Integrated Guidance for Shelter Management

SHELTER MANAGER'S GUIDE

(Summary of Technical Report)

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THE PROBLEM

The goal of this project was to prepare and test a <u>Shelter Manager's</u> <u>Guide</u> which could be used in-shelter by either trained or untrained shelter managers to organize and run the shelter. The Guide must supply three kinds of ready information: (1) the step-by-step decisions and actions which a manager must make to organize and operate a fallout shelter; (2) immediate answers to critical shelter problems or contingencies which may suddenly arise; and (3) the supporting details, including: actual procedures, personnel and equipment requirements; and background information needed to implement the decisions and actions.

APPROACH

Guidance Material

The primary sources for the <u>Shelter Manager's Guide</u> were <u>Guide to</u> <u>Shelter Organization and Management</u> (Bend, Griffard, Schaner, Shively, & Hudak, 1963) and other recent documents relating to specific aspects of shelter management.

Information Classification and Analysis

A data-collection system was set up to assemble all the management decisions and actions necessary for in-shelter living. Each identified management decision or action was written on the face of a separate McBee card and multiple punches were made for the following four fields:

1. <u>Functions</u> consist of areas of management responsibility for shelteree survival and well being, such as food, water, and radiological protection.

2. <u>Subfunctions (or tasks)</u> refer to the categories of activities which make up a functional area. For example, the subfunctional areas for food include retioning, preparation, distribution, etc.

3. <u>Variables</u> represent shelter, population, and environmental factors which influence management guidance. Examples of important variables are: (a) shelter type, (b) shelter size, (c) shelter configuration, (d) degree of overcrowding, (e) shelter population characteristics, and (f) shelter management background characteristics.

4. <u>Phases</u> are temporal subdivisions of a shelter stay, each of which imposes modifications in the sequence and content of shelter management procedures. The five phases used in the present shelter analysis were: (a) Entry, (b) Initial Organization and Operations, (c) Routine, (d) Temporary Emergence, and (e) Contingencies (emergencies).

On the basis of these data, an analysis of the tasks and responsibilities of the shelter manager was extracted along with necessary supporting information.

Establishment of Guidance Priorities

The McBee cards were organized into two different sequences, as follows:

1. They were initially placed: (a) into general functional areas; (b) within these areas, according to phase; and (c) within the phases, by the sequence of operations.

2. The second major arrangement was to organize the functional areas into a temporal order of priority. Particular attention was placed on the priority order of the entry checklist.

Development of Guidance Materials

A rough <u>Shelter Manager's Guide</u> for OCD community fallout shelters was developed from the systems analysis. In order to use this Guide in 20- and

40-person shelter management experiments, a modified version was written to fit the organization and operation of a small shelter (less than 50 persons) using OCD supplies.

Based upon the findings and the critiques of this laboratory experiment, two draft products were prepared:

1. _Shelter Manager's Guide_ for use in OCD community fallout shelters. The usability of the preliminary Guide was subsequently investigated in a problem-solving experiment. Based upon the results of this study, final revisions were made and the _Shelter Manager's Guide_ was submitted to OCD for review.

2. _Small Shelter Guide_, a joint product of Work Units 1533A and 1542A, Contract Number OCD-PS-64-57, developed for use in a small non-OCD shelter (fewer than 50 persons). This Guide contains both planning and operational management guidance.

THE EVALUATION OF GUIDANCE MATERIALS

Management Laboratory Studies

A draft of the _Shelter Manager's Guide_ was evaluated in three ways: (1) by observing it in use in the shelter management laboratory; (2) by holding shelter management debriefings between the staff and the trained shelter manager, as well as the two emergent leaders; and (3) by reviewing and critiquing the management package by the trained shelter manager after the completion of the laboratory studies. Of particular interest were two 24-hour exercises in which emergent leaders had the opportunity to use the Guide before the appearance of the shelter manager. Although two exercises are insufficient to support any generalizations, differences in the way the two emergent leaders utilized the in-shelter guidance materials may be of interest. The first emergent manager used the guidance as operational

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instructions to organize and run the shelter. Within two hours, he had established a working shelter organization. When the trained shelter manager asked for entry, the emergent leader had absorbed enough of the manual to insist the shelter manager show his credentials and be monitored for radiation.

On the contrary, the other emergent leader did not use the Guide directly, although his assistant made suggestions from it. He ignored or rejected several of the organizational recommendations and only handled problems he deemed important to the stay, such as food, water, and sanitation. Because he did not assign teams or living groups, the shelter was exposed to many potential management problems. For further detail, see Hale, Rosenfeld, and Berkowitz (1965).

