Appendix A
INCIDENT COMMAND SYSTEM

Appendix A
Incident Command System
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INCIDENT COMMAND SYSTEM MANUAL

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TABLE OF CONTENTS

Appendix A
Incident Command System
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PART 1 **FDNY INCIDENT COMMAND SYSTEM**

PART 2 **ICS TERMINOLOGY AND COMMUNICATIONS PROTOCOL**
(Not published)

PART 3 **ACCOUNTABILITY AND REPORTING**
(Not published)

PART 4 **ICS POSITION GUIDES**

PART 5 **EMERGENCY RESPONSE PLANS AND CHECKLISTS**

PLAN 1. HAZ-MAT

PART 6 **GLOSSARY OF ICS TERMS**

FDNY INCIDENT COMMAND SYSTEM

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1. POLICY

1.1 To provide guidelines and concepts to manage an incident in an efficient organized manner, this document describes the components, operating capabilities and functions of the **New York City Fire Department Incident Command System (ICS).**

1.2 The **Incident Command System** will improve firefighter safety by providing better accountability of personnel and improved use of resources and tactical effectiveness.

1.3 This part of the document includes a general description of the organizational structure. Descriptions of the duties and responsibilities for each position at various types of incidents appear in other portions of the ICS document.

1.4 The FDNY-ICS breaks down the elements that are required to successfully manage an incident into 5 main functions. The functions are: COMMAND, PLANNING, OPERATIONS, LOGISTICS, and FINANCE.

1.5 It is the responsibility of the initial Incident Commander, whether a Company Officer or a Chief, to implement the necessary functions within this System based on the needs of the incident. As the needs of the incident grow in complexity and the Command function is transferred to succeeding officers, further expansion of the ICS should take place.

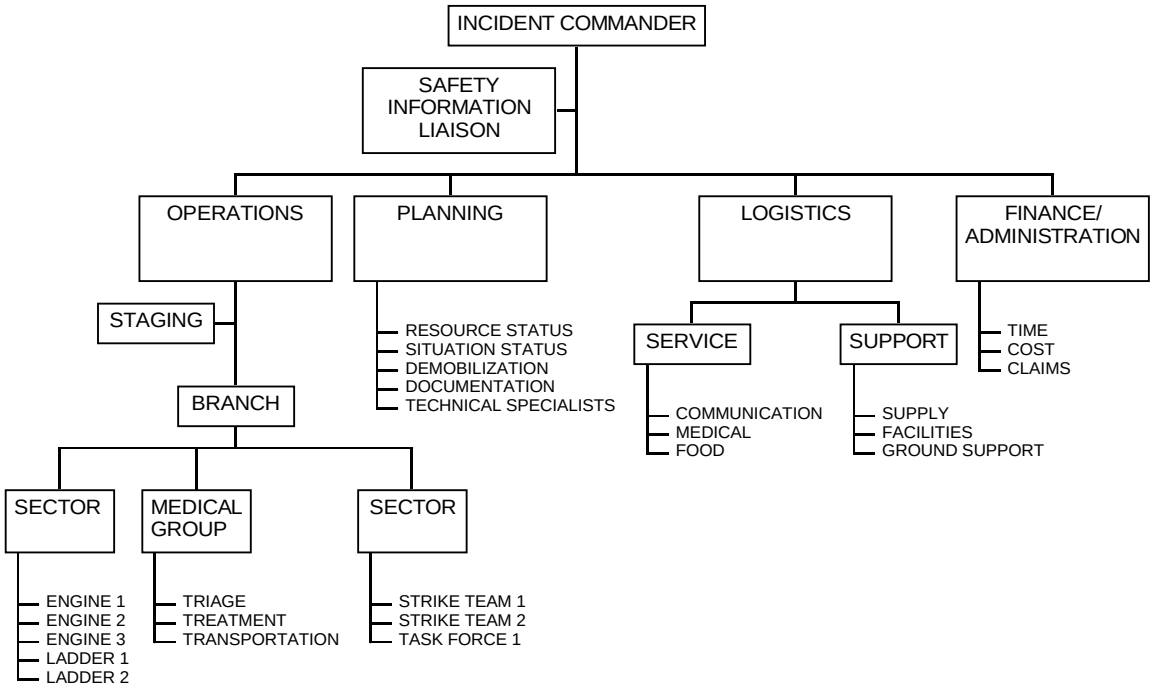
1.6 The FDNY INCIDENT COMMAND SYSTEM is the official policy for the management of all incidents and the development of standard operating procedures.

The Department will implement the system at all incidents for which it has management responsibility.

1.7 The charts depicted in this document describe the standard ICS designation, level of responsibility and hierarchy of reporting responsibility within the system.

The following chart indicates the various ICS positions within the system. It depicts management responsibility for reporting and levels of authority for issuing orders. The vertical structure of the system does not show the horizontal communication between the various functions for purposes of coordination and safety. Actions, conditions, or deployment of resources that affect or alter the strategy or tactics of the IC must be reported to the next higher level of command.

FDNY INCIDENT COMMAND SYSTEM MODEL



2. CAPABILITIES

2.1 The New York City Fire Department Incident Command System provides for the following kinds of operations:

A. Single jurisdiction and single agency.

B. Single jurisdiction and multi-agency.

C. Multi-jurisdiction and multi-agency involvement.

2.2 This organizational structure is capable of adapting to any type or size incident to which the department responds. The system effectively utilizes existing technology and is adaptable to new technology that may become available. It expands in a logical manner based on the needs of the incident, from the initial response to a major incident.

2.3 The System provides basic elements in organization, standard terminology and procedures that ensure efficient operations by trained personnel. It can be implemented with a minimum of disruption to existing procedures and provides the means for adding or subtracting resources in a cost-efficient and effective manner. As the incident grows the IC can staff positions that will focus on specific functional responsibilities to assist in managing the incident. As the incident de-escalates, the organization structure can be reduced.

3. CHARACTERISTICS

The ICS has several characteristics or components. These components interact to create a system that ensures optimum information management and control under normal or crisis conditions. The characteristics are:

- **COMMON TERMINOLOGY**
- **MANAGEABLE SPAN OF CONTROL**
- **MODULAR ORGANIZATION**
- **INTEGRATED COMMUNICATIONS**
- **UNIFIED COMMAND STRUCTURE**
- **INCIDENT ACTION PLANNING**
- **DESIGNATED INCIDENT FACILITIES**
- **RESOURCE MANAGEMENT**

3.1 COMMON TERMINOLOGY

3.1.1 The use of common terminology insures that all members are able to communicate effectively. Standard ICS terminology (for functions, resources, facilities) and the utilization of standard procedures for communicating insures effective intra-agency communication and greater understanding and coordination among different agencies or departments that operate under an incident command system.

3.1.2 The common terms used in the FDNY ICS are contained in the Glossary of this document.

3.2 MANAGEABLE SPAN OF CONTROL

3.2.1 Safety and sound management practice dictates that a reasonable span of control exist. The organizational options within the FDNY-ICS are designed to provide span of control ratios that meet these requirements.

3.2.2 In general the span of control of any individual with management responsibility should range from three to seven with five being the ideal. Of course, there is allowance to vary this ratio under certain circumstances. For example, when units are in the process of "taking-up" from an incident "under control", there is less need for the close supervision required during the active firefighting period.

3.2.3 The kind of incident, nature of the tasks, safety factors and communications will affect the span of control consideration. If tasks are simple and routine, take place in a limited or small area, communications are good, no unusual safety hazards are present and the incident is reasonably stable, then one individual may supervise up to seven subordinates. Conversely, if tasks are demanding, take place over a large area, and the incident is escalating, the span of control might be reduced to three or four.

3.2.4 It is important to be proactive, anticipate change and prepare for it. This is especially true when an incident is escalating and good management is difficult because many people are reporting to the Incident Commander.

3.3 MODULAR ORGANIZATION

3.3.1 Modular organization means that the ICS organization evolves based on the type and complexity of the incident. A routine incident will have a simple structure. A complex incident will require a larger organizational structure. The structure may be expanded in anticipation of events that are predictable or those that have the potential for complex incident needs. The organization structure is reduced as the incident is brought under control and resources are released.

3.3.2 Incident Commanders are responsible for the performance of the five main functions within the ICS. The functions are COMMAND, PLANNING, OPERATIONS, LOGISTICS and FINANCE.

3.3.3 Following the span of control guidelines, an IC may respond initially with only a few units. If the IC can manage all the major functional areas no expansion of the organization is required. If, however, the incident continues to escalate, the IC may delegate one or more functions to other persons.

3.3.4 Each function or supervisory authority that is delegated performs a specific role in the system and is identified by specific ICS terminology.

3.3.5 **If any function is not delegated, it remains the responsibility of the Incident Commander.**

3.4 INTEGRATED COMMUNICATIONS

Communications in the System is managed through the use of a communications plan. Initial communications are on the tactical frequency. At major incidents, primary and secondary Tactical and Command channels are available. The Field Communications Unit or the Communications Coordinator will consult with the IC to satisfy the incident needs. Radios capable of communicating with other city, state and federal agencies are available.

3.5 UNIFIED COMMAND

3.5.1 Unified Command is a means of organizing different agencies who have statutory authority and responsibility at large scale incidents, into one coordinated and controlled effort. It is designed to minimize "turf battles" and promote close working relationships among different departments.

Under a "Unified Command" each department or agency will maintain control over its own personnel. It enables all involved agencies to perform their roles effectively, minimize inefficiency, and avoid duplication of effort.

3.5.2 The goal of this concept is to develop a single collective approach to managing an incident. The departments act as "one organization" and are managed as such. Instead of several command posts operating independently, the operation is directed from only one "Command Post".

3.5.3 Implementing the plan of action will be under the direction of an Operations Chief. The Operations Chief is normally from the agency which has the greatest involvement and responsibility at the incident.

3.5.4 Under a Unified Command, the Senior Officials from the agencies meet and work together at one location, developing a strategy and preparing a single plan of action that ensures an integrated operation that will maximize the use of all assigned resources. Communications flow and the ability to rapidly cope with changing incident conditions is improved.

3.5.5 For example, a plane crash will involve the Fire Department, Police Department, Federal Aviation Administration, National Transportation Safety Board, Port Authority and perhaps other agencies. All of these agencies will have different missions to perform in the same location and at the same time and will require a Unified Command Structure.

3.6 INCIDENT ACTION PLANNING

3.6.1 All incidents require a plan to solve problems. For routine incidents the initial IC (the first arriving officer) will do this according to established SOP. The plan of action (SOP) established is based on the known risks and hazards that are expected in the majority of our emergency response activities. Specific conditions requiring variations or adaptation of standard procedures are addressed by the first arriving officer and succeeding commanders.

3.6.2 At complex incidents with a large commitment of resources from multiple agencies, such as Hazardous Materials or mass casualty incidents, the SOP used in the early stage of the incident would be replaced by a written plan of action developed at the scene.

3.6.3 The plan is developed by a systematic process. The strategy and objectives are established by the IC. The tactical organization is directed by the Operations Chief. The tasks are performed by assigned resources. The planning process answers "What do we need to know?" and "What do we need to do?" at complex incidents.

3.7 DESIGNATED INCIDENT FACILITIES

3.7.1 An incident facility is an area that is established to serve a particular purpose. In the FDNY-ICS the facilities are given designated names. There are several types of facilities that can be established at an incident. Some are mandated by SOP.

3.7.2 The Incident Commander determines and designates the type(s) of facilities needed based on the incident.

The following are examples of facilities used in the FDNY-ICS:

A. Command Post - The Command Post (CP) is the area from which the IC performs the function of managing the incident. There should be only one " Command Post".

Initially, the CP will be staffed by the IC and his aide. If the incident escalates, individuals assigned to the Command Staff, Operations, Planning or Logistics will be present.

In multi-agency operations, the individuals designated by their respective agency should be located at the command post (Con-Edison, Department of Environmental Protection, U.S. Coast Guard etc.). It is from the CP that the IC delegates management functions to subordinate officers while he provides overall direction.

B. Staging - The area where resources are held awaiting assignment. A staging area may be located away from the incident or on the upper floor of a high rise building or any appropriate location based on need. Staging is under the direction of a staging officer who reports to the IC or Operations Chief when Operations has been staffed.

C. Recuperation and Care - The area where personnel are placed to rest, replenish fluids and be protected from the weather (heat or cold).

3.8 RESOURCE MANAGEMENT

3.8.1 Within the FDNY-ICS resources are organized in several ways, depending on the incident. Some resources are managed either as single units or teams. The ability to form single units into teams maximizes the use of resources, and reduces the communications load. Various options are available to the IC.

3.8.2 Knowledge of the current status of resources at an incident is critical to effective management. Up to date status of resources is accomplished by the resource and situation status unit. This function is initially performed by the aide of the first to arrive Battalion Chief. The status of resources is continually monitored and this keeps the IC informed and up to date.

3.8.3 All resources at the incident are assigned a status. In the FDNY-ICS resources are assigned to one of three status conditions:

A. Available - ready for immediate assignment.

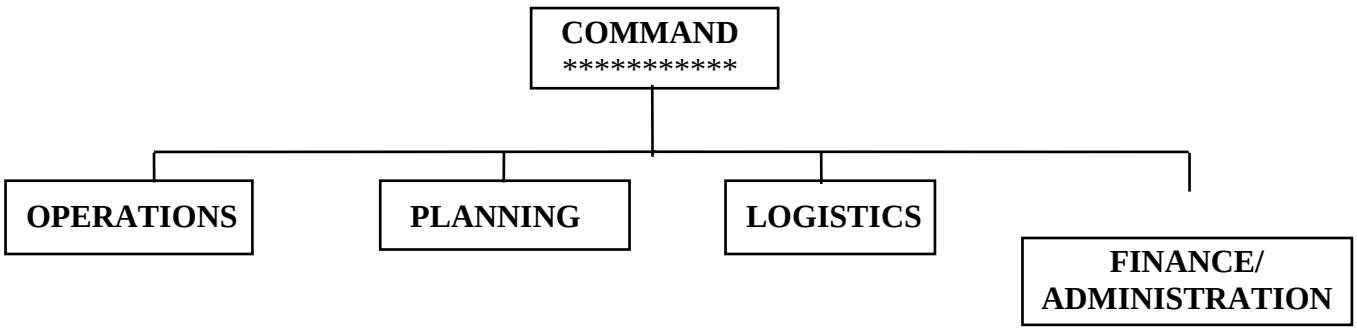
B. Assigned - performing an active assignment.

C. Out of Service/R&R - not ready for assignment.

3.8.4 **Changes in status or location of resources must be promptly reported by the individual who makes the change. This provides an accurate accounting of all tactical resources at the incident.**

4. DESCRIPTION OF THE INCIDENT COMMAND SYSTEM FUNCTIONS

4.1 **COMMAND** - is the functional authority the IC exercises over subordinates. It includes the responsibility for effectively using resources to accomplish strategy. It is the function through which all the incident activities (tactical and support) are directed, coordinated and controlled to accomplish the mission. It encompasses the personnel, equipment, communications, facilities and procedures to plan for what has to be done, issue orders and supervise the execution of operations.



4.1.1 At all incidents, COMMAND conducts a size-up, develops a strategy and is responsible for its outcome. Command staffs the functions necessary to support the incident.

4.1.2 The IC retains responsibility for Command and the performance of any functions or areas in the system that are not delegated.

4.1.3 At most incidents the IC will handle all the major functions within the ICS. As the incident becomes more complex or progresses to greater alarms, the IC must delegate some of the authority for performance of the functions to other individuals. Some ICS functions are automatically addressed in our SOPs.

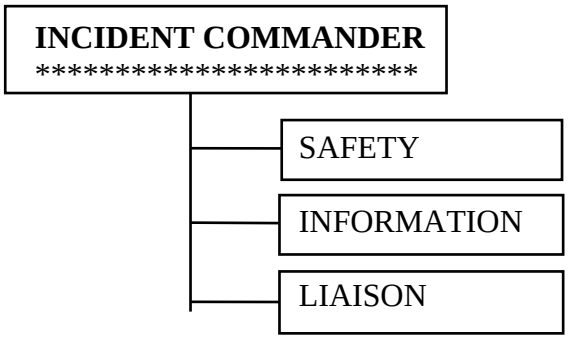
4.1.4 Delegation is the key to the FDNY-ICS. Each of the major functional sections concentrates on a primary assignment and is not distracted by other responsibilities. This provides functional clarity, greater attention to the details of a specific function and fixes accountability.

4.1.5 The IC has the option of implementing a **COMMAND STAFF**.
The Command Staff includes the following functions:

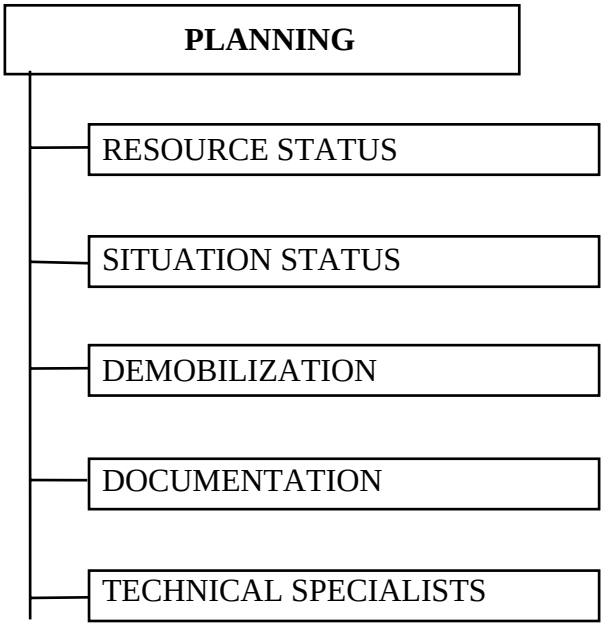
A. The Liaison Officer is the point of contact for assisting and cooperating agency representatives.

B. The Information Officer is responsible for gathering pertinent factual information concerning the incident. Upon approval from the IC, he will interface with the media and other agencies.

C. The Safety Officer is responsible for monitoring hazardous or unsafe conditions and initiating action to protect personnel from life-threatening situations.



4.2 **PLANNING** - is the function responsible for gathering, evaluating and disseminating information about the incident and status of resources. It prepares alternate strategies and objectives to control the incident. The Planning Section is comprised of several functions:



4.2.1 The Resource Status function is responsible for maintaining resource status information of all assigned resources at the incident.

4.2.2 The Situation Status function is responsible for the collection, processing and organization of incident information. Generally this information is graphically displayed on the command board.

4.2.3 The Demobilization function ensures safe, effective, organized release of resources from the incident.

4.2.4 The Documentation function maintains an accurate and complete log of incident records for analytical, historical and legal purposes.

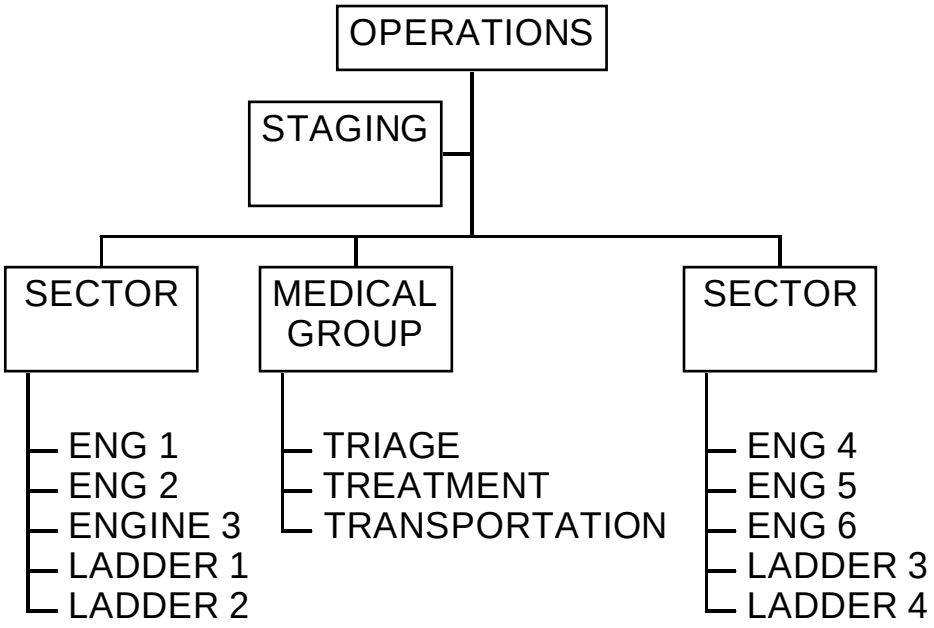
4.2.5 Technical specialists advise the IC on technical matters concerning incident operations such as environmental concerns, building construction, hazardous materials, specialized operations, etc.

4.3 **OPERATIONS** - is the function of managing all the tactical operations at the incident to accomplish the primary mission and plan of the Incident Commander.

All units are managed using the fundamental principles of Incident Command. An Officer assigns and supervises various functions (such as pump operator, forcible entry etc.) at each operation. These functions form the basis of our standard operating procedures. The Company organization provides for a manageable span of control over specific functional areas.

As operations escalate beyond the first responder SOP, succeeding commanders have several options available. Unless mandated, the specific command options utilized at an operation (within the ICS parameters) depend on the nature and complexity of the incident and the needs of the Incident Commander. ICS is not rigid. Experience, common sense, and imagination are the guiding principle in using these options.

These options may be activated at any appropriate level of command to solve/reduce span of control problems. They provide control, supervision and coordination in a designated area or for a specific function. They fix personnel accountability.



4.3.1 The following describe the options available within the System to utilize resources:

A. SINGLE RESOURCES

Company - A company is a vehicle providing equipment capability and personnel such as an Engine Company, Ladder Company, Rescue Company.

Team - A specific number of personnel assembled for an assignment such as search, ventilation under the direction of a team leader.

B. COMBINING RESOURCES

To maintain a manageable span of control, reduce communication, improve control and coordination, single resources may be combined into sectors and groups.

1. **Sector -** Defines the activities and operations of resources within an assigned geographical area. For example, the IC might form a sector from units operating in an exposure to reduce the span of control and more efficiently manage radio traffic by only dealing with one sector supervisor. A sector is managed by a sector supervisor.

2. **Group** - Consists of resources formed to address specific functional tasks. For example, the IC forms a group to search specific floors of a high rise building. Each resource within the group performs the search function and reports to a group supervisor. Additionally, at the scene of a multiple casualty incident resources may be assigned to perform the functions of triage treatment and transportation. The IC has achieved closer supervision of the units and a reduced number of radio contacts. This allows more time to deal with other problems that exist. A group is managed by a group supervisor.

   a. Functional and geographical assignments may not always require the implementation of a group or sector. An activity that requires one unit to effectively handle the problem would not need the activation of a sector or group. There would not be a coordination problem and the assignment does not cover a large area or the supervision of many units.

   b. While sectors are restricted to a specific geographical area such as an exposure, groups may cross sector boundaries to accomplish an assigned functional task e.g., search. When a group is assigned a task or function that overlaps sector boundaries, the sector may be relieved of that responsibility. Groups and sectors coordinate their efforts and report to the next higher level of command.

c. Sector/group supervisors are responsible for the implementation of their assigned portion of the tactical plan and they coordinate activities within their assignment. They assign specific tasks to units or teams under their control.

d. Sector/group supervisors keep the next higher level of command informed of the status of conditions and resources within their assigned area of responsibility.

e. Sector/group supervisors require certain information from the next higher level of command. They must know their radio designation, assigned objectives, and resources assigned to their command.

C. SPECIAL APPLICATION

1. **Strike Team** - Specific combinations of the same kind and type of resources, with common communications under the supervision of an officer (e.g. five engine companies and a Chief Officer dispatched to other jurisdiction, Suffolk/Nassau County, New Jersey).

2. **Task Force -** Any combination of resources with communications capability under the supervision of an Officer, put together for a temporary assignment. The number of resources in a task force should be limited to five for control purposes. A task force may be formed when more than one unit must be managed. Task forces may be formed for many functions. They may be pre-established or made up at the incident (members of FDNY-FEMA Urban Search and Rescue Task Force).

4.3.2 BRANCHES - EXPANDING THE ORGANIZATION

The next higher form of organizational tool available to the IC is called a BRANCH. A branch is created when the span of control over sectors and groups is excessive or at major incidents when resources from other agencies are committed. A branch is managed by a Branch Commander.

Branch Commander:

1. Manages a specific part of the tactical plan appropriate to that branch.
2. Coordinates the activities of units within the branch.
3. Assigns specific tasks to sectors or groups within the branch.
4. Keeps the next higher level informed of the status in the area of responsibility.

Branches may be established at an incident to serve several purposes. In general, branches may be established for the following reasons:

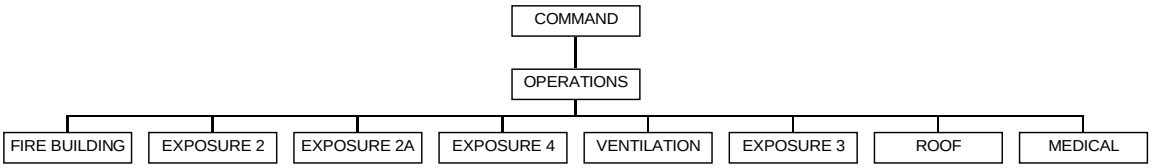
- Span of control
- Functional
- Multi-agency

A. SPAN OF CONTROL

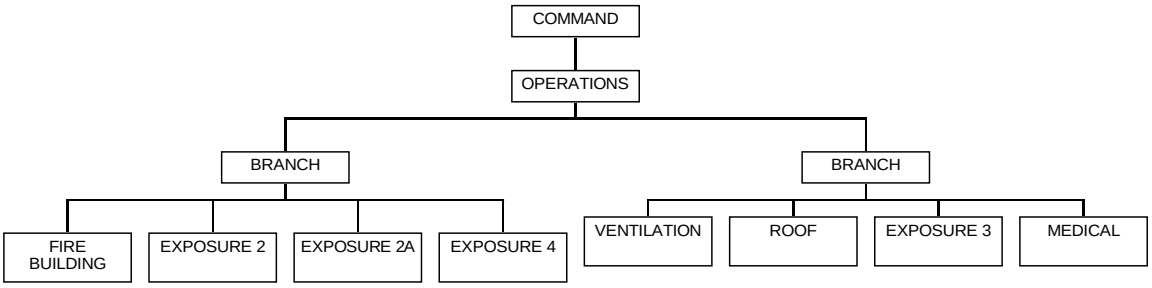
Branches should be utilized at incidents where the span of control of sectors or groups becomes unmanageable.

