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AN EXPERIMENTAL STUDY OF "INTEGRATED GUIDANCE FOR SHELTER MANAGEMENT"

Prepared for:

OFFICE OF CIVIL DEFENSE
DEPARTMENT OF THE ARMY
OFFICE OF THE SECRETARY OF THE ARMY
Under
CONTRACT NO. OCD-PS-64-57
OCD WORK UNITS 1533A & 1542A

AMERICAN INSTITUTES FOR RESEARCH
Pittsburgh, Pennsylvania

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(Final Report)

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September 1966

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ABSTRACT

The American Institutes for Research recently produced a three-volume package of integrated shelter management materials for application to shelter management training, shelter planning, and in-shelter management. The study described herein deals with an experiment to obtain empirical data on the individual effectiveness of these documents as well as the impact of various combinations of these materials on shelter planning and shelter management. The dependent variables involved in the experiment were performance on a Shelter Planning Test and a Shelter Management Test. The independent variables included shelter management training, use of a shelter occupancy exercise, shelter planning orientation and planning experience, the presence or absence of shelter management guidance, the nature of the shelter situation, and the background (student vs. executive) of the subjects. The relationship of mental ability to both of the dependent variables also was measured and controlled.

Planning orientation, shelter management training, and the shelter occupancy exercise all contributed, both individually and collectively, to at least some aspect of shelter planning. Shelter management training, planning experience and the use of management guidance all contributed, both individually and collectively, to performance on the Shelter Management Test. No significant differences were found between the test performance of students vs. executives, and general intelligence was highly related to effective shelter planning and management regardless of formal preparation.

In the subsequent discussion of these research findings, it was pointed out that caution should be exercised in translating these data into operational recommendations.

ACKNOWLEDGMENTS

The authors are grateful to Dr. James W. Altman and Dr. John F. Hale of the Institute for their contribution to the experimental design for this study. The participation of local industry in providing executive personnel as subjects for this study is also gratefully acknowledged. Finally, particular thanks are due to the many members of the AIR staff who worked long and hard at the subject recruitment, testing, and data processing which formed the backbone of this research effort.

INTRODUCTION

The responsibilities of shelter management may be grouped into two broad categories depending upon whether they are carried out in peacetime or under emergency conditions. Peacetime responsibilities consist primarily of shelter planning, that is, placing a fallout shelter in a state of operational readiness and maintaining this readiness. Emergency responsibilities fall under the common label of shelter management, and include the duties that are part of organizing, operating, and managing a shelter under conditions of actual occupancy.

The need for preparing a shelter cadre to perform these functions is reflected in the magnitude of the various shelter-oriented training programs currently being conducted and also in the support that the Office of Civil Defense has lent to research and analysis relating to this subject. Also, the concept of integrating peacetime and emergency responsibilities has recently received increasing attention from civil defense agencies.

In 1965, under contract OCD-PS-64-57 (Work Units 1533A and 1542A), the American Institutes for Research produced a set of documents designed to aid persons with shelter management responsibilities in carrying out both their peacetime and emergency duties. The first volume in the set is a training text which serves as an introduction to the subject of shelter management. The second volume is a guidance document for planning a group fallout shelter. The final document is for in-shelter use, to assist the management staff in organizing and operating a shelter under occupancy conditions. Together, the three documents make up an integrated guidance package which covers the broad range of information and action requirements for shelter planning and management.

Each guidance document developed last year was subjected to critical review and field verification on an individual basis. In the opinion of the reviewers, each document appeared to fill an existing need. That is, the planning document was viewed as a useful aid in planning a group shelter, the management guide for in-shelter management, and so forth.

These previous individual evaluations leave unanswered some basic and very practical questions. For one thing, they generally have not been oriented towards the collection and analysis of experimentally comparable data.[1] As a result, there are no experimental findings to test the assumption that the guidance materials significantly improve the peacetime and emergency performance of the shelter manager.

Secondly, there is no information available as to how the activities of training, planning, and in-shelter direction interact, if at all, in producing a well-prepared planner and manager. For example, does the experience of planning a shelter add to a person's management capabilities---perhaps more so even than training does?

The research objective of the experiment herein reported is to obtain empirical data on the effectiveness of individual, previously prepared shelter guidance documents, and to assess the effectiveness of various combinations of these materials in enhancing the performance of peacetime planners and emergency managers.

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[1] The exception to this is a small study of high school students' ability to comprehend management guidance materials (Brandegee & Bend, 1965).

THE RESEARCH PROBLEM

It is useful, as well as convenient, to discuss the research problem in terms of the two broad areas of management responsibility--peacetime and emergency.

From the point of view of peacetime responsibilities, the following are the research questions that the experiment was designed to answer.

1. Planning guidance vs. no guidance. Does the person who has been provided with planning instruction and/or written planning guidance materials develop a more effective shelter plan than the person who has not received such assistance?

2. Planning guidance vs. other types of guidance materials. Shelter planning often is carried out by trained shelter managers. A purpose of this study is to determine whether the materials which are provided as part of this training, such as shelter management texts, are valuable as a substitute for the planning guide during performance of peacetime functions.

3. Planning orientation as a supplement to other types of formal preparation. Another purpose of this study is to investigate the impact that a planning orientation program has on the planning process when used as a supplement to shelter management training. The planning guide was developed to deal specifically with shelter planning, and was designed to be comparatively free of shelter management data or general civil defense information. Does shelter management training then enhance the usefulness of planning guidance, or does it act to render the guidance less useful? Determining the exact nature of this interaction is an objective of this research.

Shifting to the area of shelter management in time of emergency, one can identify the following as the salient dimensions of the research problem.

1. Management guidance vs. no management guidance. A major AIR research interest has been the preparation of guidance materials to support the trained or untrained shelter manager during the time of occupancy. Yet here, as in the case of management training, insufficient data exists to demonstrate whether or not, and in what ways, in-shelter management guidance materials contribute to the performance of the leader.

2. Trained vs. untrained managers. Do trained shelter managers deal more adequately with the problems of a community fallout shelter than persons of similar backgrounds who have not been trained? It has been AIR's consistent position that a trained manager is a key to survival under emergency conditions. However, this conclusion has never been supported by the type of rigorous research that would permit one to state with confidence that shelter management preparation prior to shelter occupancy contributed to the performance of a manager.

3. Training with an occupancy exercise vs. training without an exercise. The shelter exercise that accompanies the formal classroom training is one of the most controversial issues. Some have viewed the exercise as a valuable (perhaps the most valuable) part of the management preparation program, while others regard it as a major impediment to management recruitment. Although AIR has consistently upheld the position that the exercise is an essential ingredient of shelter management preparation, it has up till now been done without benefit of any formal comparison between the performance of "exercised" versus "non-exercised" shelter managers.

4. Shelter management training vs. other types of preparation. This raises the issue of whether shelter management training, as currently conducted, is the most effective way to prepare for management under emergency conditions. A plausible alternative, for example, is that the person who thoroughly and systematically plans a community fallout shelter will have accumulated in the process much of the information that he will need to direct that shelter under occupancy conditions, and therefore, that person does not need an additional management course.

There are, in addition, two research issues that apply to both peacetime and emergency aspects of management. These are:

1. Simple vs. complex shelter situations. The need for shelter planning may occur in a wide variety of shelter situations, such as large versus small shelters, office buildings versus parking garages, high-rise versus basement shelters, etc. Still another purpose of this research is to examine the effectiveness of planning orientation and guidance across widely varying shelter situations.

   It is clear that the information base which supports the current management training program--habitability research, shelter exercises, disaster shelter stays--has dealt with the relatively simple shelter situation almost exclusively. It is equally obvious that most of the shelter spaces located in the United States are in complex shelters. Differences in the information and action requirements for management of the complex versus the simple shelter is a subject that has only recently begun to receive attention. It is, as yet, not known how well managers trained in a small shelter context will function in a complex shelter situation.

2. Executive vs. non-executive planners and managers. A research goal pertaining to the peacetime shelter setting is to determine whether or not the skills and experiences associated with an executive position are related to the ability to develop a thorough and correct plan for a community fallout shelter.

   Who makes the best shelter manager? AIR has traditionally held that it is the person with previous management experience.[2] (The implication is that such persons possess both the management skills and the "readiness to lead"). However, from the practical standpoint this type of person is the hardest to recruit overall. If it can be shown that certain types of non-executives can learn, apply, and retain management information, as well or better than executives can, this might suggest modifications in shelter organization to accommodate the peacetime shortage of executives, and to take advantage of the capabilities of more available segments of the population.

The subject matter dealt with in this research problem is extremely complex. At the same time, every question raised in the statement of the problem appears to have direct, practical implications for civil defense planning and operations. The study described on the following pages was developed and conducted within a complex framework of assumptions and convictions. It represents, within the constraints of this framework, an initial attempt at rigorous and empirical evaluation of the process and product of fallout shelter management.

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[2] Smith, R. W. & Jeffreys, F. B. The selection and recruitment of shelter managers. Pittsburgh: American Institutes for Research, June, 1965.

APPROACH

Experimental Design

The problem described above was examined using the experimental paradigm illustrated in Figure 1. The dependent variables involved in this design were shelter planning and shelter management. The independent variables were: shelter management training, shelter planning orientation and planning experience, the presence or absence of shelter management guidance, the nature of the shelter situation, and the background (student vs. executive) of the subjects.

Shelter Management Training

Two-thirds of the subjects received shelter management training consisting of approximately eight hours of classroom instruction. The basic text for this training was An Introduction to Shelter Management (Bend and Collins, 1965), which is Volume I of the Institute's Integrated Guidance for Shelter Management. Because this text was prepared for a wide range of training situations, its original production did not include a detailed syllabus or instructor guide. Therefore, Dr. Robert A. McNamara, a local educator with extensive experience in training for emergencies (e.g., Red Cross), was hired to prepare a syllabus and to organize and teach an 8-hour shelter managers course based on the materials prepared by AIR. The instructional method selected was that of lectures and, after each major topic, class discussions. A course schedule is presented in Appendix A.

Because of some difficulties in recruiting executives, the original training schedule had to be modified. As a result, Dr. McNamara was available to teach only two of the four SM training courses. The other two courses were taught by members of the project staff using the course materials and the procedures that Dr. McNamara had developed.

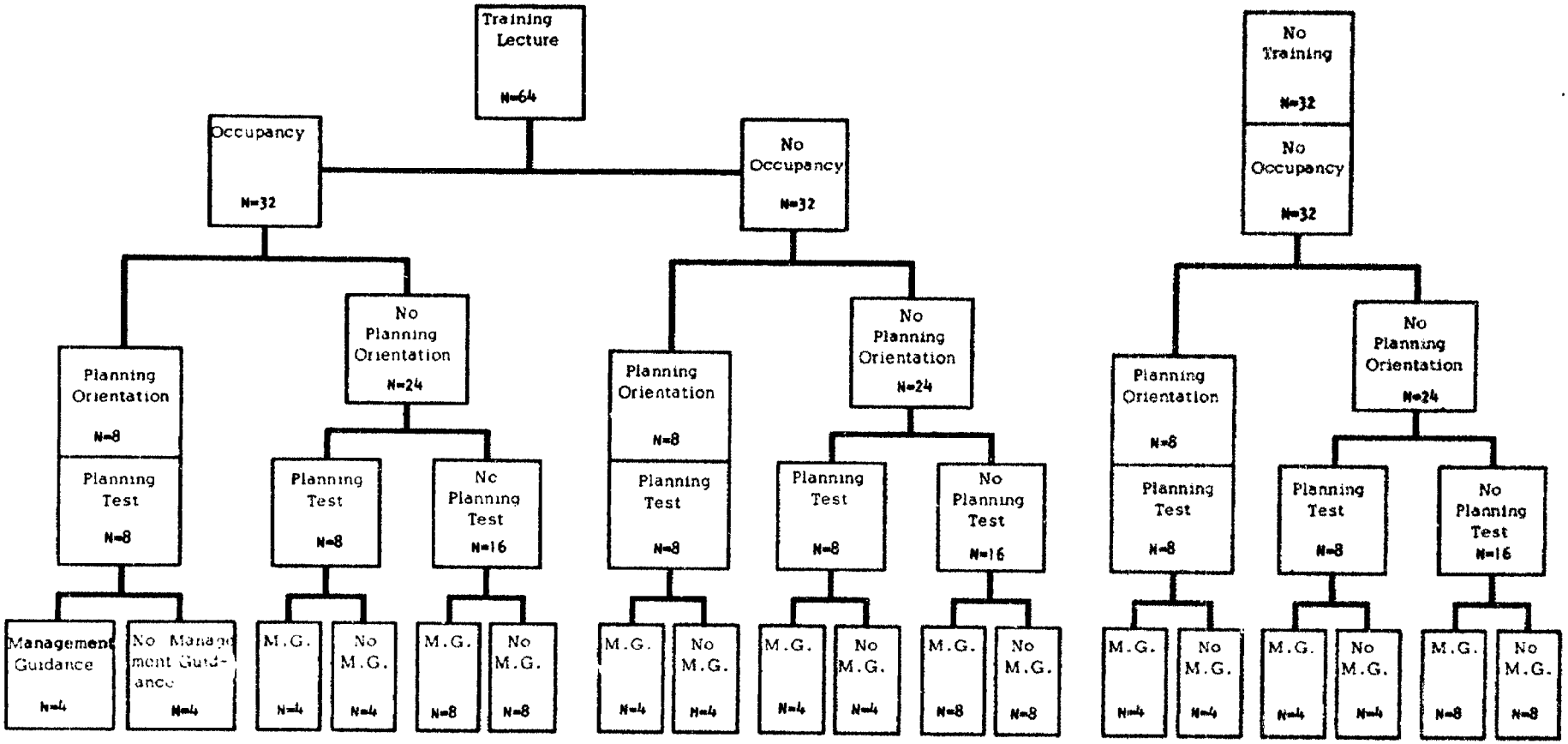

Figure 1. Experimental Paradigm

Half of the shelterees receiving shelter management training also participated in a shelter occupancy exercise. This exercise consisted of a 24-hour shelter stay involving approximately 20 persons[3] in a 10 sq. ft./person shelter configuration. The shelter used for the occupancy exercise was the simulated shelter that AIR was using for its shelter management research under subtask 1519A, OCD contract #OCD-PS-64-57. Use of this shelter permitted two-way communication with and one-way observation of, the shelterees. The shelter was made to look like a small business office with OCD supplies located in one corner. In each exercise, a member of the project staff was present in the shelter at the time of shelter entry (6:00 PM), and he stayed to help the shelterees initiate survival procedures. After a shelter organization was selected from among the trainees, the AIR staff member receded into the background, and he "defected" from the shelter when lights were turned off. The staff member returned towards the end of the exercise to debrief the participants. Problems were introduced into the shelter through simulated EBS broadcasts and through a phone supposedly connected to the local "control center".

Inclusion of an occupancy exercise in the research design resulted in essentially three "training conditions": (1) training with occupancy, (2) training without occupancy, and (3) no training.

Planning Orientation

Eight subjects from each of these three training groups were given shelter planning orientation. This orientation consisted of a four hour study session during which the subjects read Volume II of the Integrated Guidance, Planning A Group Shelter (Smith and Lasky, 1965). The goal of this orientation session was to familiarize the subjects with the general

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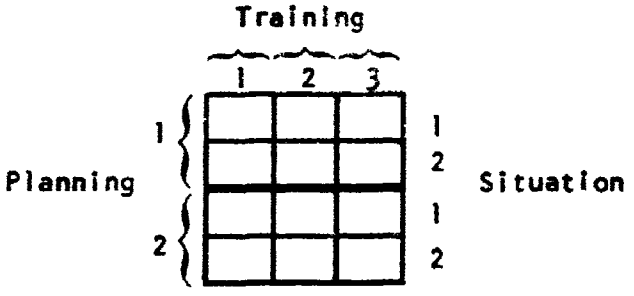
[3] Two occupancy exercises were scheduled to accommodate the 32 subjects requiring a shelter stay. Approximately half of these subjects participated in each exercise. The balance of the shelterees were untrained volunteers who played no other role in the study.

format and the contents of the guide and to acquaint them with at least some of the concepts presented in the document. The subjects were not permitted to keep their copy of the planning guide following this study session. The two planning conditions at this point in the design were: (1) planning orientation and (2) no planning orientation.

Planning Testing

At the next point in the experimental paradigm all of the subjects who had received planning orientation and one-third of those who had not were tested on their ability to plan a shelter. The nature of the Shelter Planning Test is described later in this report. During the planning test period the subjects who had received shelter management training and/or planning orientation were given copies of the texts they had previously studied from. This testing permitted an evaluation of the three training conditions and the two planning conditions (orientation vs. no orientation) in relation to performance on a Shelter Planning Test. This test experience also served as part of an independent variable, i.e., "shelter planning experience" for subsequent shelter management testing (See page 11).

An additional variable not evident in Figure 1 was introduced as part of the planning testing. Identical Planning Tests were administered for two different shelter situations. These different situations, involving shelter size, available resources, etc., also are described later in this report. All of the subjects took the Planning Test for both planning situations, with each subject acting as his own control. The order in which the tests were taken was randomized. The paradigm at this point can be summarized as follows:

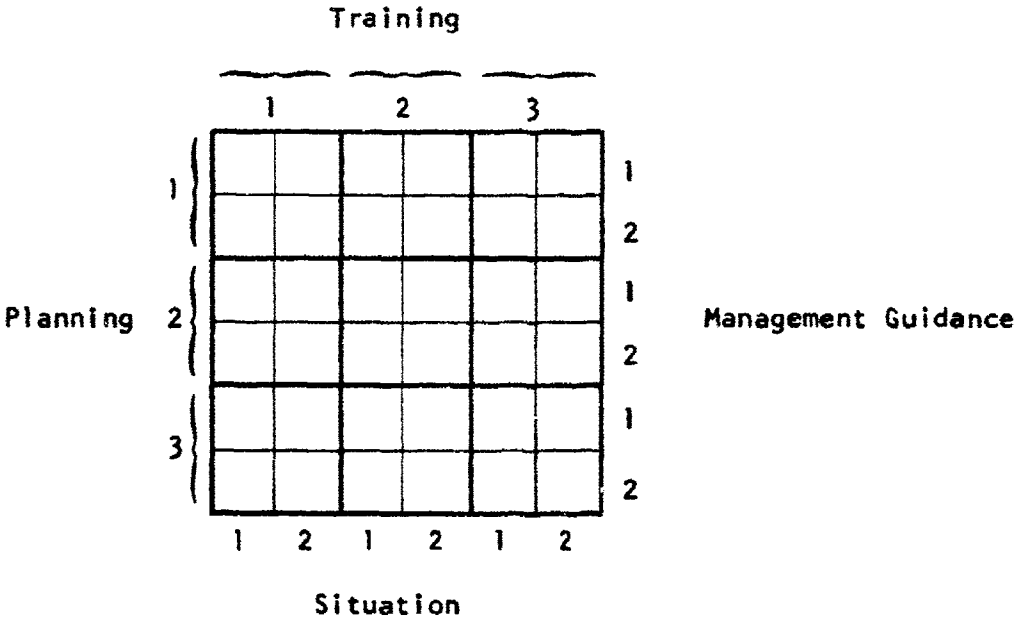


T1 = Occupancy
T2 = No Occupancy
T3 = None
P1 = Orientation
P2 = No Orientation
S1 = Simple
S2 = Complex

Management Testing

The final step in the paradigm was the Shelter Management Test, which was taken by all of the subjects. Half of the subjects were provided with the Shelter Manager's Guide (Brandegee & Bend, 1965) to be used during the Management Test. This guide is Volume III of the Integrated Guidance for Shelter Management. The subjects who had been exposed to the training text or planning guide were not permitted to refer to these documents during their management testing. Each subject, acting as his own control, took two forms of the test, each based on a different shelter situation.

