the required facilities was included. In addition to providing information not available in the earlier versions of the

guide, including these "hardware-oriented" sections makes the problem of planning for shelter management more analogous to the other tasks faced by the planner.

The one planning area which was completely omitted from the field tryout version of the planning guide was that of shelter security. It is interesting to note that while the need for guidance in this area was recognized by many reviewers and some of those who prepared plans, shelter security was not discussed as an independent planning area in Plans I, II, or III. This indicates the need for clear delineation of each planning area within the guidance materials in order to assure definitive consideration of all areas within most shelter plans. A chapter on shelter security has been added to the final version of the planning guide. Planning considerations are discussed for the security area, equipment needs, and personnel requirements.

In response to other comments by both reviewers and planners a small section has been added to the chapter on warning and shelter entry. This section deals with the steps that should be taken to protect the people who aren't able to enter the marked shelter area before the shelter is closed.

Some minor additions and changes were made in the planning guide to reflect changes in technology of the Federal program which occurred during the course of the study. For example, a discussion of use of the MUZAK system for attack warning was added to Chapter XVII of the guide, and the radiological monitoring course now available in most communities were suggested for the training of a shelter's radiological monitors.

Definition and Deletion of Technical Data

An effort was made to more clearly define some of the technical terms in the guide through rephrasing. Footnotes have also been used for this purpose. All of the technical background information which was thought to overlap with the technical information provided in shelter management training was deleted. This step was taken for the following reasons:

1. The background information provided for each planning area added undesirable size to the planning guide and contributed to its complexity.
2. Most of those who showed an interest in individual shelter planning had received shelter management training and most of them felt that the information overlap between this training and the guide was unnecessary.
3. The planning guide is now proposed as part of an integrated package of shelter management materials. A training document within this package (Bend & Collins, 1965) will contain the technical information required for shelter planning as well as shelter management.

The first version of the planning guide now contains only enough technical background to structure the problem within each planning area.

Removal of Chapter References

The size of the guide was further reduced by removing the references from the end of each chapter. Initial preparation of a basic shelter plan rarely required the use of reference material. In addition, the total number of references is sufficiently small to permit effective use of a general bibliography at the end of the guide.

Sample Basic Shelter Plan

The results of this study definitely indicate that sample shelter plans would be useful to individual shelter planners in establishing the format and level of detail for their shelter plans. At the same time, there is no evidence that planners will "fixate" upon the sample plans and fail to utilize the planning guide or their own ingenuity in developing specific methods for dealing with their particular shelter planning situation. Two sample plans have, therefore, been included as appendices to the final version of the planning guide.

One of the sample plans in the Sample Basic Shelter Plan which was field-tested along with the planning guide. The three planning areas (shelter management, maintenance, and non-operational activities) which were omitted in the field-test sample plan are included in this newer version. An introductory section which describes the nature of the shelter facility has also been added. The other plan is one of the plans which was developed during the field-verification of the planning guide. Editorial changes have been made in this actual plan to correct grammatical and stylistic errors. Whenever possible, the author's words were used and the content was never changed. Sections dealing with shelter management, non-operational activities, lighting, security, and shelter maintenance were added to the plan.

Use of the Guide

On the basis of this field study several recommendations can be made with regard to shelter planning. They are:

1. The need to prepare individual shelter plans should be emphasized by civil defense organizations to a greater extent than is now the case. This is particularly true in those communities where shelter marking and stocking and management training are well underway.
2. The plans should be tailored to a specific shelter and should be defined to include methods for the use of available physical resources as well as the description of personnel responsibilities.
3. Both the need for, and the definition of, shelter plans should be discussed in shelter management training courses. In most cases, preparing a shelter plan should be one of the peacetime responsibilities of the shelter manager because:

- a. Potential ability to prepare and implement a basic shelter plan is compatible with other desirable qualifications for shelter managers (Smith & Jeffreys, 1965).
- b. Development of a basic shelter plan serves as an effective training and orientation device for the shelter managers.
- c. Preparation and implementation of a plan provides the interested shelter manager with a satisfying task to perform during his peacetime tenure.

The results of this study indicate using the guidance materials examined in this report can result in effective shelter planning. The resulting increase in individual shelter capability should contribute significantly to the effectiveness of the national shelter program.

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RACT

The field-verification and revision of guidance materials for individual shelter planning was the purpose of this report. The existing planning guidance was modified to reflect changes in technology and the shelter planning philosophy, and a Sample Basic Shelter Plan was developed for inclusion in the guide. The sample consisted of sixteen communities selected to review and apply the guidance. Four plans were written during the application of the guidance. Three of these plans adhered closely to the AIR guidance materials; the fourth plan dealt primarily with shelter procedures. The critical comments made by the reviewers indicated that there were no technical inaccuracies and that the technical background information in the guide overlapped with that provided in shelter management training. The findings in this study were reflected in a revision of the guide. The guide has greater emphasis on shelter management, a section dealing with planning for shelter security, more information on closing the shelter. Minor revisions were made to reflect changes in technology and changes in the Federal program. Also, two sample plans have been included in the guide as appendices. A set of recommendations about shelter planning were developed and presented in a technical report.

14.

KEY WORDS

Basic Shelter Plan
 Planning Factor
 Planning Area
 Group Shelter
 Shelter Management Planning
 Shelter Planning
 Resources---for shelter development

LINK A

LINK B

LINK C

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