In the following example, if the organization were formed this way the operations chief would be beyond a manageable span of control.

Before Multi-Branch Structure



A two-branch organization would be appropriate.

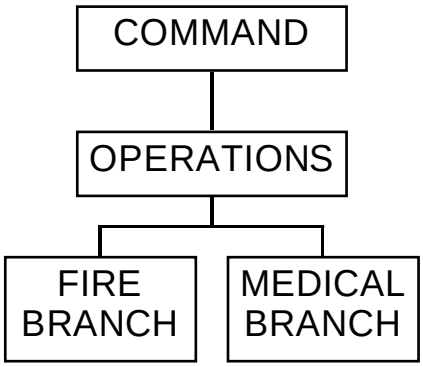


Branches should operate in their area of responsibility. The radio designation should reflect the objective of the branch. When Operations implements a branch, the sector should be notified of their new supervisor.

B. FUNCTIONAL BRANCHES

When the nature of the incident calls for a functional branch structure, the organization is created with each functional branch under the direction of a single operations chief.

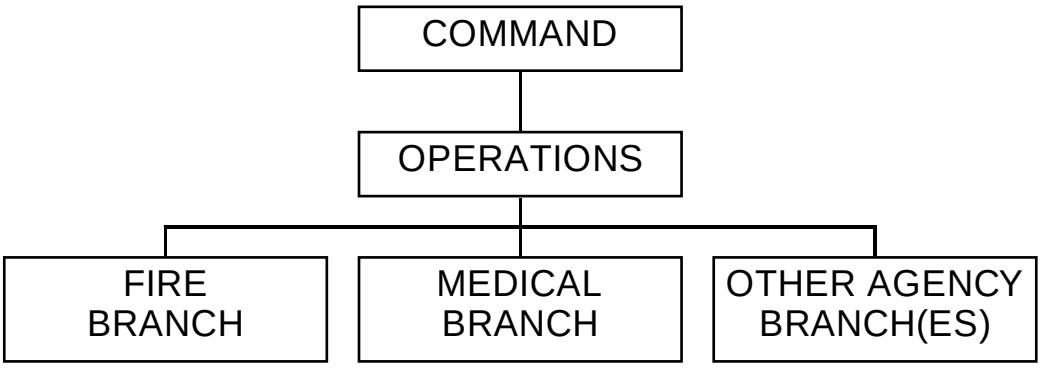
In the following example a medical function was added because the complexity of the operation was beyond the sector or group level's capability.



C. LARGE SCALE MULTI-AGENCY INCIDENTS

When the incident requires a large commitment of resources from multiple agencies, resources are best managed by the agency which has normal control over those resources. It is anticipated other agencies would operate as their branch under the direction of a single operations chief.

An example would be a major hazardous materials incident requiring multi-agency commitment.



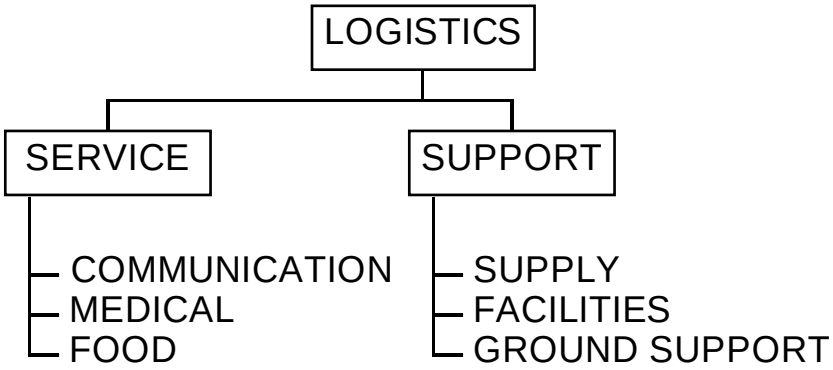
4.3.3 STAGING - A specific area to which resources are assigned before deployment. Staging has several advantages:

1. It gives the IC breathing room to make better decisions about deployment.
2. It is a checkpoint to provide accountability and prevent freelancing.
3. It provides an area of protection from exposure in hazardous environments.
4. It establishes a reserve immediately available for a contingency.

Initially, the staging area can be managed by the IC. If an incident is very complex, the IC can set up a formal staging area and assign an Officer as Staging Area Manager.

If the position of Operations is staffed, Staging reports to Operations since this Chief now is managing the tactical part of the incident action plan. The Operations Section allocates the available resources from a defined staging area.

4.4 **LOGISTICS** - is the function which provides the supplies, services and facilities needed support the incident. Within the Logistics Section, functions are carried out through various Service and Support functions.



4.4.1 Service branch includes Communication, Medical, and Food Units.

A. Communications establishes and operates the network of resources to manage the radio traffic and information flow within the ICS and between the Command Post and the dispatcher.

B. Medical - responsible for ensuring medical aid and transportation for injured and ill incident responders. This unit does not provide treatment for civilians.

B. Food - responsible for coordinating the feeding of personnel at extended operations, if necessary.

4.4.2 Support branch includes the Supply, Facilities and Ground Support Units. It's function is to supply and re-supply the hardware and special equipment to carry out and sustain the operation.

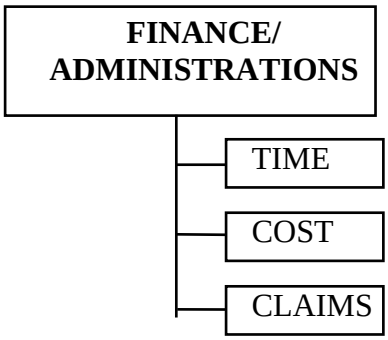
A. Supply - responsible for providing, ordering equipment and receiving supplies for the incident.

B. Facilities - responsible for layout and activation of incident facilities e.g., Command Post, and Rehab.

B. Ground Support - is responsible for support of out-of-service resources, fueling, service, and repair of vehicles, as well as transportation.

C. Special units - responsible for providing any equipment and supplies for the incident.

4.5 **FINANCE/ADMINISTRATION** - is the function responsible for financial cost recording and recovery when possible for the incident operations.



4.5.1 The Finance Section is responsible for recording vendor contracts and collecting expenses and cost data for the incident. It provides cost estimates and cost-saving recommendations.

4.5.2 Under most circumstances, this function is performed as part of the Department's normal administrative function. However, cost recovery and budget justification begin with data collection and tracking. Commanders at every level should be aware of the actual and potential impact of the costs of emergency operations in decision making.

5. SUMMARY

5.1 Think of the FDNY-ICS as a toolbox, available to help the IC manage the incident. Use only the tools that are needed. The use of the tools that are available to you will make the job of managing an incident more tolerable and less stressful. Tools that are not needed should be left in the box.

5.2 Incident Command is not a static concept. The System and this document are meant to be used and constantly improved to meet the changing and challenging environment facing emergency services. Other training materials, checklists, guides and support materials and SOP's are under development to support professional operations in the field.

5.3 Practice and experience using the Incident Command System and its components will determine the level of professionalism, safety and efficiency achieved in emergency operations by this Department.

- END OF PART 1 -

ICS POSITION GUIDES

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1. INTRODUCTION

This part of the ICS manual will deal with the factors which must be considered when the various positions of the ICS are to be established.

2. LOGISTICS

2.1 ESTABLISHMENT OF RECUPERATION AND CARE (RAC) AREA

Any incident that is large in size, long in duration, and/or labor intensive will rapidly deplete the energy and strength of personnel and therefore merits consideration for rehabilitation. Severe climactic or environmental conditions will also necessitate the establishment of a Rehabilitation area. The following factors must be considered

A. Location:

The Incident Commander shall designate the location of the RAC Area. When a RAC Area is established, it may be necessary for the Incident Commander to designate a RAC Officer. Large scale operations may require the assignment of a Chief Officer to fill this position. (See AUC 230 Section 2.3, 3.1 and 3.2for the duties of the Rac Officer/Chief).

B. Site Characteristics:

1. A location that can accommodate the placement of RAC Units. (See AUC 230, Sections 1 and 2 for the description, response, and duties of RAC units).
2. A location that offers protection from environmental conditions.
3. Free of exhaust fumes, apparatus, and equipment.
4. Large enough to accommodate several units, and allow members to remove their Bunker Gear.
5. Easily accessible to E.M.S.

C. Hydration:

Members in the RAC Area should maintain a high level of hydration. During heat stress, members should consume at least one quart of water per hour.

D. RAC:

Units/members shall be considered for RAC based not only on energy expended at a fire/emergency, but also on the previous activity of the units/members prior to operating at a fire/emergency. Rest periods of two hours can be given by Battalion Chiefs, and three hours can be given by deputy Chiefs.

Note: Members should not be moved from a hot environment directly into an air conditioned area because the body's cooling system can shut down in response to

the external cooling. an air conditioned environment is acceptable only after a "Cool Down" period at ambient temperature with sufficient air movement.

- END OF PART 4 -

EMERGENCY RESPONSE PLAN: HAZARDOUS MATERIALS

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CONTENTS

SECTION	TITLE	PAGE
1.	**INTRODUCTION AND STATEMENT OF COMMAND CONCEPTS**	1
1.1	Planning Basis	1
1.2	Agency Coordination	1
2.	**ORGANIZATIONAL DEVELOPMENT**	2
2.1	Response Objectives and Strategy	2
2.2	Incident Characterization	3
2.3	Emergency Alerting and Response	6
2.4	Response Organization	7
3.	**General Incident Procedures And Site Safety**	9
3.1	Hazard Assessment	9
3.2	Site Security and Control	11
3.3	Decontamination	11
3.4	Emergency Medical Treatment	11
3.5	Personal Protective Equipment	12
3.6	Rescue	13
3.7	Evacuation / Sheltering	13
3.8	Emergency Equipment	15
4.	**ROLES AND RESPONSIBILITIES OF RESPONDERS**	16
4.1	Incident Commander	16
4.2	First Responders (Operational)	18
4.3	Hazardous Materials Group	25
5.	**SAFE WORK PRACTICES**	30
5.1	General Procedures	30
5.2	Work Zones	30
5.3	Decontamination Procedures	34

Section	Title	Page
6.	**ICS FUNCTIONS AND RESPONSIBILITIES**	37
6.1	Safety	37
6.2	Information	38
6.3	Liaison	38
6.4	Operations	38
6.5	Planning	39
6.6	Logistics	41
6.7	Finance	42
7.	**Interagency Support System**	43
8.	**INCIDENT TERMINATION PROCEDURES**	44
8.1	Clean Up Operations	44
9.	**POST INCIDENT PROCEDURES**	46
9.1	Incident Analysis	46
9.2	Critique Outline	47
9.3	Emergency Response Plan Review	47
10.	**APPENDIX**	48
10.1	References	48
10.2	Abbreviations	48

1. INTRODUCTION AND STATEMENT OF COMMAND CONCEPTS

1.1 PLANNING BASIS

In order to carry out the responsibilities delineated in the New York City Hazardous Materials Response Plan (Mayoral Directive 82-2 Revised) and to comply with standards established by federal legislation the FDNY Emergency Response Plan for Hazardous Materials is established. This plan will guide and direct the action of all responding Fire Department personnel at hazardous materials operations.

In the event of a significant accident or other incident involving a toxic or hazardous material where, because of fire, explosion, radioactivity, toxic air release or chemical reaction there exists danger to the health or safety of emergency personnel or to the general public, the senior Fire Department representative, referred to as the Incident Commander (IC), at the scene will implement the FDNY Emergency Response Plan (ERP) for Hazardous Materials.

1.2 AGENCY COORDINATION

This plan is built on the fundamental organization and strategy of the FDNY Incident Command System (ICS) insuring maximum safety and efficiency of the operating forces while fulfilling our responsibility to the public.

It is assumed that all hazardous materials incidents will be managed under Unified Command principles because in virtually all cases fire, police, and public health agencies will have some statutory functional responsibility for incident mitigation.

Implementing the ERP will facilitate the coordination and control of all tasks and functions with the senior on-site representative of the Police Department who has been designated as the "On Scene Coordinator". Using the ERP and working closely with the On-scene coordinator, the Incident Commander will manage the command and control of all mitigation tasks and functions. When the Interagency Command Center (ICC) is established the IC will represent the Fire Department at the Command Center.

All mitigation operations at the incident will be managed by the Fire Department. Tactical operations will be managed by the Fire Department Operations Chief.

Specific tactical objectives will be carried out by Group/Sector Supervisors. Other needs will be met by staffing ICS positions.

2. ORGANIZATIONAL DEVELOPMENT

2.1 RESPONSE OBJECTIVES AND STRATEGY

Any hazardous materials incident represents a potentially dangerous situation. Chemicals that are combustible, explosive, corrosive, toxic, or reactive, along with biological and radioactive materials can affect the general public or the environment as well as the emergency responder. Emergency responders may be subject to additional dangers operating in this abnormal environment. While the response activities needed at each incident are unique, there are similarities. One is that every response requires protecting the health and ensuring the safety of the responders.

This document identifies the functions needed to control and mitigate a hazardous materials incident. It also describes the lines of authority, responsibility, and communication between and among the various responders. It defines the interface of the Fire Department with other agencies. Finally, it specifies the authority of each responder in directing specific operations.

This plan will provide instructions on how to accomplish specific tasks in a safe manner. In concept and principle, standard operating safety procedures are independent of the type of incident. Their applicability at a particular incident must be determined and necessary modifications made to match prevailing conditions. However, in the case of hazardous materials operations, the specific requirements of training, equipment, and competence preclude the generalized statements that might apply to other types of emergency work.

The ERP will provide guidance for Fire Department responders in areas related to response, site control, entry, and mitigation of hazardous materials incidents.

This guide is not meant to be a comprehensive treatment of each of the subjects discussed. Formal training in these areas will complement this document. Specific training will provide more information for the technical, administrative, and management oriented skills needed to fulfill our mission. This document will provide standard operating guides to develop more specific procedures.

The priority of the instructions in this plan is as follows:

A. Life safety and health risks to the public and the emergency responders are the most important concern.

B. The Fire Department must stabilize the incident scene and prevent further escalation of the incident with minimum personal risk.

C. The Fire Department's response efforts should be directed toward protecting property and minimizing or lessening the impact of the event on the environment.

2.2 INCIDENT CHARACTERIZATION

In the same way that units now call for additional assistance at a fire, hazardous materials incidents require that a method be established to determine the degree of severity for various types of releases. This avoids the need for calling out full resources for every incident. Personnel arriving at an incident can, of course, request additional resources and thereby raise the level of response based on the actual circumstances of the event. Response planning, procedures, and notifications to Federal, State, and City agencies will be determined by the following standard designations.

2.2.1 LEVEL 1: An incident which can be controlled by the responding unit or units up to 3 Engines, 2 Ladders and 2 Battalion Chiefs and does not require evacuation of other than the involved structure or the immediate outdoor area. The incident is confined to a small area and does not pose an immediate threat to life or property.

A Level 1 incident includes the units on the scene up to and including the full first alarm assignment. It is not a request for additional units or specialized resources. It signifies the degree of hazard and the ability of the units on the scene to safely manage the incident. Additional resources or greater alarms may be transmitted at the discretion of the Incident Commander. This may indicate a need to upgrade the incident to Level 2.

2.2.2 LEVEL 2: An incident involving a greater hazard or a larger area which poses a potential threat to life or property and which may require a limited evacuation of the surrounding area.

A Level 2 incident requires the response of a Deputy Chief, Hazardous Materials Unit, Safety Operating Battalion, Field Communications Unit(DO 154/93) and SOC and a total first alarm assignment of 3 Engines, 2 Ladders and 2 Battalion Chiefs.

2.2.3 LEVEL 3: An incident involving a severe hazard or a large area which poses an extreme threat to life and property and will probably require a large scale evacuation; or an incident requiring the expertise or resources of City, State, Federal, or private agencies and organizations.

A Level 3 incident requires activation of the full NYC Emergency Response Plan. Additional alarms or other Fire Department resources may be called by the Fire Department Incident Commander.

2.2.4 The following table is presented for guidance in determining these levels. The highest level for any single condition will determine the incident level. For example, poison gas (such as cyanide or phosgene) could initially require a Level three response due to the nature of the danger to the public. An incident level and the response can always be downgraded when additional information or resources become available. However, it is much more difficult to upgrade and obtain control when situations are going beyond the capabilities of the on scene resources.

CONDITION	LEVEL ONE	LEVEL TWO	LEVEL THREE
PRODUCT	NO DOT PLACARD REQUIRED ORM A,B,C,D	DOT PLACARD PCBs/NO FIRE EPA REGULATED WASTE** ANY UNIDENTIFIED SUBSTANCE	POISON A, EXPLOSIVE A/B, ORG. PEROXIDE, FL. SOLIDS(WR), CHLORINE, FLUORINE, ANHYDROUS AMMONIA, RADIOACTIVES, PCBs on FIRE
NFPA #704	0 OR 1 ALL CATEGORIES	2 FOR ANY CATEGORY	3 OR 4 ANY CATEGORY INCL. SPECIAL HAZARDS
CONTAINER SIZE*	SMALL	MEDIUM	LARGE
CONTAINER INTEGRITY	NOT DAMAGED	DAMAGED BUT SERVICEABLE FOR HANDLING OR TRANSFER OF PRODUCT	DAMAGED, CATASTROPHIC RUPTURE POSSIBLE
LEAK SEVERITY	NO OR SMALL RELEASE CONTAINED OR CONFINED W/ AVAILABLE RESOURCES	NOT CONTROLLABLE W/O SPECIAL RESOURCES or "REPORTABLE QUANTITIES"	MAY NOT BE CONTROLLABLE EVEN WITH SPECIAL RESOURCES
FIRE / EXPLOSION POTENTIAL	LOW	MEDIUM	HIGH
LIFE SAFETY	NO LIFE HAZARD	LOCAL AREA, LIMITED EVACUATION	LARGE AREA, MASS EVACUATION
IMPACT ON ENVIRONMENT	MINIMAL	MODERATE	SEVERE

*****small = Pail, drum, cylinder, package, bag.
medium = One ton containers, portable containers, nurse tanks, multiple packages.
large = Tank cars/trucks, stationary tanks, hopper cars/trucks, multiple medium containers
****** e.g. asbestos

2.3 EMERGENCY ALERTING AND RESPONSE

Initial notification of a hazardous materials incident will be through transmission of the radio signal 10-80. Transmission of the signal 10-80 will serve to warn responders to proceed with caution to avoid entering a restricted area.

As soon as possible, the Officer assuming Command will briefly describe the nature of the incident, identify a preliminary hazard perimeter and transmit this information to the dispatcher for the benefit of other responding units and agencies that will be notified. If possible, a preliminary Staging area should be designated. The intent is to limit unnecessary exposure of personnel and equipment. More specific information should be relayed to the dispatcher in progress reports as it becomes available.

The following notifications of a hazardous materials incident will be made by the Dispatcher upon receipt of all 10-80 code 2 signals (Level 2 or 3 incidents) and when the Hazardous Materials Unit responds.

A. Police Dept. Operations Unit
B. Dept. Of Environmental Protection
C. NYC Emergency Medical Services
D. NYC Dept. Of Health - for incidents involving radioactive materials.
E. NYS Dept. Of Environmental Conservation - for fuel oil spills.

2.3.1 On transmission of a 10-80 code 2 signal (Level 2 or 3 incident), the dispatcher will order the response of a Deputy Chief, Hazardous Materials Unit, Safety Operating Battalion, Field Communications Unit(DO 154/93) and Special Operation Command and a total first alarm assignment of 3 Engines, 2 Ladders AND 2 Battalion Chiefs.

The following Fire Department units will also be notified:

1. Fire Command or the City Wide Command Chief during non-operating hours of the Fire Command.
2. Notifications Desk, Bureau of Operations.
3. Public Information Office
4. Medical Officer on Duty

As is the case in other fire and emergency operations, the Incident Commander may call for additional units and activate and staff any part of the ICS appropriate to the apparent circumstances.

2.4 RESPONSE ORGANIZATION

Under the Incident Command System, the incident organization will develop in a modular progression depending on the exact nature and specific conditions prevailing at the scene.

2.4.1 The first response of the Fire Department will be managed by the senior ranking officer on the initial alarm who will be the Incident Commander. This could be the Lieutenant or Captain of the first company to arrive. Responsibility for command will be transferred to succeeding commanders using the established lines of authority within the Incident Command structure.

The Incident Commander on the first alarm will implement the ERP for hazardous materials and assume responsibility for all command and command staff functions necessary to manage the initial response. The IC will call additional resources as incident needs dictate.

First responders at this level have been trained to implement offensive and defensive control measures for common hazardous materials involving limited quantities of certain materials as specified in standard operating procedures. (See 10.3 - Hazard Action Guides) They will be capable of performing the following basic procedures:

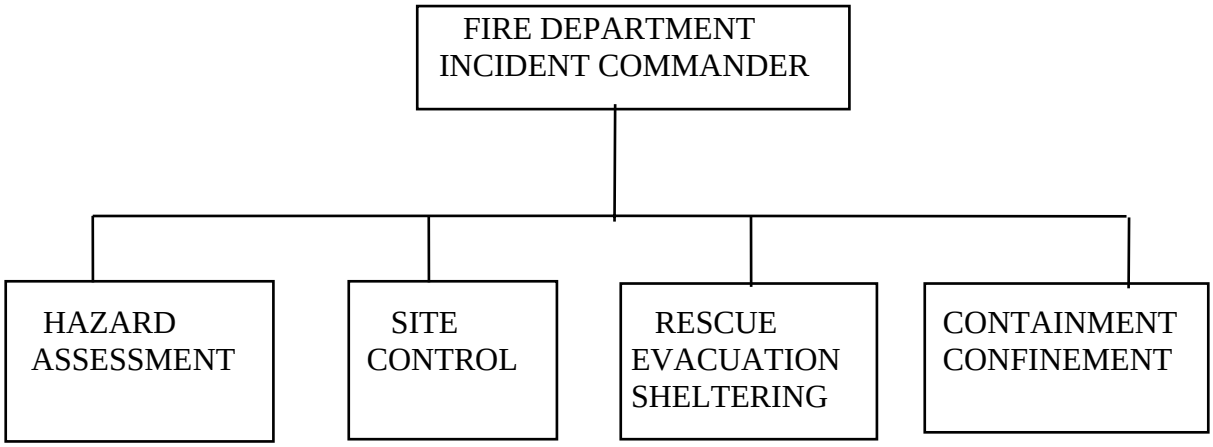
A. Initiate the Emergency Response Plan including isolating the site, establishing an initial Command Post, and establishing a site safety plan.

B. Notify the Dispatcher of the need for additional resources. Communicate essential information about the incident to other responders through the Dispatcher.

C. Initiate evacuation, if appropriate.

D. Initiate basic hazard and risk assessment activities including the use of personal protective equipment; preliminary identification of materials; containment and confinement of the material within the limits of the resource and protective equipment capabilities available on site.

E. Understand and comply with "decon" procedures.



2.4.2 If an incident is beyond the capability of the first responders, the ICS will be expanded to include the Hazardous Materials Group and other responders with a higher level of training and more specialized skills and equipment.

As the incident progresses it may be necessary to modify/expand the organization structure so tasks may be accomplished as efficiently and safely as possible. Changes will be recorded in the Incident Log and the Command/Control Chart with affected positions notified.

Responders at this next level will be operating in a more complex environment that requires the coordination of several different agencies.

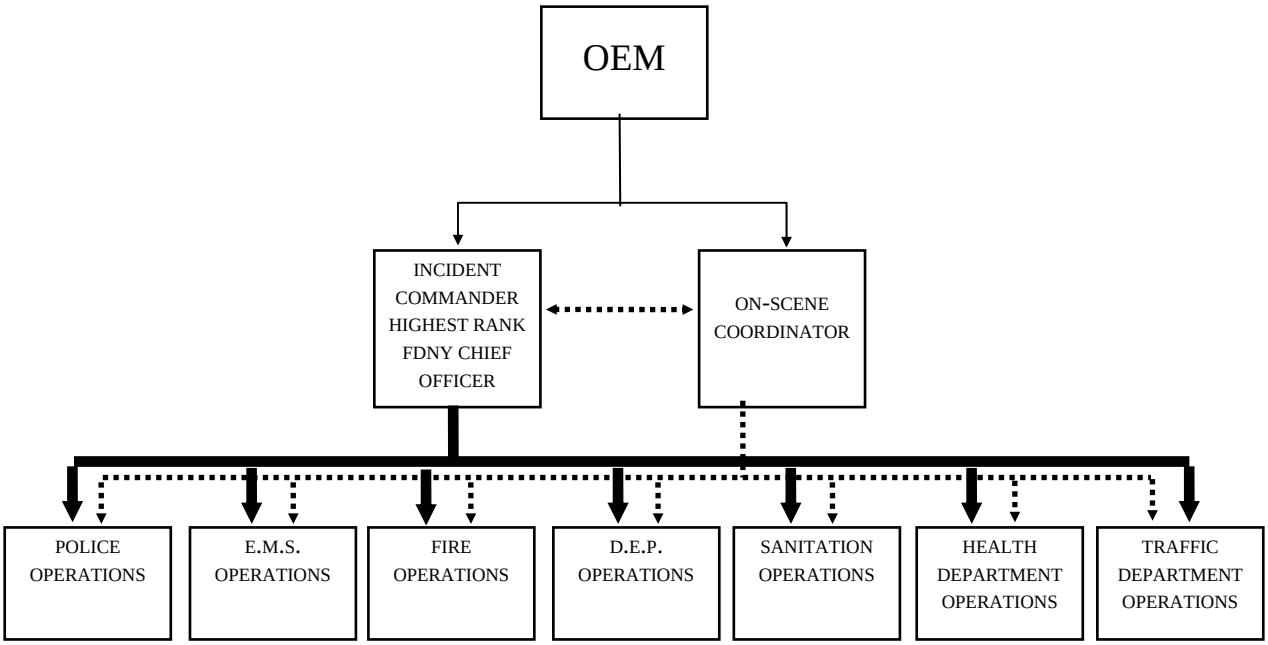
2.4.3 A more complex operation requires a unified command structure composed of the senior officials of various agencies. They will determine strategies and objectives that will fulfill their individual responsibilities while coordinating the actions of their respective personnel through the On-scene Coordinator.

Tactical activities for the Fire Department will be managed by the Operations Chief.