Subjects came to this test with one of three planning backgrounds (planning orientation and testing, planning testing, and no planning experience). Performance on the Management Test could then be evaluated as follows:



T1 = Occupancy
T2 = No Occupancy
T3 = None

P1 = Orientation & Testing
P2 = Testing
P3 = None

MG1 = Yes
MG2 = No

S1 = Simple
S2 = Complex

Intelligence Testing

It was felt that general mental ability might relate as closely to performance on both the Planning and Management Tests as would the independent variables under investigation. For this reason, the Adaptability Test of Mental Ability (Tiffin and Lawske, 1954) was administered to all subjects as part of their participation in the study. This provided an opportunity to evaluate and control for the relationship of mental ability to both of the dependent variables.

Subjects

Ninety-six subjects were adequate to meet the requirements of the experimental design. Most of the subjects (N=72) were college students. Because the institute felt that it was important to investigate the performance of executives on both tests, 24 executives were also used as subjects. As the first step in recruiting executive subjects, a letter was sent to the president or board chairman of the 100 largest corporations in the Pittsburgh area. The letters discussed the research program and its subject needs. Each chief executive was asked to indicate his interest in having executives from his company participate in the program. Most of the letters were followed by a personal visit with the chief executives. Dr. Karl Egerman, the AIR Assistant for Research Operations, made these personal contacts. Finally, several contacts were made with the executives themselves by AIR staff members. The characteristics sought in these executive subjects were:

Age: 26-60

Salary range: In the $10,000 range and up

Level: In charge of at least five line or staff personnel

Physical health: Excellent

Education: College or equivalent

Residence: Within one hour commuting time of the City of Pittsburgh

Personality: Persons who have demonstrated leadership abilities both in their professional and civic activities. There are no restrictions as to race, religion, or sex.

CD Experience: Individuals with no recent formal civil defense experience.

The Student Placement Bureaus of three Pittsburgh universities were contacted to recruit college students. Application forms and letters explaining the study were sent to these offices to be distributed to junior and senior students. In addition, college students on the AIR staff recruited subjects from among their classmates and dormitory friends.

A proportinate number of executives were randomly assigned to each of the eighteen experimental groups.

Development of Shelter Situations

In an effort to examine a broad base of planning and management skills, two widely different shelter situations were used as a basis for the Planning and Management Tests. A "shelter situation" is defined in terms of the characteristics of the building housing a shelter facility. This should not be confused with the "attack scenario" or with what happens at the shelter following an attack warning.

Shelter situations were developed through the identification and definition of the relevant characteristics of a shelter facility and the preparation of detailed verbal descriptions of two different buildings. The materials used during testing consisted of floor plans and pictorial representations of the shelter facilities along with brief verbal supplements.

Identification and Definition of Relevant Characteristics

The first step in developing the shelter situations was to identify the characteristics of a building which relate to the fallout shelter capability of that structure. These characteristics include the size and configuration of the building, and most significantly, the resources within the building which may be utilized in meeting shelter needs. The plumbing system of a building, for example, is highly related to the potential water supply for a shelter in that building.

All such relevant characteristics of any shelter facility were identified, and then defined in terms of two different shelter situations, a complex situation and a simple situation. The complex shelter situation, for example, was characterized by a large building, a high-capacity plumbing system, auxiliary power, etc. This pattern was followed throughout the definition of all salient characteristics for the complex shelter situation. The simple shelter situation was characterized by a different, almost opposite pattern.

Preliminary Verbal Descriptions

Comprehensive verbal descriptions of two hypothetical shelter facilities were written on the basis of the relevant characteristics of each shelter situation. It was felt that the test subjects should ideally be provided with as much information about each shelter facility as they would acquire by an actual tour of the building. As a result of this requirement the descriptions of both shelter facilities were obviously quite detailed. Although useful as a developmental tool, these descriptions seemed too cumbersome and unrealistic for use in the test situation.

Floor Plans and Drawings

Floor plans (8 1/2" x 11") of the floors of the two buildings were drawn to give the subject a visual idea of each shelter layout. In addition, realistic drawings of various shelter rooms were drawn. The proposed concept was that a visual rather than a verbal representation would provide a more realistic simulation of a tour of the shelter and would also provide an instantaneous total impression of the shelter rather than an impressional delay by reading through a long verbal description. The pictures were planned to be scaled and in proportion to the different room sizes.

Photographs of shelter facilities (boiler rooms, air-conditioning units, maintenance rooms) were taken in shelters in the Pittsburgh area, including a former American Institutes for Research building. Pictures of rooms in the simple shelter were then drawn. Because of the similarity of the various floors and offices, only representative or essential rooms in the shelters were selected to be drawn. Seventeen rooms were chosen for the complex shelter and six rooms for the simple shelter (See Appendix B for copies of the floor plans and pictures). The rooms selected for the simple shelter included a furnace room, storage room, office room, lounge, lavatories, and guard's room. Large floor plans of the simple shelter's two floors were also drawn. Among the rooms chosen for the complex shelter drawings were a boiler room, a kitchen, a cafeteria, office room, lavatories, air-conditioning complex room, utility closet, typing pool, and an executive suite. Both the pictures and floor plans were used for the Planning Test and the floor plans were used for the Management Test.

Verbal Supplements

Two verbal descriptions were prepared to supplement the pictures for the subjects' use. One description was a complete inventory of all

physical items in the shelter rooms which the subject could not identify by the pictures. These were items which were too small to be recognized or items which were necessarily covered (items contained in storage cabinets, desk drawers, metal shelves). Items that were extraneous to shelter planning also were listed in the inventories, which were written in outline form.

The second verbal description was a statement of the peacetime functions and operations of the building. This described the functions of people and equipment in the two shelters which could not be perceived by the pictures and inventory list. This included a description of such things as the personnel who worked in the shelter, their hours of employment, the visitors to the shelter, the power sources of the shelter (commercial and auxiliary power), the surrounding environment of the shelter, and pertinent factors about the employee's jobs (e.g., "the bank guard sleeps in the bank overnight before large money shipments", etc.).

These two verbal supplements along with the pictures of the shelter rooms were designed to provide all of the information that the subject would need to write a shelter plan or to manage the shelter in that building. Both verbal supplements also are presented in Appendix B.

Test Development

Planning

The Shelter Planning Tests were designed to evaluate the subject's ability to identify and deal with the basic factors associated with shelter planning, such as food, water, radiological protection, etc. Two types of measures were developed. One was designed to measure planning comprehensiveness and the other was designed to measure the "goodness of solution" of typical planning problems.

Comprehensiveness in shelter planning was defined in terms of the number of shelter planning factors which could be identified by the subjects. In order to obtain this measure the subjects were asked at the beginning of the Planning Test session to prepare a topical outline of a shelter plan. The major headings of this outline were to include "...everything you consider necessary and important in planning a fallout shelter." These factors were further defined as the "...major functions necessary for survival...". Food and fire protection were given as examples. A copy of the instructions given the subjects is included in Appendix C.

The other test instrument was designed to assess the extent to which the subject could develop effective solutions for dealing with specific planning factors. Rather than requiring the subjects to write a complete shelter plan, the test sampled from the realm of planning factors. Twenty-one problems were developed, covering virtually every major shelter function. Each question was presented in an open-ended fashion, permitting the subject to express his solution in much the same way as he would in writing an actual plan. The subjects were required to answer the same set of test items for each of the two shelter situations. A list of all 21 test items also appear in Appendix C.

Management

The Management Tests used in this experiment had their origins in a brief evaluation study conducted last year after the training and in-shelter guidance materials were produced. At that time, 100 high school students were given a management test composed of multiple-choice items to evaluate the comparative effectiveness of three forms of guidance materials.

In considering how the dependent variable, management performance, should be measured in this year's experiment, the following decisions were made:

1. Management performance would be measured through paper and pencil tests, rather than through performance in an actual or simulated shelter.

2. Test questions would be open-ended rather than multiple-choice or other variety of closed questions.

3. The Management Test would utilize the shelter situations (shelter size, configuration, and supplies) that had been prepared for the planning test.

4. The shelter scenario, that is, the list of problems, would cover a one week shelter stay. To the fullest extent possible, the scenario would be the same for the simple and for the complex shelter.

The 22 shelter problems that make up the scenario are of two types. Some of them deal with "normal" shelter operations, such as establishing an organization, allocating supplies, and the like. Others deal with contingency events--non-routine situations that have a reasonable likelihood of occurrence in a wide range of community shelter types, e.g., temperature extremes, power failure, psychological problems, etc. The problems were not taken directly from the AIR guidance materials. Rather, they were based on AIR's collective knowledge of the shelter system, including results of habitability studies by AIR and others.

For each problem, the subject was asked to supply a number of answers to specific questions focusing upon the actions the manager should take in response to the problem and the information he requires to arrive at his decisions. Copies of the simple and complex shelter management tests are included in Appendix D.

The decisions to use a paper and pencil test meant that the dependent variable would not be overt behavior, but rather self-generated written descriptions of expected behavior and information to support expected behavior. To be sure, such written examinations leave much to be desired as tests of management performance, a problem which is not unique to the present experiment. It is not that the tests are irrelevant to shelter management; the point is that the tests only tap-selected, but important, dimensions of management process--those dealing with information, comprehension, and application. This point should be kept in mind in interpreting the results of the study.[4]

After the problems and questions were drawn up, they were reviewed by staff members of the Civil Defense University Extension Program in three universities. The consultants offered many valuable suggestions about the content and wording of the specific questions, which were incorporated into a final version of the Management Tests.

Test Administration

Pilot Testing

A small program of pilot testing was carried out prior to the major test effort. The primary purpose of this pilot testing was to observe the manner in which the materials describing the shelter situations were used by the subjects. The Planning Test was used as the test device, and advantage was taken of this opportunity to determine the amount of time generally required to complete the test and the feasibility of a rating system for test scoring.

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[4]The development by AIR of the shelter contingency game, and its combination with an actual shelter exercise, looks quite promising as a method for a more complete evaluation of management performance.

The design of the test program was:

	Planning Orientation	No Planning Orientation
Pictures	N=2	N=2
No Pictures	N=2	N=1

Seven college students were used as pilot test subjects. Four of them were given approximately seven hours to read Planning a Group Shelter before taking the test. These subjects were also allowed to use the book freely during the test. The other three subjects were given no guidance materials.

Four subjects were given pictures of the simple shelter as a part of their testing materials. All seven were given the simple shelter floor plans, inventories, and background paragraphs. The four subjects who used pictures of the simple shelter also took the complex shelter test, using only the complex shelter floor plans, inventories, and background information. Half of these subjects got the simple shelter test first; half, the complex.

Judgments were made of the quality of answers written by the subjects. These judgments were not made by any systematic rating system. Instead, the answers were read for thoroughness and adequacy of each solution. The subjects were requested to comment on the usefulness of the various test materials, especially the pictures. In addition, direct observations were made of the use of the pictures. Finally, records were made of the time it took each subject to read the planning guide and the time it took each to write the test.

The amount of time required to read the planning guide varied from four to seven hours. Most of the subjects, however, required about four hours.[5] The amount of time required to complete the test varied from two to four hours. The major variable was whether the subject was given the planning guide. Those with guidance took about four hours. All of those without guidance required substantially less time.

All of the subjects referred to the floor plans, inventories, and background paragraphs frequently during the test. These tools seemed to provide adequate information to answer the question. None of the subjects who received pictures referred to the pictures while answering the questions, although they all looked at them before beginning the test. Subjects with pictures took longer to write their tests than the other subjects. Presumably, some of this extra time was spent examining the pictures before writing the examination. There were no noticable differences (in terms of thoroughness or quality) between the answers written by those with pictures and those without pictures.

Based upon the pilot testing results, it appeared to be quite feasible to develop a formal rating system to score the answers.

Principal Testing

Planning and management testing each took one day to complete. Immediately upon arrival for their first day of testing all subjects were given the fifteen-minute SRA Adaptability Test. The planning test subjects were given the half-hour test of planning comprehensiveness before beginning work on the major body of the test.

In both planning and management testing half of the subjects were presented with the complex shelter situation first, while the other half

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[5] As a result of this finding the time allotted for planning orientation was set at four hours (see page 9).

were given the simple situation. Each subject dealt with the opposite shelter situation during the afternoon test session.

The subjects were acquainted with each shelter situation by the floor plans, pictures, and written materials described earlier. During the planning test period the subjects who had received shelter management training and/or planning orientation were permitted to use the texts they had previously studied from. These materials could not be used during management testing, since it was felt that their availability could not be assured in an actual shelter situation. Prior to the management test every subject received a copy of the Handbook for Radiological Monitors and Medical Care in Shelters. It was felt that because these documents are present in stocked public shelters any manager would minimally have use of them.

Detailed instructions for both the tests were given to the subjects in written form (See Appendix C and D). Because of the requirement to record the length of time it took to answer each management question, subjects taking the Management Test were continuously informed as to the time available for completion of the test.

It was unfeasible to keep the subjects separated during the one hour lunch break. However, the requirement that they not exchange information about the tests during lunch was impressed upon them.

Upon their return, subjects were given the descriptive materials for their "afternoon shelter" followed by the test itself.

During the testing a member of the project staff was constantly available to monitor subject performance and to answer questions.

Test Scoring

Planning

Three separate scores were derived for shelter planning. Planning comprehensiveness was determined by counting the number of planning factors included in the topical outline prepared by the subjects. The "goodness" of the solutions offered for specific planning problems was expressed in terms of two scores, quality and thoroughness.

The quality of a planning solution was defined as how effectively the plan recommended by the subject would deal with the particular planning factor in question. This judgment was made for each answer by a panel of three experts working independently. One of these experts was a training field officer for an OCD Region, another was a civil engineer with extensive training in fallout shelter analysis, and the third was a member of the AIR project staff. Neither of the non-AIR judges were familiar with the planning guide. This permitted the derivation of a planning score which was independent of the AIR planning guidance. Each answer was rated for quality from 0 (completely unacceptable) to 3 (exceptional). The scores on the individual answers were summed across the 21 questions and across the three judges to give one score for each test. The possible range of the quality scores was from 0 to 189. The inter-rater reliability of the judges was .83.

The thoroughness of a planning answer was determined by the extent to which the facilities, personnel, and procedures associated with a particular solution were mentioned by the subject. A decision to use water trapped in the building's plumbing system might, for example, be a high-quality plan. The subject would receive a poor score on thoroughness, however, if he did not mention, in addition to the plumbing facilities, the procedures involved in obtaining the trapped water and the personnel required to carry out these procedures. Since these three considerations are not always relevant to every planning solution, the thoroughness score was expressed as the percentage of relevant consideration that were discussed by the subject.

Of the three scores, quality is felt to be the most significant parameter of shelter planning, and the major scoring effort was directed toward this evaluation. However, the comprehensiveness of the total shelter plan and the thoroughness of each planning solution also deserve the serious consideration given them in the remainder of this research report.

Management

The original research plan called for a two-dimensional score for each management answer. The first part was a measure of the adequacy of the subjects conceptualization of the solution. The second dimension concerned relevant elaboration of the solution, or the manner in which the answer was organized and presented. The following example may clarify the distinctions between the two dimensions. One test question asked the subjects to specify the steps they would take upon hearing the warning signal. Project personnel and expert consultants agreed that one element of the correct answer was to verify the signal (seek more information). Four of the ways in which this element could be incorporated in the subjects answers are:

1. No mention of it at all.
2. Vague or general mention (e.g., "I'd try to find out what it's all about")
3. Detailed correct answer (tuning in to EBS for further information)
4. Detailed incorrect answer (e.g., telephoning friends for their interpretation).

It was felt that the scoring system should be sensitive to these types of differences. After scoring was initiated, it became apparent that the two dimensions "conceptualization" and "elaboration" were highly correlated, and that the number of correct concept elements that a subject identified for a particular solution went hand-in-hand with the quality of his elaborating information. As a result, the scoring procedure was simplified

to include only the quantitative dimension. A subject's score on the Management Test was based on the number of correct concept elements[6] contained in each of his answers.

The concept elements represent the collective judgment of a group of seven persons, all knowledgeable about shelter management, but with widely varying management experience. Four members of the panel were AIR staff members who were working on civil defense projects but who were not associated with the development of the guidance and training materials that were being evaluated in this study. The remaining three members of the panel were Civil Defense University Extension instructors or co-ordinators who were acting as consultants to the project. Each member of the panel listed what he thought to be all the necessary ingredients of a workable solution to each problem. The individual listings were then reviewed by the AIR panel members as a group and deletions, additions, and modifications made until agreement was reached on the concept elements for each answer.

Statistical tests of inter-rater reliability for a sample of tests showed a high degree of agreement between judges. Each member of the team was then assigned a particular portion of the test to score for all subjects.

The primary score on the management test was the total number of concept elements listed by the subject, converted into a percentage of the total possible concept elements. In addition, two sub-scores were derived from sub-sample of the test. One was a "technical operations" score based upon the answers to six questions that dealt with technical information (e.g., ventilation problems). The second sub-score was a

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[6] A concept element is a broadly described management duty or responsibility that is relevant to the solution of a particular management problem. For example, correct concept elements in the managers response to the warning signal include: (1) verification of the signal, (2) assumption of command, (3) preparation of the shelter for occupancy, and (4) provision of information to building occupants.

"human relations" or "psycho-social" score, based on the answers to six questions that dealt with interpersonal problems in the shelter.[7]

Two other measures associated with test performance were obtained. One was the length of time to complete each problem, and the other was the subjects' perceived difficulty in arriving at a solution.[8]

Examination of the completed tests led to the elimination of a very small number of items from consideration in scoring and analysis. These cases were due to either subject difficulties in interpreting the question or tester difficulties in interpreting the answers, (for example, the diagram of sleeping arrangements that students were supposed to draw).

Data Analysis

The Pearson product-moment coefficient of correlation was used to define the relationship between the SRA Adaptability test scores and performance on the Planning and Management Tests. Inter-rater reliability in test scoring was determined by the Coefficient of Concordance (Siegel, 19

A standard analysis of variance program was applied to the Planning Test data to investigate differences within variables and interactions between them.[9]

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[7]Six questions were used in the simple shelter test, and 7 in the complex shelter test.

[8]Measured by a 4-point scale: "Very Difficult, Moderately Difficult, Slightly Difficult, Not Difficult."

[9]Comparison of this analysis to an analysis of covariance of the same data demonstrated no differences between the two treatments. This indicated that intelligence had been adequately distributed across all experimental conditions.

An analysis of variance with a correction for unequal cell entries (Snedecor, 1956) was applied to the Management Test data.[10] The correction was applied to permit the analysis of data available from extra subjects in some of the Management Test cells.

Finally, t-tests were used, where appropriate, to assess differences between specific variables or conditions.

The major portion of these analyses were conducted on the IBM 7090 computer available through the University of Pittsburgh.

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[10]Comparison of analysis of variance and covariance treatments using equal cell entries indicated that intelligence had been adequately controlled for by the random assignment of subjects to experimental groups. An analysis of variance, rather than covariance, was therefore used in the final statistical treatment in order to simplify the correction for unequal cell entries.

RESULTS

Planning Test

Results of the analyses of variance conducted for the three dependent variables associated with shelter planning are presented in Figures 2, 3, and 4. Differences between training conditions are significant for both the quality and thoroughness of shelter planning. The source of this significance lies in the difference between training plus occupancy versus no training, and training plus occupancy versus training without occupancy. Thus, shelter management training with an occupancy exercise appears to make a difference in the quality and thoroughness of shelter planning.

Planning orientation results in a significantly higher score for both the thoroughness and comprehensiveness of shelter planning. The complexity of the planning situation makes a significant difference in planning quality, though not in planning thoroughness. No scores are available for comparison of planning comprehensiveness according to the shelter situation, since only one outline was prepared.