Management Guidance Tryout

A multiple-choice test of management solutions to shelter problems was given to 80 high school students. The purpose was to determine how long it was likely to take untrained persons to locate specific information in the Guide.

The results indicated that the Guide needed to be improved to facilitate speedier location of information items and problem solutions for use under the time pressure of a nuclear disaster. The resulting changes are found on page 5.

Priority-Order Verification

An evaluation of the priority order, or sequence, of guidance presentation was made using seven AIR judges experienced in civil defense research. The judges rank-ordered the functional areas for the Entry and the Initial Organization and Operations phases. The mean and the median rankings were used to: (1) verify the present order of the Guide and (2) support, or help to decide, a revised order where indicated. The inter-judge reliability on the ratings was found to be:

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Phase	Average Correlation Between Pairs of Judges	Reliability of the Combined Judges
Entry	.698	.942
Initial Organization and Operations	.573	.904

In actual application of the rankings, high agreement was achieved between the author and the judges concerning the order of the Entry phase; however, only 50 per cent agreement was achieved in the Initial Organization and Operations phase. The final order in that phase reflects the authors' decision to place environmental safety (radiological protection, fire, equipment operation, and communications) before physical needs (food, water, sanitation, and sleep).

CHANGES BASED ON TRYOUT AND VERIFICATION

Specific changes brought about as a result of the evaluation are as follows:

1. Tables of contents. A complex table of contents by functional areas and across phases was designed in lieu of an index. In addition, individual tables of contents for each phase were repeated on the back of each phase introduction page.

2. Internal reorganization. Each chapter was synthesized and reorganized under a clear set of internal headings.

3. Revised sequences. Materials were re-evaluated and arranged to reflect a more practical order of priority.

4. Maximum simplification and condensation. All decisions and actions were reduced to those deemed essential, and wording of the guidelines was standardized and simplified.

Guidance materials in the final product were divided into five phases: Entry, initial Organization and Operations, Routine, Temporary Emergence, and Contingencies. Within all sections but two, the actions and decisions which a manager must make in order to organize and operate a fallout shelter have been placed in a sequential order based on both importance and probable need. All supporting information directly follows each guideline. The Routine and Temporary Emergence sections have topics arranged in alphabetical order.

In addition to the above modifications, the sequential revisions made as a result of the verification of the priority order of the Entry and the Initial Organization and Operations phases by AIR expert judges have already been discussed.

RECOMMENDATIONS

Several recommendations pertaining to the organization of shelter management guidance, its format, and its placement in the shelter are made as follows:

1. The <u>Shelter Manager's Guide</u> should be bound in loose-leaf fashion, in order to add new materials easily and to permit updating of the Guide during peacetime.

2. The shelter manager should be able to distribute parts of the guidance package to those to whom he had delegated specific responsibilities. The ideal method would be to provide separate materials in the form of guidance cards to be given to appropriate shelter leaders.

3. Guidance material should be centrally located in one place with prominently worded instructions that the materials are for use only by the appointed or the emergent shelter manager.

4. In large or multi-storied shelters, more than one set of guidance materials should be made available.

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The goal of developing the most effective set of in-shelter management guidance materials suggests that further research be performed along the following lines:

1. <u>Shelter management guidance.</u> The unique management requirements of the large, high-rise shelter have not as yet been systematically investigated. It is possible that some large shelters can realistically be organized and operated as a loose confederation of semi-autonomous small shelters. Other types of large shelters appear, on the face of it, to require tight, centralized control. The role of in-shelter management guidance in each case very likely differs.

2. <u>Use of guidance in emergencies.</u> The shelter guidance experiment pointed out the difference which format can make in the interpretation and use of the Guide. However, because format was not explicitly studied as one of the experimental variables, further work is recommended to find the format, typography, and style which can make the <u>Shelter Manager's Guide</u> maximally useful under stress.

3. <u>Shelter contingency identification and procedures.</u> The procedures for handling "normal shelter living" have been identified and considered in this project. However, little systematic analysis has been given to the identification of all shelter contingencies or emergencies, their impact on shelter survival, and their implications for shelter management. Further research to develop and test contingency procedures is therefore recommended.

REFERENCES

Bend, E., Griffard, C. D., Schaner, Ada J., Shively, Aliza M., & Hudak, Vivian M. <u>Guide to shelter organization and management.</u> Pittsburgh: American Institute for Research, September 1963.

Hale, J. F., Rosenfeld, M., & Berkowitz, M. I. <u>Laboratory investigations of shelter management factors.</u> Pittsburgh: American Institutes for Research, January 1965.