The Fire Department Hazardous Materials Group will manage all activities in the contamination zones. Only specially trained and equipped personnel will enter the contaminated zones.

Fire Department personnel in the contaminated zones will be operating in a more aggressive manner than the first responders in that they will actually approach a hazardous material, its container and associated devices in attempting to control, contain, confine, or prevent a release.

EXAMPLE OF INCIDENT ORGANIZATION: LEVEL 2 or 3 INCIDENTS



▬ = Activities and Operations directly relating to the mitigation of the problem.

┅┅ = Activities and Operations directly relating to the Coordination and Overall Management of the Incident.

3. GENERAL INCIDENT PROCEDURES AND SITE SAFETY

HAZARD ASSESSMENT

Early recognition of incident hazards and potential risk is essential. The initial responsibility for assessment of incident hazards lies with first responding units.

Responding units will gather and communicate to the Incident Commander pertinent information regarding the presence or release of hazardous materials or chemicals.

Each member should be alert to the signs, evidence, and indications of the presence of hazardous substances during fires and emergencies and report such information to the next higher level of command.

3.1.1 Persons reporting emergencies will usually describe the kind of incident creating a hazardous condition. They generally are unable to accurately describe a hazardous materials incident.

Since accurate information about the incident or site might not be available when responding, special attention should be focused on the possibility of exposure in the following circumstances:

A. Transportation accidents
B. Industrial accidents
C. Leaks, spills, or suspicious odors
D. Medical emergencies involving chemical inhalation
E. Explosions
F. Structural collapses

3.1.2 Information regarding hazardous occupancies or locations that has been obtained through inspection or preplanning activities should be available from "CIDS Information", described in the Communications Manual. This type of response information prior to arrival will prevent premature entry into dangerous environments and unnecessary exposure to responding personnel. It will also offer a significant measure of protection to responders unfamiliar with the location or occupancy.

3.1.3 On - site information gathering must be limited to that which can be obtained within the limits of each responders level of training and protective equipment. It is not in the best interest of the public or the responders to become part of the emergency problem instead of the solution.

First responders should gather, evaluate, and report information prior to entering into or undertaking activities that would place them in a contaminated environment.

3.1.4 The following are environments that must be evaluated before any commitment of personnel for any reason:

A. Large containers or tanks that must be entered.
B. Confined spaces (manholes, trenches, etc.) that must be entered.
C. Potentially explosive or flammable situations indicated by gas generation or gas release or over pressurization of containers (BLEVE).
D. Presence of extremely hazardous materials such as cyanide, phosgene, or radioactive materials.
E. Visible vapor clouds.
F. Areas where biological indicators such as "Unconscious persons" (refer to Section 3.6), dead animals or vegetation are located.

3.2 SITE SECURITY AND CONTROL

An incident generally involves the escape of normally controlled substances and response activities involve actions to minimize and prevent these discharges. Site Control is preventing or reducing the exposure of any person and the transfer of hazardous substances (contaminants) from the site by civilians, department members and equipment. Site control involves two major activities:

A. Physical arrangements and control of the site work areas.

B. The removal of contaminants from people and equipment.

Control is needed to reduce the possibility of transport from the site of contaminants, which may be present on personnel and equipment. This can be accomplished in a number of ways including:

A. Establishing physical barriers to exclude the public and unnecessary personnel.

B. Establishing checkpoints with limited access to and from the site, or areas within the site.

C. Minimizing personnel and equipment on-site consistent with effective operations.

D. Establishing containment zones.

E. Undertaking decontamination procedures.

F. Conducting operations in a manner to reduce possibility of contamination.

3.3 DECONTAMINATION

Decontamination (DECON) is the process of making personnel, equipment and supplies safe by reducing present levels of poisonous or otherwise harmful substances. This process is one of the most important steps in ensuring personal safety at a hazardous materials emergency. The extent of its success depends on the ability of the IC to maintain control of personnel at the site.

The detail of decontamination operations required at an incident depends on the safety and health hazards of the contaminants. An uncontaminated light oil, for example, that presents a minimal hazard can be partially decontaminated by flushing it from protective clothing. In contrast, a poisonous material will require a careful and detailed course of action.

See "SAFE WORK PRACTICES - Decontamination Procedures", Section 5.3 of this document for more detailed information.

3.4 EMERGENCY MEDICAL TREATMENT

Teams from the Emergency Medical Service (EMS) are available to assist in medical treatment, and monitor the response personnel and others exposed to hazardous materials.

The Fire Department Medical Officer on duty will also be notified of all Level 2 or greater incidents and will respond in accordance with Dept. policy.

3.5 PERSONAL PROTECTIVE EQUIPMENT (PPE)

3.5.1 **Structural firefighting gear** is designed to protect firefighters from heat and flame.

Hazardous materials can contaminate protective clothing, respiratory equipment, tools, vehicles, and other equipment used at an emergency scene.

First responders should avoid leaks, spills, and obvious sources of hazards, as well as indirect contact with potentially contaminated areas. Full firefighting gear and SCBA will be used at all times as a minimum of protection against exposure. Safe work practices WILL MINIMIZE exposure and contamination.

3.5.2 The use of Chemical protective clothing and equipment requires specific skills acquired through training. It is only available to members of the Hazardous Materials Unit.

This type of special clothing may only protect against one chemical, yet be readily penetrated by other chemicals for which it was not designed. It offers little or no thermal protection in case of fire. No one suit offers protection from all hazardous materials.

3.5.3 The level of special protection required in each zone at an incident will be determined by the Officer in charge of the Hazardous Materials Unit based on information available.

3.5.4 The levels of protection available include:

A. **"Level A"** highest level of protection to the responder.

B. **"Level B"** high level of protection to the respiratory tract but a lower level of skin protection than level "A".

Level "A and B" protective equipment is only available for use by members of the Hazardous Materials Unit.

C. **"Level C"** does not require maximum skin or respiratory protection. This level presupposes that the types of air contaminants have been identified, concentrations measured, and the atmosphere is not oxygen deficient.

D. **"Level D"** provides minimal protection and is used to guard against nuisance contamination only.

Structural firefighter protective clothing, i.e. turnout or bunker gear, is not classified as chemical protective clothing. The highest level of chemical protection that this level will provide is Level "D".

3.6 RESCUE

In most situations emergency personnel can protect the public by isolating and denying entry to contaminated areas. Initial rescue actions should concentrate on removing able-bodied persons from immediate danger. Involvement in complicated rescue problems or situations should be evaluated before being attempted.

When the probability is high that the victim cannot be saved or is already dead, rescue should not be attempted if it will place the rescuer at unnecessary risk. The danger of exposure to unknown chemicals or a potential explosion may make the risk unacceptable.

The following should be considered in attempting a rescue during a hazardous materials emergency:

A. Has the presence of a victim been confirmed visually or by other credible sources?

B. Is the person conscious or responsive?

C. How long has the victim been trapped or exposed? Is he/she viable?

D. Is the leaking material pooling or vaporizing in the area of the victim?

E. What are the properties of the material involved? What is the concentration of the material around the victim?

F. What special equipment is available to assist in this effort?

Consideration of these questions will help in weighing the likelihood of a successful rescue against the overall risk to the rescuer.

3.7 EVACUATION / SHELTERING

There are essentially two ways to protect the public from the effects of hazardous material discharges into the environment.

A. Evacuation: involves moving threatened persons to shelter in another area.

B. Sheltering in place: involves giving instructions to people to remain where they are until the danger passes.

Evacuation is clearly safer with respect to the hazards, but has certain limitations and may pose new problems. Evacuation takes time and may not be possible if large numbers of persons or a large volume of vapor is present. Evacuation through a toxic atmosphere may actually cause more harm than good in some cases.

3.7.1 Evacuation is best considered when:

A. There is an immediate danger of fire or explosion.

B. The potential for a discharge is great, it has not taken place, and there is time available to relocate people.

C. The discharge has taken place but people are sufficiently protected to permit time for evacuation.

D. People not yet in the path of a release will be threatened by changing conditions.

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3.7.2 Large scale evacuation will be directed by the On Scene Coordinator and will require the coordinated efforts of several agencies.

3.7.3 The decision to shelter in place is appropriate when the hazardous material will not affect the structure or its occupants or the hazard will pass a structure with little infiltration.

3.7.4 Sheltering in place is the alternative when:

A. Pre-planning has identified options for problem areas such as hospitals, jails, nursing homes, public assemblies, etc.

B. Evacuation cannot be properly managed with the manpower, resources, and facilities presently available.

C. The hazardous material displays the following characteristics:

1. Low to moderate toxicity;
2. Totally released and dissipating;
3. Small quantity solid or liquid leak;
4. A migrating vapor of low toxicity and quantity and people are safer indoors than outside; and
5. Release can be rapidly controlled at the source.

3.7.5 The success of either option will depend on the preplans and effectiveness of communication resources, notification and public information.

3.8 EMERGENCY EQUIPMENT

Private corporations, outside agencies, and other city agencies maintain specialized equipment and services that may be placed at the disposal of the Fire Department for use at these incidents. A catalogue of these services and equipment is maintained by the Bureau of Fire Communications. Calls for the use of these services or cooperation of these agencies shall be transmitted to the Dispatcher by the IC. Approval will come from the Commissioner and Chief of Department or their designee.

Liability, costs to the provider, and the availability of certain types of equipment preclude irregular or other informal arrangements.

The IC will designate the exact location to which the special equipment will respond.

4. ROLES AND RESPONSIBILITIES OF FIRE DEPARTMENT RESPONDERS

4.1 **INCIDENT COMMANDER - Responsible for all Fire Department incident activities, planning and checklist functions, preparation of reports, incident termination, and post incident analysis.**

The senior ranking Officer first on the scene will determine the need for the following actions and implement those that are necessary and within the capability of the resources and equipment available at the time.

Succeeding Commanders will further evaluate the needs of the incident and refine, reinforce, or expand the scope and depth of these response activities.

A. COMMAND

1. ESTABLISH A SITE SAFETY PLAN

a. Set up isolation, control, and support zones. Refer to site plans, if available.
b. Limit and control site access.
c. Set up and manage staging areas.
d. Coordinate F.D. personnel, on site personnel and other support agency activities.
e. Call for resources/support units.

2. ESTABLISH LINES OF COMMUNICATION

a. Announce location of Command Post, Staging areas.
b. Report incident and site information to Dispatcher.
c. Communicate plan of action to on scene personnel.
d. Establish contact/communications with other agencies responding.
e. Consult on site personnel/specialists.

3. ESTABLISH A COMMAND POST

a. Establish F.D. Command Post.
b. Set up/maintain Command & Control Chart.
c. Establish and maintain incident log.

4. STAFF ICS FUNCTIONAL POSITIONS (as needed)

a. Safety, Liaison/Information.
b. Staging.
c. Operations, Planning, Logistics, Finance.
d. Establish appropriate Sectors/Groups.

B. OPERATIONS

1. CONDUCT A SITE SURVEY/SIZE - UP

a. Determine the nature, source, extent of problem.
b. Estimate incident level.
c. Determine need for evacuation.

2. FORMULATE/IMPLEMENT PLAN OF ACTION

a. Implement initial plan of action as described in the Emergency Response Guidebook and Hazard Action Guides.
b. Communicate plan of action to on scene personnel.
c. If necessary, implement alternate plans as information, personnel, resources and equipment are secured.

3. TERMINATE INCIDENT ACTIVITIES

a. Evaluate decontamination needs and support activities.
b. Establish disengagement / demobilization plan including post incident information and transfer of responsibilities.
c. Document remedial efforts during clean up operations.
d. Evaluate compliance with Fire Department regulations and directives and take appropriate enforcement action.

4. POST INCIDENT ANALYSIS

a. Conduct a post incident analysis and review.
b. Evaluate response re: Response plan.
c. Make recommendations.

C. PLANNING

1. EVALUATE HAZARDS AND ASSESS NEEDS

a. Determine strategic goals and tactical objectives.
b. Assess current status and intervention options.
c. Formulate, review, revise goals, objectives, action plan.

D. LOGISTICS

Assess logistical support requirements for incident activities.

E. FINANCE

Record all information re: costs involved in mitigating the incident incurred by the Fire Department.

4.2 **FIRST RESPONDERS (OPERATIONAL LEVEL) -** respond to the site for the purpose of protecting persons, property, or the environment from the effects of a hazardous materials release or potential release. They are not trained or equipped to use specialized chemical protective clothing or special control equipment. Their actions are limited to those which may be accomplished using SCBA and structural firefighter protective clothing as described in Department SOP and the Hazard Action Guides (HAG).

In the event that the public or any emergency responder has been exposed prior to recognition of a hazardous substance, those persons exposed should be isolated to avoid spreading any contamination and so that proper medical treatment and monitoring can be arranged. Those not exposed must be kept out of the contaminated area.

4.2.1 **INITIAL ACTIONS**

A. Given the limited capability of units arriving first at the scene of a hazardous materials release or potential release, premature commitment of companies and personnel to unknown, potentially hazardous situations/locations must be avoided.

B. Cautious, methodical, and deliberate size-up combined with immediate site security limits needless exposure of responding personnel and reduces the vulnerability of the public and the environment.

C. As soon as the presence of a hazardous substance is detected or suspected First Responders should take the following actions:

1. Use full structural firefighting clothing and SCBA as a minimum to protect themselves from unnecessary exposure to contaminants.
2. Isolate the hazard.
3. Control access to the hazard area.
4. Communicate available information to the IC or Dispatcher.
5. Alert other responders and call for assistance, if needed.
6. Establish an initial staging area for other responders.
7. Take steps to identify the hazard and evaluate the risk without endangering on scene personnel.
8. Consult Emergency Response Guidebook and Hazard Action Guides (HAG).

D. Whenever possible, first arriving units must alert other responding units of the hazardous nature of the incident by transmitting signal 10 - 80 with a brief description of known hazard information. This will prevent units from unknowingly responding into the hazard area.

E Develop a plan of action consistent with the Department's Emergency Response Plan and Hazard Action Guides for hazardous materials (HAG).

F. Implement the plan within the capability of the available personnel, protective clothing and equipment.

Note: The following assignments (Sections 4.2.2 through 4.2.6) are prescribed as standard procedure for units responding to a known or suspected hazardous materials incident. When the presence of a hazardous material is discovered during fire or other emergency operations, the Incident Commander must isolate units, redeploy or withdraw units and adjust the strategic and tactical objectives to address the hazard affecting the public and the operating emergency personnel.

Individual units must be assigned or reassigned to Hazard assessment, site control for public and personnel protection, and limited containment/confinement or isolation strategies as are possible. Given the limited capabilities of responders trained and equipped to the operational level this could include:

A. Withdrawing from or isolate selected areas.

B. Adjusting tactical objectives. Redeploy or reassign units and personnel.

C. Continuing current strategy, with additional resources called for specific assignments, e.g. the hazardous material problem.

The priorities should continue to be focused on limiting the exposure of personnel and the public; stabilizing the incident until additional resources are available to gain control; limiting the impact of the event by protecting property and the environment from additional harm.

4.2.2 FIRST ARRIVING LADDER COMPANY - HAZARD ASSESSMENT

The first arriving Ladder Co. is responsible for **Hazard Assessment**.

Some members of this company will be divided into teams, each team equipped with at least one radio. The Officer of this unit will designate team members and a radio contact person.

The purpose of the team concept is to provide for the safety and accountability of all the members. No person involved in the operational activities of these teams is to work alone.

A. OFFICER: Supervise hazard assessment activity of assigned members.

1. Obtains briefing from IC.
2. Assigns and instructs teams regarding hazard assessment activities and limitations.
3. Coordinates apparatus placement with other responding units.
4. Reports information to IC.
5. Monitors Handie-talkie/Radio.

B. LADDER CHAUFFEUR: Apparatus placement.

1. Positions apparatus out of the hazard area and as a barrier for site access control as ordered.
2. Coordinates apparatus placement with other responding units.
3. Remains with apparatus until further ordered.
4. Establishes physical barriers to area access using apparatus, barrier tape, traffic cones, traffic signs, etc., as ordered.
5. Monitors Handie-talkie/Radio.

C. TEAM 1: Hazard Identification.

1. Identify occupancy and location hazards, if possible.
2. Identify Container shape and approximate size, if possible.
3. Identify any visible markings, colors, placards/labels, etc.
4. Report information available and stand-by.
5. Monitor Handie-talkie.

D. TEAM 2: Information resources.

1. Access HAG & DOT GUIDEBOOK locating appropriate Guide, isolation and evacuation recommendations.
2. Confirm Guide Number, isolation distance, and evacuation information with Second Arriving Ladder Co..
3. Report information to Officer.
4. Monitor Handie-talkie.

4.2.3 SECOND ARRIVING LADDER COMPANY - SITE ACCESS CONTROL

The second arriving Ladder Co. is responsible for **Controlling Access** to the site and for establishing the initial exclusion area. Some members of this company will be divided into teams, each team equipped with at least one radio. The Officer of this unit will designate team members and a radio contact person.

The purpose of the team concept is to provide for the safety and accountability of all the members. No person involved in the operational activities of these teams is to work alone.

A. OFFICER: Coordinate / limit site access.

1. Obtains briefing from IC.
2. Assigns and instructs teams regarding hazard assessment activities and Limitations.
3. Advises IC re: need for Police assistance in area security and control.
4. Reports information to IC.
5. Monitors Handie-talkie/Radio.

B. LADDER CHAUFFEUR: Apparatus placement.

1. Positions apparatus out of the hazard area and as a barrier for site access control as ordered.
2. Coordinates apparatus placement with other responding units.
3. Remains with apparatus until further ordered.
4. Establishes physical barriers to area access using apparatus, barrier tape, traffic cones, traffic signs, etc., as ordered.
5. Monitors Handie-talkie / Radio.

C. TEAM 1: Information resources.

1. Using information from the first arriving ladder company or the IC, access HAG & DOT GUIDEBOOK locating appropriate Guide, isolation and evacuation recommendations.
2. Confirm Guide Number, isolation distance, and evacuation information with First Arriving Ladder Co.
3. Report information to Officer.
4. Monitor Handie-talkie.

D. TEAM 2: Initial Isolation Zone

1. On orders of the Officer establish physical barriers as an initial isolation/exclusion zone using barrier tape, utility rope, traffic cones, etc., as ordered.
2. Remain outside isolation zone to deny access until relieved or as ordered.
3. Monitor Handie-talkie.

4.2.4 FIRST ARRIVING ENGINE COMPANY - WATER SUPPLY

The first arriving Engine will **Establish The Initial Water Supply**.

Based on the existing conditions, a line should be stretched but not placed into operation until ordered by the IC. pending the outcome of the initial hazard assessment. The premature, unnecessary, or incompatible use of water can compound the hazard. The unit will stand-by out of the hazard area.

Members of this unit will remain together as a unit unless otherwise ordered by the Incident Commander to perform duties appropriate to specific tactical objectives. This might include such things as assisting in site control or evacuation.

If and when necessary, some members of this company may be divided into teams, each team equipped with at least one radio. The Officer of this unit will designate team members and radio contact person.

The purpose of the team concept is to provide for the safety and accountability of all the members. No person involved in the operational activities of these teams is to work alone.

A. OFFICER: Supervise hazard assessment activity of assigned members.

1. Obtains briefing from IC.
2. Assigns and instructs teams regarding hazard assessment activities and limitations.
3. Supervises water supply and line placement activities.
4. Coordinates apparatus placement with other responding units.
5. Reports information to IC.
6. Monitors Handie-talkie/radio.

B. ENGINE CHAUFFEUR: Apparatus placement.

1. Positions apparatus out of the hazard area.
2. Establishes a water supply.
3. Coordinates apparatus placement with other responding units.
4. Remains with apparatus until further ordered.
5. Establishes physical barriers to area access using apparatus, barrier tape, traffic cones, traffic signs, etc., as ordered.
6. Monitors Handie-talkie/radio.

4.2.5 SECOND ARRIVING ENGINE COMPANY - SITE ACCESS CONTROL

The second arriving Engine Co. is responsible for assisting and coordinating with the second ladder company to **Control Access** to the site.

Members of this unit will remain together as a unit unless otherwise ordered by the Incident Commander to perform duties appropriate to specific tactical objectives. This might include such things as assisting the first arriving Engine in water supply or line placement, site control or evacuation.

If and when necessary, some members of this company may be divided into teams, each team equipped with at least one radio. The Officer of this unit will designate team members and a radio contact person.

The purpose of the team concept is to provide for the safety and accountability of all the members. No person involved in the operational activities of these teams is to work alone.

A. OFFICER: Assist Second Ladder Co. in SITE CONTROL.

1. Obtains briefing from IC.
2. Assigns and instructs teams regarding hazard assessment activities and limitations.
3. Coordinates site activities with other units engaged in site control.
4. Reports information to I.C.
5. Monitors Handie-talkie/Radio.

B. ENGINE CHAUFFEUR: Apparatus placement.

1. Positions apparatus out of the hazard area and as a barrier for site access control as ordered.
2. Coordinates apparatus placement with other responding units.
3. Remains with apparatus until further ordered.
4. Establishes physical barriers to area access using apparatus, barrier tape, traffic cones, traffic signs, etc., as ordered.
5. Monitors Handie-talkie/radio.

4.2.6 OTHER UNITS ON INITIAL ALARM

Members of these units will remain together as a unit unless otherwise ordered by their Officer as directed by the Incident Commander to perform duties appropriate to specific tactical objectives. This might include assisting other units in site control or evacuation.

If and when necessary, members of these companies may be divided into teams, each team equipped with at least one radio. The Officer of this unit will designate team members and a radio contact person.

The purpose of the team concept is to provide for the safety and accountability of all the members. No person involved in the operational activities of these teams is to work alone.

A. THIRD ARRIVING ENGINE CO.

1. Reports to Incident Commander.

a. Obtain briefing from IC.
b. Assigns and instructs teams regarding hazard assessment activities and limitations.
c. Coordinates apparatus placement with other responding units.
d. Reports information to IC.

2. Stands-by to assist other responders as directed by the IC.
3. Monitors Handie-talkie/radio.

B. RESCUE CO., SQUAD, OTHER UNITS, Etc.

1. Report to Incident Commander.

a. Obtain briefing from IC.
b. Assign and instruct teams regarding hazard assessment activities and limitations.
c. Coordinate apparatus placement with other responding units.
d. Report information to IC.

2. Stand-by to assist other responders as directed by the IC.
3. Monitor Handie-talkie/radio.

C. ADDITIONAL UNITS

Additional units responding to the scene of a known hazardous materials incident should be given specific information regarding the location of staging areas and tactical objectives assigned to the unit. If, due to the nature of the event, the Officers of the responding units do not receive this information, they should:

1. Request this information from the dispatcher.
2. Keep their units intact and establish contact with the next higher level of supervision.
3. Members of the units will remain together as a unit unless otherwise ordered by their Officer who is directed by the Incident Commander to perform duties appropriate to specific tactical objectives. If and when necessary, members of these companies may be divided into teams, each team equipped with at least one radio. The Officers of these units will designate team members and a radio contact person.

4.3 **HAZARDOUS MATERIALS GROUP -** Individuals who respond to releases or potential releases for the purpose of stopping or controlling them. They assume a more aggressive role than a first responder at the operational level in that they will approach the point of the release. Their duties require a more directed or specific knowledge of the various substances they may be called upon to contain. Their training includes knowledge of procedures for the use of specialized chemical protective clothing, survey equipment, and special procedures for containing a chemical hazard and decontamination.

Some members of the Hazardous Materials Unit will be divided into teams, each team equipped with at least one radio. The Officer of this unit will designate team members and the radio contact person.

The purpose of the team concept is to provide for the safety and accountability of all the members. No person involved in the mitigation activities of these teams is to work alone.

The Haz-Mat Group consists of the Hazardous Materials Unit and members of the Special Operations Command. Each has a specific role and objective to accomplish at an incident. They are generally described as follows:

A. Analysis

1. Verify, identify, or classify hazardous materials and determine their concentration.
2. Collect and interpret hazard and response information.
3. Estimate damage to containment systems.

B. Planning

1. Select appropriate PPE for incident activities.
2. Develop decontamination procedures.
3. Develop plan of action consistent with the ERP and within the capability of the personnel, PPE, and equipment available.

C. Operations

1. Carry out planned activities under the direction of the IC as per the ERP.

4.3.1 **HAZ-MAT GROUP SUPERVISOR -** On duty Officer of Hazardous Materials Unit who will supervise the "hands-on" mitigation operation. He will coordinate the following activities as directed by and report to the IC or a level of supervision assigned by the IC as per FDNY-ICS.

A. Obtains briefing from the Incident Commander.

B. Confirms the development of Control Zones and Access Control Points and the placement of appropriate control lines.

C. Ensures that a Site Safety Plan is developed and implemented.

D. Participates in the development of the Incident Action Plan; Develops the Hazardous Materials portion of the Incident Action Plan.

E. Evaluates and recommends evacuation, sheltering, and decontamination options to the Incident Commander.

F. Conducts safety meetings with the Hazardous Materials Unit members. The Hazardous Materials Group Supervisor is responsible for site safety and operations inside the area bounded by the Contamination Control Line including the Exclusion Area or "Hot Zone".

G. Ensures that the proper Personal Protective Equipment is selected and used.

H. Ensures that current weather data and future weather predictions are obtained.

I. Supervises the activities of and maintains communications with:
   1. Haz-Mat Unit Team members.
   2. Incident Commander or next higher level of supervision, if a position has been staffed.

J. Establishes environmental monitoring of the hazard site for contaminants.

K. Ensures that appropriate agencies are notified through the Incident Commander.

L. Terminates operations.

4.3.2 **ENTRY TEAM -** The Entry Team consists of a minimum of two members assigned to the Haz-Mat Unit. One member will be designated the Team Leader. The Team Leader will, on orders from the Haz-Mat Group Supervisor, perform the following functions:

A. Obtain briefing from the Hazardous Materials Group Supervisor.

B. Supervise entry operations.

C. Recommend actions to mitigate the situation within the Exclusion Zone.

D. Carry out actions, as directed by the Hazardous Materials Group Supervisor, to mitigate the hazardous materials release or threatened release.

E. Maintain communications and coordinate operations with:
   1. Hazardous Materials Group Supervisor.
   2. Decontamination Team Leader.
   3. Resource Technician / Hazardous Materials Reference.
   4. Back-up Team.