Further clarification of these data can be obtained from the mean scores for all combinations of training and planning experience. These means, presented in Figure 5, are calculated across shelter situations. This is possible because although planning scores are significantly different for the complex versus simple shelter situation, these scores are highly correlated ($.98^{+}$). Figure 6 summarizes the significant differences between these means for all three planning dependent variables.

Between	Degrees of Freedom	F.
A = training	2	8.90 *
B = orientation	1	2.03
C = situation	1	17.964*
A X B	2	.336
A X C	2	1.778
B X C	1	.431
A X B X C	2	.315
Within	84	

*Significant at .01

Figure 2. Planning Quality

Between	Degrees of Freedom	F.
A = training	2	7.2 *
B = orientation	1	19.82*
C = situation	1	.2
A X C	2	.00
A X B	2	1.02
B X C	1	.52
A X B X C	2	.35
Within	84	

*Significant at .01

Figure 3. Planning Thoroughness

Between	Degrees of Freedom	F.
A = training	2	1.3017
B = orientation	1	18.8305*
A X B	2	1.5982
Within	42	

* = Significant at .01

Figure 4. Planning Comprehensiveness

Preparation	Quality	Thoroughness	Comprehensiveness
Training + Occupancy + Planning Orientation	175.9375	66.2500	10.25
Training + Occupancy	165.3125	61.9375	5.625
Training + Planning Orientation	157.250	63.2500	10.625
Training	155.1875	53.4375	3.750
Planning Orientation	151.6875	60.7500	7.000
None	147.5625	53.8750	4.750

Figure 5. Mean Score for Planning and Training Experience

Quality	Thoroughness	Comprehensiveness
Tr. + Occ. + POr. vs. None (.05) Tr. + Occ. vs. None (.05)	Tr. + Occ. + POr. vs. None (.05)	Tr. + Occ. + POr. vs. None (.01) Tr. + Occ. + POr. vs. Tr. + Occ. (.01)

Figure 6. Significant Difference Between Means

The most substantial impact on planning quality, thoroughness, and comprehensiveness is made by the combination of training, occupancy, and planning orientation. Subjects with this experience in all cases performed significantly better than those with no training or guidance. Training and occupancy by themselves significantly improve the quality of shelter planning.

The mean scores for those with training, occupancy, and planning orientation are consistently higher than the means for those with training and occupancy alone. The difference between these two groups, however, is significant only in the case of planning comprehensiveness. Similarly, the mean performance of those with planning orientation alone is consistently better than the performance of those with no guidance, although this difference is not significant for any one criterion measure.

Intelligence, as measured by the Adaptability Test, was highly correlated ($.85^{+}$) with performance on all three planning measures. This trait was shown to be normally distributed throughout the experimental paradigm.

Finally, there is no significant difference between the performance of students versus executives on any of the planning tests.

Management Test

The major dependent variable associated with shelter management is the total concept element score achieved on the Management Test. Secondary dependent variables are (1) a subset of test problems dealing with technical issues in shelter and (2) another subset dealing with social-psychological problems.

The results of the analysis of variance which was conducted for the total test scores can be found in Figure 7.

In terms of this variable (total score) there exists a significant difference between experimental groups given training and those given no training (i.e., a significant, positive relationship exists between shelter management training and performance on the Management Test). Examination of the mean management scores for the three training conditions that were investigated reveals that training without an occupancy exercise resulted in a higher score than did training with an 18-hour shelter stay. Both types of training led to higher scores than did the condition no training/no occupancy although only the difference between the training/no occupancy and no training/no occupancy groups were significant. The finding that participation in an occupancy exercise degraded subsequent performance on the Management Test is an interesting one indeed, and will receive comment later in this report (See pages 42 & 43).

Planning experience also contributes to subsequent management performance, the relationship being significant at the .05 level. T-tests applied to the means of the three planning conditions (Figure 8) reveal that the planning orientation plus experience condition leads to

Between	Degrees of Freedom	F.
A = training	2	4.28*
B = planning treatment	2	3.63*
C = management guidance	1	22.0**
D = size	1	3.51
A X B	4	.71
A X C	2	.61
A X D	2	.12
B X C	2	1.08
B X D	2	.22
C X D	1	.02
A X B X C	4	.33
A X B X D	4	.14
A X C X D	2	.00
B X C X D	2	.10
A X B X C X D	4	.06
Within	108	

* = Significant at .05

** = Significant at .01

Figure 7. Total Concept Score

a significantly higher management score than does no planning at all. Although the planning experience itself (without orientation) leads to a higher test score than does no planning at all, this difference is not significant.

The relationship between various combinations of training, planning, and guidance experimental treatments can be seen in terms of the mean management scores in Figure 9. As in the case of the mean scores for the Planning Test, the Management Test means represent a combination of the simple shelter and complex shelter scores. Although there is a consistent difference in test scores (in favor of the small shelter), the difference is in no case significant and the scores are positively correlated.

Subjects receiving the most complete treatment (training with occupancy, planning orientation, and experience plus management guidance) turn in the highest mean score on the Management Test, as they did on the Planning Test. However, as Figure 9 shows, other combinations of preparation led to average scores that were almost as high. An interesting finding is the comparatively high score (mean = 48.0) achieved by subjects who received only planning orientation and planning experience, and use the management guidance document in their management combinations. (Treatment #4). This combination performed significantly better than the control group (no guidance or preparation of any sort) whereas the subjects who had planning experience alone (#17), or guidance alone (#13), did not do significantly better than the control group. The planning and guidance group (#4) did do better, although not significantly better than the subjects receiving the "standard" shelter management preparation package consisting of training plus occupancy exercise plus use of management guidance (#10). It is interesting to note that training by itself

MEAN MANAGEMENT (TOTAL) TEST SCORES FOR TRAINING CONDITIONS

1. Training and occupancy 44.33
2. Training, no occupancy 45.33
3. No training, no occupancy 40.26

The above conditions are significantly different (.05 level): 2 and 3

MEAN MANAGEMENT (TOTAL) TEST SCORES FOR MANAGEMENT GUIDANCE CONDITIONS

1. Management guidance. 46.80
2. No management guidance 41.07

The above conditions are significantly different (.05 level): 1 and 2

MEAN MANAGEMENT (TOTAL) TEST SCORES FOR PLANNING CONDITIONS

1. Planning orientation and planning experience 46.08
2. Planning experience, no planning orientation 43.68
3. No planning experience, no planning orientation 41.73

The above conditions are significantly different (.05 level): 1 and 3

MEAN MANAGEMENT (PSYCHO-SOCIAL) TEST SCORES FOR PLANNING CONDITIONS

1. Planning orientation and planning experience 46.54
2. Planning experience, no planning orientation 39.95
3. No planning experience, no planning orientation 36.91

The above conditions are significantly different (.05 level): 1 & 2, 1 & 3

Figure 8. Mean Management Test Scores

Treatment	Mean Score	Training	Occupancy	Planning Orientation	Planning Experience	Management Guidance
1	50.9	X	X	X	X	X
2	49.0	X			X	X
3	48.6	X	X		X	X
4	48.0			X	X	X
5	47.5	X		X	X	X
6	47.1	X		X	X	
7	46.0	X				X
8	45.7	X	X	X	X	
9	45.7				X	X
10	44.87	X	X			X
11	44.5	X				
12	42.4	X	X		X	
13	40.9					X
14	40.6	X	X			
15	38.6			X	X	
16	38.2	X			X	
17	38.2				X	
18	34.6	-	-	-	-	-

43.2 Mean (all conditions)

Figure 9. Mean Total Management Score by Experimental Treatment

significantly improved management performance to almost the identical level achieved by subjects who received training, occupancy, and management guidance.

For the secondary dependent variables, technical and psycho-social scores, the analyses of variance revealed only one significant main effect, that between planning and the psycho-social scores. Tests of significance between planning conditions show that the difference between planning orientation plus experience and planning experience alone is significant in terms of the score on human relations oriented problems, as is the difference between the former condition and no planning experience.

Concerning the amount of time subjects took for the Management Test, the use of guidance increased the time to complete the small shelter test by almost 15 minutes. However, for the large shelter test, subjects with guidance finished slightly ahead (1 minute) of those who did not use the Shelter Manager's Guide.

Exposure to shelter management training resulted in less time spent on the Management Test regardless of guidance (20 minutes for the small shelter test and 6 minutes less in the case of the large shelter test).

Summary of Results

The results of both the planning and management testing may be summarized as follows:

1. Use of the planning guide in itself significantly improved both the thoroughness and the comprehensiveness of shelter planning.

2. Shelter manager training and occupancy in themselves significantly improved the quality and thoroughness of shelter planning.

3. Participation in an occupancy exercise significantly contributed to the quality of shelter planning by trained shelter managers.

4. The use of planning guidance consistently resulted in better planning scores by those who had received training and occupancy than for those with no training. This improvement was significant in the case of planning comprehensiveness.

5. Participation in the eight-hour lecture training course based upon the Introduction to Shelter Management led to a significant increase in the total score on the shelter management tests.

6. Use of the Shelter Manager's Guide as a management aid while taking the tests resulted in a significant improvement in management performance, measured by the total test score.

7. Exposure to a shelter planning experience also significantly increases scores on the Management Tests.

8. General intelligence was highly related to effective shelter planning and management regardless of formal preparation.

9. No significant differences were found between the test performance of students versus executives.

DISCUSSION

The results of this study relate to the research problems outlined at the beginning of the report in the following way:

Peacetime Responsibilities (Shelter Planning)

Planning guidance vs. no planning guidance. The test findings consistently indicate that study and use of the guide, Planning a Group Shelter facilitate shelter planning. The impact of the guide when used in the absence of any other training, however, is not substantial. This is not surprising, since the guide was designed as a supplement to shelter management training and does not contain much of the technical information presented in the training text.

Planning guidance vs. other guidance materials. The only other document which was evaluated as a guide for shelter planning was the shelter management text, An Introduction to Shelter Management. Use of this document, supplemented by an eight-hour shelter management lecture course, did not contribute significantly to the quality, thoroughness or comprehensiveness of shelter planning. Addition of an occupancy exercise to this shelter management training program, however, resulted in a significant improvement in the quality of shelter planning. Although the occupancy exercise cannot be considered as a form of guidance materials, per se, its contribution to shelter planning effectiveness warrants serious consideration. This contribution may be explained by the fact that the shelter stay permits the individual to actually experience the impact of available resources which may be provided through effective shelter

planning. Such a hypothesis is supported by the fact that the occupancy experience contributes primarily to planning quality, as opposed to the thoroughness or comprehensiveness of the plan. While thoroughness and comprehensiveness relate to how many factors are considered by the planner, the quality score reflects his use of available resources to meet shelter needs. Such ingenuity in the use of available resources is what one would expect to acquire from the actual experience of shelter living.

Planning orientation as a supplement to other preparation. Shelter management training involving an occupancy exercise, when supplemented by planning orientation, was the only preparation which significantly improved the quality, thoroughness, and comprehensiveness of shelter planning over that accomplished by untrained planners with no planning guidance. In addition, study and use of the planning guide consistently resulted in better scores than those achieved by planners receiving only shelter management training with an occupancy exercise. These findings firmly support the conclusion that planning orientation serves as an effective supplement to shelter management training with an occupancy exercise, when measured against the criterion of shelter planning effectiveness.

Emergency Responsibilities (Shelter Management)

Management guidance vs. no guidance. The setting in which subjects used management guidance in the present study could be called a "placid" one, as compared to actual attack conditions. Therefore, the comparison between guidance and non-guidance users can shed only limited light on the effectiveness of guidance under stress conditions. The findings of this experiment are not without meaning, however.

The significant differences between the test scores of guidance users versus non-users shows that under the discomforting (if not stressful) conditions of a full day of timed test taking, subjects were able to retrieve and apply the appropriate information from the guidance documents. This retrieval came at the cost of time. For the small shelter test it took guidance users about 12% longer to complete the test than non-guidance users.[11] The question for future research is to determine the cost in time, and its consequences, for guidance usage under genuinely stressful conditions.

Training versus no training. The finding that subjects with training surpassed untrained subjects in Management Test performance was an expected one, and does not warrant extensive discussion. Additional support for the interpretation of this result came from the finding that subjects with training were able to complete the Management Test faster than those without training. A systematic evaluation of shelter management training requires the answer to two additional questions which are amenable to research, but which were not included among the objectives of this experimental study. The first one deals with the impact of time. A period of approximately one week elapsed between the time subjects were trained and the time they took their Planning and Management Tests. Would the difference between trained and untrained subjects have remained significant if two weeks, one month, or six months or more had elapsed between training and testing? The second issue pertains to the type of training. It was not within the scope of the study

[11] Interestingly enough the difference between guidance users and non-users evaporated on the large shelter test, probably due to the fact that the AIR guidance document is implicitly small shelter oriented and therefore less immediately helpful to the manager of a large shelter.

to compare the effectiveness of a lecture course versus a seminar or a practical-problem solving course. However, a comparative evaluation of shelter management training methods clearly deserves a position of centrality in any thorough analysis of shelter management training.

Training with an occupancy exercise vs. training without. The interesting finding that the occupancy exercise did not enhance performance on the Management Test was not completely unexpected. One can look both to the nature of the test and of the occupancy exercise to seek an explanation of the observed relationship between the two. The Management Test is a paper and pencil examination that requires the subject to seek and apply information towards the solution of management problems. To the extent that a subject can pick up such information from the exercise, the paper and pencil test can measure the effectiveness of the occupancy stay as a teaching technique. But an important part of what the occupancy exercise has to offer is an experience of confinement, and the consequences of this experience are not translatable into paper and pencil questions. In other words, the Management Test probed what might be called the rational dimension of shelter management, which although crucial to effective management is only a portion of what the occupancy exercise is supposed to offer. The manner in which this particular occupancy exercise was conducted also very likely contributed to the result reported above. A single management staff was selected for the 18-hour exercise. Except for the problems introduced via "EBS" and telephone from the "control center" and the stocked guidance materials, that staff organized and operated the shelter as it saw fit. This meant that there was comparatively

little effort made to involve those without management assignments in the running of a shelter. Everyone had his job to do, to be sure, but a majority of shelterees read and relaxed between duty shifts. It is not surprising under those circumstances that people did not seem to learn very much that would be helpful to actual management of a shelter. It would have been quite useful to compare the test performance of those subjects who had management tasks with those who were merely shelterees. Unfortunately this was not possible because, following good shelter management practice, people with supervisory experience were chosen for the management positions. There was no way available to determine after the experiment if superior performance on the part of the managers was due to their active roles in the shelter exercise their executive backgrounds. A third reason is more general, pertaining as it does to the general concept of the occupancy. AIR has previously reported on the potential distortion created by a shelter exercise that is based on a small, single space shelter. Between 20-25 people were in each of the two occupancy exercises conducted for this experiment. Perhaps a reason why the shelter stay did not add to management performance is that the specific procedures developed for the 20-person shelter cannot be generalized in their application even to the "small" shelter management test--the bank with 200 people in it.

Shelter management training vs. other preparation. The data revealed that subjects who had planning experience did significantly better on their Management Test than those who did not. The preparation of planning orientation + planning experience + management guidance resulted in the third highest mean score of the 18 conditions in the experiment. The assertion that shelter planning is a useful adjunct to

management training should not meet with any controversy. Clearly, the more relevant preparation the manager receives, the better equipped he should be to perform his management tasks. The more controversial hypothesis concerns shelter planning as a substitute for shelter management training. Does a person who (1) has read a comprehensive shelter planning document (2) has then developed and implemented a detailed shelter plan for his facility and (3) has access to in-shelter management guidance, learn as much about shelter management as he would have in a standard SM training course? Data from this experiment tends to support this hypothesis, although more work is needed before it can be asserted with confidence that shelter planning is an adequate substitute for a formal management training course. If further study were to show that such is consistently the case, this can have important, practical implications for OCD policy on shelter preparedness.

Peacetime and Emergency Aspects (Planning and Management)

Simple vs. complex shelter situations. The finding that both planning and management scores relating to the simple shelter situation were consistently higher than those for the complex situation is not unexpected. Complex problems of any kind usually are more difficult to solve than simple ones. The significant difference in planning quality for the two shelter situations does warrant some discussion. The judges who scored this part of the Planning Test agreed that the planning answers for the complex shelter situation were, in an absolute sense, as "good" as the answers given for the simple shelter situation. The criterion for a high quality answer, however, was to take maximum advantage of

available resources. While the large office building posed a more complex planning situation, it also offered more available resources for use in shelter planning. A planning answer which took maximum advantage of the bank's limited resources to produce an "adequate" plan could therefore be scored higher than an equally "adequate" answer which ignores the opportunities available in a more complex shelter situation. It is felt that this scoring procedure most adequately provided a true evaluation of shelter planning capability.

Executives versus non-executives. The Institute's recommendation for the recruitment of executive personnel as shelter managers (Smith & Jeffreys, 1965) cannot be discounted on the basis of the fact that executives did not perform significantly better than the other subjects in this study. The AIR recommendation was based on the assumption that non-executives available for shelter management training usually are not college trained personnel. It may be assumed that most of the students in this study will, as adults, hold professional and/or executive positions. The possibility that executive potential rather than evidenced executive experience is an important shelter manager characteristic is supported by the high correlation of intelligence with test performance in this study. It also seems reasonable that executive potential may best be identified within the adult population by the examination of executive experience. It would be interesting to follow-up the findings of this study by administering the Planning and Management Tests to adult, non-executive shelter management candidates who are recruited for actual training courses. A heartening implication of the findings of this study is that college students, who are relatively easy to recruit, may be used to examine executive behavior in future studies involving the type of test measures used here.

The results of this study are interesting and in some respects, provocative. They relate directly to key issues in the current fallout shelter program. The data should be cautiously applied to these issues, however. Subject performance was measured in an environment which was quite different from that encountered in an operational situation. This was especially true in the case of shelter management testing, which was conducted out of the context of an actual shelter situation.

For this reason care should be exercised in translating these research findings into operational recommendations.

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APPENDIX A

OUTLINE OF THE SHELTER MANAGEMENT TRAINING COURSE

OUTLINE OF THE SHELTER MANAGEMENT TRAINING COURSE

Time	Topic
9:00am- 9:30am	The National Shelter Program
9:30am-10:30am	The Nature of Shelter Management
10:40am-12:00	Organizing the Shelter - population, resources, activities, and rules
12:00 - 1:00pm	Lunch
1:00pm- 2:00pm	Radiological Protection
2:00pm- 3:00pm	Satisfying Basic Needs - atmosphere, food & water, sanitation, medical care
3:10pm- 4:15pm	Support Operations
4:15pm- 5:30pm	Adjustment to Shelter Living
5:30pm- 5:45pm	Summary

APPENDIX B

Item 1. Description of Small Shelter

Item 2. Description of Large Shelter

Item 3. Floor Plans

DESCRIPTION OF SMALL SHELTER

SMALL SHELTER

Shelter Areas

The shelter area has been planned as the basement of a small branch bank in a large city. The whole basement has been designated as a shelter area. This includes the corridor, furnace room, lavatories, office room, storage room, lounge, and guard's room.

The Office of Civil Defense has stocked the shelter area for 80 shelter spaces. The OCD stocks consist of basic supplies designed to last the shelter population for two weeks. These are food, water, sanitation and medical supplies, and radiological monitoring equipment. The supplies have been placed under the basement stairwell and along the corridor wall. Shelter signs have been posted inside and around the building.

Operation

The bank is a two-level concrete building with the banking area on the ground level. The basement area is situated completely underground with the ceiling of the basement plane with the ground level. The basement area is accessible by a stairwell which descends from the main floor.

The basement and main floor are mostly lit by flourescent lighting. The basement ceiling is 9 feet high, and the walls are 6" thick. The floor is tiled.