F. Maintain control of the movement of people and equipment within the Exclusion Zone, including contaminated victims.

G. Direct rescue operations, as needed, in the Exclusion Zone.

H. Terminate operations.

4.3.3 **BACKUP TEAM -** The Backup Team consists of a minimum of two members assigned to the Haz-Mat Unit. One member will be designated the Team Leader. The Team Leader will, on orders from the Haz-Mat Group Supervisor, perform the following functions:

A. Obtain briefing from the Hazardous Materials Group Supervisor.

B. Assist Entry Team in site survey and product identification.

C. Carry out actions as directed by the Hazardous Materials Group Supervisor.

D. Ensure all equipment is prepared for use according to action plan.

E. Maintain sight contact with Entry Team whenever possible.

F. In proper PPE, act as a backup Entry Team from safe area. Be prepared to rescue the Entry Team.

G. Complete operations in Exclusion Zone should Entry Team fail to complete assignment.

H. Maintain communications and coordinate operations with:
   1. Entry Team Leader.
   2. Hazardous Materials Group Supervisor.
   3. Resource Technician / Hazardous Materials Reference.
   4. Decon Team Leader.

I. Furnish additional equipment or supplies to the Entry Team as needed. Replace equipment used.

J. Terminate operations.

4.3.4 **DECONTAMINATION (DECON) TEAM -** The Decon Team consists of a minimum of two members assigned to the Haz-Mat Unit. One member will be designated the Team Leader. The Team Leader will, on orders from the Haz-Mat Group Supervisor, perform the following functions:

A. Obtain briefing from the Hazardous Materials Group Supervisor.

B. Manage the Control Zones and Access Control Points and the placement of appropriate control lines.

C. Ensure appropriate action is taken to prevent spread of contaminants.

D. Set up Decon area. Implement decontamination process of Haz-Mat Team.

E. Decon, as possible, all equipment used.

F. Maintain communications and coordinate operations with:
   1. Entry Team Leader.
   2. Hazardous Materials Group Supervisor.
   3. Resource Technician / Hazardous Materials Reference.
   4. Back-up Team.

G. Overpack exposed equipment for further decontamination or disposal.

H. Ensure that all equipment is placed back in service.

I. Terminate operations.

4.3.5 **RESOURCE TECHNICIAN -** A member of the Haz-Mat Unit designated to provide technical information and assistance to the Hazardous Materials Group using various reference sources such as computer data bases, technical library, CHEMTREC, and phone contact with facility representatives.

The Resource Technician may provide product identification using tests kits and/or any other means of identifying unknown materials.

The Resource Technician will, on orders from the Haz-Mat Group Supervisor, perform the following functions:

A. Obtains briefing from the Hazardous Materials Group Supervisor.

B. Provides support to the Hazardous Material Group Supervisor.
   1. Monitors SCBA use time for suit operations.
   2. Determines personal protective equipment compatibility to hazardous material.

C. Maintains communications and coordinate operations with:
   1. Entry Team Leader.
   2. Hazardous Materials Group Supervisor.
   3. Back Up Team Leader.
   4. Decon Team Leader.

D. Provide technical information management with public and private agencies. Interpret environmental monitoring information.

E. Provide analysis of hazardous material samples.

F. Document operations and notifications. E.g. Document serial numbers of chemical protective suits worn by members.

G. Provide technical information of the incident for documentation.

H. Determine proper decon requirements.

I. Complete all necessary reports and forms and terminate operations.

4.3.6 **SPECIAL OPERATIONS DECON OFFICER -** member of Special Operations Command assigned to the Hazardous Materials Group designated responsible for on-site and off site decontamination. The SOC Decon Officer will respond upon the request of the Incident Commander. The SOC Decon Officer reports directly to the Incident commander. The SOC Decon Officer supervises the SOC Decon Team.

The SOC Decon Officer, as directed, will:

A. Obtain briefing from IC, advise IC of decon needs, and formulate plan of action. The Decon procedure to be followed will be determined by DEP, and the SOC Decon Officer.

B. Identify items of equipment and clothing to be decontaminated.

C. Establish a Decon area.

D. Supervise the set-up and operation of all tools and equipment required for the decon procedure.

E. Arrange for collection, transportation, storage, cleaning, and temporary replacement of exposed or contaminated equipment.

F. Insure proper disposition of all processed items.

Procedures and documentation for this phase of operations will be as per policy developed by the Special Operations Command. See Section 5.3, for information on the Decon process.

The SOC Decon Officer will respond with the Decontamination Support Vehicle and the SOC Decontamination Team. Decontamination will, if possible, be accomplished at the scene to place apparatus, clothing and equipment back in service. If this is not possible, decontamination will be conducted at a time and site designated by the SOC Decon Officer.

4.3.7 **SPECIAL OPERATIONS COMMAND DECON TEAM -** consists of members assigned to Special Operations Command. They report directly to the SOC Decon Officer.

The SOC Decon Team is trained and designated by the Fire Department to perform decontamination of apparatus, tools, and equipment. They are qualified to execute specific procedures and operate decontamination equipment wearing the protective clothing and respiratory protection appropriate to the hazardous substance being processed.

5. SAFE WORK PRACTICES

5.1 GENERAL PROCEDURES

The following work practices must be enforced to ensure a safe work-site for all personnel.

A. Always consider the possibility that hazardous materials may possess multiple hazards.

B. Use full structural firefighting clothing and SCBA as minimum protection from unnecessary exposure to contaminants.

C. Each member should be alert to the signs, evidence and indications of the presence of hazardous substances during fires and emergencies and report such information to the next higher level of command.

D. If and when necessary, members may be divided into teams, each team should be equipped with at least one radio. The Officer of the unit will designate team members and radio contact person.

E. Mark all work zones and access points with barricade tape, flagging, or traffic cones.

F. Access to the site should remain free of unnecessary equipment and apparatus to facilitate other types of emergency access to and egress from the site.

G. Persons entering or leaving a work zone must check in/out at the access control point.

H. Access and means of egress must be secured and protected for the safety of persons in work zones. Doors, stairways and ladders should be secured. Ramps, ditches and excavations should be made as secure as possible in the event that rapid escape is required from the site.

I. No eating, drinking, or smoking is allowed in any contaminated area.

J. Implement decontamination based on an analysis of the hazards and risks involved.

(See Decontamination Section 5.3)

5.2 WORK ZONES

The method of reducing the potential for transfer of contamination is to delineate work areas within the incident site based upon expected or known levels of contamination. Within the areas assigned, personnel will utilize appropriate personal protective equipment. Movement between areas is controlled at checkpoints. Three contiguous areas will be established.

A. Exclusion area (contaminated) - "HOT ZONE"

B. Contamination reduction area - "WARM ZONE"

C. Support area (non-contaminated) - "COLD ZONE"

5.2.1 EXCLUSION AREA - HOT ZONE

The Exclusion Area is the inner most area and is considered contaminated or "hot". Within the Exclusion Area, prescribed levels of protection must be worn by all entering personnel. A check point must be established at the periphery of the Exclusion Area to control the flow of personnel and equipment between contiguous areas and to insure that the procedures established to enter and exit the areas are followed.

The Exclusion Area boundary would be established initially based on the type of released/spilled materials, initial instrument readings, and a safe distance from any potential exposure.

Subsequently, the boundary may be readjusted based on additional observation and/or measurements. The area should be physically secured by barrier tape into well-defined boundaries.

In the event that the public or any emergency responder has been exposed prior to recognition of a hazardous substance, those persons exposed should be isolated to avoid spreading any contamination and so that proper medical treatment and monitoring can be arranged.

Those not exposed must be kept out of the contaminated area.

Unless otherwise demonstrated, everything leaving the Exclusion Area should be considered contaminated and appropriate methods established for decontamination should be implemented.

5.2.2 CONTAMINATION REDUCTION AREA - WARM ZONE

Between the Exclusion Area and the Support Area is the Contamination Reduction area. The purpose of this zone is to provide an area to prevent or reduce the transfer of contaminants which may have been picked up by personnel or equipment returning from the Exclusion Area. All decontamination activities occur in this area.

The boundary between the Support Area and the Contamination Reduction Area is the "Contamination Control Line". This boundary separates the possibly contaminated area from the clean zone. Entry into the Contamination Reduction Area from the clean area will be through an access control point. Personnel entering at this location will be wearing the prescribed level of protection for working in the Contamination Reduction Area. Exiting the Contamination Reduction Area to the clean area requires the removal of any suspected or known contaminated protective clothing and/or equipment and that appropriate decontamination procedures be followed.

At the boundary between the Contamination Reduction Area and the Exclusion Area is the "Hot Line" and access control station. Entrance into the Exclusion Area requires the wearing of the prescribed chemical protective clothing which may be different than the equipment requirements for working in the Contamination Reduction Area.

At a point close to the "Hot Line", a personnel and/or equipment decontamination station is established for those exiting the Exclusion Area. Unless otherwise demonstrated, everything leaving the Exclusion Area should be considered contaminated and appropriate methods established for decontamination should be implemented.

5.2.3 SUPPORT AREA - COLD ZONE

The Support Area is the outermost area of the site and is considered a non-contaminated or "clean" area. It is designated as a controlled area for authorized support personnel and the location for support equipment (Command Post, Equipment, etc.). Since normal firefighting clothing are appropriate within this zone, potentially contaminated personnel clothing, equipment, etc., are not permitted.

5.2.4 AREA DIMENSIONS

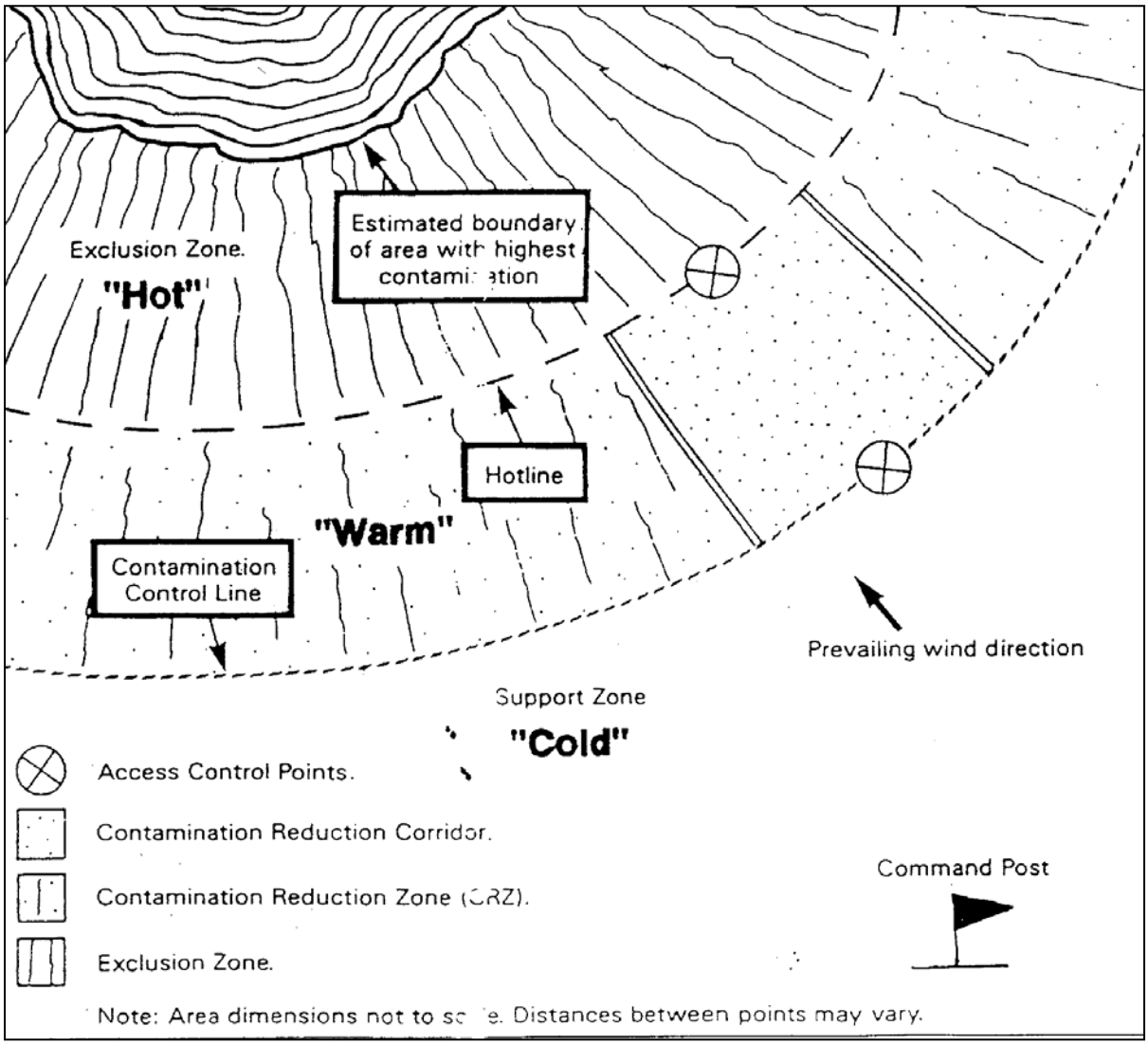
Considerable judgment is needed to assure safe working distances for each area balanced against practical work considerations. During long term operations zones may be adjusted.

The following criteria are to be considered in determining the area dimensions:

A. Physical and topographical barriers;
B. Weather conditions;
C. Monitoring measurements;
D. Explosion/exposure potential;
E. Physical, chemical, toxicological, etc., characteristics of the contaminant(s); and
F. Clean-up activities.

5.2.5 OTHER CONSIDERATIONS

The use of a three-zone system of area designation, access control points and exacting decontamination procedures provides a reasonable assurance against the translocation of contaminating substance. This control system is based on a "worst case" situation. Less stringent site control and decontamination procedures than described may be utilized based upon more accurate information concerning the types of contaminants involved and the contaminating hazards they present. This information can be obtained through air monitoring, instrument survey, etc., and technical data concerning the characteristics and behavior of material present. Site control requirements can be modified within the limits of safety for specific situations once more reliable data has been analyzed.


Exclusion Zone.
"Hot"
Estimated boundary of area with highest contamination
Hotline
"Warm"
Contamination Control Line
Prevailing wind direction
Support Zone
"Cold"
Access Control Points.
Contamination Reduction Corridor.
Contamination Reduction Zone (CRZ).
Exclusion Zone.
Command Post
Note: Area dimensions not to scale. Distances between points may vary.

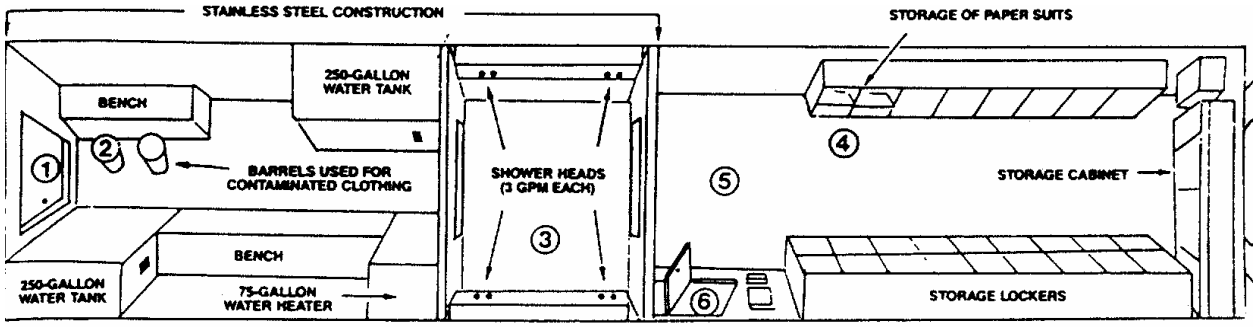
5.3 DECONTAMINATION PROCEDURES

As part of the system to prevent or reduce the physical transfer of contaminants by people and/or equipment from the site, procedures will be instituted for decontaminating anything leaving the Exclusion Area and Contamination Reduction Area. These procedures include the decontamination of personnel, protective equipment, monitoring equipment, clean-up equipment, etc.

In the event that the public or any emergency responder has been exposed prior to recognition of a hazardous substance, those persons exposed should be isolated to avoid spreading the contamination and so that proper medical treatment and monitoring can be arranged.

Those not exposed must be kept out of the contaminated area.

5.3.1 The FDNY maintains a Hazardous Materials Decontamination Unit. The Unit consists of the Decon trailer and a support unit. The Police Department has a similar unit that can be utilized as a backup. (See Diagram below)



① FIREFIGHTER ENTERS ② DROPS CLOTHING ③ SHOWERS
④ PUTS ON PAPER SUIT ⑤ UNDERGOES MEDICAL EXAM ⑥ EXITS

5.3.2 The following steps have been designed to deal with personnel decontamination in worst case incidents. In some situations it will not be necessary to go through the entire procedure. The decision to implement all or part of the decontamination process should be based on a field analysis of the hazards and risks of the hazardous materials involved. The FDNY Hazardous Materials Unit and the N.Y. City Departments of Health and Environmental Protection supply the toxicological and reactivity information that determines which techniques apply.

Step 1: An "entry point" will be established and marked in order to guide contaminated personnel into the DECON area.

Step 2: Protective clothing will be removed and isolated.

Contaminated coats, helmets, etc., should be placed in plastic bags to isolate contaminants. Bagged clothing should be sealed and placed in recovery drums outside the trailer for further analysis and for transportation to another location for laundering or disposal.

Step 3: Members enter the rear of the Decon Unit. EMS personnel will supervise the decon procedures. All personal effects and work clothing are removed and placed in bags and drums.

Step 4: In almost all cases, members will shower for a period determined by the type of substance involved. The exceptions occur when the substance involved is one made more active by water.

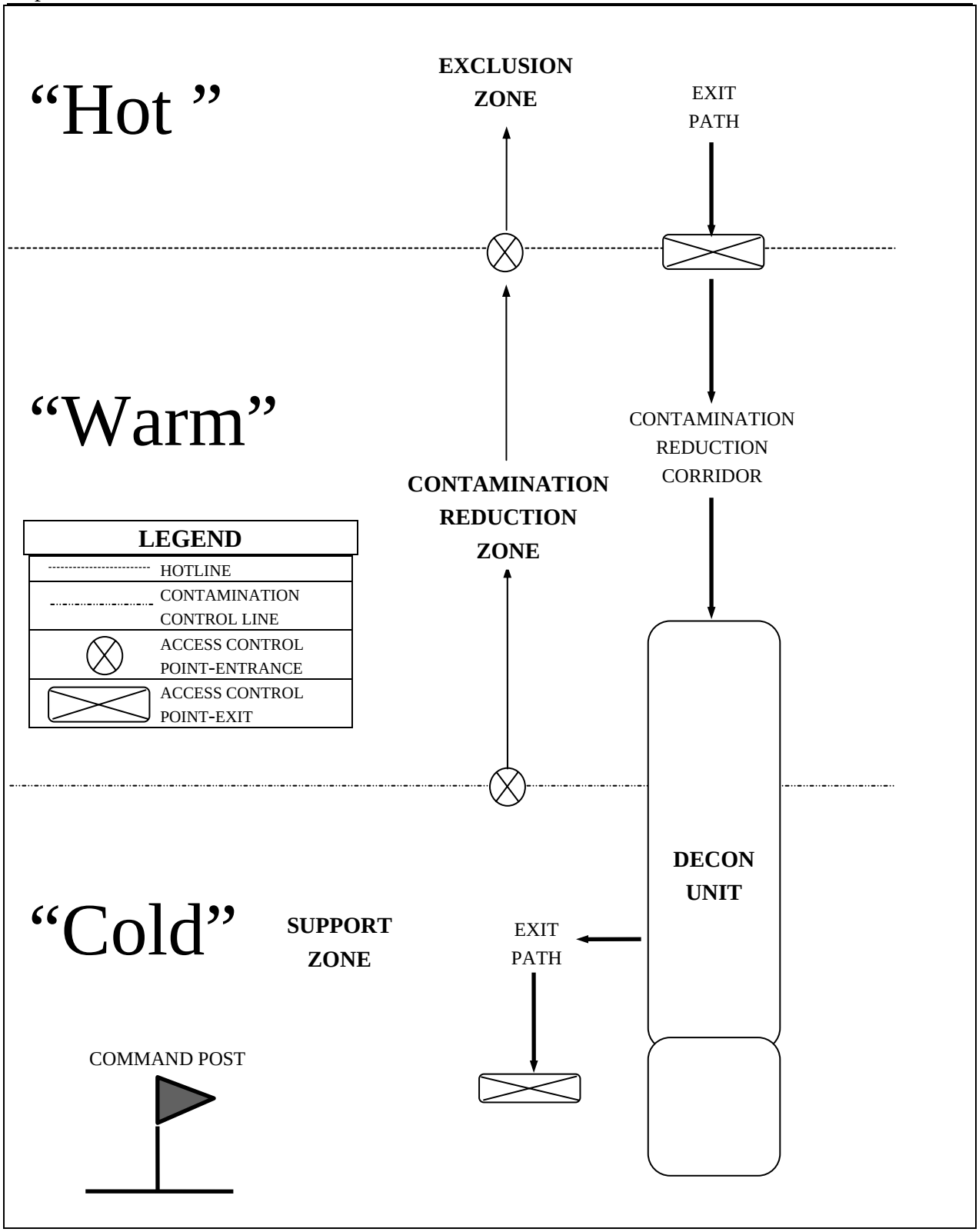
Step 5: After showering, members are issued towels and clothing to enable them to proceed to areas designated by EMS personnel. Members exit Decon Unit.

Step 6: EMS personnel examine members taking a medical history, checking vital signs, and follow up on any physical complaints. This will usually take place in the EMS MERVAN on the clean side or Support Zone.

Step 7: Any members that require further evaluation or treatment will be transported by EMS.

Step 8: The Decon Unit will disconnect and store the unit's equipment and apparatus.

Step 9: Waste water from the showers will be analyzed by DEP.


"Hot "
EXCLUSION ZONE
EXIT PATH
"Warm"
CONTAMINATION REDUCTION CORRIDOR
CONTAMINATION REDUCTION ZONE
LEGEND
HOTLINE
CONTAMINATION CONTROL LINE
ACCESS CONTROL POINT-ENTRANCE
ACCESS CONTROL POINT-EXIT
DECON UNIT
"Cold"
SUPPORT ZONE
EXIT PATH
COMMAND POST

5.3.3 A member of the Special Operations Command will Identify apparatus, equipment and clothing to be decontaminated.

All clothing, personal items, apparatus, tools and equipment will remain at the site pending this determination.

The Special Operations Command (SOC) will arrange for the collection, removal, transportation, storage, cleaning, and temporary replacement of exposed or contaminated clothing and equipment.

On receipt of members' original clothing, Company Commanders will contact SOC to arrange return of replacement clothing.

6. INCIDENT COMMAND SYSTEM FUNCTIONS AND RESPONSIBILITIES

Note: These activities are specific to hazardous materials incidents and are in addition to the usual requirements of each position. This does not restrict the IC from staffing other ICS positions or from specifying additional duties that might be required by the incident.

ANY FUNCTIONS NOT DELEGATED REMAIN THE RESPONSIBILITY OF THE INCIDENT COMMANDER.

6.1 SAFETY - reports directly to the Incident Commander.

The Safety Operating Battalion will respond to all 10-80 code 2 signals (Level 2 or 3 incidents) and as requested by the Incident Commander. At a hazardous materials incident, they will monitor conditions and activities in the Support Zone (Cold Zone).

The Safety Operating Battalion Chief at the scene is also designated to confirm that all exposed members participate in the decontamination procedure conducted by the Decon Team and the Special Operations Decon Officer. If for any reason the Safety Operating Battalion does not respond to the scene, the Special Operations Decon Officer will perform this function.

The Safety Chief is responsible for recording the name, rank, Social Security number and unit identification of all members decontaminated with a description of the decontamination procedures employed.

The Safety Chief designated will, as soon as practicable after the incident, forward a report to the Bureau of Health Services and the Bureau of Operations. See "Reports" Section 10.2.

6.1.1 The Hazardous Materials Group Supervisor is responsible for site safety and operations inside the area bounded by the Contamination Control Line including the Exclusion Area or "Hot Zone".

6.2 **INFORMATION - reports directly to the Incident Commander.**

The Fire Department Public Information Office will be notified upon transmission of signal 10-80 code 2 (Level 2 or 3 incident).

Firefighters should not make any statements to anyone outside the F.D. chain of command about the character or nature of a hazardous materials incident. Inquiries should be directed to the Incident Commander or Information Officer, if the position has been staffed.

Information to the public will be released in conjunction with the Office of the Mayor as per the NYC Response Plan.

6.3 **LIAISON - reports directly to the Incident Commander.**

This is a senior Fire Department Officer who is the contact point for representatives of assisting and cooperating agencies. The Liaison has the authority given by the IC to commit Fire Department resources to specific incident activities and support functions.

The Liaison assists the IC in assigning Technical Specialists to appropriate functions within ICS.

6.4 **OPERATIONS CHIEF - reports directly to the Incident Commander.**

The Operations Chief directs, coordinates and controls all tactical activities and functions necessary to carry out the objectives of Command. Reports directly to the Fire Department IC.

A. **Responsibilities of the Operations Chief.**

1. Directs the management of all Fire Department on-scene tactical efforts needed to gain control of the incident.

2. Works directly with the Fire Department IC and the On-Scene Coordinator developing both primary and alternative strategies.

3. Determines operational necessities and request additional support when required.

4. Establishes Sectors and Groups as determined by operational needs.

5. Assigns objectives to Sector and Group Supervisors.

6. Reports changing conditions to the IC.

7. Supervises the Staging Area Manager.

6.4.1 **TECHNICAL SPECIALISTS (Assigned to Operations)**

May be assigned by Command or Liaison Officer to advise or assist in the tactical activities under the direction of the Operations Chief.

6.5 **PLANNING CHIEF - reports directly to the Incident Commander.**

A. Gathers, evaluates, disseminates information for the development of alternative strategies.

B. Maintains records of incident activities for analysis and review, tracks current resource and situation status.

C. Establishes and maintains communications network.

6.5.1 **RESOURCE AND SITUATION STATUS**

This function will include preparation and maintenance of a Command and Control Chart as part of the overall site safety plan.

A. The Chart should identify the topographic features of the site, prevailing wind direction, drainage, location of buildings, physical barriers, tanks, etc. This information is helpful in:

1. Planning activities.

2. Assigning personnel.

3. Identifying access routes, evacuation routes, and any problem areas.

4. Identifying areas at the site that require the use of personal protective equipment.

5. As a visual aid during briefing of on site emergency personnel.

B. The Chart should be updated throughout the course of the operation and should reflect:

1. Changes in site activities;

2. Hazards not previously identified;

3. Weather conditions; and

4. Activities of other agencies on site.

6.5.2 TECHNICAL SPECIALISTS (Assigned to Planning)

A. May be assigned by Command or Liaison Officer in an advisory capacity from various parties and agencies with interest or jurisdiction. These might include representatives of the material owner/shipper, chemists, field monitoring personnel from other agencies, code and regulation enforcement officials, members of City agencies with expertise or resource capability of a unique nature.

They will supply technical information, data interpretation, sample analysis, forecasts, etc.

B. Persons assigned at this level generally do not have decision making authority for their particular agency unless specifically authorized. They act in an advisory capacity for incident planning.

C. Information gathered will be used by Command and Operations Chief for the development and execution of various incident activities.

6.5.3 DOCUMENTATION

A. The IC will designate a member to keep a Log. Log sheets have been supplied to all Divisions, Battalions, and the Haz/Mat Unit. The Log should be retained by the Fire Department IC.

Records of these incidents are always important but especially when the incident results in personal injury, property damage or damage to the environment.

B. Certain events require more complex documentation. These incidents include but are not limited to:

1. Prolonged multi-agency operation.
2. Multiple changes at the Command level.
3. Major events involving several jurisdictions, private corporations, public utilities, etc.
4. Events involving high risk operations.
5. Multiple injuries or mass exposure.
6. Extensive isolation or evacuation of the public or public areas.
7. Isolation or contamination of environmentally sensitive areas or facilities.

C. Transcripts of this information can be taken from video tapes, photographs, and sound recordings made during the event or from notes kept in a bound log book (not loose-leaf). Log books are carried in each Command Chief's car and in the Field Communications Unit.

D. All information should be recorded objectively. Each person making an entry should date and sign the document. The number of persons recording the information should be kept to a minimum.

E. Entries should be made in a timely way to insure accuracy and thoroughness. Neatness and legibility are essential.

F. The following information should be recorded:

1. Chronological history of the event.

2. Facts about the incident and when they became available including names, descriptions, source, quantity, and cause of release, if known.

3. Names and assignments of key personnel and resources.

4. Actions, decisions, orders and directions given: by whom, to whom, and when.

5. Actions taken: who did what, when, where, and how.

6. Possible exposure of personnel.

7. Records of all injuries and illnesses during, or as a result of, the emergency.

6.6 **LOGISTICS CHIEF - reports directly to the Incident Commander.**

A. Logistics is the procurement, distribution, maintenance of facilities, services, materials and personnel to support the incident.

B. The Service and Support functions would include the following responsibilities:

1. Service

a. Fire Department Medical Officer:

1. Determine a site for medical facilities.
2. Assist in setting up and recording the transportation of the injured.
3. Provide medical treatment for Fire Department personnel.

b. Facilities

1. Assist in the operation of the Command Post, recuperation and care areas and secondary staging for apparatus. Procuring shelter facilities for personnel.

2. Support
   a. Mask Service
      Supply air cylinders or air lines.

      NOTE: <u>POTENTIALLY CONTAMINATED CYLINDERS MUST NOT BE EXCHANGED.</u>

   b. Special Units (Supplies)
      1. Order and supply specialized extinguishing agents (CO2, Foam, Dry Powder etc.).
      2. Order and supply diking, absorbent, or neutralizing materials.
      3. Facilitate specialized tools or heavy duty equipment (shoring, cranes, etc.), pumps, etc.

   c. Fleet Maintenance
      1. Repair and refueling of vehicles at extended operations.
      2. Supply vehicles for transportation.

C. Liability, costs to the provider, and the availability of certain types of equipment preclude irregular or informal arrangements for the procurement of equipment and supplies. (See Emergency Equipment, Section 3.8)

6.6.1 TECHNICAL SPECIALISTS (Assigned to Logistics)

Members from the Special Operations Command (SOC) will respond to the scene of each event that requires Decontamination to supervise and facilitate the procedure for collecting, documenting, and tracking clothing and equipment that is to be confiscated and replaced.

Procedures and documentation for this phase of operations will be as per Department publications.

(See Hazardous Materials Group, Section 4.3.6, 4.3.7, 4.3.8)

6.7 FINANCE

Cost recovery/Restitution from the party responsible for the incident or recovery from governmental funding, involves documenting all information pertinent to the costs involved in mitigating the incident incurred by the Department or the City. All costs must be documented and supported with written materials such as damage reports, time records, receipts and invoices.

7. INTERAGENCY SUPPORT SYSTEM - As part of the response system various agencies will be notified and will respond based on the specific nature of the incident. It is essential that each responder be familiar with New York City's broader plan for response to a hazardous materials emergency since each agency has a specific role in the total response.

The following agency resources are available and will respond as needed and according to the NYC Hazardous Materials Response Plan. Their duties include but are not necessarily limited to the following:

A. OFFICE OF EMERGENCY MANAGEMENT (OEM), Police Dept.

Coordinate all City agency activities.
Coordinate evacuation, if necessary.
Consult with Dept. of Environmental Protection Response Team and Poison Control Center to evaluate the extent of the hazard.
Staff and support Interagency Command Center (ICC).
Contact and maintain liaison with NY State Office of Emergency Management.

B. ON SCENE COORDINATOR (OSC), Police Dept.

Establish Interagency Command Center (ICC).
Establish Communications capability between the site and the ICC.
Establish and maintain overall site security.
Coordinate all on site personnel.
Direct activities of Police Dept. Operations Unit.
Coordinate and select Emergency Response Routes.
Coordinate "off loading", if necessary.

C. POLICE DEPARTMENT, (PD)

Control traffic and emergency vehicle access in site vicinity.
Crowd control and evacuation, if appropriate.
Provide central information and notification center for all City agencies.

D. DEPT. OF ENVIRONMENTAL PROTECTION (DEP)

Dispatch response Team to provide technical personnel and equipment.
Sample and analyze substances and the environment.
Gather information, provide technical guidance to OEM.
Obtain financial approval for and arrange private sector containment, control, clean up, and disposal of hazardous materials, where necessary.

E. SANITATION DEPARTMENT

Maintain/supply materials for containment and confinement operations.
Clean up and disposal of materials (except liquids) rendered harmless as determined by DEP and Health Dept.
Investigate/enforce environmental/dumping regulations.

F. DEPARTMENT OF HEALTH

Provide technical information on materials hazards.
Assess effects to public health.
Provide informational/precautionary press statements concerning public health.
Ensure proper mitigation and disposal of radioactive and etiological agents.

G EMERGENCY MEDICAL SERVICES (EMS)

On site medical services.
Assist in Fire Department decontamination.

H. DEPARTMENT OF TRAFFIC

Facilitate and control traffic flow in area.

I. MAYOR'S PRESS OFFICE

Exclusive authority for public information and warnings.

8. INCIDENT TERMINATION PROCEDURES

8.1 CLEAN UP OPERATIONS

Incident scene activities include removing the hazardous material, all contaminated debris (including dirt, water, containers, vehicles, tools and equipment) and returning the scene to as near normal as it existed prior to the incident.

Clean up operations are not a Fire Department function. However, assuring that this clean up takes place is a responsibility of the Fire Department.

The Fire Department will cooperate with the Department of Environmental Protection (DEP) in arranging clean up activities. The Senior representative of DEP will arrange for authorization to obtain financial approval for and arrange private sector containment, control, clean up, and disposal of hazardous materials, where necessary.

In some cases, the Hazardous Materials Unit will take samples of materials for testing. These samples will be picked up by DEP to be tested and analyzed. Under no circumstances is any Fire Department unit, including the Hazardous Materials Unit, to transport these samples or any hazardous material, even if properly contained, to any Fire Department location or facility or other location or agency.

If operations are concluded and DEP has not arrived at the scene, these samples will remain at the scene for pick up by DEP. The Police Department representative at the scene will safeguard these samples. If the Police Department is not represented at the scene the Police Dept. Operations Unit should be contacted through the dispatcher. The Fire Department IC should request priority response and be prepared to give all particulars regarding the need for Police assistance.

The Hazardous Materials Unit shall not be detained at the scene for purposes of safeguarding materials after control and containment of the substance has been completed.

Arrangements for the collection, transportation, cleaning, and temporary replacement of exposed or contaminated Fire Department equipment shall be the responsibility of the Special Operations Decon Officer at the scene. (See 4.3.6)

8.2 Prior to leaving the scene, the IC shall review the particulars of the incident to make a preliminary determination regarding compliance with fire prevention regulations and directives. Non-compliance should be addressed through violation orders, summonses, vacate orders etc. If necessary, consult the Bureau of Fire Prevention for assistance.

Additionally, within ten (10) days from the completion of the post incident review, the IC shall notify the Chief of the Bureau of Fire Prevention of any violation or suspected violation of statutes or regulations that he or she became aware of during the course of the response to the hazardous material incident or during the post incident review process.

8.3 Specific incident termination instructions will be listed in the incident checklist.

9. POST INCIDENT PROCEDURES

9.1 INCIDENT ANALYSIS

A. The Incident Commander's responsibility following each hazardous materials operations includes a review of actions taken. Corrective actions should be taken at the lowest possible level. Recommendations regarding procedures or the elements of the response plan should be forwarded through the chain of command with endorsements to the Chief of Department.

B. Prior to leaving the scene, the IC shall review the particulars of the incident to make a preliminary determination regarding compliance with fire prevention regulations and directives. Non-compliance should be addressed through violation orders, summonses, vacate orders etc.. If necessary, consult the Bureau of Fire Prevention for assistance.

Additionally, within ten (10) days from the completion of the post incident review, the IC shall notify the Chief of the Bureau of Fire Prevention of any violation or suspected violation of statutes or regulations that he or she became aware of during the course of the response to the hazardous material incident or during the post incident review process.

C. As a standard part of this Emergency Response Plan the Fire Department will review all hazardous materials incidents in order to:

1. Identify and correct any deficiencies in the response plan.

2. Identify trends, patterns, and deficiencies in procedures that need to be addressed in revised operations, safety, or training programs.

3. Develop a database to establish profiles for decisions re: tools & equipment, training, budgeting, operations, hazard prevention legislation etc.

4. Identify incidents where the Fire Department may seek cost recovery or that may qualify for reimbursement under EPA regulations.

5. Document efforts of proactive intervention to reduce losses.

D. The process begins with a preliminary review of the following incidents:

1. City wide 10-80 response record.
2. Exposure reports CD-73; CD-72 Medical reports indicating Hazmat exposure.
3. Any incident involving "Decon".
4. Level 2 and 3 incidents.

E. Consolidated reports and descriptions of these incidents will be reviewed on a monthly basis by:

1. Bureau of Operations
2. Division of Safety
3. Division of Training
4. OSHA Coordinator

F. Findings and recommendations, if any, from any individual review will be forwarded through the chain of command to the Chief of Department for consideration.

G. A formal critique may be ordered by the Chief of Department. The formal critique report is included in the appendix of this document.

9.2 CRITIQUE OUTLINE

When a formal critique is ordered, the IC for the particular incident shall prepare a narrative report addressed to the Chief of Department, containing at least the following information. Include copies of the incident log to reduce preparation time.

1. Identifying information including the date, box number, location.

2. Description of conditions found and actions taken by the first responding units.

3. Description of conditions found and actions taken by the first Chief Officer to arrive.

4. Describe hazard identification and site control measures taken and results.

5. Describe the personal protective equipment and special chemical protective equipment used by each group of responders at the incident. Describe decision made re: changes in these levels of protection.

7. A timeline describing the notification, change of command and arrival of special units, outside agencies etc..

8. Describe the ICS organizational structure developed. (Include positions staffed, Command post, sectors / groups, control zones, etc.).

8. A description of the key phases of the incident including sufficient detail to explain changes in incident activities or other significant events during the life of the incident. Include description of alternative plans considered, if any.

9. Description of decon procedures.

10. Description of problems encountered and lessons learned.

9.3 EMERGENCY RESPONSE PLAN REVIEW

A formal cyclical review process and a method of keeping this document current with existing laws and standards will be developed and implemented at the time this document is finalized and published.

The review process will be developed with the intent described in the Incident Analysis portion of this document.

10. APPENDIX

10.1 REFERENCES

The following list of materials will provide greater insight on the individual subject areas discussed in this document:

A. **OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION**
29 CFR 1910.120 - Hazardous Waste Operations and Emergency Response;
B. **ENVIRONMENTAL PROTECTION AGENCY - 40 CFR 300**
C. **SUPERFUND AMENDMENT AND REAUTHORIZATION ACT**
D. **N.Y.C. OFFICE OF THE MAYOR** Mayoral Directive 82-2 (revised 1986)
E. **OFFICE OF EMERGENCY MANAGEMENT** Memorandum of Understanding - Asbestos (12/5/89)

10.2 ABBREVIATIONS

CFR	-	Code of Federal Regulations
CP	-	Command Post
DEP	-	Department of Environmental Protection
DOT	-	Department of Transportation
ERG	-	Emergency Response Guidebook (DOT)
ERP	-	Emergency Response Plan
EMS	-	Emergency Medical Services
EPA	-	Environmental Protection Agency (Federal)
HAG	-	Hazard Action Guide
IC	-	Incident Commander
ICS	-	Incident Command System
NFPA	-	National Fire Protection Association
OEM	-	Office of Emergency Management (NYC)
ORM	-	Other Regulated Materials
OSHA	-	Occupational Safety and Health Administration
PPE	-	Personal Protective Equipment
SCBA	-	Self Contained Breathing Apparatus
SOC	-	Special Operations Command
SOP	-	Standard Operating Procedure

- END OF PART 5 -

GLOSSARY OF TERMS

Appendix A
Incident Command System
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A

AGENCY REPRESENTATIVE

Individual assigned to an incident from another agency who has been delegated full authority to make decisions on all matters affecting that agency's participation at the incident. Agency representatives report to the Incident Liaison Officer. (See also: LIAISON)

"ASSIGNED" RESOURCES

Manpower and/or equipment assigned and performing tasks at an incident.

ASSISTING AGENCY

An agency (Law enforcement, EMS, etc.) directly contributing suppression, rescue, support service resources and/or personnel to another agency. (See also: COOPERATING AGENCY; LIAISON)

"AVAILABLE" RESOURCES

Resources assigned to an incident and not committed to a work assignment, but ready for immediate deployment.

B

BRANCH

The organization level instituted by the IC or Operations Chief to maintain appropriate span of control over an excessive number of sectors/groups; when operations may be in several locations; diverse functions are being managed. A branch may be geographical or functional in nature.

Example: An Exposure 3 Branch, EMS Branch.

BRANCH COMMANDER

An ICS title for individuals responsible for command of a BRANCH. Radio designation is as assigned by the IC or Operations Chief. (In the previous example, "EXPOSURE 3" or "EMS COMMAND")

C

CHIEF

ICS title for individuals responsible for command of the functional Sections: Operations, Planning, Logistics and Finance. (See individual listings)

COMMAND

The function of directing, ordering and/or controlling resources by virtue of explicit legal, agency, or delegated authority; Radio designation for the Incident Commander.

COMMAND POST

An area from which the Incident Commander exercises command and control over the incident.

COMMAND POST COMPANY

Engine companies that assist in the operation of the lobby command post at a high-rise fire or emergency.

COMMAND STAFF

The command staff consists of Information, Safety, and Liaison Officers, who report directly to the Incident Commander. (See individual listings)

COMMUNICATIONS

A sub-function of the Planning Section. Provides a network for the interchange of information within the ICS and between the command post and the dispatcher.

COMMUNICATIONS COORDINATOR (COMCORD)

Battalion Chief who serves as a communications manager. Controls all communications and supervises or maintains its associated functions (Field Comm., Command Control Chart, Etc.)

COOPERATING AGENCY

An agency supplying assistance other than direct suppression, rescue, support, or service functions to the incident control effort (Red Cross, Utility company, etc.). (See also: ASSISTING AGENCY; LIAISON)

COORDINATION

The process of systematically analyzing a situation, developing relevant information, and informing appropriate **command** authority (for its decision) of viable alternatives for selection of the most effective combination of available resources to meet specific objectives.

The coordination process (which can be either intra-or interagency) does not, in and of itself, involve command dispatch actions. However, personnel responsible for coordination **may** perform command or dispatch functions within limits as established by specific agency delegations, procedures, legal authority, etc. (See also: UNIFIED COMMAND)

COST

A sub-function within the Finance section responsible for tracking cost, analyzing cost data, making cost estimates and recording cost-savings measures. (See FINANCE)

D-E

DEMOBILIZATION

A sub-function within the Planning Section. Responsible for assuring orderly, safe, efficient demobilization of resources committed to the incident.

DOCUMENTATION

A sub-function with the Planning Section responsible for recording/protecting all documents relevant to incident.

F

FACILITIES

A sub-function within the Logistics Section providing for facilities required at the incident. The facilities may include rehabilitation areas, feeding areas, security and lighting for the command post etc..

FIELD COMMUNICATION UNIT

A mobile facility carrying various types of communications equipment. This tactical command unit may serve as a field command post. It comprises the major portion of the incident communications center. It provides Resource and Situation Status at major incidents. (See also: COMMUNICATIONS; RESOURCE & SITUATION STATUS)

FINANCE SECTION

Responsible for tracking all costs and evaluating the financial considerations of the incident. When staffed reports directly to the IC. (See COST; PROCUREMENT; TIME)

FLEET MAINTENANCE

A sub-function within the Logistics Section responsible for fueling/maintaining/repairing vehicles/equipment and the transportation of supplies. (See also: SUPPORT)

FOOD

A sub-function within the Logistics Section responsible for providing food/refreshments for personnel involved with incident. This is currently provided by the Third Alarm Association. (See also: SERVICES)

G

GENERAL STAFF

The group of incident command personnel comprised of the Incident Commander, Operations Chief, Planning Chief, Logistics Chief and Finance Chief. (See also: INCIDENT COMMAND SYSTEM)

GROUP

An organizational level responsible for a specified **functional** assignment commanded by a group supervisor. Examples include: Ventilation group; Search group; Decon group. (See also: SECTOR)

GROUP SUPERVISOR

Individual responsible for managing a functional group. Radio designation is derived from assigned function. For example, "SEARCH GROUP 1".

H-I

INCIDENT

An occurrence or event, caused by human or natural phenomena. It requires action by emergency service personnel to prevent or minimize loss of life or damage to property and/or natural resources.

INCIDENT ACTION PLAN

The strategic goals, tactical objectives and support requirements for the incident. It is an ordered sequence of events, occurring within a designated period of time, that results in the accomplishment of specific objectives.

INCIDENT COMMANDER (IC)

The individual responsible for the management of all incident operations. The radio designation for the IC is **"COMMAND".**

INCIDENT COMMAND SYSTEM (ICS)

An emergency operations management structure which provides for unity of command and the efficient use of resources for the effective accomplishment of stated objectives pertaining to an incident. It includes the combination of facilities equipment, personnel and communications operating within a common organizational structure.

INFORMATION AREA

A functional area from which factual and timely reports are disseminated to the news media or other agencies.

INFORMATION OFFICER

The individual assigned responsibility for gathering and disseminating factual and timely reports to the media and other agencies. The release of information must be approved by the IC. The Information Officer is a member of the Command Staff. Radio designation is "INFORMATION". (See: COMMAND STAFF)

J-L

LIAISON OFFICER

The point of contact for assisting and cooperating agencies (local, State, Federal, or private sector) as needed or as directed by the Incident Commander. The Liaison Officer is a member of the Command Staff and has authority to commit resources to incident activities. Reports directly to IC. Radio designation is "LIAISON". (See: COMMAND STAFF)

LOGISTICS SECTION

Responsible for the procurement, distribution, maintenance and replacement of services, materials and personnel to support the incident. Managed by the Logistics Section Chief. Radio designation is "LOGISTICS". (See also: SERVICES; SUPPORT)

M

MEDICAL OFFICER

The Fire Department Medical Officer directed by the Incident Commander to respond to the incident and provide medical care for fire personnel. Radio designation is "MEDICAL OFFICER".

MUTUAL AID

Documents between the City of New York and surrounding communities in which the parties agree to assist one another upon request by furnishing personnel and equipment in an emergency situation.

N-O

OFFICER

ICS title for the Command Staff positions of Safety, Liaison, and Information. Also used when a individual supervises a sub-function within Planning, Logistics, or Finance.

ON-SCENE COORDINATOR (HAZ-MAT)

The highest ranking Police Dept. official at the incident. Responsible for coordinating responding agencies.

OPERATIONS SECTION

Staffed by the IC to carry out all the tactical decisions of the Incident Commander. May include as many as 5 Branches, 25 Sectors or Groups, and 125 Single Resources, or teams. Managed by the OPERATIONS CHIEF.

OPERATIONS SECTION CHIEF

Responsible for all tactical operations at the incident. Radio designation is "OPERATIONS".

"OUT-OF-SERVICE" RESOURCES

Resources assigned to an incident but unable to respond for mechanical, rest, or personnel reasons.

P

PLANNING SECTION

Collects, evaluates, and disseminates information regarding the incident. Supervises the development of the incident action plan. Sub-functions include resource and situation status, documentation, demobilization, technical specialists and communications. Managed by the Planning Section Chief. Radio designation is "PLANNING".

PLANNING MEETING

A meeting, held as needed throughout the duration of an incident, to select specific strategies and tactics for incident control operation and for service and support planning.

POLICE OPERATIONS COMMANDER

Responsible to the Incident Commander for the management of police related functions.

POST INCIDENT ANALYSIS

A review and discussion of actual operations and support performed in a recent incident, for the purpose of (1) identifying areas of strength and weakness and (2) developing corrective measures. It is conducted by key persons involved in the incident.

PROCUREMENT

A sub-function within the Finance Section responsible for financial matters involving vendors.

Q-R

RESOURCES

All personnel and major items of equipment available, or potentially available, for assignment to incident tasks on which status is maintained.

RESOURCE & SITUATION STATUS

A sub-function within the Planning Section. Responsible for recording the status of resources committed to incident and evaluation of: resources currently committed to incident; the impact that additional responding resources will have on incident; anticipated resource needs and analysis of the situation as it progresses.

RECUPERATION AND CARE AREA

Area designated for personnel to rest or for protection from the elements.

S

SAFETY OFFICER

Responsible for monitoring and assessing safety hazards or unsafe situations and developing measures for ensuring personnel safety. Member of the Command Staff. Radio designation is "SAFETY".

SECTION

That organization level having functional responsibility for primary segments of incident operations, such as: Operations, Planning, Logistics, and Finance. The Section level is established by the IC and supervises or manages various sub-functions. (See individual titles)

SECTOR

Organizational level having responsibility for Incident Operations in a specified **geographical** area, commanded by a sector supervisor.

SECTOR SUPERVISOR

The individual responsible for operations within a defined sector (geographical area). Radio designation is derived from assigned area. For example, "EXPOSURE 2".

SERVICES (LOGISTICS)

The supplying of medical, food or facility needs to operating fire personnel. (See also: FOOD; MEDICAL; FACILITIES)

SINGLE RESOURCE

An individual, company, or specialized unit. Radio designation is by unit name unless assigned to an specific ICS function or designation by the IC. (See also: UNIT)

SPAN OF CONTROL

The supervisory ratio, usually limited to three to seven subordinates, delineating the management limits of a supervisor.

STAGING AREA

Location where incident personnel and equipment are assembled prior to assignment at an incident. It should provide good access to the scene. It is supervised by a Staging Area Manager.

STAGING AREA MANAGER

The individual, designated by the Incident Commander, responsible for the assembling of personnel and equipment in the staging area. Reports to the IC until Operations Section is staffed. Radio designation is "STAGING".

STRATEGIC GOALS

The overall plan that will be used to control the incident. Strategic goals are broad in nature and are achieved by the completion of tactical objectives.

SUPPORT (LOGISTICS)

A sub-function within the Logistics Section providing the personnel, equipment, and supplies to support incident operations. This includes Mask Service, Fleet Maintenance, and any other specialized supply/support units. (See also individual titles)

T

TACTICAL OBJECTIVES

The operations that must be performed in order to satisfy the strategic goals. This is how the job should be done and they must be both specific and measurable.

TEAM

Any combination of single resources (units) or individuals put together for a temporary assignment under the direction of an officer. The number of individuals or single resources should not exceed five. Radio designation is as per related function or activity. For example "ROOF"(team) or "EXPOSURE 2"(team).

TECHNICAL SPECIALISTS

Personnel with special skills who are activated only when needed for a particular incident. These may include environmental or hazardous material experts, building engineers, Special Operations officers etc.. May work with the Planning Section or anywhere within the ICS Organization as directed.

TIME

A sub-function within the Finance Section. Responsible for record keeping of time for personnel working at incident. (See also: FINANCE)

U-Z

UNIT

An organization element having responsibility for a specific function as designated by the Department (an Engine Co.; Field communications etc.) or Incident specific activity or function as designated by the IC (Documentation; Food, etc.).

UNIFIED COMMAND

Shared responsibility for overall scene management as a result of a multi-agency or multi-jurisdiction incident. Goals, tactical objectives, tactical operations and use of resources are decided jointly. Implementation of the joint action plan is the responsibility the OPERATIONS CHIEF who usually is the representative of the agency having the greatest jurisdictional involvement.

BY ORDER OF THE FIRE COMMISSIONER AND THE CHIEF OF DEPARTMENT

Appendix B
POLICE/FIRE PROTOCOL

DCN: 3.01.03 **A.U.C. 276**
April 5, 1994

POLICE/FIRE PROTOCOL

Appendix B
AUC #276 Police/Fire Protocol
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1. INTRODUCTION

A protocol has been established to put an end to the confusion concerning the roles and responsibilities of the Police and Fire Departments at emergencies.

This protocol was developed in an atmosphere of cooperation and mutual respect between our two departments and with the interest of the public as a top priority.

The Fire Commissioner expects the cooperation of all officers and members to insure the successful implementation of this protocol.

2. GENERAL OPERATIONAL GUIDELINES

2.1 NOTIFICATIONS: Under the new protocol, both agencies will be responsible for immediately notifying the 911 communications system of any life-threatening situation which has come to their attention. The 911 system will, in turn, be responsible for notifying the appropriate response agencies. Implementation of the protocol will be monitored and evaluated by the Mayor's Office of Operations.