Seven fire extinguishers are located in the building. Four are in the basement along the corridor and three are on the main floor. Those on the main floor are water-chemical extinguishers for putting out simple paper and wood fires. The extinguishers in the basement are designed to put out wood, paper, and electrical fires.

The bank has twelve employees who work the regular daytime hours (8 A.M.-5 P.M.) five days a week. These personnel include tellers, auditors, secretaries, executives, a janitor and a bank guard. The guard is on duty during banking hours. He stores his uniform and firearms in his office

along with the keys to all rooms and cabinets in the building. The guard sleeps in the bank on nights before a large money shipment. A set of controls for the bank's alarm system is located in his office. Other controls are located behind the teller booths on the main floor. This system can sound an alarm either in the bank or at the local police station.

The bank auditors document bank accounts and records in the office room.

Next to the lavatories in the basement is a lounge area for the bank's employees. Here the employees may rest and drink coffee or buy candy and cigarettes from the two vending machines. These vending machines are replenished weekly. A long formica table in the room has a coffee pot and hot plate for brewing coffee, and a carton of cream on it. Cushioned chairs are situated around the table. Console ash trays and a magazine rack are near the chairs.

The furnace room stores the janitor's equipment. The janitor who attends the furnace room does general work such as taking care of the furnace, cleaning the bank, and repairing the bank's facilities. He makes sure that the electrical and heating facilities operate correctly. The gas furnace heats the building, and a 40-gallon gas water heater provides hot water for the sinks in the lavatories and furnace room. The exhaust fan is fixed to a wall duct which connects to the outside at ground level. The fan is turned by a pulley. A motor spins a V-be to drive the pulley. A crank is situated next to the exhaust fan on the wall. The fuse box on the wall controls electrical current throughout the building.

The main floor situated at ground level is the main banking area. Three to five patrons are usually within the bank at one time. A teller area, a patron area, an executive area and the vault compose the main floor. Most of the floor is carpeted.

The bank executives and secretaries work in the executive area. This area is enclosed by a mahogany railing. Typewriters and calculators are on the desks. Nearby rests a water fountain. The executive area is partially shielded from view by large potted plants and a folding wood screen. Plate-glass windows, shaded by draperies, have been installed on two sides of the building--the front side and the side near the executive and patron areas.

Inside the teller area are eight teller cages and three filing cabinets. A marble structure encloses the teller area.

The steel vault in the rear of the main floor rests on a concrete pad set in the ground. The vault combination lock is attached to the alarm system. No basement area is located underneath the vault. Across from the vault are the safety deposit closets where deposit box owners can store or withdraw their valuables.

The bank receives its electricity, water, and gas from commercial sources. Electricity provides power for the lighting, vault, telephones, alarm system, water fountain, exhaust fan, and outlets.

INVENTORY OF SMALL SHELTER

Metal Shelves:

- incandescent light bulbs, 40 bulbs: 75W, 100W, 150W
- disinfectant, 6 spray cans
- commode cleaner liquid
- floor buffer cloths
- batteries, 12 ("D" size or 1 1/2 volts, 6-volts)
- pane glass windows, 6 boxes
- powder cleanser, 6 cans
- vacuum cleaner filter bags
- emergency lantern
- mop cloths
- industrial disinfectant-cleaner, 3 two gallon cans
- window cleaner
- flourescent light tubes
- green paint, 2 cans
- orange paint, 2 cans

Tool bench:

- level
- square
- coil of wire
- grease gun
- screwdrivers
- friction tape
- Elmer's glue
- hack saw
- coping saw
- all purpose oil
- hinges
- power drill
- brace and bit set
- fuses
- wall plug assembly
- rulers
- crowbar
- counter sinker
- extension cords (of various lengths)
- hammers
- wrenches
- pliers
- wire cutters
- oil cans
- electric soldering iron
- coil of solder
- sanding paper
- wood rasp
- steel tape measure
- drill set
- jars of:
  - a. carpenter's tacks
  - b. nails
  - c. nuts and bolts
- gas water heater (40 gal. capacity)
- incinerator
- waste caddy
- brooms
- brushes
- mops

OFFICE ROOM

Desk contains:

- documents
- envelopes
- letter opener
- writing pads
- blackboard eraser
- telephone directories
- rubber cement
- desk calendar
- banking manuals
- matches
- file folders
- pieces of chalk

LOUNGE AREA

Formica Table:

- plastic teaspoons (5)
- paper plates (10)
- sugar envelopes, 1 box
- cream, 2 cartons

GUARD'S ROOM

Desk:

- set of keys
- notebook
- writing pad
- whistle
- pens and pencils
- pistol (.38 special)
- desk calendar
- flashlight

First Aid Cabinet:

- gauze bandage (3 boxes: 40 yards total)
- gauze pads (1 box: 100 pads)
- waterproof tape, 2 rolls
- aspirins (100 tablet bottle)
- first aid handbook
- tincture of merthiolate (6 fluid ounces) antiseptic
- ammonia inhalant, 1 bottle (for reviving from fainting or collapse)
- scissors
- sterile cotton, 2 one pound rolls
- bandages (39)
- boric acid (1 bottle)
- tongue depressors
- tweezers

Wall Cabinet Case:

controls for alarm

STORAGE ROOM

Cardboard Boxes:

bank business forms
ink bottles
ink pens
business envelopes
staplers
rubber bands
writing pads
rubber stamps
sponges

Filing Cabinets:

records of stock holders
stock documents
savings accounts
checking accounts
loan records
constitutional documents
Federal Reserve documents
U.S. Dept. of Treasury Reports

Crate:

calculators (adding machines - 2)
typewriters
photocopy machine

LAVATORY

Mirror Cabinet:

paper towels, 2 packs
plastic cups (2) wrapped in cellophane
toilet paper, 3 rolls
rubber stopper plugs (2: for the sinks)

MAIN FLOOR

writing counters (2)
water fountain
desks (3)
teller cages
filing cabinets (3)
writing pads
pens and pencils
calculators
typewriters
chairs
folding wood screen
fire extinguishers (3)
safe deposit closets
steel vault

DESCRIPTION OF LARGE SHELTER

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LARGE SHELTER

Shelter Areas

The shelter areas in this building are the basement, the third, the fourth, the fifth, the tenth, and the eleventh floors. These areas provide a total of 5,938 shelter spaces. This accounts for:

basement	823
floor 3	1,023
floor 4	1,023
floor 5	1,023
floor 10	1,023
floor 11	1,023
	5,938

Certain areas on the shelter floors will be uninhabitable. These areas are the utility core containing the eight elevators, the three stairwells, the utility and electrical closets, and the maintenance area in the basement containing the boiler room and the air-conditioning room.

The building has been marked and stocked as a fallout shelter through the Federal Marking and Stocking Program. The Office of Civil Defense has stocked the building with food, water, sanitation and medical supplies, and radiological monitoring equipment to last each shelter space for two weeks. These stocks have been placed in the basement of the building and they occupy 9,000 cubic feet, or a space equivalent to 30'x30'x10'. Shelter signs have been posted inside and around the building.

Power System

The 14 floor building houses a large insurance company. The building is situated in the business district of a major city. It is bordered on both sides by other office buildings which rise to the 7th floor. The building receives its electricity, water, and gas from commercial sources. The commercial electric power is received into the electrical room in the basement where the master switch, breaker switches, and fuse boxes for the office building are located. The main electrical conduit is divided into numerous electrical cables which distribute electrical power to all electrical facilities in the building. These include the eight elevators, the air-conditioning system, the exhaust fans, the lighting, the switchboard in the receptionist's room, the alarm system, the telephones, the public address system, the MUZAK speaker system, and the outlets.

The building is situated in an area which is subject to frequent storms with high winds. Emergency power facilities have been installed in the building. The switchboard contains an emergency power supply (battery-controlled) which can operate autonomously if the electricity fails. A gasoline-driven auxiliary generator located in the maintenance room hooks up to all the electrical facilities. It can supply up to 10% of normal electrical power. The exhaust from the generator engine is vented through a duct which connects to the outside at ground level. A fuel storage tank buried in the ground outside the building holds enough gasoline to supply the auxiliary generator for four days continual use.

An in-let tank in the ground receives commercial water. The tank maintains the water pressure in the building. It has a constant capacity of 3,000 gallons. This tank supplies the building with cold water for the lavatories, water fountains, and cafeteria kitchen. Three 850 gallon furnace boilers in the boiler room heat the building, and a fourth boiler supplies hot water for the lavatories and cafeteria kitchen. The boilers are heated by commercial gas.

The freon-filled air-conditioning system includes two compressors, two fans, a filter--all in the air-conditioning room, and a cooling tower on top of the building. The fans in the basement cool the air by blowing it past the air-conditioning coils and circulating the cold air throughout the building by many air vents and ducts. The compressors pump the freon refrigerant and conduct it back to the cooling tower where the freon is recooled.

Physical Layout

The building occupies an area of 11,500 sq. ft. Its structure is rectangular and its dimensions are 125' long x 92' wide. Fourteen floors are above ground level, and one floor, the basement, is under ground level. Plate-glass windows have been installed on each floor at the front side of the building. These windows do not open and are usually covered by venetian blinds or draperies.

Each floor is divided into one main corridor extending the length of the floor, and five sub-corridors leading to the individual offices. In the center of the floor is the utility core containing the eight elevators, utility closet and electrical closet, and an internal stairwell. Two other stairwells are located at the two sides of the building. All stairwells run from the basement to the 14th floor. Each is separated from the main floor area by fire doors. The eight elevators in the building all run from the basement to the fourteenth floor. Two of these elevators are used primarily for freight purposes.

Regardless of the business content of the floor, each floor has two water fountains, four fire extinguishers, a mail chute, a men's room, a women's room and women's lounge. All of these except two of the fire extinguishers are located along the main corridor. A utility closet and electrical closet is on every floor.

Two fire extinguishers are located along the main corridor and two are on sub-corridors. They are water-chemical extinguishers for putting out simple paper and wood fires. The building also has a fire alarm system which consists of fire alarm bells on each floor. The bell is located in the center of the main corridor. Controls for the alarm system are on every floor. There are two control levers along the main corridor on every floor. Extra controls are located in the maintenance room and the night guard's office. The alarm system can sound an alarm either in the building or at the local fire station.

Most of the offices in the building are lit by flourescent lighting, although some rooms have incandescent lights. Most offices are carpeted. The lavatories, corridor, cafeteria and kitchen, and maintenance floors are tiled. The floors of the boiler room, and air-conditioning room are made of concrete. Most of the ceilings in the building are fitted with acoustical tiling. A MUZAK speaker system is in every room in the building.

Business Content

Eight floors of the building contain the insurance offices. Floors 2-7 are the offices of the insurance agents, accountants, lawyers, and secretaries. Each floor represents a separate insurance function (accident, fire, theft, life). Each office occupies an area 17'x17'. Two agents work in an office.

The front offices on the insurance floors are the typing pool areas for the secretaries. Each office has a secretary in the typing pool.

The front center room on the second floor is the insurance reception room. The reception room has two leather couches, a coffee table, and some chairs. A magazine rack and ashtrays are placed by the couches. In the corner is the reception counter and two receptionists who operate a large switchboard. Telephone calls to the insurance offices, a public address system, an intercom system, and MUZAK speaker system are controlled here.

Floors 8-9 compose the insurance executive offices. These offices are larger than those of the agents. Every executive has a secretary.

The top five floors (10-14) in the building contain other business and professional offices not related to the insurance company. These include attorneys' offices, doctors' offices, dentists' offices, accountants' offices, loan companies, beauty salons, a wholesale jewelry store, an investment counselor, a wholesale fur company, and a theatrical agency. The rooms on these five floors are structured approximately in the same style as those on the bottom nine floors.

Above the top floor of the building is a flat concrete roof with asphalt and tar covering. The cooling tower unit of the air-conditioning system is located here.

The first floor or main floor of the building is styled as an "arcade". That is, a number of shops or stores which are open to the public compose the floor area. Among these are a coffee shop, a drug store, a cigar and candy stand, a wholesale jewelry store, a haberdashery, a brokerage firm, and a travel agency. Three doors from the street give access to an open hallway area. On the wall of the hallway is a directory of offices in the building. Four telephone booths are in this hallway. Right outside the front hallway is the utility core with the eight elevators.

Next door to the front hallway is a women's room. A men's room is located on the main corridor.

On a sub-corridor is the coffee shop. The shop is visited by the public. It has 10 tables and a counter with 10 stools. The shop is restocked twice a week with canned foods, sugar, flour, pastries and coffee. A freezer in a storage room in the back of the coffee shop holds an average supply of one week's refrigerated food for the shop.

On the same corridor is a night guard's office. The office measures 18'x8'. The guard keeps surveillance of the whole building from 5:00 pm to 8:00 am. His office contains his desk and a steel storage closet. The guard stores his uniform, whistle, and firearms in the office.

The main floor on street level has five front entrances, (two give entrance to the drug store and travel agency, three give entrance to the front hallway), two side entrances, and two back entrances. The sub-corridors are 6' wide, and the main corridor is 10' wide.

Personnel

The building employs 741 personnel. All except 15 of these work the regular daytime hours 8:00 am to 5:00 pm. The 15 who work during the night include 10 janitors who clean the building during the night hours, a night guard and people who work in the printing and mailing rooms.

Of the 741 building personnel there are 396 insurance employees (138 of whom are secretaries), 75 professional personnel (dentists, doctors, etc.), their 100 assistants, and 99 salesmen and other employees who rent offices on the upper floors, 15 janitors, 15 cafeteria workers (3 cooks, 8 assistants, a cashier, and 3 dishwashers), 8 elevator men, 2 receptionists, 30 salesmen and employees who work in the arcade, 2 printing room employees, and 3 mailing room employees. Each shift works a different 8 hour period of the day. The janitors possess the keys to all offices, rooms, and arcade stores. The night guard also has a complete set of keys.

At any given time during the day the building averages 600 visitors. Most of these are clients of the doctors, accountants, lawyers and businesses who rent the upper floor offices. A lesser number (200) are clients of the insurance company. The rest of the visitors are shopping in the arcade on the main floor.

INVENTORY OF LARGE SHELTER FLOORS

Cafeteria

(240 capacity: 30 tables, 240 chairs)

- Food dollies (5)
  - dish towels (6)
  - food trays (500)
- Tables:
  - salt and pepper shakers (40 each)
  - ash trays (40)
  - sugar containers (40)
  - sugar (300 ounces)
- Waste Caddy (1)
- Swing-easy Waste Baskets (4)
- Serving Counter:
  - silverware stand (1)
  - silverware
    - knives (700)
    - forks (700)
    - tablespoons (700)
    - teaspoons (700)
  - cash register
  - glasses (700 - 8 ounce)
  - relish stand (1)
  - dinnerware (3,000 pieces)
    - dinner plates (500 porcelain, 10" diameter)
    - soup plates (500)
    - tea cups (600)
    - salad bowls (500)
    - pitchers (10)
    - saucers (600)
  - drinking straws (10 boxes: 500 per box)
  - coffee percolators (2)
- Paper Napkins (30 dispensers: 200 per dispenser)
- Garment Racks (2)

Regular Office

- Desks:
  - desk trays (in-out boxes - 2)
  - calculator (1)
  - pen and pencil holders (2) with pens and pencils
  - file boxes (2)
  - coffee cups (2)

flourescent desk fixtures (2)
ink wells-block type (2)
telephones (2) (each with extension buttons)
electric desk clocks (2)
writing paper
desk calendars (2)
stapler (1)
envelopes (5 boxes)
rubber cement (1 bottle)
scissors (1 pair)

Filing cabinets
insurance documents
file folders (several)

Metal Bookcase:
insurance manuals
dictionaries (2)
stationery (3 boxes)
pencil sharpener
pencil boxes (20: 12 per box)
business envelopes (2 boxes: 100 envelopes per box)

Blackboard:
blackboard eraser (1)
chalk (3 pieces)
dust cloth (1)

Typing Pool Room

Desks:
desk trays (in-out boxes - 8)
typewriters (8)
calculators (3)
telephones (8) each with extension buttons
flourescent lamp fixtures (8)
books and book ends (per each desk)
coffee cups (8)
inch rulers (8)
scissors (8 pairs)
ashtrays (6)
hand wound clocks (2)
electric desk clocks (3)
staplers (8)
pen and pencil holders (8) with pens & pencils
file boxes (8 small boxes):
filing cards
rubber bands (10 per box)
paper clips (50 per box)

rubber cement (8 bottles)
writing paper (several boxes)
envelopes
letter openers (8)
kleenex dispensers (8 with kleenex)
tape dispensers (8 with tape)
telephone directories (2)
marking pencils (6)

Bulletin Board (2)
charts
instruction sheets

Pencil Sharpeners (2)

Photocopy Machine (1)

Filing Cabinets:
insurance documents
file folders
insurance manuals
stock holders' records
insurance histories

Hot Plate (2 units with 3 ring element)

Pyrex Coffee Maker (1)

Training Area

Training Tables:
writing paper (20 pads)
ashtrays (20)
magazines (5)
file folders
pens and pencils (40)

Instructor's Desk:
file box
pen and pencil holder
flourescent lamp
calculator
telephone (with extension buttons)
instruction pointer (yard long)
insurance manuals

Steel Storage Cabinets:
pencil boxes (15)
charts
insurance manuals and texts
writing pads (200)
extension cord (12' cord)
insurance training pamphlets (1 carton)
tape recorder (1)

File Cabinet:
- stock holders' records
- insurance histories
- insurance documents

Blackboard:
- chalk (5 pieces)
- blackboard erasers (2)
- dust cloths (2)

Metal bookcase:
- training aids
- insurance manuals and texts
- statistics texts
- law texts

Floor Rugs (2) 9' x 12'

Supply Room

Metal Shelves:
- incandescent light bulbs (100 bulbs: 60W, 100W, 200W)
- calculators (5)
- typewriters (5 IBM electric)
- flourescent light tubes (6 boxes of 24)
- desk trays (5)

Mimeograph Machine (1)
Photocopy Machines (3)
Cardboard Boxes:
- insurance business forms
- ink pens
- envelopes
- staplers
- envelope moisteners
- writing pads

Rugs (15 small rugs)
Black Paint (3 cans)
Green Paint (4 cans)
Venetian Blinds (30)
Plate Glass Windows (20)
Flourescent lamp fixtures (5)

Executive Office

Desk:
- writing paper (5 pads)
- pens and pencils
- envelopes
- dictaphone (1)

Industrial disinfectant-cleaner (2 one gallon cans)
Vacuum cleaner filter bags (5)
Window cleaner (5 bottles)
Mop cloths (2)
Hand soap bars (2 cartons: 24 per carton)
Toilet paper (1 carton: 50 rolls)
Flourescent light tubes (20)
Venetian blinds (10)
Pair of pliers (1)
Hammers (2)
Wrench (1 all purpose)
Screwdrivers (5)
Extension cord (21 ft. cord)
Floor buffer cloths (5)
Floor wax (10 cans)
Sanitary cloth towels for use in the restrooms (10)

Mailing Room

Postal Counter:
- parcel post scales
- postal rate lists
- rubber stamps
- binding string
- wrapping paper rolls
- packing tape
- stamp pads
- marking pencils
- stamps
- envelope moisteners

Metal Supply Shelves:
- stationery
- writing pads
- envelopes
- ink
- pens and pencils
- tape
- postal labels
- staplers
- typewriter supplies

Mail Bag Caddy
- mail bags
- postal manuals
- labels
- rubber cement
- packaging filler (cardboard)
- staplers
- desk trays
- scissors
- envelopes and boxes

desk intercom (1) 3-station set
flourescent desk lamp (1)
telephones (2 with extension buttons)

Coffee Table:
coffee percolator (8 cups capacity)
coffee cups (3)
serving tray

Wood Dolly:
pitcher (2 quart capacity)
tumbler glasses (6)
ice bucket

Women's Lounge

"Dressing" Counter
tissue paper (1 box)
combs (2)
hair brush (1)