2.2 At the scene of a fire, the ranking Fire Department officer will assume command. The ranking member of the Police Department will report to the fire officer in charge and offer any assistance that may be required. The police supervisor will request the Fire Department commander to inform Fire Department subordinates that evidence, especially in suspected arson or explosive cases, MUST be preserved and safeguarded.

2.3 The ranking Police Department officer will assume command at the scene of a non-fire emergency. The ranking Fire Department official will report to the police commander and offer any assistance that may be required. The police and fire officers in command will make a joint examination to determine if the potential for a fire exists. In any case, the police commander will consider the recommendations of the fire officer in charge concerning actions to be taken to prevent a fire.

2.4 At the scene of any emergency, the police and fire officials in charge of their department resources will determine the special equipment carried by police and fire department units on the scene. The most effective and efficient tools required to effect a rescue will be used regardless of whether the tool belongs to the Police Department or the Fire Department. Furthermore, when conducting a joint operation, the special talents and abilities of members of both departments will be considered when making assignments and the first responding unit will commence rescue operations without delay.

2.5 During a joint operation, specific directions to members of both departments will be issued through their department's chain of command. Ranking police and fire commanders will confer frequently concerning orders and directions to be issued. The ranking officers of the Police and Fire Departments MUST be aware of the need for mutual cooperation. All police personnel and fire personnel MUST understand that they will be held strictly accountable for their conduct during joint operations.

3. SPECIFIC OPERATIONAL GUIDELINES

3.1 WATER RESCUES: The Fire Department and the Police Department will dispatch qualified divers to the scene of water rescues and upon arrival, will immediately commence rescue operations under the direction of the ranking police officer. The Police and Fire Department Scuba Units will undertake joint training exercises at least twice annually so that their rescue activities are well coordinated.

3.2 BOMB THREATS: Upon locating the explosive device, the NYPD Emergency Services Unit will request the bomb squad to respond to the scene. A Fire Department unit will respond to a nearby mobilization point designated by the ESU officer and await further instructions. The ranking police officer at the scene will remain the coordinator of on site operations.

3.3 HAZARDOUS MATERIALS: Both the Fire and Police Departments will respond to the scene of all hazardous materials incidents. The containment and mitigation of such materials will be done under the direction of the ranking fire officer.

3.4 STRUCTURAL COLLAPSES: Both the Police and Fire Departments will continue to respond to structural collapses. Rescue operations utilizing fire and police personnel will be under the ranking fire officer at the scene. All other on site activities will be coordinated by the ranking police officer. The departments will conduct joint structural collapse training exercises at least twice a year.

3.5 VEHICLE ACCIDENT EXTRICATION: The first extrication equipped unit to arrive on the scene, Police or Fire, will initiate rescue operations, and continue until they have finished, or until they request and receive relief. When both Police and Fire Units are on the scene, command of the overall operation will be under the ranking Police supervisor at the scene.

3.6 UTILITY EMERGENCIES: The Fire Department will assume primary responsibility for mitigating gas leaks, water leaks, fallen electrical or telephone lines, flooding conditions, fallen trees which are blocking roadways or unstable building facades. Police officers will respond to the scene only if requested by the Fire Department.

4. CONCLUSION

Both agencies are committed to insure the most effective response to life or death emergencies. This protocol is an important step towards achieving our objective.

BY ORDER OF THE FIRE COMMISSIONER AND THE CHIEF OF DEPARTMENT

Appendix C
AGREEMENTS BETWEEN THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND THE FIRE DEPARTMENT OF THE CITY OF NEW YORK

Reproduced with permission of The Port Authority of New York and New Jersey.

WTCI - 113 - P

THE PORT AUTHORITY OF NY & NJ

One World Trade Center
New York, New York 10048

Law Department

Jeffrey S. Green
General Counsel

Lawrence S. Hofrichter, Chief
Finance Division
(212) 435-6220
(201) 961-6600 x6220

November 5, 1993

THE PORT AUTHORITY OF N.Y. & N.J
TENANT CONSTRUCTION REVIEW UNIT
RECEIVED
NOV 09 1993
NOTED_____
REFERRED TO_____

Charles G. Sturcken, Deputy General Counsel
The New York City
Department of Buildings - Executive Offices
60 Hudson Street
14th Floor
New York, New York

Dear Mr. Sturcken:

Enclosed please find a fully executed original of the Memorandum of Understanding between the Port Authority and the New York City Department of Buildings.

For your information, the gubernatorial review period for the enclosed agreement will end at midnight Wednesday, November 17, 1993. It has been a pleasure working with you on this matter.

Very truly yours,

Walter M. Frank
Deputy Chief, Finance Division
Law Department

Enclosures

cc: William H. Goldstein, Deputy Executive Director, Capital Programs

bcc: J.S. Green, P.S. Cooper (51N), A.A. DiNome (68S), E.J. Fasullo (72S), L.S. Hofrichter, F.J. Lombardi (72S), C.J. Maikish (35E), A.J. Raiola, S.T. Van de Walle

WTCI-113-P

MEMORANDUM OF UNDERSTANDING BETWEEN THE NEW YORK CITY DEPARTMENT OF BUILDINGS AND THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

This Memorandum shall govern the relationship between the New York City Department of Buildings (the "Department") and the Port Authority of New York and New Jersey (the "Port Authority"), both parties entering into this agreement with the intention to establish procedures to be followed by the Port Authority for any building construction project ("Project"), to be undertaken by the Port Authority or any of its tenants at buildings owned or operated by the Port Authority and located in the City of New York (the "City), to assure conformance of Projects at such buildings with the standards set forth in the New York City Building Code (the "Code").

While the facilities of the Port Authority, an agency of the States of New York and New Jersey, are not technically subject to the requirements of local building codes, the long-standing policy of the Port Authority has been to assure that its facilities meet and, where appropriate, exceed Code requirements.

The purpose of this Memorandum is not only to restate that long-standing policy as part of an understanding with the City but to provide specific commitments to the Department, as the agency of the City responsible for assuring compliance with the Code, regarding procedures to be undertaken by the Port Authority for any Project at its facilities in the City to assure that the buildings owned or operated by the Port Authority within the City are in conformance with the Building Standards contained in the Code.

Accordingly, the Department and the Port Authority hereby agree as follows:

1. Port Authority Review. To assure conformance with the building standards set forth in the Code at the time of the design and construction of any Project, the Port Authority shall, in the case of each Project, thoroughly review and examine all plans in connection with such Project for conformance with the building standards set forth in the Code. Plans prepared for Projects to be undertaken by Port Authority tenants shall be prepared and sealed by a New York State licensed professional engineer or architect retained or employed by tenant; plans prepared for Projects to be undertaken by the Port Authority shall be prepared by a New York State licensed professional engineer or architect employed or retained by the Port Authority. The Port Authority's examination of plans shall be conducted by New York State licensed architects and engineers retained or employed by the Port Authority. The Port Authority engineer or architect approving the plans for any Project from the standpoint of Code conformance shall be a New York State licensed architect or engineer who shall not have assisted in the actual preparation of such plans.

2. Project File. The Port Authority shall maintain a file (the "Project File") for each Project which file shall at all times contain the most recently

prepared drawings, plans and any other documents required in connection with the review of the Project from the standpoint of Code conformance. In the case of any Project being effectuated by a tenant of the Port Authority (a "Tenant Project") such file shall also include the Tenant Alteration Application prepared by the Tenant. In the case of any project administered by a line department of the Port Authority, such file shall include any construction application prepared in connection with such Project. The Line Depadments of the Port Authority are currently its World Trade, Aviation, Interstate Transportation, Port, and Regional Development Departments.

3. Project Certification. For each Tenant Project, the Port Authority shall require the Tenant to obtain the certification of a New York State licensed architect or engineer that such Project was constructed in accordance with the approved plans and specifications for such Project. For any Project effectuated by the Port Authority, the Chief Engineer or his successor in duties shall certify that the Project was constructed in accordance with the approved plans and specifications for the Project. Certifications for each Project shall be maintained in the Project File.

4. Copies of Project File. The Department may at any time request the Port Authority to provide it with a copy of any Project File and the Port Authority shall promptly provide a copy of the Project File to it.

5. Variances. The Port Authority shall promptly advise the Department of any Project approved by the Chief Engineer of the Port Authority which involves, in the judgment of the Chief Engineer of the Port Authority or his successor in duties, a variance from the clear requirements of the Code. In the event that the Department disagrees with the manner in which questions of Code conformance have been or are proposed to be dealt with in connection with such Project, it may so advise the Authority. The Port Authority shall seek expeditiously to resolve the matter. Any matter of Code conformance in connection with such Project which the Department believes involves an unacceptable variance from the requirements of the Code shall be subject to the further review of the Port Authority Board of Commissioners. The Commissioners shall be advised of the Department's views on the matter.

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7. Port Authority Responsibility. As indicated above, the purpose of this Agreement is to set forth certain basic understandings between the Department and the Port Authority. It is understood, however, that the Port Authority with its tenants shall continue to bear the responsibility for life safety in buildings at its facilities and nothing in this Agreement is intended to impose any obligations of inspection or review on the Department. The Department shall refer back to the Chief Engineer of the Port Authority any requests for

information or interpretation which it may receive from tenants of the Port Authority with respect to any Project.

8. No Personal Liability. No Commissioner, officer, agent or employee of the Port Authority or the Department shall be held personally liable under any provision of this Agreement or because of its execution or attempted execution or because of any breach or alleged breach thereof.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be signed, sealed and attested.

ATTEST:

Secretary

DATE: 11/3/93

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

By: Stanley Brezenoff
Executive Director

ATTEST:

FRANK M. SCHWARTZ
Notary Public, State of New York
No. 41-4632566
Qualified in Queens County
Commission Expires January 31, 1995

DATE: 10/28/93

THE NEW YORK CITY DEPARTMENT BUILDINGS

By: Stewart D. O'Brien
Acting Commissioner

WTCI-113-P

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

Commercial Litigation Division (68E)

Memorandum

Chief Counsel's Office
Received: ____ Date Out: 10/18
To: D. Mont Jhano, F. Lombardi, J. Spence, P. Keough
Action:
☐ Please handle
☐ Prepare response for signature
☐ Review and comment
☑ For your information
☐ Other
Comments:

OCT 18 A11 : 02

TO: Lysa Meduri, Acting Secretary
FROM: Walter M. Frank
DATE: October 16, 1995
SUBJECT: **Transmittal of Letter Agreement - NYC Department of Buildings**

Copy to: J. Green, N. Chanfrau, P. Cooper, W. Goldstein, H. Henschel, F. Lombardi

Transmitted for the official records of the Port Authority is a Letter Agreement between the Port Authority and the New York City Department of Buildings providing for a change to the recent Supplement to the Basic Memorandum of Understanding between the Department and the Port Authority in connection with the Port Authority's Tenant Self-Certification Program at the World Trade Center.

Walter M. Frank
Deputy Chief
Commercial Litigation Division

WMF:gk

Encl.

THE PORT AUTHORITY OF NY & NJ

One World Trade Center
New York, N.Y. 10048

William H. Goldstein
Deputy Executive Director/
Capital Programs
(212) 435-8415
(201) 961-6000 x8415

September 15, 1995

Honorable Joel A. Miele, Sr., Commissioner
Department of Buildings
City of New York
60 Hudson Street
New York, New York 10013

Dear Commissioner Miele:

As you know, the Port Authority of New York and New Jersey (the "Port Authority") and the New York City Department of Buildings (the "Department") recently executed a supplement (the "Supplement") to the Memorandum of Understanding between the Department and the Port Authority to provide that the Port Authority's tenant at the World Trade Center could, in lieu of any review by the Port Authority, use New York State licensed architects or engineers meeting qualifications to be established by the Port Authority to: (A) prepare and review such tenant's plans for the construction of any project and certify that such plans conform with the building standards set forth in the New York City Building Code and (B) certify that such project has been constructed in accordance with the approved plans and specifications for such project.

As you also know, the Supplement provides that the person or firm performing the review and certification described in (A) above shall not be the same person or firm providing the certification described in (B) above. A copy of the Supplement is attached.

This letter will confirm the agreement of the Port Authority and the Department that, notwithstanding the last sentence of paragraph 1 of the Supplement, a single licensed consultant may make both certifications described in (A) and (B) of such paragraph, except where the alteration would change the character of the occupancy group under paragraph 27-237 of the New York City Building Code which would have been applicable to such space had such space been located in a privately owned building.

If the foregoing meets with your approval, please be good enough to sign this letter on behalf of the Department where indicated below and return one of the originals to me. In light of the fact that three originals of the Supplement were furnished to the Department, we have, for your record purposes, executed in total four originals of this letter.

Very truly yours,

William H. Goldstein
Deputy Executive Director
Capital Programs

THE NEW YORK CITY DEPARTMENT OF BUILDINGS

AGREED

BY: _____
Commissioner

SUPPLEMENT TO MEMORANDUM OF UNDERSTANDING
BETWEEN THE NEW YORK CITY DEPARTMENT OF
BUILDINGS AND THE PORT AUTHORITY OF NEW
YORK AND NEW JERSEY

In November, 1993 the New York City Department of Buildings (the "Department") and the Port Authority of New York and New Jersey (the "Port Authority") entered into the attached Memorandum of Understanding (the "Memorandum") establishing certain procedures for the purpose of helping to assure conformance of construction projects to be undertaken at buildings owned or operated by the Port Authority in New York City with the standards set forth in the New York City Building Code.

Recently, the Department implemented its own optional plan review system providing for professional certifications of applications and plans and subsequent construction work falling under its jurisdiction.

The purpose of this Supplement to the Memorandum is to provide under the Memorandum for the adoption by the Port Authority of a procedure under which any Port Authority tenants at the World Trade Center may utilize New York State licensed architects or engineers to certify, in lieu of any review by the Port Authority, that (i) the tenant's construction plans are in conformance with the standards set forth in the New York City Building Code, and (ii) construction has been performed in accordance with such plans, it being understood that the persons making the certifications described in (i) and (ii) shall not be the same.

Accordingly, the Department and the Port Authority hereby agree that the Memorandum is amended as follows:

1. Professional Certification. Notwithstanding anything to the contrary in the Memorandum, the Port Authority may, in lieu of any reviews or certifications by the Port Authority provided for in the Memorandum, provide procedures pursuant to which its tenants at the World Trade Center may utilize New York State licensed architects or engineers meeting qualifications to be established by the Port Authority to (A) prepare and review such tenant's plans for the construction of any project and certify that such plans conform with the building standards set forth in the New York City Building Code and (B) certify that such project has been constructed in accordance with the approved plans and specifications for such project. The person or firm performing the review and certification described in (A) above shall not be the same person or firm providing the certification described in (B) above.

2. Other Provisions. Except as provided herein, all the terms and conditions of the Memorandum shall remain in full force and effect.

3. No Personal Liability. No Commissioner, officer, agent or employee of the Port Authority or the Department shall be held personally

liable under any provision of this Supplement or because of its execution or attempted execution or because of any breach or alleged breach thereof.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be signed, sealed and attested.

ATTEST:

SECRETARY

DATE: 6/7/95

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

By: _____
Executive Director

WITNESS:

FRANK M. SCHWARTZ
Notary Public, State of New York
No. 41-4632586
Qualified in Queens County
Commission Expires Jan. 31, 1997

DATE: 6/1/95

THE NEW YORK CITY DEPARTMENT OF BUILDINGS

By: _____
Commissioner

THE PORT AUTHORITY OF NY & NJ

One World Trade Center
New York, New York 10048

Law Department

Jeffrey S. Green
General Counsel

Lawrence S. Hofrichter, Chief
Finance Division
(212) 435-6220
(201) 961-6600 x6220

November 5, 1993

THE PORT AUTHORITY OF N.Y. & N.J
TENANT CONSTRUCTION REVIEW UNIT
RECEIVED
NOV 09 1993
NOTED_____
REFERRED TO_____

Charles G. Sturcken, Deputy General Counsel
The New York City
Department of Buildings - Executive Offices
60 Hudson Street
14th Floor
New York, New York

Dear Mr. Sturcken:

Enclosed please find a fully executed original of the Memorandum of Understanding between the Port Authority and the New York City Department of Buildings.

For your information, the gubernatorial review period for the enclosed agreement will end at midnight Wednesday, November 17, 1993. It has been a pleasure working with you on this matter.

Very truly yours,

Walter M. Frank
Deputy Chief, Finance Division
Law Department

Enclosures

cc: William H. Goldstein, Deputy Executive Director, Capital Programs

bcc: J.S. Green, P.S. Cooper (51N), A.A. DiNome (68S), E.J. Fasullo (72S), L.S. Hofrichter, F.J. Lombardi (72S), C.J. Maikish (35E), A.J. Raiola, S.T. Van de Walle

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The purpose of this Memorandum is not only to restate that long-standing policy as part of an understanding with the City but to provide specific commitments to the Department, as the agency of the City responsible for assuring compliance with the Code, regarding procedures to be undertaken by the Port Authority for any Project at its facilities in the City to assure that the buildings owned or operated by the Port Authority within the City are in conformance with the Building Standards contained in the Code.

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1. Port Authority Review. To assure conformance with the building standards set forth in the Code at the time of the design and construction of any Project, the Port Authority shall, in the case of each Project, thoroughly review and examine all plans in connection with such Project for conformance with the building standards set forth in the Code. Plans prepared for Projects to be undertaken by Port Authority tenants shall be prepared and sealed by a New York State licensed professional engineer or architect retained or employed by tenant; plans prepared for Projects to be undertaken by the Port Authority shall be prepared by a New York State licensed professional engineer or architect employed or retained by the Port Authority. The Port Authority's examination of plans shall be conducted by New York State licensed architects and engineers retained or employed by the Port Authority. The Port Authority engineer or architect approving the plans for any Project from the standpoint of Code conformance shall be a New York State licensed architect or engineer who shall not have assisted in the actual preparation of such plans.

2. Project File. The Port Authority shall maintain a file (the "Project File") for each Project which file shall at all times contain the most recently

prepared drawings, plans and any other documents required in connection with the review of the Project from the standpoint of Code conformance. In the case of any Project being effectuated by a tenant of the Port Authority (a "Tenant Project") such file shall also include the Tenant Alteration Application prepared by the Tenant. In the case of any project administered by a line department of the Port Authority, such file shall include any construction application prepared in connection with such Project. The Line Departments of the Port Authority are currently its World Trade, Aviation, Interstate Transportation, Port, and Regional Development Departments.

3. Project Certification. For each Tenant Project, the Port Authority shall require the Tenant to obtain the certification of a New York State licensed architect or engineer that such Project was constructed in accordance with the approved plans and specifications for such Project. For any Project effectuated by the Port Authority, the Chief Engineer or his successor in duties shall certify that the Project was constructed in accordance with the approved plans and specifications for the Project. Certifications for each Project shall be maintained in the Project File.

4. Copies of Project File. The Department may at any time request the Port Authority to provide it with a copy of any Project File and the Port Authority shall promptly provide a copy of the Project File to it.

5. Variances. The Port Authority shall promptly advise the Department of any Project approved by the Chief Engineer of the Port Authority which involves, in the judgment of the Chief Engineer of the Port Authority or his successor in duties, a variance from the clear requirements of the Code. In the event that the Department disagrees with the manner in which questions of Code conformance have been or are proposed to be dealt with in connection with such Project, it may so advise the Authority. The Port Authority shall seek expeditiously to resolve the matter. Any matter of Code conformance in connection with such Project which the Department believes involves an unacceptable variance from the requirements of the Code shall be subject to the further review of the Port Authority Board of Commissioners. The Commissioners shall be advised of the Department's views on the matter.

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information or interpretation which it may receive from tenants of the Port Authority with respect to any Project.

8. No Personal Liability. No Commissioner, officer, agent or employee of the Port Authority or the Department shall be held personally liable under any provision of this Agreement or because of its execution or attempted execution or because of any breach or alleged breach thereof.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be signed, sealed and attested.

ATTEST:

Secretary

DATE: 11/3/93

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

By: Stanley Brezenoff
Executive Director

ATTEST:

FRANK M. SCHWARTZ
Notary Public, State of New York
No. 41-4632586
Qualified in Queens County
Commission Expires January 31, 1995

DATE: 10/28/93

THE NEW YORK CITY DEPARTMENT BUILDINGS

By: Stewart D. O'Brien
Acting Commissioner

MEMORANDUM OF UNDERSTANDING BETWEEN THE FIRE DEPARTMENT OF THE CITY OF NEW YORK AND THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY EXECUTED AS OF DECEMBER 30, 1993

On April 15, 1993, the Port Authority, in order to maintain and enhance the safety of Port Authority facilities, adopted a policy providing for the implementation of fire safety recommendations made by local government fire departments after a fire safety inspection of a Port Authority facility and for the prior review by local fire safety agencies of fire safety systems to be introduced or added to a facility.

The purpose of this Memorandum of Understanding is to reiterate the Port Authority's commitment to this policy and to set forth certain procedures to facilitate the implementation of this policy for buildings at Port Authority facilities located in New York City.

Specifically, the Fire Department of the City of New York ("FDNY") and the Port Authority hereby agree as follows:

1. FDNY, acting through its Bureau of Fire Prevention ("BFP"), shall have the right to conduct fire safety inspections at any Port Authority facility located in the City of New York. These inspections will generally be coordinated with the Port Authority's General Manager of Risk Management operations, but the BFP, at its option, may conduct inspections without prior notice to the Port Authority.

2. BFP will issue a letterhead report of its fire safety findings and recommendations for corrective action with respect to any deficiencies forming a part of such findings addressed to the Port Authority's General Manager of Risk Management operations. The Port Authority will promptly undertake the implementation of such findings (including undertaking corrective action with respect to any deficiencies) and shall notify BFP of the actions taken to implement such findings. BFP may at any time conduct follow-up inspections with respect to any matters recommended to the Port Authority for corrective action.

3. Prior to the introduction of a new fire safety system or the introduction of modifications to an existing fire safety system at any building located at a Port Authority facility in the City of New York, the Port Authority shall provide BFP with copies of the drawings and specifications or other appropriate description of such system or modification for review and approval. The Port Authority policy is and will continue to be to assure that such new or modified fire safety systems are in compliance with local codes and regulations. When circumstances or conditions are unusual, the Port Authority shall have the right to petition the Bureau of Fire Prevention for a variance in specific cases.

4. The Port Authority and BFP will seek to expeditiously resolve any issues arising out of matters covered by this Memorandum of Understanding.

5. Nothing in this Memorandum of Understanding is intended to limit or modify in any way any arrangements which the Port Authority currently has with local fire companies in New York City regarding either facility inspections or joint training exercises or any other matters.

6. The Port Authority shall continue to be exempt from all inspection and permit fees for FDNY inspections at its facilities.

7. No Commissioner, officer, agent or employee of the Port Authority or FDNY shall be held personally liable under any provision of this Memorandum or because of its execution or attempted execution or because of any breach or alleged breach thereof.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be signed and sealed by duly authorized officers thereof.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

Stanley Brezenoff
Executive Director

FIRE DEPARTMENT - CITY OF NEW YORK

William M. Feehan
Fire Commissioner
City of New York

160 1

12-30-93

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THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

By: Stanley Brezenoff
Stanley Brezenoff
Executive Director

FIRE DEPARTMENT - CITY OF NEW YORK

By: William H. Feehan
William H. Feehan
Fire Commissioner
City of New York

MEMORANDUM OF UNDERSTANDING BETWEEN THE NEW YORK CITY DEPARTMENT OF BUILDINGS AND THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

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ATTEST:

Secretary

DATE: 11/3/93

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

By: _____
Stanley Brezenoff
Executive Director

ATTEST:

FRANK M. SCHWARTZ
Notary Public, State of New York
No. 41-4632586
Qualified in Queens County
Commission Expires January 31, 1995

DATE: 10/28/93

THE NEW YORK CITY DEPARTMENT BUILDINGS

By: _____
Stewart D. O'Brien
Acting Commissioner

SUPPLEMENT TO MEMORANDUM OF UNDERSTANDING BETWEEN THE NEW YORK CITY DEPARTMENT OF BUILDINGS AND THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

1

SUPPLEMENT
6-7-95
WTC SELF-CERTIFICATION

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The purpose of this Supplement to the Memorandum is to provide under the Memorandum for the adoption by the Port Authority of a procedure under which any Port Authority tenants at the World Trade Center may utilize New York State licensed architects or engineers to certify, in lieu of any review by the Port Authority, that (i) the tenant's construction plans are in conformance with the standards set forth in the New York City Building Code, and (ii) construction has been performed in accordance with such plans, it being understood that the persons making the certifications described in (i) and (ii) shall not be the same.

Accordingly, the Department and the Port Authority hereby agree that the Memorandum is amended as follows:

1. Professional Certification. Notwithstanding anything to the contrary in the Memorandum, the Port Authority may, in lieu of any reviews or certifications by the Port Authority provided for in the Memorandum, provide procedures pursuant to which its tenants at the World Trade Center may utilize New York State licensed architects or engineers meeting qualifications to be established by the Port Authority to (A) prepare and review such tenant's plans for the construction of any project and certify that such plans conform with the building standards set forth in the New York City Building Code and (B) certify that such project has been constructed in accordance with the approved plans and specifications for such project. The person or firm performing the review and certification described in (A) above shall not be the same person or firm providing the certification described in (B) above.

2. Other Provisions. Except as provided herein, all the terms and conditions of the Memorandum shall remain in full force and effect.

3. No Personal Liability. No Commissioner, officer, agent or employee of the Port Authority or the Department shall be held personally

liable under any provision of this Supplement or because of its execution or attempted execution or because of any breach or alleged breach thereof.

IN WITNESS WHEREOF, the parties hereto have caused instrument to be signed, sealed and attested.

ATTEST:

SECRETARY

DATE: 6/7/95

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

By: _____
Executive Director

WITNESS:

FRANK M. SCHWARTZ
Notary Public, State of New York
No. 41-4632586
Qualified in Queens County
Commission Expires Jan. 31, 1997

DATE: 6/1/95

THE NEW YORK CITY DEPARTMENT BUILDINGS

By: _____
Commissioner

+ 9-15-
SUPPLEMENT
REVISION

THE PORT AUTHORITY OF NY & NJ

One World Trade Center
New York, N.Y. 10048

William H. Goldstein
Deputy Executive Director/
Capital Programs
(212) 435-8415
(201) 961-6000 x8415

September 15, 1995

Honorable Joel A. Miele, Sr., Commissioner
Department of Buildings
City of New York
60 Hudson Street
New York, New York 10013

Dear Commissioner Miele:

As you know, the Port Authority of New York and New Jersey (the "Port Authority") and the New York City Department of Buildings (the "Department") recently executed a supplement (the "Supplement") to the Memorandum of Understanding between the Department and the Port Authority to provide that the Port Authority's tenant at the World Trade Center could, in lieu of any review by the Port Authority, use New York State licensed architects or engineers meeting qualifications to be established by the Port Authority to: (A) prepare and review such tenant's plans for the construction of any project and certify that such plans conform with the building standards set forth in the New York City Building Code and (B) certify that such project has been constructed in accordance with the approved plans and specifications for such project.