Coffee Table:
plastic cup (1)
ash tray (1)
vase of flowers

Wall mirror

Men's Room

Commodes:
toilet paper (1 roll per commode)
disinfectant-deodorant (1 spray can)

Cloth towel dispensers (2) with cloth towels

Hand sinks (4: each sink has 2 faucets
hand soap bars (4)

Floor sand bowl (1)

Rubber plunger (1)

Paper cup dispenser (1)
paper cups (200 9-ounce cups)

Utility Closet

Powder cleanser (10 cans)

Furniture Polish (5 cans)

Dust cloths (15)

Incandescent light bulbs (15: 60W, 100W, 150W)

Printing Room

Arc and vacuum frame (printing plates distinct)
Lamp Table
Collating boxes (one set) for sorting papers
Plate Developing Table:
    developing chemicals
    water
    cotton pads
Work Tables
Ditto Machines (2) for duplicating
Bindary Work Table:
    binding machine
Wood shelves:
    cans of ink
    printing chemicals
    distilled water (2 bottles)
    paper
Wooden Dollies (2)

Women's Room

Commodes
    toilet paper (1 roll per commode)
    disinfectant-deodorant (1 spray can)
Cloth towel dispensers (2) with cloth towels
Hand sinks (4: each sink has 2 faucets and a stopper)
    hand soap bars (4)
Rubber plunger (1)
Sanitary napkin dispenser
    sanitary napkins (100)

Air-Conditioning Room

Air-conditioning unit:
    electric motor (440 V) connected to auxiliary generator
Ducts and pipes
Civil Defense supplies
    sanitation kits
    water cans (filled with water)
    food boxes

Kitchen

- Gas Stove Range:
  - kettles (10)
  - range exhaust hood
- Ovens (10)
- Waste caddies (5)
- Freezer
- Refrigerator
- Preparation Counter (1)
  - sinks (4)
  - dishwashing machine
  - refrigerator compartments
  - food storage units (non-refrigerated)
  - scales
  - preparation equipment
    - deep fat fryer
    - steam pressure cookers
    - meat slicers
    - toasters
    - coffee maker
    - juice extractors
    - mixers
    - blenders
    - grinders
- Preparation Counter (11):
  - utensil rack
    - beaters
    - butcher knives
    - ladels
    - strainers
    - cutlery knives
    - spatulas
    - measuring spoons
  - mixing bowls (25)
  - pitchers (25)
  - sieves
  - measuring cups
- Liquid Dispensers (3)
  - milk
  - tea
- Wash Bucket with Wringer
  - industrial disinfectant (1 gallon can)
- Storage Cabinets
- Food charts and diet charts
- Shelves
  - spices and condiments
  - jars and containers (50)
  - can openers (10)
  - baking sheets (100)
  - slicers (10)

Boiler Room

Oil Drums (4 empty)
    (1 containing oil)
Work Bench:
    grease cans
    oil cans
    screwdrivers
    pliers
    hammers
    wrenches
    friction tape
Industrial Disinfectant (1 gallon can)
Water Hose (50 ft.)

Maintenance Room

Tool Bench:
    level
    square
    coil of wire
    grease gun
    screwdrivers
    friction tape
    Elmer's glue
    hacksaw
    coping saw
    all purpose oil
    hinges
    counter sinker
    hammers
    wrenches
    pliers
    wire cutters
    crowbar
    oil cans
    electric soldering iron
    coil of solder
    sanding paper
    wood rasp
    file
    steel tape measure
    power drill
    brace and bit set
    drill set
    extension cords (of various lengths)
    jars of:
        a. carpenter's tacks
        b. nails
        c. nuts and bolts
    fuses
    wall plug assembly
    rulers
First Cabinet:
    industrial disinfectant-cleaner
        (15-1 gallon cans)
    toilet paper (2 cases: 100 rolls ea.)
    sanitary cloth towels (50)
    hand soap (2 boxes)
    commode cleaner liquid (1 gallon)
    powder cleaner (3 boxes)
    window cleaner (2 cartons)
    deodorant disinfectant (3 cans)
Second Cabinet:
    vacuum cleaner filter bags (20)
    mop cloths (20)
    dust cloths (20)
    paint (4 cans)
Ladders (7)
Tile Adhesive (5 cans)
Vacuum cleaners (3)
Floor Buffers (5)

Shovels (5)
Mops (15)
Big Sweeping Brooms (10)
Regular Brooms (10)
Wash Buckets (5)
Power Grinding Wheel (1)
Electric Saw (1)
Lockers (2)
Wooden dollies (5)
Electric work bench (1)

a. electrician's tape
b. pliers (1)
c. wire cutters

Water Hose (50 ft.)

INVENTORY OF NON-SHELTER FLOORS

I. Arcade

Haberdashery

Men's Dress Accessories:

- hats
- shirts
- neckties
- socks
- belts
- tie clasps and cufflinks
- umbrellas
- underwear
- sweaters
- wallets
- bathrobes
- pajamas
- gloves
- handkerchiefs
- suspenders

Travel Agency

Brochures and pamphlets
Maps
Globe
Desks
Calculators
Typewriters
Telephones
Filing Cabinets

Wholesale Jewelry Shop

Earrings
Necklaces
Bracelets
Pins
Watches
Rings
Pendants
Sterling Flatware
Clocks
Tea service sets

Coffee Shop

Tables
Chairs
Counter

- coffee cups (200)
- silverware (500 piece sets)
- dishware (500 piece set)
- cookware (50 piece set)
- coffee percolators (2)
- taps
- hot plate
- milk shake machine
- napkin dispensers
- salt & pepper shakers

Grill
Dishwasher
Freezer (1,000 lb. food capacity)
Refrigeration cabinets
Milk or liquid dispenser
Food display cases
Storage cabinets

Brokerage Firm

Stock board
Desks
Typewriters
Calculators
Writing materials
Chairs
Teletype machine
Telephones
Reference books
Filing cabinets

Cigar and Candy Stand

Cigars
Candy
Cigarettes
Stamp machine
Newspapers
Magazines

Drug Store

Anesthetic Drugs
Antiseptics
Anti-biotics
Analgesics (pain-reducers)
Aspirin
Bandages
Sterile Gauze
Rubbing Alcohol
Sanitary Napkins
Tranquilizers and sedatives
Dieting aids
Sleeping pills
Mineral oil
Laxatives
Anti-histamine drugs (for allergies)
Vitamin tablets
Toilet and facial tissue
Cloth towels
Washcloths
Toothpaste
Handsoap
Perfume
Cosmetics

Reception Room

Switchboard
Leather couches
Chairs
Coffee table
Desks
Magazine rack

Night Guard's Office

Desk

- pistol
- whistle
- flashlight

Uniform
Control for fire alarm system
Steel storage cabinet

II. Business and Professional Offices

Loan Company

Desks
Calculators
Typewriters
Steel Safe
Writing Materials
Filing Cabinets
Telephones

Beauty Salon

Sinks
Water hose spray
Hair dryers
Shampoo & hair lotions
Wall mirrors
Scissors
Curlers
Cloth Towels
Combs and brushes
Display case w/ribbons & bows
Manicure table
Telephones

Wholesale Jewelry Store

Earrings
Necklaces
Bracelets
Pins
Watches
Rings
Sterling flatware
Tea service sets
Clocks

Investment Counselor

Desk
Calculator
Typewriter
Filing cabinets
Blackboard
Bulletin Boards
Writing materials
Telephone

Wholesale Fur Company

Fur stoles
Fur coats
Fur collars
Fur jackets
Fur gloves
Fur scarfs
Fur mufflers
Handbags
Shoes

Theatrical Agency

Desks
Piano
Piano bench
Wall mirrors
Wood screen
Leather couch
Blackboard
File cabinet
Storage cabinet
Bookcase
Telephones

Doctor's Office

Examination light
Examination table
Examination table paper
Commode
Sink
X-ray equipment
Medical instruments
- scissors
- needles
- syringes
- thermometers
- sphygomonanometer (blood pressure
- stethoscope
- oxygen set
- forceps
- centrifuge (blood count)
- specula
- cotton-tip applicators
- tongue depressors
- scalpels
- protoscope (rectum)
- sutures
- catheters (bladder control)
- retractors (skin separaters)
- otoscope (ears)
- opthalmoscope (eyes)

Sterile gauze
Alcohol
Cotton
Operating stool
Bandages
Adhesive tape
Needle holders
Kleenex
Microscope
Slides
Autoclave (sterilizer)
Instrument cabinet
Rubber gloves
Antiseptics
Antibiotics
Anaesthetic drugs
- novocain
- ether

First-aid manuals
Waiting room
- leather couches
- chairs

Dentist's Office

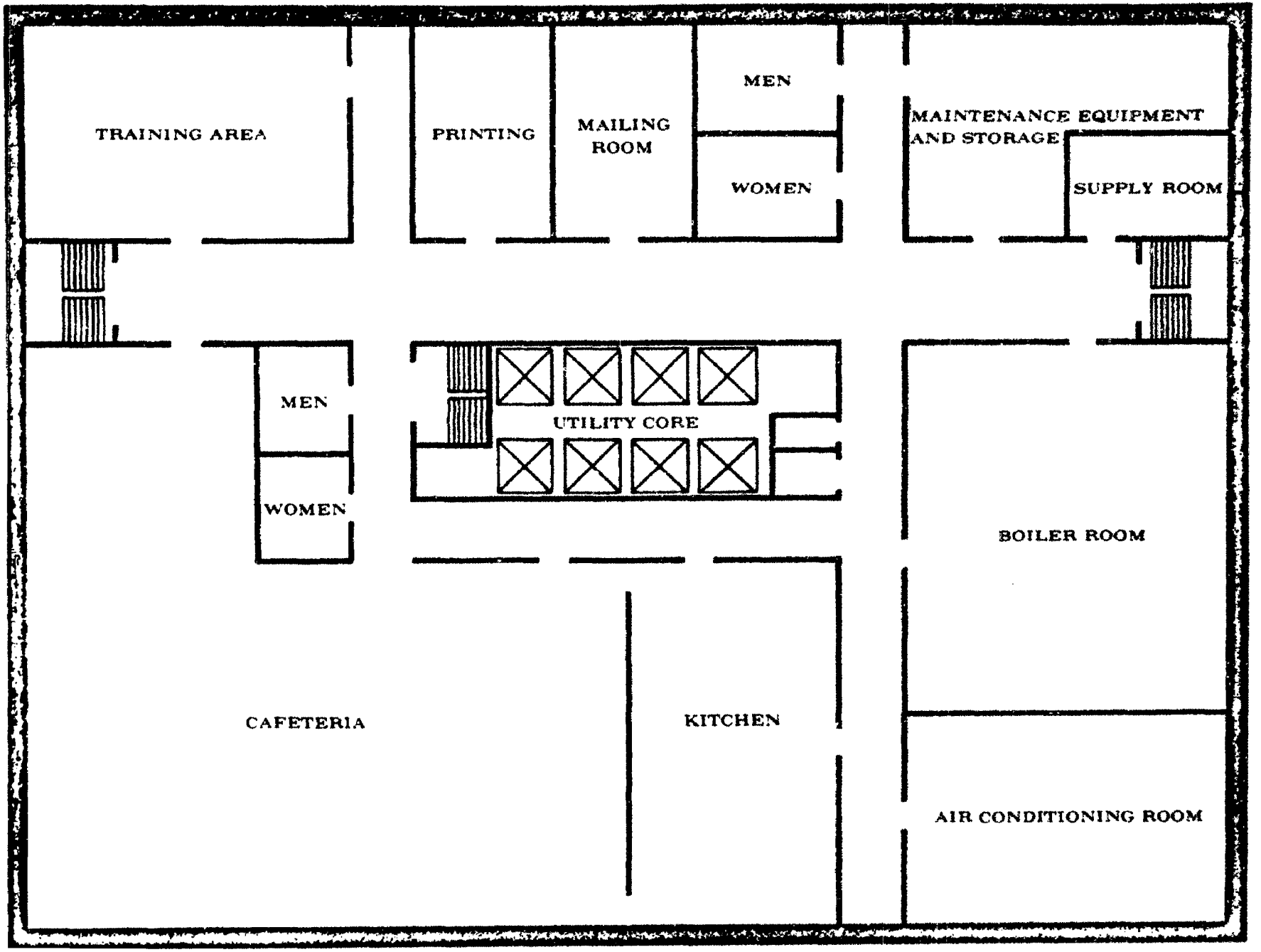
Dental Chair
Drill
Dental Mirrors
Autoclave (sterilizer)
X-ray equipment
Explorers (picking teeth)
Scalers (picking teeth)
Excavators
Carvers
Pluggers (filling)
Spatulas
Novocain
Rongeurs (pulling teeth)
Forceps
Retractors
Mouth gags
Syringes
Gas
Air & Water
Mouth wash
Bone files
Mallet
Needle Holders
Sutures
Scissors
Saliva ejectors
Napkin clips
Tile clamps
Gauze
Pliers
Antiseptics
Anesthetics (local & general)
Waiting room

leather couches
chairs

Accountant's Office

Desks
Book cases
File safes
Typewriters
Calculators
Tax encyclopedia
Photocopy machine
Stationery
Writing materials
Ledgers
Storage cabinets
Telephones
Leather couch
Chairs

BASEMENT FLOOR



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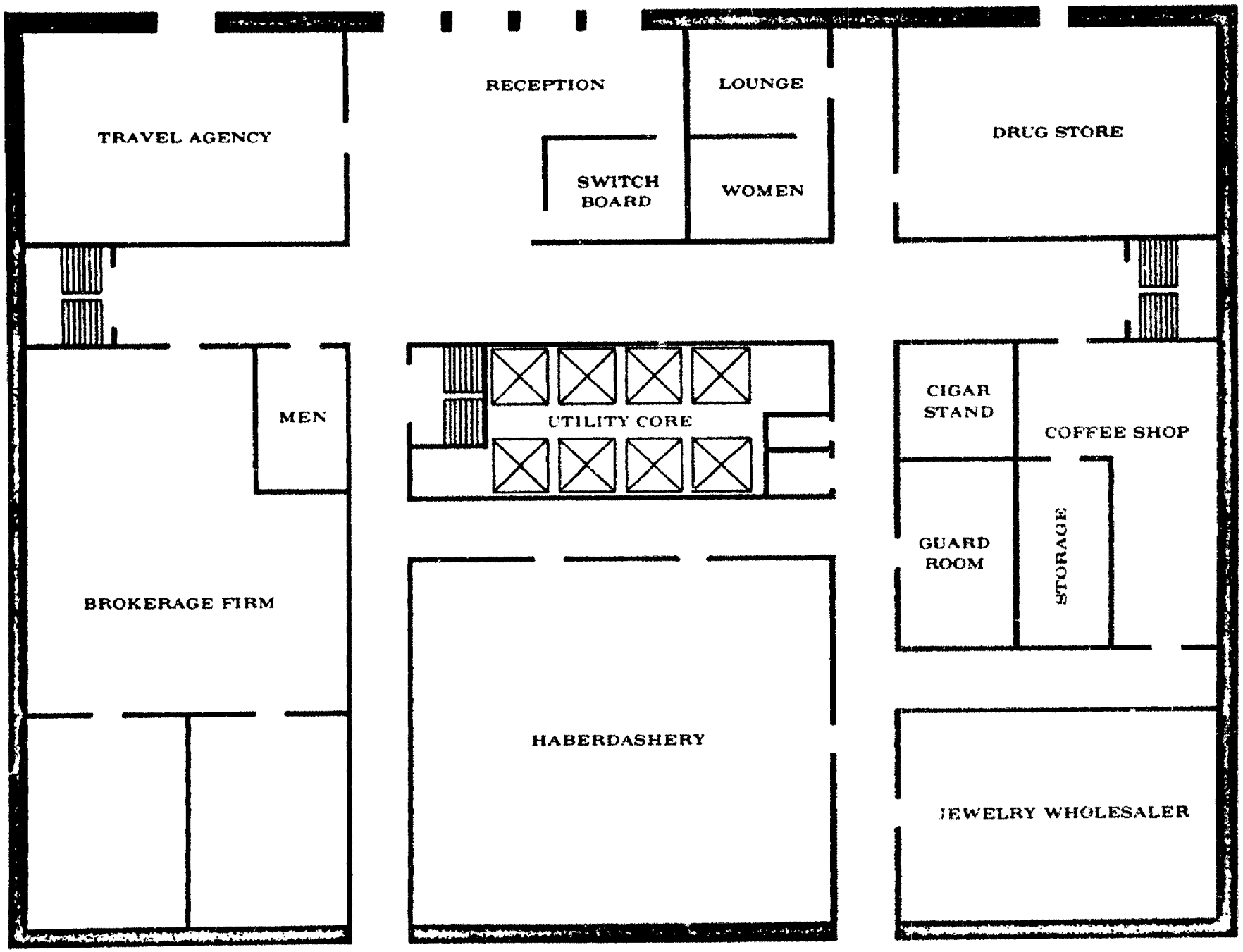
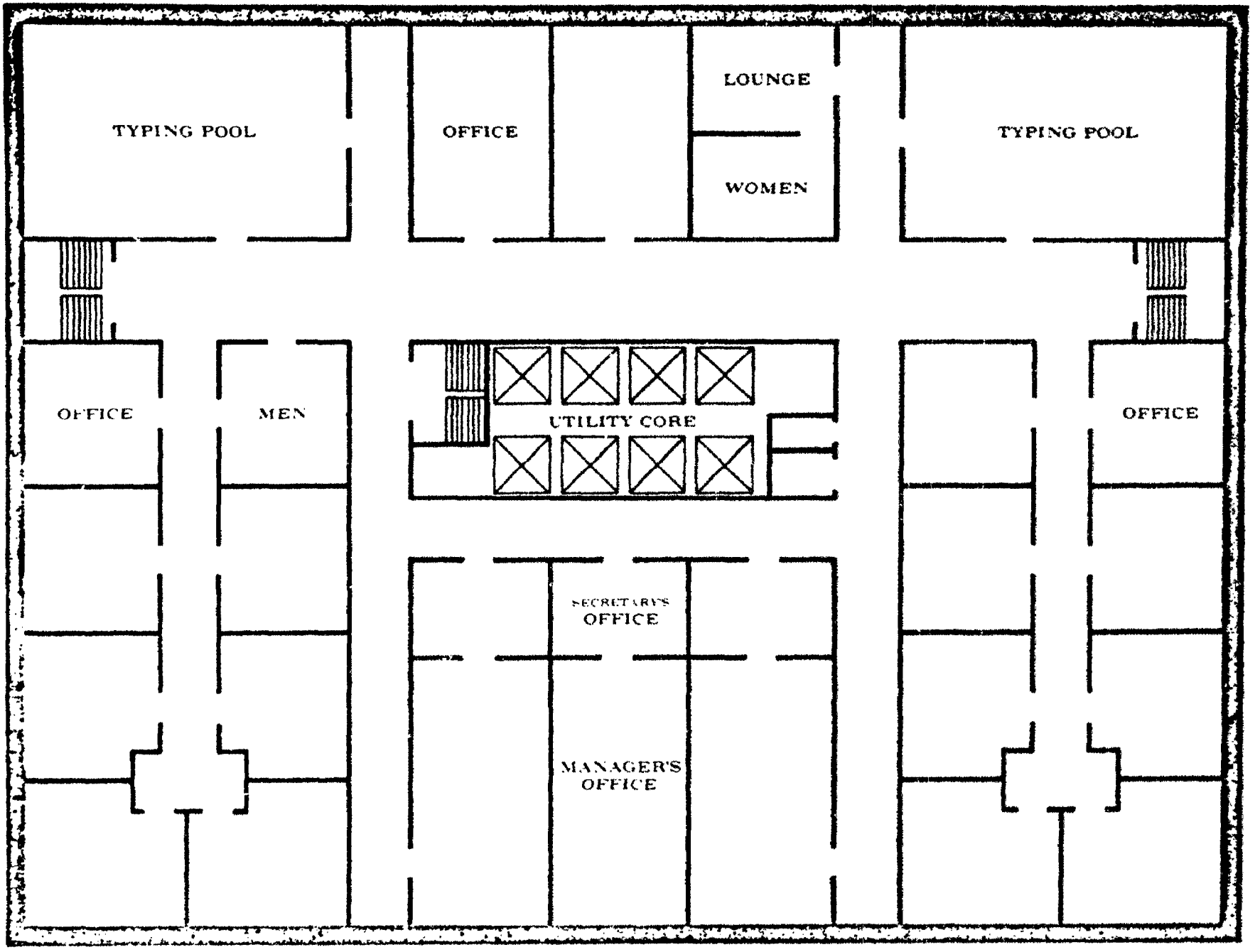
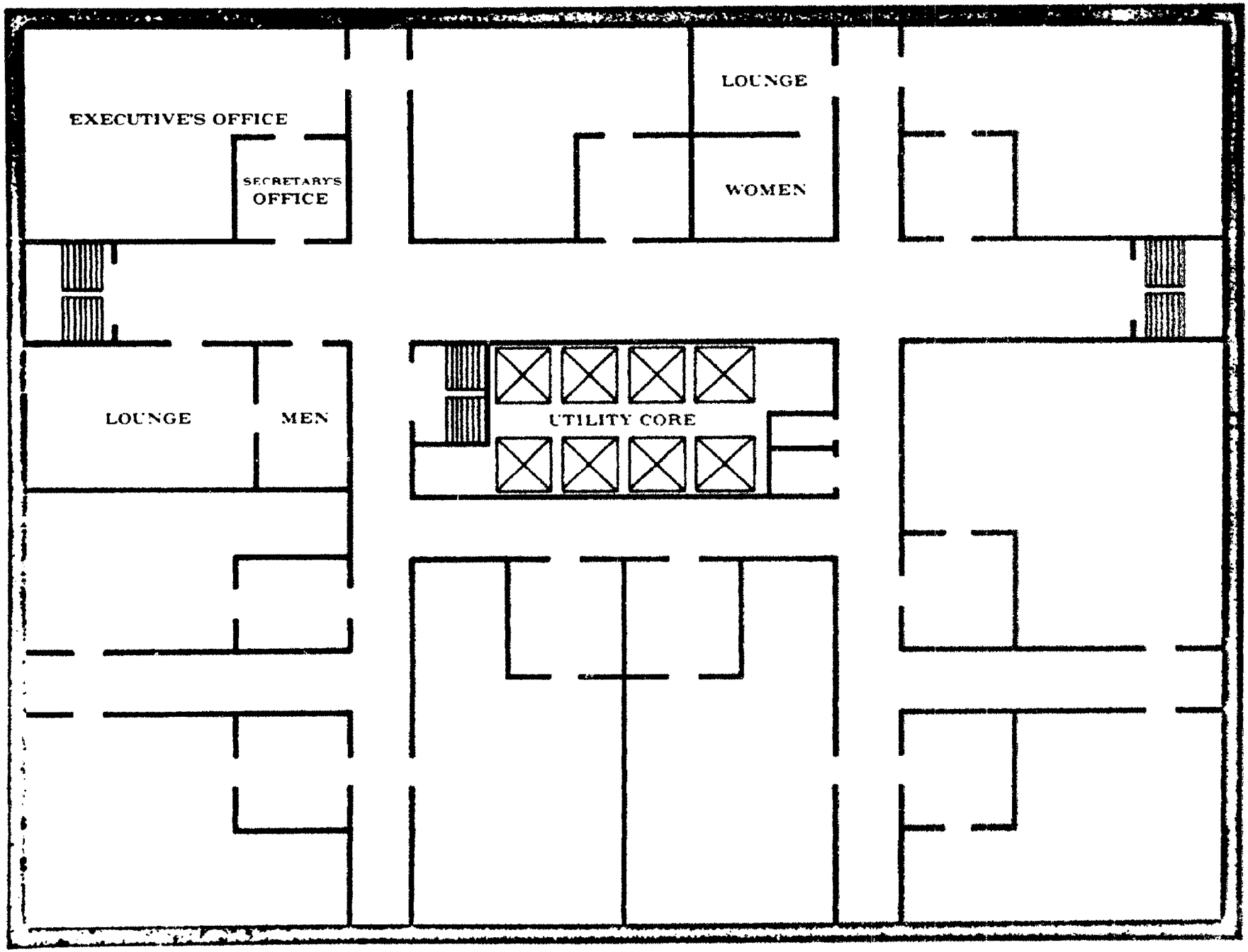
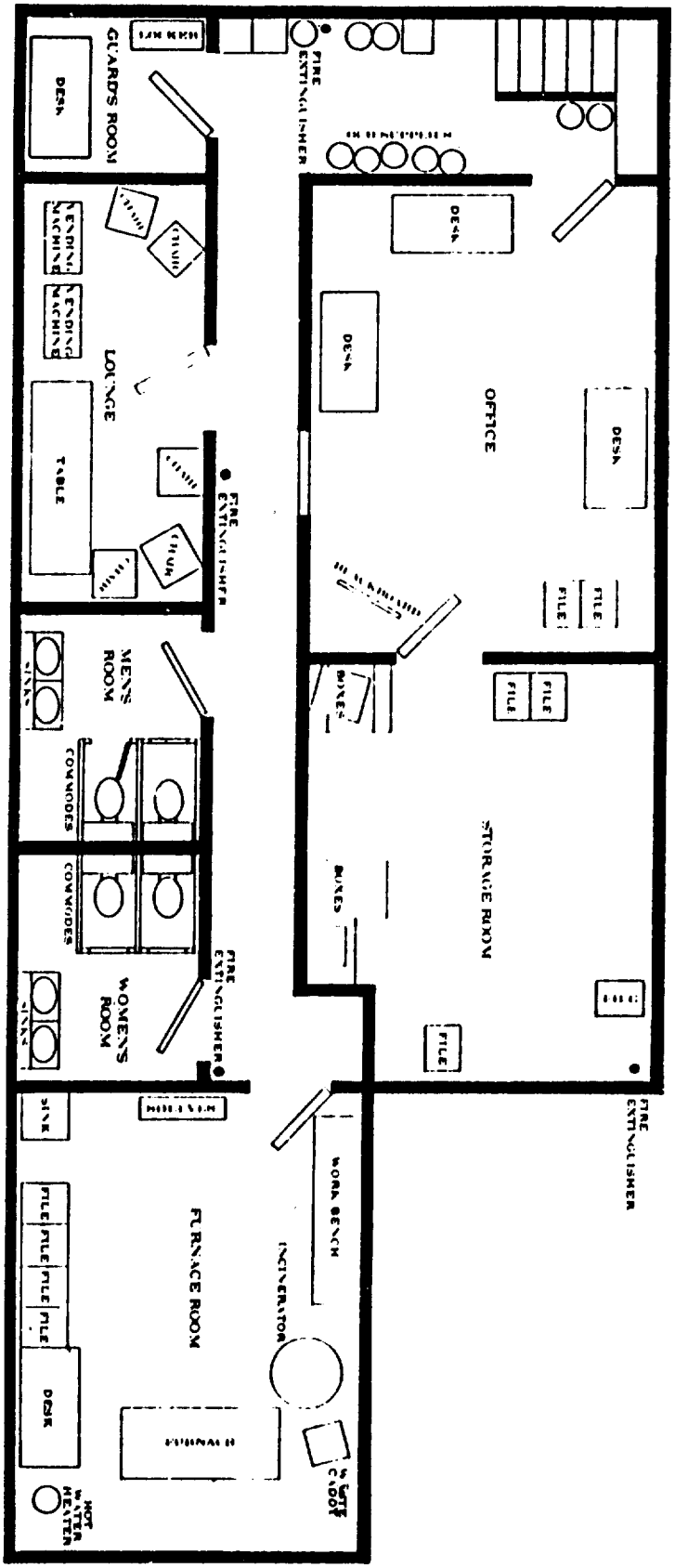

TRAVEL AGENCY
RECEPTION
LOUNGE
SWITCH BOARD
WOMEN
DRUG STORE
MEN
UTILITY CORE
CIGAR STAND
COFFEE SHOP
GUARD ROOM
STORAGE
BROKERAGE FIRM
HABERDASHERY
JEWELRY WHOLESALER

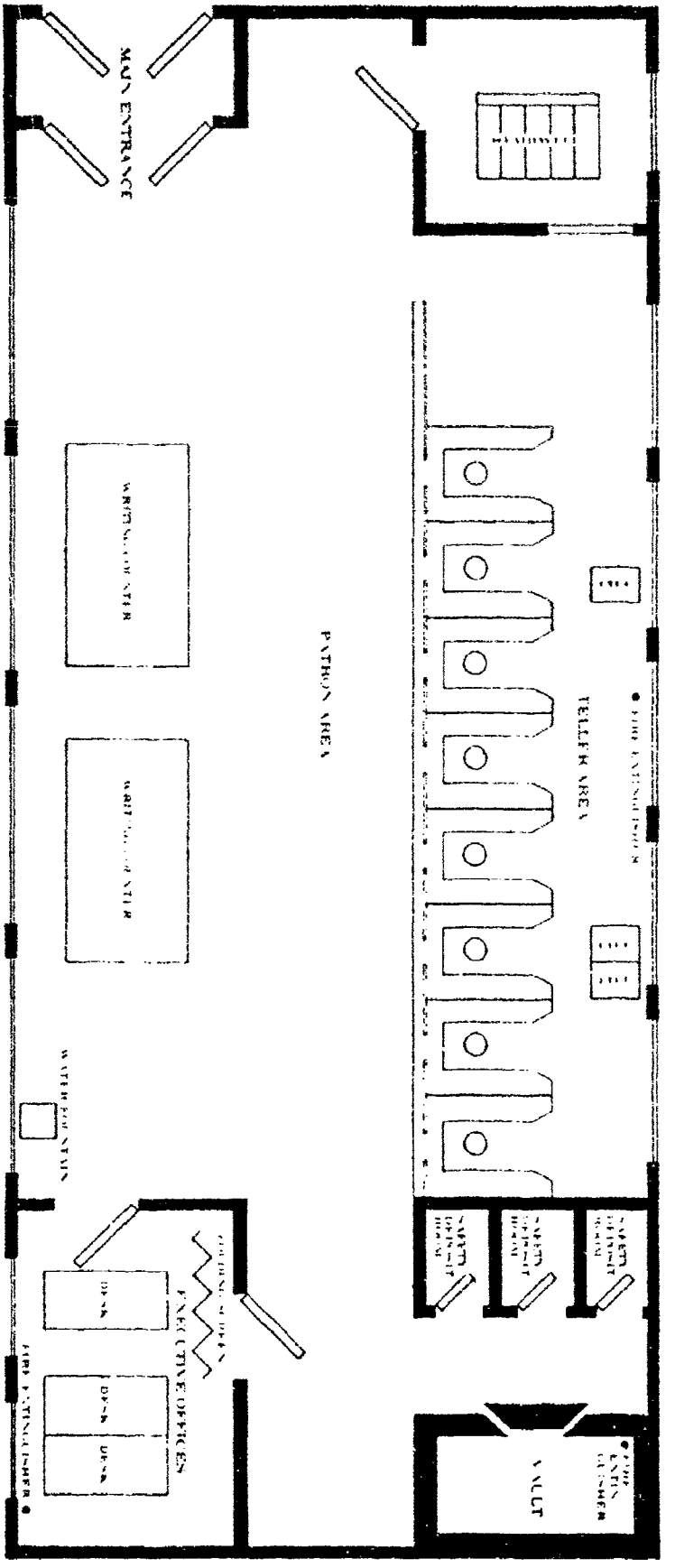
BUSINESS FLOOR



EXECUTIVE FLOOR




GUARDS ROOM
DESK
FIRE EXTINGUISHER
OFFICE
DESK
DESK
DESK
DESK
FILE
FILE
FILE
FILE
FILE
STORAGE ROOM
BOXES
BOXES
FIRE EXTINGUISHER
WORK BENCH
INCINERATOR
LOUNGE
TABLE
CHAIR
CHAIR
CHAIR
CHAIR
VENDING MACHINE
VENDING MACHINE
FIRE EXTINGUISHER
MENS ROOM
SINKS
COMMODES
COMMODES
WOMENS ROOM
SINKS
FIRE EXTINGUISHER
SINK
FILE
FILE
FILE
FILE
FILE
DESK
FURNACE ROOM
WATER HEATER


MAIN ENTRANCE
PATRON AREA
TELLER AREA
VAULT

APPENDIX C

PLANNING TEST MATERIALS

You have just been appointed Shelter Manager for the fallout shelter in the building in which you work. In this capacity, your first task is to write an operational plan tailored to the shelter. The Federal Marking and Stocking Program has designated those areas in your building that can be used as shelter areas. Certain basic necessities for survival have already been placed in the shelter areas of your building by the local Office of Civil Defense. These include food, water, medical and sanitation supplies, and radiological monitoring equipment. These supplies are planned to last each "shelteree" (person living in the shelter) for a two week period. A great variety of additional resources may also be available in the building which may be applied to the task of enhancing survival. The effective use of all the available resources in the building, however, depends upon careful shelter planning prior to an attack. In summary, your first responsibility as shelter manager is to plan and organize your shelter so that it will operate efficiently when the time arrives to use it.

1. The first step in organizing your shelter operational plan is to develop a topical outline. The major headings in your outline should be everything you consider necessary and important in planning a fallout shelter. These major headings should be the major functions necessary for the survival of the people who will live in the shelter for two weeks. Under each major heading, enumerate the ways in which you can satisfy that function.

For example, suppose that you were writing an operational plan for a house. Heating your house would be one of your major functions. One way to satisfy this major function would be to supply fuel. You would further have to consider all of the details needed to supply the fuel, such as choosing the kind of fuel you want, purchasing the fuel, storing the fuel, and installing a furnace. Your outline, then, would probably look like the following:

I. Heating the house

A. Fuel

1. Choosing a fuel
2. Purchasing the fuel
3. Storing the fuel
4. Installing a furnace

B. Fuel control

1. Storm windows and doors
2. Insulation of the house
3. Thermostat

Now develop a similar topical outline for your shelter. What are the major functions of survival? (Examples of major functions would be food and fire protection.)

II. Now that you have finished writing your topical outline, the next major step is to develop a shelter plan. Instead of writing a complete shelter plan, you will only have to plan for those particular problems listed below. To do this, however, you must be thoroughly familiar with your building, its shelter areas, and its resources. This familiarity with the resources is necessary if you are going to plan for the efficient and effective use of the shelter building. Three sources of information will describe the building, its shelter areas, and its resources. These will be the "tools" you will employ in planning your shelter. These tools will give you <u>all</u> the information about the shelter resources you will need to write a plan.

The first tool you have been given is a series of floor plans and pictures. The floor plans will give you an overall picture of the building and its configuration. Besides the floor plans, pictures of typical rooms in the building have been drawn. These pictures have been designed to show what you would see if you were to walk from room to room in the building and stand in the middle of each room and face a given wall. Thus, in the sample picture, picture A shows what you would see if you stood in the center of the room facing wall A. The same, of course, applies to pictures B, C, and D.

Along with the pictures and floor plans, you have been given an outline which itemizes the physical objects in each room. These are primarily objects that are not identifiable from the pictures. Thus, in the sample picture, your itemized list will tell you what is behind the counter but it might not mention the tables and chairs in the room. This itemized list is the second tool of information.

Finally, you have been given a series of paragraphs which give you background information on the shelter building. This information discusses the building, its location, the employees who work in the building, and other information that you as the shelter planner might want to know.

When you write your plan you must be sure that you use only those resources that are found in the three tools. YOU ARE NOT ALLOWED TO CREATE ANY RESOURCES AND YOU CANNOT BUY ADDITIONAL RESOURCES. Your plan should be economically and intuitively thought out. For instance, in the previous discussed example of heating your house, the availability and expense of each item should be judged. If in choosing your fuel you had a choice of coal, oil, or gas, you would consider the respective advantages and disadvantages of the three. Gas would be efficient, inexpensive, and use little space, but it might be dangerous (if a gas line leaked). Coal, on the other hand, would not be dangerous but it would take up much more space and would be dirty. Oil would not use much space, but would be flammable. On the whole, however, oil might be the best in terms of efficiency, cleaness, and expense. Since you cannot use anything other than what is already available, you should try to utilize every resource in the building to its fullest advantage. Make certain, however, that your plan is plausible.

In writing your plans for the following problems, write concise complete answers. You have been given ample time to answer each question thoroughly. Before beginning to write your plan, familiarize yourself with the shelter building, its rooms, and its resources. During the test, consult your tools as needed.

QUESTIONS

1. What plans should be made for a shelter management organization?
2. What can be done to provide the shelter with additional radiological protection?
3. How would you plan for general maintenance of shelter equipment?
4. What can be done to provide air temperature control and air exchange?
5. What plans can be made to supplement OCD water stocks?
6. What plans can be made to supplement OCD food stocks?
7. How would you plan for food and water distribution?
8. How would you plan for shelter lighting in case of municipal power failure?
9. What plans, in addition to the use of OCD stocks, can be made to provide in-shelter medical care?
10. What methods would you plan to use for garbage and human waste disposal?
11. What plans would you make for personal hygiene?
12. How would you plan for in-shelter communications?
13. How would you plan for beyond-shelter communications?
14. What plans would you make for security and social control?
15. Decide upon the best strategy for sleeping shelterees?
16. What plans would you make for shelter entrance, including routing and closure?
17. What plans should be made for a management area and the stocking of this area with management facilities?

18. How would you plan to increase radiological monitoring capability?

19. What plans would you make to provide the shelter with the necessary fire suppression capability.

20. How would you plan to provide the shelter with utensils for both food preparation and eating?

21. What facilities would you plan to provide for personal hygiene?

22. What plans would you make for in-shelter training?

Now your task is to write answers to the same 22 questions using another shelter facility. As in the last case, familiarize yourself with the shelter building before you begin to write your plan. Write complete, concise answers.

QUESTIONS

1. What plans should be made for a shelter management organization?
2. What can be done to provide the shelter with additional radiological protection?
3. How would you plan for general maintenance of shelter equipment?
4. What can be done to provide air temperature control and air exchange?
5. What plans can be made to supplement OCD water stocks?
6. What plans can be made to supplement OCD food stocks?
7. How would you plan for food and water distribution?
8. How would you plan for shelter lighting in case of municipal power failure?
9. What plans, in addition to the use of OCD stocks, can be made to provide in-shelter medical care?
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11. What plans would you make for personal hygiene?
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13. How would you plan for beyond-shelter communications?
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15. Decide upon the best strategy for sleeping shelterees?
16. What plans would you make for shelter entrance, including routing and closure?
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18. How would you plan to increase radiological monitoring capability?

19. What plans would you make to provide the shelter with the necessary fire suppression capability.

20. How would you plan to provide the shelter with utensils for both food preparation and eating?

21. What facilities would you plan to provide for personal hygiene?

22. What plans would you make for in-shelter training?

APPENDIX D

Item 1. Instructions

Item 2. Small Shelter Management Test

Item 3. Large Shelter Management Test

INSTRUCTIONS

READ CAREFULLY BEFORE BEGINNING TEST

1. You have been given the assignment as the manager of the shelter. No other members of the shelter organization have been selected by you prior to the attack. The exercise questions are to be answered on the basis that you are the only person in the building trained for shelter management and given a specific assignment in peacetime.