As you also know, the Supplement provides that the person or firm performing the review and certification described in (A) above shall not be the same person or firm providing the certification described in (B) above. A copy of the Supplement is attached.

This letter will confirm the agreement of the Port Authority and the Department that, notwithstanding the last sentence of paragraph 1 of the Supplement, a single licensed consultant may make both certifications described in (A) and (B) of such paragraph, except where the alteration would change the character of the occupancy group under paragraph 27-237 of the New York City Building Code which would have been applicable to such space had such space been located in a privately owned building.

If the foregoing meets with your approval, please be good enough to sign this letter on behalf of the Department where indicated below and return one of the originals to me. In light of the fact that three originals of the Supplement were furnished to the Department, we have, for your record purposes, executed in total four originals of this letter.

Very truly yours,

William H. Goldstein
Deputy Executive Director
Capital Programs

THE NEW YORK CITY DEPARTMENT OF BUILDINGS

AGREED

BY: _____
Commissioner

160 P

AMENDMEN.
2-2-95

FIRST AMENDMENT TO MEMORANDUM OF UNDERSTANDING BETWEEN THE FIRE DEPARTMENT OF THE CITY OF NEW YORK AND THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY EXECUTED AS OF DECEMBER 30, 1993

On December 30, 1993, the Port Authority of New York and New Jersey (the "Port Authority") and the Fire Department of the City of New York ("FDNY") entered into a Memorandum of Understanding ("MOU") with respect to certain matters relating to the implementation of the policy adopted by the Port Authority on April 15, 1993 regarding the maintenance and enhancement of fire safety at Port Authority facilities.

Under paragraph 3 of the MOU, the FDNY, acting through its Bureau of Fire Prevention ("BFP") was to receive copies of the drawings and specifications of proposed new or modified fire safety systems for BFP's review and approval. FDNY has requested, and the Port Authority is agreeable, to the following changes to paragraph 3 of the MOU. Accordingly, effective January 1, 1995, FDNY and the Port Authority agree that paragraph 3 of the MOU shall be amended to read as follows:

3. The Port Authority shall notify the BFP in writing prior to the introduction of a new fire safety system or the introduction of modifications to an existing fire safety system at any building located at a Port Authority facility in the City of New York.

a. Port Authority Review: To assure conformance with the standards set forth in local codes and regulations at the time of the design and construction of any new or modified fire safety system, the Port Authority shall, in the case of each system, thoroughly review and examine all plans in connection with such system for conformance with the standards set forth in all applicable local codes and regulations. Plans prepared for new or modified systems to be undertaken by Port Authority tenants shall be prepared and sealed by a New York State licensed professional engineer or architect retained or employed by tenant; plans prepared for new or modified systems to be undertaken by the Port Authority shall be prepared by a New York State licensed professional engineer or architect employed or retained by the Port Authority. The Port Authority's examination of plans shall be conducted by New York State licensed architects and engineers retained or employed by the Port Authority. The Port Authority engineer or architect approving the plans for any new or modified system from the standpoint of Code conformance shall be a New York State licensed architect or engineer who shall not have assisted in the actual preparation of such plans.

b. New and/or Modified Fire Safety System File: The Port Authority shall maintain a file for each new or modified system which file shall at all times contain the most recently prepared drawings, plans and any other documents required in connection with the review of the systems from the standpoint of Code conformance. In the case of any new or modified system being effectuated by a tenant of the Port Authority, such file shall also include the Tenant Alteration Application prepared by the tenant. In the case of any new or modified system administered by a line department of the Port Authority, such file shall include any application prepared in connection with such new or modified system. The Line Departments of the Port Authority are currently its World Trade, Aviation, Interstate Transportation, Port and Regional Development Departments.

c. Fire Safety System Certification: For each Tenant System, the Port Authority shall require the Tenant to obtain the certification of a New York State licensed architect or engineer that such system was constructed in accordance with the approved plans and specifications. For any system effectuated by the Port Authority, Risk Management shall certify that the system was constructed in accordance with the approved plans and specifications. Certifications for each System shall be maintained in the New and/or Modified Fire Safety System File.

d. Copies of New and/or Modified Fire Safety System File: The BFP may at any time request the Port Authority to provide it with a copy of any Fire Safety System File and the Port Authority shall promptly provide a copy of the File as requested. The BFP reserves the right to audit any new or modified fire safety system to assure conformance with the standards set forth in local codes and regulations.

e. Variance: The Port Authority policy is and will continue to be to assure that such new or modified fire safety systems are in conformance with the local codes and regulations. When circumstances or conditions are unusual, the Port Authority shall have the right to petition the BFP for a variance in specific cases.

IN WITNESS WHEREOF, the Port Authority and FDNY have caused this First Amendment to the MOU to be signed by duly authorized officers thereof.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

Dated: 2/2/95 By: _____
Stanley Brezenoff,
Executive Director

Approved As To Form: WMF

Approved As To Form: [illegible]

FIRE DEPARTMENT - CITY OF NEW YORK

Dated: 1/27/95 By: _____
Howard Safir
Fire Commissioner
City of New York

Appendix D
ELEVATOR OPERATIONS

DCN: 3.02.17

TRAINING BULLETIN
EMERGENCIES 1
March 15, 1997

ELEVATOR OPERATIONS

Appendix D
Training Bulletin Emergencies 1 Elevator Operations
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Table of Contents

1. Introduction

2. Fire Department Policy at Elevator Operations

3. Elevator Incidents and Emergencies - Procedures

3.1 Stuck Elevator Cars

3.2 Size Up

3.3 Primary Removal Procedures

3.4 Summon Elevator Mechanic

3.5 Precautions - During Secondary and Emergency Removal Operations

3.6 Secondary Removal Operations

3.7 Emergency Removal Operations

4. Elevator Pit Operations

4.1 Elevator Pit Description

4.2 Operating Procedure

5. Firemen Service

5.1 Firemen Service Regulations

5.2 Description of Firemen Service Components

5.3 Operation of Firemen Service

6. Elevator Operations During Fire Operations

6.1 General Procedures

6.2 Affects of Fire on Elevator Components

6.3 Firefighter Trapped in Stalled Elevator Cars During Fire Operations

6.4 Firemen Service During Fire Operations

6.5 Operational Considerations

7. Building Code Regulations Effecting Fire Department Operations

7.1 Accidents

7.2 Mechanical Features

7.3 Emergency Removal

8. Elevator Terms and Definitions

ADDENDUM

1. Staley Swing Door Key
2. GAL Swing Door Key
3. Gal Elevator Pick Tool
4. Otis Swing Door Key
5. "Z" Tool
6. GAL Drop Key
7. GAL Vandal Resistant Key

1. INTRODUCTION

1.1 This bulletin will outline the following:

1.1.1 Operational procedures used at EMERGENCIES and INCIDENTS in which people are trapped in stuck elevators.

1.1.2 Guidelines for the utilization of elevators by this department during a fire situation.

1.1.3 Familiarization of members with elevator components and terminology which are essential in effective and safe operations.

1.2 The instructions and information presented here cannot be expected to cover all conditions that confront the department at elevator operations.

1.3 Members are advised that the training video "Elevator Emergencies" contains additional details.

2. ELEVATOR INCIDENTS AND EMERGENCIES - DEPARTMENT POLICY

2.1 The function of the Fire Department at elevator operations is limited to the safe removal of persons trapped in the elevator car or hoistway. Repairs to and reactivation of elevators are not carried out by members of this department.

2.2 Contact shall be made with responsible building management personnel for any information and assistance that will aid the operation. However the first units at the scene should start operations at once without awaiting arrival of the management personnel.

2.3 In the event there is evidence of injuries to trapped persons, the officer in command shall request the response of medical assistance.

2.4 Fire Department elevator operations are divided into two categories;
INCIDENTS and EMERGENCIES.

2.4.1 INCIDENT:

A stuck elevator with trapped passengers not in immediate danger and no evidence of injury.

Note: Conditions must be constantly monitored, an INCIDENT may escalate to an EMERGENCY.

2.4.2 EMERGENCY**:**

A situation where one or more of the following exist:

A. Fire endangering passengers in a stuck elevator.

B. Passenger of stuck elevator injured.

C. Passenger of stuck elevator in panic.

3. ELEVATOR INCIDENT AND EMERGENCY - PROCEDURES

3.1 Stuck Elevator Cars.

Problems arise from defective or non-functioning electrical or mechanical devices and equipment.

3.1.1 Electrical problems are the most frequent cause of elevator malfunction.

A. Common causes of electrical problems:

1. Car or hoistway door contacts open.

2. Blown fuses.

3. Shorting of electrical cables.

B. When an electrical problem occurs the following can be expected:

1. Elevator cars will be suspended on the hoistway cables.

2. Elevator brake will be applied in the hold position.

3.1.2 Mechanical problems though not as common, may also be encountered.

3.2 Size Up

3.2.1 Locate the car using the following.

A. Lobby control panel - check floor indicator.

B. If available use intercom or telephone system of the stuck car. Passengers may be able to give their approximate location.

C. Open the hoistway door at first floor with elevator key and look up shaft. Key devices are usually required at the lower levels and may be present at all levels.

1. If the hoistway door has a glass panel check the shaft before opening the door. Using a flash light, look for the governor ropes and the counterweight. Movement of either one of these is an indication that the car is in motion, do not open the hoistway door. The governor rope is generally located on either side near one of the far corners of the shaft.

D. The location of the counterweight can be used to approximate the position of the car. For example, in a 6 story building where the elevator serves the basement, if the counterweight is on the 1st floor, the stalled car would be at the 5th. The counterweight can be located by viewing through the wire glass door panel or by opening a hoistway door.

E. Enter a car in the same bank and open top hatch if no damage will be done to the elevator car.

F. Use the floor selector in the machinery room, it indicates the exact location of elevator car.

3.2.2 Methods of communicating with passengers:

A. Elevator car telephone.

B. Elevator car intercom.

C. Call or yell up hoistway, or speak through car and hoistway doors.

Note: If emergency bell is ringing instruct the car passengers to deactivate the alarm and emergency stop button. A ringing bell can cause anxiety, confusion and hamper communications.

3.2.3 Methods of passenger removal:

A. Primary Removal Procedures, section 3.3.

B. Secondary Removal Procedures, section 3.6.

C. Emergency Removal Procedures, section 3.7.

3.3 Primary Removal Procedures

Primary removal procedures are simple approaches performed without turning off the elevator power.

There are two types of primary removal procedures. The order in which they are tried is not important. Try all if necessary.

3.3.1 Checking Electrical Contacts.

The first type of primary removal procedures checks whether simple electrical contacts might have been broken. However if the passengers have activated the Emergency Stop Button, these methods will not work. The passengers must be instructed to deactivate the Emergency Stop Button.

A. Have a passenger press Door Open Button. If the car is level with the landing this may open both the car and hoistway door.

B. Press lobby call button.

C. Instruct passengers to insure the car door is fully closed. Have a person push the door towards the closed position.

D. Have members physically close all hoistway doors on the shaft. Air movement in shaft may have opened an interlock cutting power to the car. Check the hoistway doors in the vicinity of the stuck car first.

3.3.2 Firemen Service.

The second type of primary removal procedure is activating Firemen Service if available. Firemen Service will over ride the Emergency Stop Button.

A. Activate Firemen Service - Phase I. The stuck elevator may return to the main lobby or sky lobby and open its doors.

B. Firemen Service should be deactivated when the car responds by returning to the lobby or if it's clear that the car isn't responding.

3.4 Summon an elevator mechanic if Primary Removal Procedures fail.

3.4.1 Telephone number of the mechanic is required to be posted in the machinery room near the elevator power switch.

3.4.2 Consider the possibility of an elevator mechanic on duty in a nearby building.

3.4.3 Secondary Removal Procedures may be initiated prior to the arrival of the mechanic.

3.5 Precautions During Secondary and Emergency Removal Procedures.

3.5.1 Power Removal

Whenever Secondary or Emergency Removal Procedures are used, power removal is essential. Dispatch two members to the elevator machinery room to shut off the power to the stalled car. The machinery room may be located at the top of the shaft, at the bottom of the shaft or two levels above the highest floor serviced by the elevator.

A. Members should be equipped with a handie-talkie and forcible entry tools. Communication between members in machinery room and on landing is necessary.

B. Building maintenance personnel may be able to provide members with keys to the elevator machinery room.

C. Members assigned to the elevator machinery room will:

1. Determine which shaft the stalled car is in.

2. Shut off power to the stalled car when directed. Each elevator is controlled by its own power switch. Elevator power switch boxes and motors are required to be labeled in a manner which relates motor to switch. (Ex. Switch #1, Motor #1)

   a. If any doubt exist open as many elevator power switches as required to insure a safe operation. Allow passengers to exit a serviceable car before removing power.

3. Remain at the power switch throughout the operation to insure the power is not restored.

4. Upon completion of the operation DO NOT restore power to the stalled car.

Note: When operating in elevator machinery rooms, located above the shaft, members should avoid stepping on the cover or grating over the elevator shaft ventilation opening. The grating may be improperly seated or removed and replaced with cardboard or other flimsy material. A member stepping on an unsafe grating or covering could fall the entire height of the shaft. The ventilation opening is also known as the smoke hole.

3.5.2 Other Precautions.

Once you move beyond the Primary Removal procedures there are several precautions you should be aware of.

A. Members are not to enter the shaft or remove passengers from the car until assured power has been removed.

B. When passengers are removed from a car between floors they should be taken up and out of the car if practical. This eliminates the possibility of a passenger falling down the shaft after exiting the elevator. If they are removed to the lower landing, the shaft opening must be protected.

C. Members operating in the shaft are to be secured by a life saving rope.

D. Members shall not normally be permitted to enter the shaft below the elevator car. During a rescue necessitating members entering the shaft below the car, the power switch must be turned off.

E. The elevator shall never be jacked up or moved in an upward direction. This action may free the car safeties causing the car to move either upward or downward depending on the live load in the car.

F. No adjustment to or prying of the elevator machinery brake shall be attempted. The brake will be in a safe position and should not be tampered with.

G. In older elevator installations if the condition of the elevator brake is doubtful additional protection can be provided by placing a heavy timber, iron bar or tool between the spokes of the hoisting drum after power is removed. In most newer installations this procedure can be dangerous and impractical. Electrical components are usually in a close proximity to the drum and most drums are constructed in a manner which prevents getting an effective purchase.

H. If conditions indicate that the elevator is unstable additional precautions must be taken to prevent the movement of the car in either direction. Consider securing the car to structural members of the building using utility ropes, chains or shoring.

3.6 Secondary Removal Procedures

3.6.1 All efforts must be made to remove passengers via elevator car and hoistway door using an elevator tool or key or the procedures following in sections 3.6.3 & 3.6.4.

A. See addenda to this bulletin for a description of elevator keys and tools and instruction for their use.

3.6.2 Passengers of the stuck car can assist in their removal. Direct the passenger of the car to attempt to open the car door by physically exerting pressure toward the open position. If they succeed in opening the car door instruct them to lift the locking arm on sliding hoistway type doors, or to depress or lift the roller on hinge type hoistway doors.

3.6.3 If the elevator has a two speed system, commonly found in buildings over 10 stories, the following procedure may work:

A. If Emergency Stop Button has been activated have passengers deactivate it.

B. Have members in elevator machinery room shut power to the stuck car and turn it on again.

Note: This is the only circumstance in which the elevator power may be restored by members of this department. If this procedure fails, power must be shut off and members are not to restore power after completion of operations.

C. If the car is to restart it will do so within 10 seconds.

D. Communications must be maintained when attempting this procedure. Passengers and members must be prepared for the sudden movement of the car or car door.

3.6.4 If stuck car is in a multi car hoistway "POLING" can be used to remove the passengers:

A. Have member work from an adjacent car which is nearest the leading edge side of hoistway door of the stuck car.

B. Adjacent car should be positioned to give access to upper portion of the hoistway door to be opened.

C. Have one member remain on the landing at the hoistway door of the stuck car.

D. Member in the adjacent car inserts pole or hook between the striking post and the hoistway door and trips the lock by either depressing the roller or pushing on the locking arm.

1. Hinge type door - Depress the roller.

2. Sliding type door - push up on locking arm.

E. Member on the landing near hoistway door of the stuck car opens hoistway door when the lock is disengaged.

F. Elevator car door is then opened.

3.7 Emergency Removal Procedures

This section outlines procedures which may only be used during an EMERGENCY as defined in section 2.4.2, or when directly advised by an elevator mechanic. Primary and secondary procedures are usually quicker and more efficient than the methods outlined in this section. The decision of what method to use will be based on the size-up of the officer in command.

3.7.1 Power to the stuck elevator must be off when you use Emergency Removal Procedures. This should have been done before trying Secondary Removal Procedures.

3.7.2 An elevator car will have a top hatch or a side exit - sometimes both. One of these may provide a route by which you can remove trapped passengers.

A. Top Hatch Removal**.**

Although the law prohibits welding or bolting top hatches shut on elevators, it does happen and it can make this procedure very time consuming.

1. Open a hoistway door or access panel (required in single car blind hoistways) on floor above the stuck car.

2. Provide adequate lighting.

3. Lower a portable ladder to the elevator roof. Use straight ladder if possible. If an extension ladder is used tie the halyard around the rungs of both sections of the ladder. This will prevent the lower section from dropping on to the car roof.

4. Climb down to the car roof. Maximum of two firefighters are to be permitted on the roof of the car at one time.

5. All members working in the shaft are to be secured with a life saving rope.

6. Open the top hatch.

   a. This may require the use of a wrench or screw driver.

   b. Forcible entry tools may be required.

7. A small portable ladder is lowered into the elevator.

8. One member equipped with a handie talkie enters car. Member in the car must determine the order of removal. Secure each person with a life saving rope.

9. Members are to remain in physical contact with trapped persons while they are being removed.

B. Side Exit Removal.

Useful under conditions of partial power loss in multi car hoistways. It may not be useful where a structural beam blocks a side exit or the rescue car can't be brought level with the stuck car.

1. Members must work from a car that is in the same bank and is adjacent to the stuck car. This will become the rescue car.

2. Bring rescue car even with stuck elevator.

   a. If mechanic is present, use his operating key to bring the car level with stuck car.

3. Remove power to rescue car. Power to the stuck car was previously removed.

4. Open side exit in rescue car.

   a. A key or forcible entry is required to open panel from inside the car.

5. Open side exit of stuck car. It is openable by hand from the shaft side.

6. Planks of sufficient lengths (6' or longer) should be used as a bridge between cars.

7. Member equipped with a handie talkie and secured with life saving rope crosses planks to the stuck car.

8. Member determines the order of removal. Secure each passenger with a life saving rope and assist them to the rescue car.

9. After passengers are removed restore power to the rescue car.

3.7.3 Forcible Entry

Forcible entry of hoistway and elevator car doors should only be attempted under the direct advisement of an elevator mechanic or as a last resort during EMERGENCY REMOVAL PROCEDURES. The deformation of the doors and locks may add to the problem and delay the rescue. Upon completion of forcible entry operations have maintenance personnel secure the hoistway door or have police or security warn people of the danger.

Choose one of the following procedures based on the type of hoistway door.

A. Hinged door.

1. Knock out glass panel if present. If not, breach hoistway shaft above hoistway door

2. Push down roller, located near side opposite hinges, on shaft wall.

3. Open hoistway door.

4. Push open elevator car door.

B. Slide type door.

1. Maxi Force Air Bag System.

   This is the preferred forcible entry method. It is less likely than the others to push the door off its hangers or out of its track.

   a. Take a small purchase with a forcible entry tool.

b. Place bag between the leading edge of the door and jamb as high as possible to apply a more direct force on the linkage and the locking mechanism.

c. Position the bag to permit the center of the air bag to be as close as possible to the door edge, this increases the spreading capability of the air bag. It may be necessary to have a passenger in the car push open the car door to permit the air bag to obtain a good purchase.

d. Inflate air bag until hoistway door opens.

e. If necessary push open elevator car door.

2. Rabbit Tool

a. Use forcible entry tool to gain a purchase for the jaws of the rabbit tool.

b. Insert the jaws of the Rabbit Tool between the jamb and the leading edge of the hoistway door, as high as possible.

c. Ensure that the tool is flush with the hoistway door.

d. Operate tool to open door taking care not to cause the door to come off its track.

e. If necessary push open elevator car door.

3. Forcible entry tools

a. Go to landing directly above door to be opened.

b. Use a forcible entry tool to lift hoistway door out of its guide.

c. Tilt bottom of the hoistway door slightly into the shaft, just enough to allow the passing of a hook into the shaft.

Note: Care must be taken not to tilt the door too much. It may dislodge from hanger and drop into the shaft.

d. Use a hook to reach down to the lock arm mechanism and pull it up.

e. If necessary push open elevator car door.

C. Blind hoistway.

1. Determine the side of hoistway the car door faces.
2. Breach hoistway wall on that side.
3. Push open elevator door.

4. ELEVATOR PIT OPERATIONS

4.1 Elevator Pit Description.

The Elevator Pit is the lowest portion of the elevator shaft.

4.1.1 Types of Elevator Pits.

A. Jump Pits.

1. Usually 4' to 6' from lowest landing level to base of pit.
2. Elevator descends to within a couple of feet of the bottom of the shaft.
3. Pit is entered by opening the lowest hoistway door and using a portable ladder.

B. Walk In Pit.

1. Usually 6' to 10' from lowest landing to base of pit.
2. Car descend to the floor level above bottom of shaft.
   a. A high buffer and lower limit switch prevent the car from entering the pit.
3. Access to the pit is via a door located at the bottom of the shaft.
   a. Door is not required to have an interlock switch.
   b. Door is opened by a regular key. Emergency elevator keys are not usable.

4.2 Operations in Elevator Pits

4.2.1 Jump Pit.

A. Shut off elevator power switch.

B. Open the lowest hoistway door on shaft.

C. Use portable ladder to enter shaft.

D. For additional safety, trip lower limit switch and secure it in an open position.

4.2.2 Walk In Pit.

A. Shut off elevator power switch.

B. Enter via pit door.

C. If there is a fire in the pit, be cautious of the buffers (A device designed to stop a descending elevator beyond the normal limits of travel), they may be filled with combustible or inflammable liquid.

D. In an EXTREME EMERGENCY (immediate action necessary to save life) entry to a Walk in Pit before the elevator power switch is off may be made using the following precautions:

1. Open a hoistway door on shaft to be entered. The interlock will prevent car from moving

2. Use caution around mechanical and electrical components.

3. Turn off power as soon as possible.

5. FIREMEN SERVICE

All Fire Department personnel should be familiar with the operating procedure and limitations of Firemen Service. This section describes Firemen Service components and operational procedures. Section 6.4 outlines use of Firemen Service during fire operations.

5.1 Firemen Service Regulations.

5.1.1 Firemen Service is required in all elevators that serve three or more landings or travel 25 feet or more if plans for the elevator were filed after January 1, 1980.

5.1.2 Firemen Service elevators are required in all buildings classified in occupancy group E whose plans were filed subject to Local Law #5.

5.1.3 Firemen Service elevators are required in buildings classified in occupancy group E and deemed as an "existing building" under Local Law #5 if the building is 100 feet or more in height.

5.1.4 In all buildings classified in occupancy group E, 100' or more in height, the number of elevators that must be equipped for Fire Service is as follows:

A. Where a floor is serviced by three or less elevator cars, every car shall be equipped for Firemen Service.

B. Where a floor is serviced by more than three elevator cars, at least three elevator cars with a total rated capacity of not less than 6,000 pounds shall be equipped for Firemen Service. Such cars shall include not more than two cars which serve all floors, and at least one other car in another bank servicing that floor.

C. If the total load capacity of all cars servicing the floor is less than 6,000 pounds, all such cars shall be Firemen Service.