2. Approximately 3 1/4 hours have been allotted for each exercise. The test questions are of various types. Some will require answers of one or more paragraphs; others will take one-sentence answers; others require only lists of items. It is important that you answer each question as thoroughly as you can, but don't forget that there is a time limit for the practicum.

3. Answer the questions in order: Problem 1 before Problem 2, etc. If a problem has several parts to it, answer Part A before Part B, etc. Please do not refer back to any problems to make additions or corrections.

4. STAPLED TO EACH PROBLEM IS A LITTLE TAB WITH SOME QUESTIONS ON IT. BEFORE YOU BEGIN TO WORK ON EACH PROBLEM, FILL IN THE INFORMATION REQUESTED ON THE FRONT TAB. AFTER YOU FINISH EACH PROBLEM, FILL IN THE INFORMATION REQUESTED ON THE REAR TAB.

5. If you need more space for your answer than is provided, use the reverse side of the test pages. There is scrap paper available if you need it.

6. For some questions, you will be asked to draw your solutions on a floor plan. Copies of the appropriate floor plan will be distributed to you.

7. For success of this training course and study, it is essential that people don't talk about the management problems and answers during lunchtime. Different people are solving different problems, etc.

INTRODUCTION TO MANAGEMENT TEST

Very shortly, you will begin a written practical exercise in which you will be asked to solve problems that you, as a shelter manager, might face in the event of a nuclear attack. The problems will be presented in a sequence of shelter events and situations covering a span of slightly more than one week. Each of you will have two practical exercises--one in the morning and one in the afternoon. In one exercise, you are to be the manager of a small shelter; in the other, you are in charge of a large shelter.

It may appear to you that the small-shelter problems and the large-shelter problems are almost identical in their wording. However, remember the context: In one case, the problem involves thousands of people; in the other case, it involves only hundreds. Therefore, in spite of the similarity in the wording of the problems, we don't expect your small-shelter and large-shelter solutions to be identical. That is, unless, after due consideration, you decide that a particular problem would be handled the same way in both the small and large shelters.

To aid you in decision making, you will be provided with two types of guidance materials. One type consists of information about the shelter, such as floor plans, lists of supplies, and the like, that must serve as a substitute for actually being in the shelter while you are solving management problems. The other type consists of guidance documents that would normally be available in a Federally stocked fallout shelter. Be sure to examine the guidance materials before you begin the test.

SMALL SHELTER TEST

PROBLEM 1

Part A

It is now 4:00 p.m.

You are in your office at the bank. A long, steady siren is heard outside for three minutes. At the same time, the bank alarm system goes off.

1. WHAT DOES THE STEADY SIREN SIGNAL MEAN?

2. AS THE APPOINTED MANAGER OF THE PUBLIC FALLOUT SHELTER IN THE BANK, WHAT STEPS WOULD YOU TAKE UPON HEARING THE STEADY SIREN?

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Part B

It is now 4:17 p.m.

A wailing signal on the siren is heard outside.

1. WHAT STEPS WOULD YOU TAKE UPON HEARING THE WAILING SIREN?

PROBLEM 2

It is now 4:25 p.m.

There are about 40 people milling about in the shelter, and there appear to be around 100 persons clustered about the entrance to the bank. There is another shelter with about the same capacity as yours located two blocks away. There are no means of communicating with the other shelter.

1. WHAT STEPS DO YOU TAKE IN FILLING THE SHELTER?

2. WHAT ACTIONS, IF ANY, DO YOU TAKE WHEN THE NUMBER OF PEOPLE IN YOUR SHELTER HAS REACHED 80?

PROBLEM 3

It is now 4:32 p.m.

The shelter has been closed with 104 people inside: 38 men, 51 women, and 15 children. All appear frightened; many seem dazed. Up until now, you have not received any news from the outside about the nature of the emergency.

1. WHAT INFORMATION, IF ANY, SHOULD BE GIVEN TO PEOPLE IN THE SHELTER AT THIS POINT? (List all the items that you feel people in the shelter should be told.)

2. WHAT IS THE BEST MEANS FOR COMMUNICATING WITH THE SHELTER POPULATION AT THIS POINT (WHO, WHERE, TO WHOM, HOW LONG)?

PROBLEM 4

Part A

It is now 4:35 p.m.

As shelter manager, you must see to it that certain jobs essential for survival are started immediately.

Read all three questions before you begin your answer. Use the form on the next page to answer.

1. LIST, IN THE ORDER OF IMPORTANCE, THE SURVIVAL STEPS THAT MUST BE TAKEN RIGHT AWAY.

2. FOR EACH JOB, STATE THE TYPE OF PERSON(S) (IN TERMS OF BACKGROUND OR PERSONAL CHARACTERISTICS) YOU WOULD SELECT TO PERFORM THAT TASK. INDICATE WHICH TASKS YOU WOULD DO YOURSELF.

3. HOW MANY PEOPLE WOULD YOU SELECT TO DO EACH SURVIVAL JOB?

Survival Jobs that Must be Started	Best Person to Do the Job	Number of People to Do the Job

Part B

1. HOW WOULD YOU OBTAIN INFORMATION ABOUT THE TYPES OF PERSONS THAT ARE ACTUALLY IN YOUR SHELTER?

PROBLEM 5

It is now 4:51 p.m.

A portable radio has been found in the guard's room. A message from the Emergency Broadcast System station in Pittsburgh states that fallout is expected in your area within 20 minutes.

1. WHAT STEPS CAN BE TAKEN INSIDE YOUR SHELTER TO PROVIDE THE HIGHEST POSSIBLE LEVEL OF PROTECTION AGAINST FALLOUT RADIATION?

2. WHAT STEPS CAN BE TAKEN OUTSIDE YOUR SHELTER TO PROVIDE THE HIGHEST POSSIBLE LEVEL OF PROTECTION AGAINST FALLOUT RADIATION?

PROBLEM 6

It is now 4:55 p.m.

The person in charge of supplies informs you that there are a number of supply items in other areas of the building that may be useful for shelter living.

Refer to the map of the building and lists of supplies.

1. WHAT SUPPLIES WOULD YOU HAVE BROUGHT INTO THE SHELTER? LIST THEM IN THEIR ORDER OF IMPORTANCE TO SHELTER LIVING.

PROBLEM 7

It is now 5:18 p.m.

The plate-glass windows in the bank lobby have just been broken.

1. WHAT, IF ANY, ARE THE POSSIBLE DANGERS TO THE SHELTER BECAUSE OF THESE BROKEN WINDOWS?

2. WHAT SHOULD BE DONE ABOUT THE BROKEN WINDOWS?

PROBLEM 8

It is now 5:30 p.m.

The first survival steps have been carried out. It is now time to organize the people in the shelter into living groups, set up work teams, and make sure that shelter management is operating smoothly.

Part A

1. WHAT WORK TEAMS WOULD YOU SET UP?

2. HOW MANY PEOPLE WOULD YOU ASSIGN TO EACH TEAM?

3. WHAT TYPE OF PERSON WOULD YOU SELECT AS THE HEAD OF EACH TEAM?

Work Teams	Number of People	Type of Person for Team Head

Part B

1. INTO WHAT SIZE LIVING GROUPS WOULD YOU DIVIDE THE PEOPLE IN YOUR SHELTER?

2. HOW MANY GROUPS OF EACH SIZE WOULD YOU SET UP?

3. HOW SHOULD SHELTEREES BE ASSIGNED TO EACH TYPE OF LIVING GROUP?

4. HOW SHOULD THE LEADER OF EACH TYPE OF LIVING GROUP BE SELECTED?

Living Group (List smallest group first)	Number of Groups of This Size	Reason for Assignment to Each Group	Method for Selecting Leader of Each Group

Part C

1. DO YOU FEEL THAT ANYONE BESIDES YOURSELF IS NEEDED AT THE TOP MANAGEMENT LEVEL OF THE SHELTER ORGANIZATION?

   Check one: YES _____ NO _____

   IF YES,

2. WHAT POSITIONS WOULD YOU ESTABLISH?

3. WHAT DUTUES WOULD YOU ASSIGN TO EACH?

4. WHAT TYPES OF PERSONS WOULD YOU SELECT FOR EACH?

Management Position	Duties	Types of Persons Selected

PROBLEM 9

It is now 5:44 p.m.

The person in charge of sanitation has requested your help in planning for toilet facilities.

1. WHAT TOILET FACILITIES SHOULD BE SET UP IN YOUR SHELTER (HOW MANY, WHERE, ETC.)?

2. HOW WOULD YOU USE THE EXISTING TOILETS IN THE MEN'S AND LADIES' ROOMS?

3. WHAT SPECIAL RULES AND REGULATIONS, IF ANY, WOULD YOU SET UP FOR THE USE OF TOILETS?

4. WHAT SHOULD BE DONE WITH THE FILLED OCD TOILETS?

PROBLEM 10

Part A

It is now 6:15 p.m.

You have been given an inventory of all the civil defense supplies that have been stocked in your shelter. One of your management responsibilities is to determine how shelter supplies will be controlled and distributed.

1. WHAT PROCEDURES WILL YOU ESTABLISH FOR THE CONTROL AND DISTRIBUTION OF MEDICAL SUPPLIES?

2. WHAT PROCEDURES WILL YOU ESTABLISH FOR THE CONTROL AND DISTRIBUTION OF CIVIL DEFENSE FOOD AND WATER RATIONS?

Part B

The person in charge of feeding requests help from you in establishing the daily food and water rations.

1. HOW MANY TIMES, AND WHEN, SHOULD SHELTEREES BE GIVEN FOOD AND WATER DAILY?

2. WHEN SHOULD THE FIRST SERVING OF FOOD AND WATER BE DISTRIBUTED IN THE SHELTER?

Part C

Among the supplies brought in by the shelterees and found in vending machines in the building are 80 candy bars and 150 packs of cigarettes.

1. ON WHAT BASIS WOULD YOU DISTRIBUTE THE CANDY BARS AND CIGARETTES (TO WHOM, WHEN, WHY, ETC.)?

PROBLEM 11

It is now 6:40 p.m.

Six unrelated individuals are either unwilling, or unable, to perform the jobs to which they have been assigned. They appear to be under severe emotional strain, and have so far resisted the efforts of other shelterees to talk to them and to get them to take part in the shelter activities.

There are no doctors, psychologists, social workers or other professionals trained to deal with such problems in the shelter.

1. WHAT, IF ANYTHING, CAN BE DONE ABOUT THE SIX PERSONS UNDER SEVERE EMOTIONAL STRAIN?

PROBLEM 12

It is now 7:00 p.m.

One of your management responsibilities is to see that various records are kept during the shelter stay.

1. WHAT RECORDS SHOULD BE MAINTAINED DURING THE SHELTER STAY, WHY, AND BY WHOM?

Records	Reasons for Keeping Records	By Whom Kept

PROBLEM 13

It is now 7:45 p.m.

Fallout has been coming down for over two hours. Radiological monitoring of the area in the shelter near the stairwell shows a reading of four Roentgens per hour.

1. WHAT IMMEDIATE ACTIONS, IF ANY, WOULD YOU TAKE ABOUT THIS SITUATION?

2. WHAT ADDITIONAL ACTIONS, IF ANY, WOULD YOU TAKE IF THE RADIATION LEVEL AT THE SHELTER ENTRANCE CONTINUED TO RISE?

PROBLEM 14

Part A

It is now 8:30 p.m.

Some of the shelterees have inquired about sleeping arrangements. One of your management responsibilities is to locate the space and establish procedures for sleeping.

1. HOW WOULD YOU SET UP THE SHELTER FOR SLEEPING? (On the shelter map, draw in as much detail as possible the sleeping arrangements you would establish.)

2. WHAT KIND OF NIGHTTIME MANAGEMENT SUPERVISION, IF ANY, IS NEEDED DURING SLEEPING HOURS?

3. IF NEEDED, HOW SHOULD THIS BE CARRIED OUT?

Part B

There is a difference of opinion as to what time lights should be turned out for sleeping. Some people say 9:30, others 10:00, still others 11:00.

1. HOW SHOULD THE DECISION ON LIGHTS OUT BE REACHED?

PROBLEM 15

Part A

It is now 11:00 p.m.

The radiation level outside the shelter stands at approximately 100 Roentgens per hour. Two families, eight people all told, appear at the entrance of the shelter and plead for admission.

1. WHAT ARE SOME REASONS WHY THE PEOPLE SEEKING ADMITTANCE SHOULD BE LET IN?

2. WHAT ARE SOME REASONS WHY THESE PEOPLE SHOULD BE DENIED ADMITTANCE?

3. WHAT IS YOUR DECISION ABOUT THE PEOPLE SEEKING ADMITTANCE?

Part B

The appearance of the two families at the shelter entrance has had a disturbing effect upon the shelterees. A number of people who have been separated from their families ask you about the fate of their loved ones. Several men seem to be preparing to leave the shelter in search of their families.

1. WHAT, IF ANYTHING, CAN BE DONE ABOUT THE PROBLEM OF SEPARATED FAMILIES?

2. WHAT DO YOU DO ABOUT THE PEOPLE WHO ARE PREPARING TO LEAVE THE SHELTER TO FIND THEIR FAMILIES.

PROBLEM 16

Part A

It is now 8:00 a.m. on the second day of the shelter stay.

As yet, the shelterees have not received full information about the events of the past 18 hours. One of your duties is to keep shelterees informed.

1. LIST THE TOPICS THAT YOU WOULD DISCUSS IN A BRIEFING TO THE SHELTER POPULATION AT THIS TIME.

2. WHAT TOPICS, IF ANY, WOULD YOU NOT DISCUSS IN A SHELTER BRIEFING AT THIS TIME?

3. HOW OFTEN WOULD YOU HOLD A BRIEFING FOR THE ENTIRE SHELTER?

Part B

A teen-age girl has told you that her friend has a small, battery-operated radio hidden in her purse, about which she had told no one. The batteries in the radio in the guard's room have lost much of their power, and use of this radio must be very strictly limited.

1. WHAT DO YOU DO ABOUT THE HIDDEN RADIO?

PROBLEM 17

It is now 11:00 a.m. of the second day.

Members of the two families who were admitted into the shelter late begin to show signs of nausea, diarrhea, and vomiting. They are suffering from radiation sickness.

1. WHAT TREATMENT, IF ANY, WOULD YOU HAVE THE MEDICAL TEAM PROVIDE THESE PEOPLE?

2. WHAT, IF ANYTHING, WOULD YOU DO FOR OTHER SHELTEREES WHO HAVE BEEN IN CLOSE CONTACT WITH THE PERSONS SUFFERING FROM RADIATION SICKNESS?

PROBLEM 18

It is now 3:00 p.m. of the second day.

Although the exhaust fan in the shelter has been working continuously, it is obvious that the temperature and humidity are rising. There is no room thermometer in the shelter.

1. HOW WOULD YOU KNOW WHEN THE TEMPERATURE HAS REACHED A DANGEROUS LEVEL?

2. WHAT STEPS CAN YOU TAKE TO CONTROL THE EFFECTS OF HIGH TEMPERATURE IN YOUR SHELTER?

PROBLEM 19

Part A

It is now 12:15 p.m. of the third day.

The noon meal is being served. Suddenly all the lights in the shelter go out. A message from the Emergency Broadcast System announces a general, hopefully temporary, power failure for the entire vicinity, due to a breakdown at the power plant.

1. WHAT ARE THE IMMEDIATE STEPS YOU WOULD TAKE WHEN THE POWER FAILED?

Part B

After an hour, another EBS message announces that electric power may not be available for an extended period of time. No estimated time of repair can be given.

1. WHAT ADDITIONAL STEPS WOULD YOU TAKE?

PROBLEM 20

Part A

It is now 1:30 p.m. of the third day.

For the first couple of days, the children in the shelter have been fairly quiet and obedient under the supervision of their parents. Lately, however, they have become very noisy and very active. In their rough play, they have accidently broken several plastic drinking cups and spilled several portions of water.

1. WHAT, IF ANYTHING, CAN BE DONE TO CONTROL THE CHILDREN'S BEHAVIOR?

Part B

It is now 3:00 p.m. of the third day.

One of the male shelterees has managed to smuggle two quarts of whiskey into the shelter. Several other shelterees have threatened to smash the bottles if the man does not share the liquor with them. From your inquiries into the situation, you discover that the man who brought the whiskey in is an alcoholic.

1. HOW DO YOU HANDLE THE PROBLEM OF THE WHISKEY AND THAT OF THE ALCOHOLIC?

Part C

It is now 11:30 p.m. of the third day.

Two persons are caught taking water from the water drums. It is discovered that in the past few nights these persons have stolen approximately two gallons of water, most of which they have consumed themselves, while giving some to a few friends. There will not be any opportunity to replenish the shelter water supply for several days, since the radiation level outside is still quite high. Also, the temperature remains at a high, but not dangerous, level. The offenders have broken no other shelter rules, and no other incidents of stealing shelter supplies have taken place.

1. WHO SHOULD DECIDE WHAT SHOULD BE DONE WITH THE PERSONS WHO TOOK THE WATER?

2. WHAT WOULD YOU RECOMMEND BE DONE WITH THE TWO OFFENDERS?

Part D

It is now 3:30 a.m. of the fourth day.

The night watch awakens you with information about two shelter situations. Two teen-age couples have left their assigned sleeping spaces, have moved to an unoccupied portion of the shelter, and are engaging in heavy petting. At the same time, a card game that began in a friendly fashion before "lights out" has quietly continued in a corner of the shelter. The card players are now gambling for high financial stakes, as well as for shelter rations.

1. WHAT DO YOU DO ABOUT THE PETTING SITUATION?

2. WHAT DO YOU DO ABOUT THE GAMBLING SITUATION?

PROBLEM 21

It is now 4:00 p.m. of the fourth day.

The outside radiation level is about five Roentgens per hour. The person in charge of supplies reports that there is a water shortage. Four civil defense water drums that had been counted as filled in the original inventory of water supplies turn out to have been empty all along. The person who did the inventory just assumed they were filled. He recommends that an emergency team be sent out to bring back water or other liquids.

1. WHAT ARE ALL THE FACTORS THAT YOU MUST TAKE INTO CONSIDERATION IN EVALUATING WHETHER OR NOT AN EMERGENCY TEAM SHOULD BE SENT OUT?

2. ON THE BASIS OF THE INFORMATION AVAILABLE TO YOU, WOULD YOU SEND OUT AN EMERGENCY TEAM AT THIS TIME? NO_____ YES_____

IF NO, WHY NOT?

IF YES,

(a) WHOM WOULD YOU SELECT FOR THE TEAM?

(b) HOW LONG SHOULD THE TEAM BE PERMITTED TO STAY OUT?

(c) WHAT PROTECTIVE ACTIONS, IF ANY, SHOULD BE TAKEN WHEN THE TEAM RETURNS WITH SUPPLIES?

PROBLEM 22

It is now 4:00 p.m. on the eighth day.

The radiological team reports that the radiation level in the area immediately surrounding the shelter is less than two Roentgens per hour. You have received no other information from outside sources concerning the possibility of exit from the shelter.

1. WOULD YOU PERMIT THE SHELTER POPULATION TO LEAVE PERMANENTLY?

   YES_____ NO_____

2. WHAT FACTORS DID YOU CONSIDER IN REACHING YOUR DECISION?

3. IF YOU ANSWERED "NO" TO QUESTION 1, WHEN WOULD YOU PERMIT PERMANENT EXIT FROM THE SHELTER?

LARGE SHELTER TEST

PROBLEM 1

Part A

It is now 4:00 p.m.

You are in your office. A long, steady siren is heard outside for three minutes.

1. WHAT DOES THE STEADY SIREN SIGNAL MEAN?

2. AS THE APPOINTED MANAGER OF THE PUBLIC FALLOUT SHELTER IN THIS BUILDING, WHAT STEPS WOULD YOU TAKE UPON HEARING THE STEADY SIREN?

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Part B

It is now 4:17 p.m.

A wailing signal on the siren is heard outside.

1. WHAT STEPS WOULD YOU TAKE UPON HEARING THE WAILING SIREN?

PROBLEM 2

Part A

It is now 4:25 p.m.

There are large crowds of people milling about in the basement, on the main floor, and outside the building. In addition, smaller crowds have formed near the stairwells of every floor.

1. WHAT STEPS DO YOU TAKE IN FILLING THE SHELTER AREAS?

2. HOW WOULD YOU FIND OUT HOW MANY PEOPLE THERE ARE IN THE SHELTER AREAS?

Part B

The marked capacity of your shelter is 6,000 persons. There are several other shelters located in high-rise buildings within ten minutes walking distance. Currently, there are no means of communicating with the other shelters.

1. WHAT DECISIONS WOULD YOU MAKE IF YOU WERE INFORMED THAT SHELTER CAPACITY HAD BEEN REACHED, AND THAT AT LEAST 500 PEOPLE WERE STILL OUTSIDE WAITING TO GET INTO THE SHELTER?

2. WHAT SPECIFIC STEPS SHOULD BE EMPLOYED TO CARRY OUT YOUR DECISIONS?

PROBLEM 3

It is now 4:42 p.m.

The shelter population census is 6,400 persons. The population breakdown is presented on the next page. (You can tear that page out and keep the census figures for future reference.) People are wandering around the rooms on each shelter floor, many of them in a dazed, frightened state. Up until now, you have not received any news from the outside about the nature of the emergency.

1. WHAT INFORMATION, IF ANY, SHOULD BE GIVEN TO PEOPLE IN THE SHELTER AT THIS POINT? (List all the items that you feel people in the shelter should be told.)

2. WHAT IS THE BEST MEANS FOR COMMUNICATING WITH THE SHELTER POPULATION AT THIS POINT (WHO, WHERE, TO WHOM, HOW LONG)?

SHELTER CENSUS

Population by Type

Males (over 18)	1,950
Females (over 18)	3,700
Teenagers, male	200
Teenagers, female	100
Children, 6-12	120
Children, 1-6	250
Infants, under 1	80
TOTAL	6,400

Population by Floor

Basement	1,100
Floor 3	1,350
Floor 4	1,070
Floor 5	1,050
Floor 10	990
Floor 11	840
TOTAL	6,400

PROBLEM 4

Part A

It is now 4:50 p.m.

As shelter manager, you must see to it that certain jobs essential for survival are started immediately.

Read all three questions before you begin your answer. Use the form on the next page to answer.

1. LIST, IN THE ORDER OF IMPORTANCE, THE SURVIVAL STEPS THAT MUST BE TAKEN RIGHT AWAY.

2. FOR EACH JOB, STATE THE TYPE OF PERSON(S) (IN TERMS OF BACKGROUND OR PERSONAL CHARACTERISTICS) YOU WOULD SELECT TO PERFORM THAT TASK. INDICATE WHICH TASKS YOU WOULD DO YOURSELF.

3. HOW MANY PEOPLE WOULD YOU SELECT TO DO EACH SURVIVAL JOB?

Survival Jobs that Must be Started	Best Person to Do the Job	Number of People to Do the Job

Part B

1. HOW WOULD YOU OBTAIN INFORMATION ABOUT THE TYPES OF PERSONS THAT ARE ACTUALLY IN YOUR SHELTER?

PROBLEM 5

It is now 4:56 p.m.

A portable radio has been found in the guard's room. A message from the Emergency Broadcast System station in Pittsburgh states that fallout is expected in your area within 20 minutes.

1. WHAT STEPS CAN BE TAKEN INSIDE YOUR SHELTER TO PROVIDE THE HIGHEST POSSIBLE LEVEL OF PROTECTION AGAINST FALLOUT RADIATION?

2. WHAT STEPS CAN BE TAKEN INSIDE THE ABOVE-GROUND SHELTER AREAS TO PROVIDE THE HIGHEST POSSIBLE LEVEL OF PROTECTION AGAINST FALLOUT RADIATION?

3. WHAT STEPS CAN BE TAKEN OUTSIDE YOUR SHELTER TO PROVIDE THE HIGHEST POSSIBLE LEVEL OF PROTECTION AGAINST FALLOUT RADIATION?

PROBLEM 6

It is now 5:04 p.m.

The person in charge of supplies informs you that there are a number of supply items in other areas of the building that may be useful for shelter living.

Refer to the map of the building and lists of supplies.

1. WHAT SUPPLIES WOULD YOU HAVE BROUGHT INTO THE SHELTER? LIST THEM IN THEIR ORDER OF IMPORTANCE TO SHELTER LIVING.

Part B

The person in charge of feeding requests help from you in establishing the daily food and water rations.

1. FIGURE OUT THE DAILY FOOD AND WATER RATION PER SHELTEREE. (Use only civil defense supplies in your calculations.)

2. HOW MANY TIMES, AND WHEN, SHOULD SHELTEREES BE GIVEN FOOD AND WATER DAILY?

3. WHEN SHOULD THE FIRST SERVING OF FOOD AND WATER BE DISTRIBUTED IN THE SHELTER?

PROBLEM 7

It is now 5:25 p.m.

The plate-glass windows on the front side of the 10th and 11th floors have been broken.

1. WHAT, IF ANY, ARE THE POSSIBLE DANGERS TO THE SHELTER BECAUSE OF THESE BROKEN WINDOWS?

2. WHAT SHOULD BE DONE ABOUT THE BROKEN WINDOWS?

PROBLEM 8

It is now 5:30 p.m.

The first survival steps have been carried out. It is now time to organize the people in the shelter into living groups, set up work teams, and make sure that shelter management is operating smoothly.

Part A

1. WHAT WORK TEAMS WOULD YOU SET UP?

2. HOW MANY PEOPLE WOULD YOU ASSIGN TO EACH TEAM?

3. WHAT TYPE OF PERSON WOULD YOU SELECT AS THE HEAD OF EACH TEAM?

Work Teams	Number of People	Type of Person for Team Head

4. HOW WOULD YOU ORGANIZE AND MANAGE THE TEAMS SO THAT ALL 6,400 SHELTEREES, ON ALL SIX FLOORS, WOULD HAVE ADEQUATE ACCESS TO THE SERVICES THAT EACH TEAM PERFORMS?

Part B

1. INTO WHAT SIZE LIVING GROUPS WOULD YOU DIVIDE THE PEOPLE IN YOUR SHELTER?

2. HOW MANY GROUPS OF EACH SIZE WOULD YOU SET UP?

3. HOW SHOULD SHELTEREES BE ASSIGNED TO EACH TYPE OF LIVING GROUP?

4. HOW SHOULD THE LEADER OF EACH TYPE OF LIVING GROUP BE SELECTED?

Living Group (List smallest group first)	Number of Groups of This Size	Reason for Assignment to Each Group	Method for Selecting Leader of Each Group

Part C

1. DO YOU FEEL THAT ANYONE BESIDES YOURSELF IS NEEDED AT THE TOP MANAGEMENT LEVEL OF THE SHELTER ORGANIZATION?

   Check one: YES _____ NO _____

   IF YES,

2. WHAT POSITIONS WOULD YOU ESTABLISH?

3. WHAT DUTIES WOULD YOU ASSIGN TO EACH?

4. WHAT TYPES OF PERSONS WOULD YOU SELECT FOR EACH?

Management Position	Duties	Types of Persons Selected

PROBLEM 9

It is now 5:44 p.m.

The person in charge of sanitation has requested your help in planning for toilet facilities.

1. WHAT TOILET FACILITIES SHOULD BE SET UP IN YOUR SHELTER (HOW MANY, WHERE, ETC.)? (Use the 3rd floor of the shelter as your example. See floor plan.)

2. HOW WOULD YOU USE THE EXISTING TOILETS IN THE MEN'S AND LADIES' ROOMS?

3. WHAT SPECIAL RULES AND REGULATIONS, IF ANY, WOULD YOU SET UP FOR THE USE OF TOILETS?

4. WHAT SHOULD BE DONE WITH THE FILLED OCD TOILETS?

PROBLEM 10

Part A

It is now 6:15 p.m.

You have been given an inventory of all the civil defense supplies that have been stocked in your shelter. (See inventory lists.) One of your management responsibilities is to determine how shelter supplies will be controlled and distributed.

1. WHAT PROCEDURES WILL YOU ESTABLISH FOR THE CONTROL AND DISTRIBUTION OF MEDICAL SUPPLIES?

2. WHAT PROCEDURES WILL YOU ESTABLISH FOR THE CONTROL AND DISTRIBUTION OF CIVIL DEFENSE FOOD AND WATER RATIONS?

Part C

The available food supplies from the cafeteria and coffee shop have been inventoried. (See cafeteria inventory list.)

1. ON WHAT BASIS WOULD YOU DISTRIBUTE THESE SUPPLIES (TO WHOM, WHEN, WHY, ETC.)?

PROBLEM 11

It is now 6:40 p.m.

You receive word that on every floor of the shelter there are between 40 and 50 individuals who are either unwilling, or unable, to perform the tasks to which they have been assigned. They appear to be under severe emotional strain, and have so far resisted the efforts of other shelterees to talk to them and to get them involved in shelter activities.

There are no doctors, psychologists, social workers, or other professionals trained to deal with such problems in the shelter.

1. WHAT, IF ANYTHING, CAN BE DONE ABOUT THE PERSONS UNDER SEVERE EMOTIONAL STRAIN?

PROBLEM 12

It is now 7:00 p.m.

One of your management responsibilities is to see that various records are kept during the shelter stay.

1. WHAT RECORDS SHOULD BE MAINTAINED DURING THE SHELTER STAY, WHY, AND BY WHOM?

Records	Reasons for Keeping Records	By Whom Kept

PROBLEM 13

It is now 7:45 p.m.

Fallout has been coming down for over two hours. Radiological monitoring reveals that the part of the 10th floor shelter area nearest the roofs of adjoining buildings has a radiation reading of four Roentgens per hour.

1. WHAT IMMEDIATE ACTIONS, IF ANY, WOULD YOU TAKE ABOUT THIS SITUATION?

2. WHAT ADDITIONAL ACTIONS, IF ANY, WOULD YOU TAKE IF THE RADIATION LEVEL ON THE 10TH FLOOR CONTINUED TO RISE?

PROBLEM 14

Part A

It is now 8:30 p.m.

Some of the shelterees have inquired about sleeping arrangements. One of your management responsibilities is to locate the space and establish procedures for sleeping.

1. HOW WOULD YOU SET UP THE SHELTER FOR SLEEPING? (Use the map of the 3rd floor shelter space. Draw in as much detail as possible the sleeping arrangements you would establish on the 3rd floor.)

2. WHAT KIND OF NIGHTTIME MANAGEMENT SUPERVISION, IF ANY, IS NEEDED FOR DUTY DURING SLEEPING HOURS?

3. IF NEEDED, HOW SHOULD THIS BE CARRIED OUT?

Part B

On each floor of the shelter, there is a difference of opinion as to what time lights should be turned out for sleeping. Some people on each floor say 9:30, others 10:00, still others 11:00.

1. HOW SHOULD THE DECISION ON LIGHTS OUT BE REACHED?

PROBLEM 15

Part A

It is now 11:00 p.m.

Eighty-four men and women appear at the entrance to the basement shelter area and ask for admission. They all work in a small, single-story building, two blocks away. At the time of the warning, they took shelter in their building. Subsequently, they realized that their building was not a good shelter, and their leader has decided that the entire group should try to get to a better-protected location.

1. WHAT ARE SOME REASONS WHY THE PEOPLE SEEKING ADMITTANCE SHOULD BE LET IN?

2. WHAT ARE SOME REASONS WHY THESE PEOPLE SHOULD BE DENIED ADMITTANCE?

3. WHAT IS YOUR DECISION ABOUT THE PEOPLE SEEKING ADMITTANCE?

Part B

The appearance of these people at the shelter entrance has had a disturbing effect upon the shelterees. A number of people who have been separated from their families ask you about the fate of their loved ones. Several men seem to be preparing to leave the shelter in search of their families.

1. WHAT, IF ANYTHING, CAN BE DONE ABOUT THE PROBLEM OF SEPARATED FAMILIES?

2. WHAT DO YOU DO ABOUT THE PEOPLE WHO ARE PREPARING TO LEAVE THE SHELTER TO FIND THEIR FAMILIES?

PROBLEM 16

It is now 8:00 a.m. on the second day of the shelter stay.

As yet, the shelterees have not received full information about the events of the past 18 hours. One of your duties is to keep shelterees informed.

1. LIST THE TOPICS THAT YOU WOULD DISCUSS IN A BRIEFING TO THE SHELTER POPULATION AT THIS TIME.

2. WHAT TOPICS, IF ANY, WOULD YOU NOT DISCUSS IN A SHELTER BRIEFING AT THIS TIME?

3. HOW WOULD YOU ARRANGE BRIEFINGS SO THAT ALL PEOPLE IN YOUR SHELTER HAD EQUAL AND ADEQUATE ACCESS TO INFORMATION?

PROBLEM 17

It is now 11:00 a.m. of the second day.

Members of the group that was admitted into the shelter late begin to show signs of nausea, diarrhea, and vomiting. They are suffering from radiation sickness.

1. WHAT TREATMENT, IF ANY, WOULD YOU HAVE THE MEDICAL TEAM PROVIDE THESE PEOPLE?

2. WHAT, IF ANYTHING, WOULD YOU DO FOR OTHER SHELTEREES WHO HAVE BEEN IN CLOSE CONTACT WITH THE PERSONS SUFFERING FROM RADIATION SICKNESS?

PROBLEM 18

Part A

It is now 3:00 p.m. of the second day.

One of the male shelterees on the 10th floor has managed to sneak down to the executive offices on the 8th floor, where he found two quarts of whiskey which he smuggled into the shelter. Several other shelterees have threatened to smash the bottles if the man does not share the liquor with them. His answer is that there is plenty of liquor on the 8th floor, and that whoever is interested should go get his own supply. From your inquiries into the situation, you discover that the man who brought the whiskey in is an alcoholic.

1. HOW DO YOU HANDLE THE PROBLEM OF THE WHISKEY AND THAT OF THE ALCOHOLIC?

Part B

It is now 11:30 p.m. of the second day.

Two persons in the basement are caught taking water from the water drums. It is discovered that in the past, these persons have stolen approximately four gallons of water, most of which they have consumed themselves, while giving some to a few friends. There will not be any opportunity to replenish the shelter water supply for several days, since the radiation level outside is still quite high. Also, the temperature remains at a high, but not dangerous, level. The offenders have broken no other shelter rules, and no other incidents of stealing shelter supplies have taken place.

1. WHO SHOULD DECIDE WHAT SHOULD BE DONE WITH THE PERSONS WHO TOOK THE WATER?

2. WHAT WOULD YOU RECOMMEND BE DONE WITH THE TWO OFFENDERS?

Part C

It is now 1:30 p.m. of the third day.

For the first couple of days, the children in the shelter have been fairly quiet and obedient under the supervision of their parents. Lately, however, they have become very noisy and very active. In their rough play, they have inadvertently interfered with shelter operations and caused numerous complaints. The situation is especially serious in the basement shelter, where about one-half of all the children and teenagers are located.

1. WHAT, IF ANYTHING, CAN BE DONE TO CONTROL THE CHILDREN'S BEHAVIOR?

Part D

It is now 3:30 a.m. of the fourth day.

The night watch on your floor awakens you with information about two shelter situations. Six teenage couples have left their assigned sleeping spaces, have moved to an unoccupied portion of the shelter area, and are engaging in heavy petting. At the same time, a small group of the sheltere have established a gambling operation in an unused room in the shelter. Va ous games of chance are being played for high financial stakes, as well as shelter rations.

1. WHAT DO YOU DO ABOUT THE PETTING SITUATION?

2. WHAT DO YOU DO ABOUT THE GAMBLING SITUATION?

PROBLEM 19

It is now 2:00 a.m. of the fourth day.

The shelter has been operating on power supplied by the auxiliary generator. The air-conditioning system has, therefore, not been able to operate at anything approaching peak effectiveness. Temperature and humidity are rising in the shelter areas, especially in the basement.

1. AT WHAT POINT WOULD YOU CONSIDER THE TEMPERATURE AND HUMIDITY RISE DANGEROUS?

2. WHAT STEPS CAN YOU TAKE TO CONTROL THE EFFECTS OF HIGH TEMPERATURE IN THE BASEMENT SHELTER AREA?

3. WHAT STEPS CAN YOU TAKE TO CONTROL THE EFFECTS OF HIGH TEMPERATURE IN THE ABOVE-GROUND SHELTER AREAS?

PROBLEM 20

Part A

It is now 12:15 p.m. of the fourth day.

The noon meal is being served. Suddenly, all the lights in the shelter go out. You are informed that a breakdown in the auxiliary generator in the shelter has caused the power failure, which is hopefully temporary.

1. WHAT ARE THE IMMEDIATE STEPS YOU WOULD TAKE WHEN THE POWER FAILED?

Part B

After an hour, you are informed that electric power may not be available for an extended period of time. No estimated time of repair can be given.

1. WHAT ADDITIONAL STEPS WOULD YOU TAKE?

PROBLEM 21

It is now 2:00 p.m. of the fourth day.

The outside radiation level is about five Roentgens per hour. Spare parts are needed to fix the auxiliary generator. The maintenance chief thinks he knows where he can find the appropriate parts in the neighborhood. At the same time, the person in charge of supplies reports that there is very little water left. He recommends that an emergency team be sent out to procure additional supplies.

1. WHAT ARE ALL THE FACTORS THAT YOU MUST TAKE INTO CONSIDERATION IN EVALUATING WHETHER OR NOT AN EMERGENCY TEAM SHOULD BE SENT OUT?

2. ON THE BASIS OF THE INFORMATION AVAILABLE TO YOU, WOULD YOU SEND OUT AN EMERGENCY TEAM? NO _____ YES _____

   IF NO, WHY NOT?

IF YES,

(a) WHOM WOULD YOU SELECT FOR THE TEAM?

(b) HOW LONG SHOULD THE TEAM BE PERMITTED TO STAY OUT?

(c) WHAT PROTECTIVE ACTIONS, IF ANY, SHOULD BE TAKEN WHEN THE TEAM RETURNS WITH SUPPLIES?

PROBLEM 22

It is now 4:00 p.m. on the eighth day.

The radiological team reports that the radiation level in the area immediately surrounding the shelter is less than two Roentgens per hour. You have received no other information from outside sources concerning the possibility of exit from the shelter.

1. WOULD YOU PERMIT THE SHELTER POPULATION TO LEAVE PERMANENTLY?

   YES _____ NO _____

2. WHAT FACTORS DID YOU CONSIDER IN REACHING YOUR DECISION?

3. IF YOU ANSWERED "NO" TO QUESTION 1, WHEN WOULD YOU PERMIT PERMANENT EXIT FROM THE SHELTER?

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13 ABSTRACT

The American Institutes for Research recently produced a three-volume package of integrated shelter management materials for application to shelter management training, shelter planning, and in-shelter management. ~~The study described herein~~ deals with an experiment to obtain empirical data on the individual effectiveness of these documents as well as the impact of various combinations of these materials on shelter planning and shelter management. The dependent variables involved in the experiment were performance on a Shelter Planning Test and a Shelter Management Test. The independent variables included shelter management training, use of a shelter occupancy exercise, shelter planning orientation and planning experience, the presence or absence of shelter management guidance, the nature of the shelter situation, and the background (student vs. executive) of the subjects. The relationship of mental ability to both of the dependent variables also was measured and controlled.

It was pointed out that these research findings should be used to identify problems requiring more intensive study, rather than as a basis for any operational recommendations.

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Shelter Management Guidance						
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