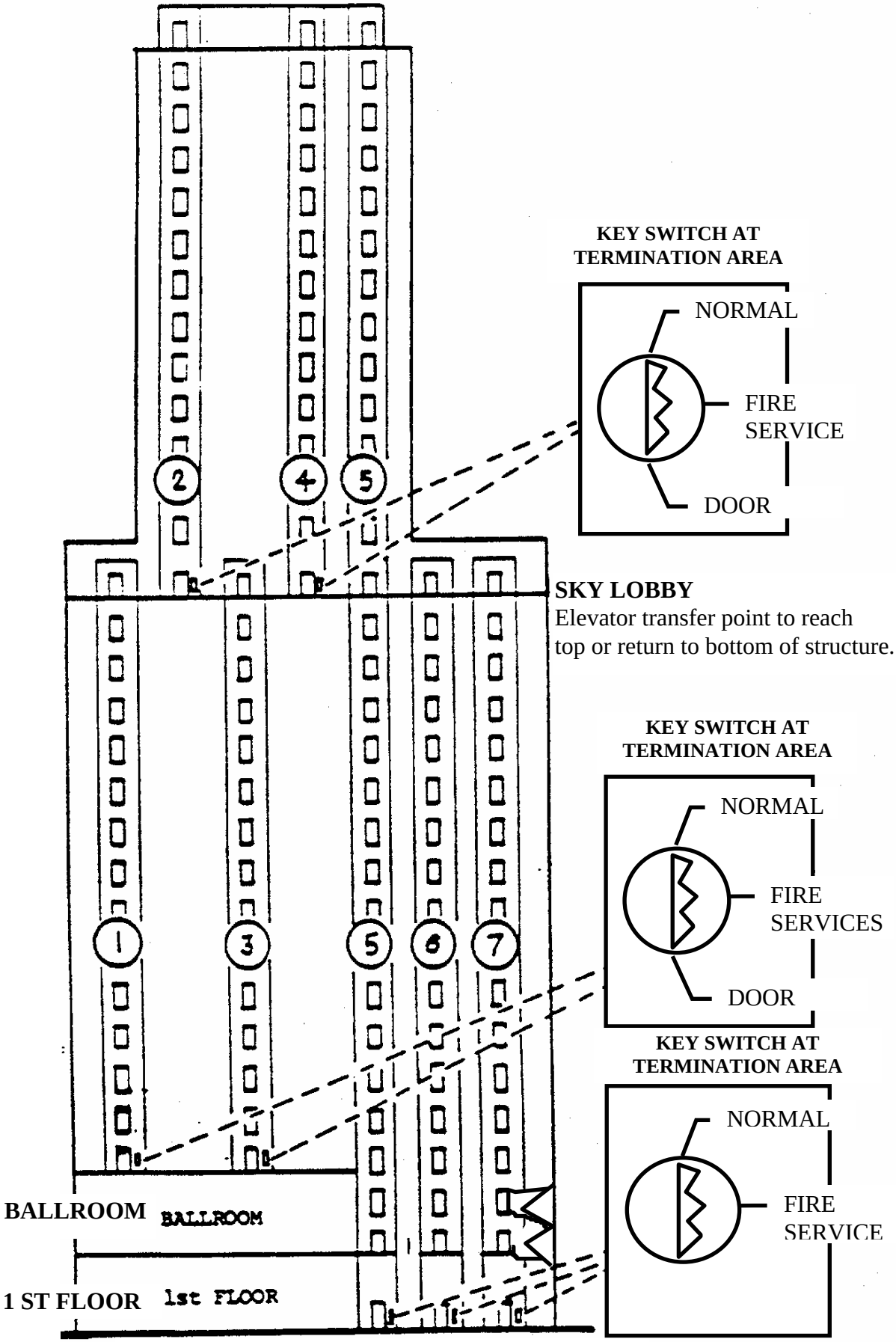
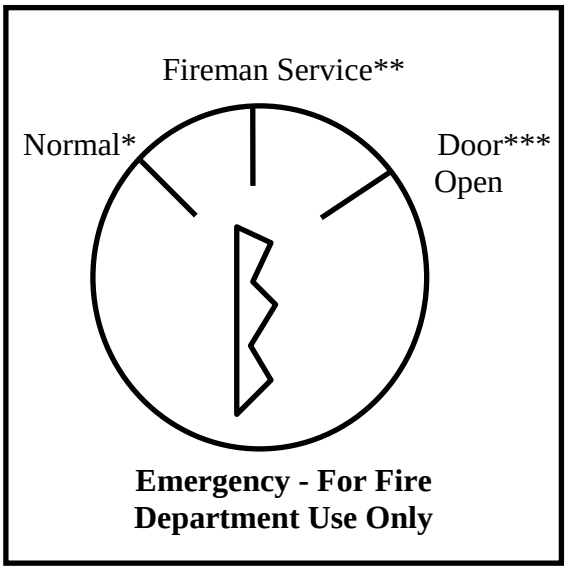


Fig. 1 Elevator Configuration

Fireman Service Lobby Switch Plates



Often Abbreviated as
Off *
On **
DO ***

Fig. 2A

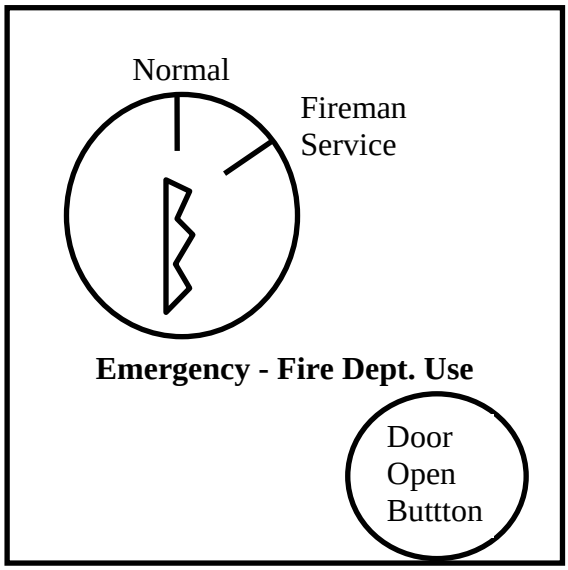


Fig. 2B

5.2 Firemen Service Controls.

5.2.1 Lobby Keyed Switch.

A. A switch at the street floor or terminal floor for each bank of elevators. Terminal floor is the lowest landing above the street floor of any elevator that does not serve the street lobby floor, also known as a Sky Lobby. (Fig. 1)

B. The key switch is required to be within 4 feet of the lobby call button.

C. The key switch is operated by use of the Fire Department 1620 key, or by city wide standard elevator 2642 key.

Note: Worn keys may not work.

D. Switch Configurations.

1. Three position key - Normal, Firemen Service and door open. (Fig. 2A)

2. Two position key - Normal and Firemen Service with a door open button. Door open button is required to be located in the same faceplate as the key switch. Button is only operable when key switch is in the Firemen Service position. (Fig. 2B)

Note: In both situations the cylinder face is approximately 1 1/2" in diameter and colored red. Switch faceplate is required to be inscribed "for fire department use only" or similar terminology.

E. The Normal and Firemen Service position in the keyed switch permit the removal of the key. The key is not removable in the door open position.

5.2.2 Elevator Car Keyed Switch.

A. Firemen Service keyed switch is provided inside each Firemen Service elevator car.

B. This switch is identified by red lettering "FOR FIRE DEPARTMENT USE ONLY" and has two positions. Normal and Firemen Service.

Note: Elevators approved for installation after March 1991 are required to be equipped with a three position switch:

NORMAL HOLD FIREMAN SERVICE

The Hold Position has the following features:

1. Permits the firefighter to remove the 1620 key from the switch.

2. Allows the firefighter to leave the car without the danger of an individual, without a key, moving the car to another location.

3. A firefighter with a 1620 key can move the car by changing the switch position from HOLD to FIREMAN SERVICE.

   THIS ACTION SHALL NOT BE TAKEN WITHOUT FIRST INFORMING THE FIREFIGHTERS OPERATING ON THAT FLOOR.

4. Elevator cars equipped with a two position switch are not required to be retro-fitted with a three position switch.

C. To operate the car, the switch must be placed in the Firemen Service position while the car is at the landing where the lobby keyed switch is located.

D. The lobby keyed switch must be in the Firemen Service position prior to placing the car keyed switch to Firemen Service.

E. Once the car switch is in the Firemen Service position it can not be overridden by the lobby keyed switch.

F. The 1620 key is not removable from the elevator car keyed switch when it is in the Firemen Service position.

5.3 Operation of Firemen Service.

5.3.1 Phase I - Recall Phase.

The recall of ALL elevators in the bank to the street or terminal floor either automatically or manually.

A. Manual Recall.

By the use of the 1620 key at the keyed switches located in the elevator lobby at the street floor or terminal floor.

Note: For elevators whose terminals are above the street floor (sky lobby), a two position keyed switch will be at the fire command station. The switch will allow the elevators to be brought down non-stop to their lowest floor landing. A three position keyed switch will also be at their terminal floor landing.

B. Automatic Recall.

1. Activation of elevator landing smoke detector.

2. Water flow from a sprinkler system.

Note: If the Firemen Service Phase I was initiated automatically by the activation of a lobby smoke detector or sprinkler water flow, the elevator cannot be returned to normal operation until the smoke detector or water flow alarm has been cleared.

C. Initiating Phase I Recall.

1. If Phase I (recall phase) has not been initiated upon arrival, Phase I shall be initiated and all cars accounted for and examined as they arrive at the street lobby floor.

2. If Phase I has been initiated before arrival and all elevator doors are closed, the following procedure are to be followed.

   a. Determine if Phase I was initiated manually or automatically.

   b. If Phase I was initiated manually the Firemen Service lobby keyed switch will be found in the Firemen Service position. Place the Firemen Service lobby keyed switch momentarily in the "Normal" (OFF) position. Then returned it to the Firemen Service position. This will cause all elevator car doors in this bank to open.

   c. If Phase I was initiated automatically (by lobby smoke detectors or sprinkler water flow), place the lobby keyed switch in the "Door Open" position. The doors of the Firemen Service cars will then open. In some older installations the doors of the non- Firemen Service cars will not open and must be opened by use of the emergency hoistway door key.

D. Results of Initiating Phase I Recall.

1. By placing the keyed switch in the Firemen Service position, all elevators in that bank will be returned to the street lobby or terminal floor.

2. An elevator traveling away from the street floor or from its lowest landing floor will reverse direction at the next landing without opening its doors, and return non-stop to the street lobby or terminal floor.

3. Doors opened at any floor will immediately close and the elevator shall return non-stop to the street or terminal floor.

4. Door reopening devices for power operated doors, which may be affected by smoke, heat or flame so as to prevent door closure, shall be rendered inoperative except for those mechanically activated by a safety edge.

5. "Emergency Stop" buttons will be rendered inoperative.

6. When the elevator car reaches its terminal floor, one of the following will occur:

   a. All car and hoistway doors open. The doors remain open for at least 8 seconds and no more than one minute and then close.

   b. All car and hoistway doors open. The Firemen Service elevator car and hoistway doors remain open with the car lights remaining on. Non Firemen Service elevator car and hoistway doors close between 8 seconds and one minute after opening.

   c. All elevator car and hoistway doors open and remain open. The car lights in the Firemen Service elevator cars remain on and the lights in the Non Firemen Service cars go off.

Note: Option "c" is required for all installations for which plans were filed after 1980.

Caution: Do not return the switch to the "normal" position at this time.

5.3.2 Phase II - Operational Phase.

The actual operation of the elevator car by use of the controls located within the car.

A. Operations:

1. Place the 1620 key in the car Firemen Service switch and turn to the Firemen Service position.

2. Press the car "Door Close" button and select a floor. It is not important which floor button is pressed first.

   a. In some elevator cars there may be two floor selection panels. The one to use for Firemen Service is the one nearest to or the one with the Firemen Service keyed switch.

3. As soon as the car begins to move, press the "Call Cancel" button to verify the operation of the "Call Cancel" button.

   a. If the car stops at the next available landing in response to the "Call Cancel" button, select the desired floor on the "Floor Selection" panel.

   b. If the car does not stop at the next available floor in response to the "Call Cancel" button:

      1) Immediately select the next available safe floor. If the car stops at the next available floor, press the "Door Open" button and leave the car. Notify the officer in command that the car is out of service.

2) If the car does not stop at the next available floor, attempt to stop the car by forcing the car doors open, thus interrupting the interlock relay switch. Notify the officer in command and initiate emergency evacuation procedures.

4. If more than one floor selection is made, the elevator car will stop at the nearest floor selection in the direction of travel.

5. If the car is operating normally when you reach the selected floor, press the "Door Open" button. You must keep your finger on this constant pressure button until the door is fully open, otherwise the door will close on its own. This is a built in safety feature.

6. If the doors open on heat and smoke, the simple removal of the finger from the "Door Open" button should enable the doors to close.

   a. If they fail to close automatically, press the "Door Close" button and manually assist the closing.

   b. If the car doors still fail to close, don Mask facepiece, evacuate the elevator and proceed to the nearest safe stairway.

7. When the elevator doors have fully opened, the elevator car will remain at the selected floor, with the doors open.

8. The elevator car shall not be returned to the lobby street floor until the officer has determined that the unit has arrived at the proper location.

   a. Due to internal building security, it is often necessary to force your way out of an elevator landing area on upper floors. Units may have to force their way from the elevator lobby to a fire stair or fire tower, either for reasons of safety or in order to operate. Someone should stay with the elevator, to see that it is not moved from the floor, until safe access to the fire stair or fire tower is assured.

9. To move from any floor, the "Door Close" button must be pushed, and another floor selected.

10. An elevator can be placed on Firemen Service or taken off of Firemen Service only when the car is at the landing where the lobby keyed switch is located.

11. Once a Firemen Service car has been placed in Phase II operation, it will continue in Phase II operation, regardless of the Position of the lobby keyed switch. This feature may be utilized to restore other cars in the elevator bank to normal operation, while the Fire Department continues to use the Firemen Service car or cars.

12. When an elevator car has been placed on Firemen Service, it shall be operated by a member equipped with a handie talkie and forcible entry tools.

5.3.3 Controls for Phase II.

A. Door Close Button.

1. It is a momentary touch type button.

2. Once fully opened the elevator car doors close only in response to the Door Close Button.

B. Floor Selection Button.

1. When the car is in Firemen Service, the car responds only to the floor selected by the Floor Selection Button in the car.

2. All elevator landing call buttons are rendered inoperable on landings served by this elevator.

C. Call Cancel (reset) Button.

1. The Call Cancel Button allows the operator to change floor selection or direction of travel prior to reaching the original selected floor.

2. When the Call Cancel Button is operated, the elevator car stops at the next available floor landing (i.e., the first floor, in the direction of travel, that the elevator is electrically and mechanically capable of serving). The doors remain closed. A new floor selection must then be made.

3. It is recommended that the Call Cancel Button be pressed whenever a member enters a car on Firemen Service to clear the floor selection panel of any previous floor selection that may have been made.

D. Door Open Button.

1. The elevator door opens only when the Door Open Button is pressed.

2. The Door Open Button must be held until the doors are fully opened.

3. If the Door Open Button is released before the doors are fully opened, the doors return to the closed position. This feature is provided so that the release of the Door Open Button will automatically close the doors in the event the car inadvertently stops at the fire floor.

4. Members leaving the elevator car must verify that the doors are fully opened. If the member leaves the car before the doors are fully opened, the door will close behind him, isolating the car and placing it out of service.

E. Emergency Stop Button.

1. The Emergency Stop Button is rendered inoperative during the Phase I operation.
2. The Emergency Stop Button should be operational during Phase II operation.
3. Activation of the Emergency Stop Button in Phase II will quickly stop the elevator car.

6. ELEVATOR OPERATIONS DURING FIRE OPERATIONS

6.1 General Procedures.

6.1.1 Account for all elevators serving the fire floor, checking them for victims.

6.1.2 When it is confirmed that the fire is on the 7th floor or below units should avoid the use of elevators. It is safer to utilize the stairway to reach the fire floor.

6.1.3 Do not use an elevator in a bank which services the fire floor if a lower bank of elevators reaches within five floors of the fire floor.

6.1.4 When it is necessary to use an elevator in a bank which serves the fire floor:

A. If Firemen Service is available, use a car with the Firemen Service feature.

B. Select a floor at least two floors below the fire floor or two floors below the lower level of an access stair in the fire area, whichever is lowest.

6.1.5 A service elevator shall not be used until it is declared safe for use by the officer in command of the fire. Be aware that in many high rise office buildings the service elevators have been converted for Firemen Service. Use of such an elevator must be avoided until declared safe by the officer in command.

6.1.6 Before entering the elevator car, all members shall have donned their mask. The facepiece shall be maintained in the standby position.

6.1.7 There must be a member equipped with a handie-talkie in each car whenever the elevator is in use.

6.1.8 Not more than six members are to be permitted in any elevator car. This precaution is required to prevent overloading.

6.1.9 Forcible entry tools must be carried aboard each elevator car.

A. In the event the car does not stop at the selected floor, a tool may be used to pry the elevator car door open disengaging the car door interlock.

B. In the event the car should become disabled a tool may be needed to extricate the members.

C. Tools may be required if elevator gives access into a secured area.

6.1.10 Elevator should be stopped every five floors (precautionary stops) to confirm that the elevator will respond to the selected floor. At each stop a new selection must be made.

6.1.11 Before leaving the lobby and at each precautionary stop direct a flashlight up between the elevator car and the hoistway shaft to determine if there is any accumulation of smoke in the elevator shaft.

6.1.12 The relationship of the elevator to the stairway should be noted. This can be accomplished by inspecting the "YOU ARE HERE" sign which is required to be posted at each floor near the call button. This should be done at the first and last precautionary stop. Floor configurations may change.

6.1.13 Determine as soon as possible if the location of the fire could affect the elevator operation.

6.1.14 Members must be careful during any emergency stop. They should prepare themselves for the jolt of a fast moving elevator car stopping abruptly.

6.1.15 If you are in a smoke filled hallway, remember, elevator doors will swing toward you and apartment doors will swing away from you. If the electric interlock malfunctions it might be possible to open the elevator door and not have the car on that floor.

Some elevator doors are of the sliding type. If forced by mistake due to smoke conditions, they may pop inward and be mistaken for an apartment door.

6.2 Affects of Fire on Elevator Components

6.2.1 Mechanical or electrical systems can become affected by heat or water causing erratic behavior of the elevator car.

A. Elevator car may move leaving a hoistway door in open position.

1. Consequences:

a. Injury to operating personnel.

b. Elevator shaft unprotected, possibly indiscernible in a smoke environment.

c. Delay in firefighting.

2. Precautions:

a. During fire operations do not straddle elevator doors to hold the car. Use Firemen Service if available or folded lengths of hose to hold car.

b. If the elevator moves leaving the door open close the hoistway door manually if possible.

B. Hoistway door warped by heat.

1. Consequences:

a. Interlocking device inoperative.

b. Elevator stalled in shaft.

c. Possibly trapped passengers in car.

2. Precautions:

a. If possible avoid using elevator cars that service the fire floor.

C. Malfunction of interlock of hoistway door.

1. Consequence:

a. Member might be able to open swing type door with no elevator car at landing.

2. Precautions:

a. Feel for floor before moving through door way.

D. General Precaution:

1. In any situation where the elevator operates erratically, exit the car at the nearest safe floor. Place the car out off service, either via the car controls or by blocking the car door. Notify the Officer in Command immediately.

6.3 Firefighters trapped in stalled elevator cars during fire operations.

6.3.1 Operations of Fire Department members in a stalled car.

A. If elevator car door opens on fire floor (heat, smoke), attempt to close the door.

1. Push Door Close Button.

2. Force door closed.

B. Select lower floor.

C. If car fails to move:

1. Check Emergency Stop Button, it may have accidentally been activated. Deactivate it by pulling it out, or if switch type, moving switch to off position.

2. Open Top Emergency Exit to relieve smoke in car.

3. Keep low in car.

4. If necessary don Mask facepiece. Remember it is important to conserve air.

5. Communicate situation to officer in command.

6. If necessary use side emergency exit for rope slide to the safety of lower floor. Have power removed to the adjacent car if this is to be attempted.

7. In an EXTREME EMERGENCY, Fire Department hose can be used to slide down to the floor below. If more than one length of hose is used, first tie the lengths together, then couple them.

8. Members can be lowered to the hoistway door interlock and exit at the floor landing below the fire.

9. Hose line on the floor below can be used to spray a fog stream between the car and the hoistway door. A 30 degree fog pattern should be used to cool and protect trapped persons during the rescue operation.

6.4 Firemen Service During Fire Operations

6.4.1 Assure the elevators serving the affected areas have been placed on Firemen Service.

6.4.2 When Firemen Service is available use the elevator cars so equipped.

6.4.3 First arriving units should, if possible, initially avoid a Firemen Service elevator which is capable of stopping at all floors. Many of the converted "Service" freight elevators are so arranged, and therefore are capable of being affected by fire on any floor. Only after the officer in command has determined that the fire is not adjacent to the shaft should these elevators be utilized. (Experience indicates that many fires in high-rise office buildings have been found in the service elevator lobby, in piles of collected rubbish. Heat and flame have affected the doors and control wiring of nearby service elevators).

6.4.4 Members shall never take a Firemen Service elevator which services all floors to go above the fire. When assigned to go above the fire via an elevator, choose an elevator which has a blind shaft on the fire floor. Remember a "Firemen Service" elevator is not necessarily a "safe" elevator. It can still be affected by heat, smoke or water entering the shaft. If there is no blind shaft elevator to go above the fire, stairs shall be used.

Note: Use a fire tower or a stairway other than the attack stair.

6.4.5 There are situations in which units will encounter "exceptions to the rules". Time must be taken to become familiar with particular elevators before leaving the lobby. Early manning by one or more members who have become familiar with the elevators is indicated. Utilize stairs whenever possible, and try to limit elevator use to those in banks that cannot be affected by the fire. Where elevator problems exist, consider calling in elevator company repairmen on emergency duty. Many high-rise buildings have these men on twenty-four hour call, and phone numbers must be posted in the elevator machinery room, and are often posted in the vicinity of the elevator lobby.

6.4.6 If Firemen Service elevators have not been installed in the building, Fire Department operations shall be conducted using elevators that have been placed in the "Manual Mode" if possible. When using elevators in the "Manual Mode" all the applicable sections of this procedural guide shall apply.

6.5 Operational Considerations

6.5.1 Locked Hoistway Doors.

A. For security reasons, some occupants lock the hoistway door on their floor when closing.

B. If your elevator arrives at the selected floor, but the car door does not open, make no attempt to force it. In this instance, the locked hoistway door, attached via the vane to the elevator car door, is keeping both doors closed. Any attempt at forcing them open may damage the interlock putting the car out of service.

C. If your car arrives at a floor and the car door opens revealing a locked hoistway door, the following considerations must be made:

1. If the hoistway door security lock can be removed or opened with no damage to the door, do so.

2. If removal of the locking device threatens any bending or warping of the door or door buck, make no attempt at removal. Warping or springing of the door assembly may interfere with the car's electrical circuits, putting the car out of service.

D. A preferable method, in both 1 and 2, is to drop down to a floor where exit is possible. Find the stair and move up to the original floor.

Note: In high rise buildings, on the street floor and above, any locks placed on passenger elevator car or hoistway doors must be openable with a 1620 key.

7. BUILDING CODE REGULATIONS EFFECTING FIRE DEPARTMENT OPERATIONS

7.1 Accidents.

7.1.1 The Building Department is required to investigate elevator accidents. Officers in command at such occurrences are to notify the Building Department via the dispatcher.

7.2 Mechanical Features.

7.2.1 The winding drum or traction sheave machinery are required to have a mechanical brake that is applied automatically when the power is removed from the system. The brake shall only release when the power is restored.

7.2.2 A manual power control switch for each elevator is to be located adjacent to, and visible from, the elevator machinery.

7.2.3 A mechanical safety device is attached to the car frame. It will be brought into play when any of the following conditions exist:

A. Car over speed.

B. Car free fall.

C. Slackening of the hoistway cable. Car safety devices will apply with downward motion of the car and may be released by reverse or upward motion of the car.

7.2.4 In automatic cars a transfer switch that puts the car solely under the control of the car operator must be provided. Elevator mechanics and some building service employees have operating keys.

7.3 Emergency Removal**.**

7.3.1 Emergency hoistway door key hole and keys themselves are to be of such a design that inhibits the use of common tools.

7.3.2 In a single car blind hoistway emergency access openings shall be provided at every third floor, but not more than 36 feet apart.

7.3.3 If emergency side exit door is provided it must have the following features:

A. Hinged to open into the car.

B. Locking device that requires the use of a key inside the door.

C. A means of being opened by hand from the shaft side.

D. Line up with the door of adjacent car.

E. Be within 3 feet of the adjacent car side door.

F. An electrical door contact that will prevent motion of the car when the door is open.

7.3.4 Top Emergency Exit.

A. Cars installed under the 1938 Building Code.

1. Top hatch required in all cars.

2. Opens outward.

3. Designed to unlock by thumbscrew from inside and outside of the car.

Note: To prevent access to the car roof by juveniles and vandals many have been bolted closed in the interest of safety.

4. May have a contact power switch.

B. Cars installed under the 1968 Building Code.

1. Top hatch required in all cars.

2. Opens outward.

3. Not required to be openable from the interior of the car.

4. Openable from exterior, wrench or screwdriver usually required.

5. May have contact power switch.

6. May be concealed by grill work, lights, mirrors or other decorative finish.

8. ELEVATOR TERMS AND DEFINITIONS

***Alarm button (switch)* -** Button (switch) in elevator car which activates the alarm bell.

***Car Door* -** Elevator car door.

***Car Door Contact* -** An electrical device used to prevent the operation of the car unless the car door is in the closed position.

***Car Safeties* -** Stop car in the event of an emergency. Controlled by car governor.

***Counterweights* -** Used to counterbalance the weight of the elevator car.

***Elevator Car Selector* -** Panel inside car containing emergency stop button, alarm button, door open button, floor selection buttons and Firemen Service key switch if required.

***Elevator Control Panel* -** A visual display unit located in the lobby which indicates the status and location of all elevator cars and the necessary controls for the operation of the cars. Common in High-Rise buildings.

***Elevator Door Vane* -** The connection between the elevator car doors and the hoistway doors. It allows the elevator car door to drive the hoistway door.

***Elevator Machinery Room* -** Area where the equipment that raises and lowers the elevator is located. Usually located at the top of the shaft, machinery room may also be found at shaft bottom or two floors above the highest floor serviced by the elevator.

***Elevator Motor* -** Turns winding drum raising and lowering elevator car.

***Emergency Stop Button* -** Elevator car button which when activated cuts power to car and sounds alarm bell. Note: Do not rely on this button, elevator power switch must be used to insure motor power is off.

***Emergency Escape Ladder* -** On the top of some elevator cars used to assist in top hatch removal operations.

***Emergency Exit* -** Side door of a car in multi car hoistways.

***Final Lower Limit Switch* -** A switch located in the elevator pit which prevents the elevator from descending too low in the shaft. When tripped by elevator it cuts the power to elevator motor. Acts as a backup to lower limit switch.

***Firemen Service* -** A feature required in many elevators which enables the department to gain control of the elevators

***Floor Call Button* -** Located at elevator floor landing, used to call car to the floor when service is desired.

***Floor Selector* -** Located in the machinery room can be used to determine the exact location of the elevator.

***Governor* -** Regulates elevator car speed. Also engages car safeties and shuts off electrical power in the event of free fall or over speed.

***Governor Rope* -** A wire rope or cable which travels with the car. If engaged by the governor it mechanically activates the car safeties.

***Hoistway* -** The shaft the elevator moves in. Types: Single car (local service), multi car (local service), single car blind (express service), multi - car blind (express service).

***Hoisting Cable* -** Cable (cables) used to raise and lower the elevator.

***Hoistway Door* -** door leading from landing to elevator shaft.

***Interlock* -** A switch on hoistway door, and some emergency exits that will prevent the elevator from moving when in open position.

***Key 1620* -** An official Fire Department alarm box key.

***Key 2642* -** Standard key used by elevator industry. This key is interchangeable with 1620 key for operation of Firemen Service elevators

***Limit Switch* -** A mechanical electrical device which is located at the top or bottom of the shaft. Its purpose is to prevent over extension of elevator car in an upward or downward direction.

***Lower Limit Switch* -** A switch which stops the car in pit area, below lowest landing.

***Main Electrical Power Switch* -** Located in machinery room, each switch controls the operation of one elevator.

***Terminal Landing* -** lowest landing for discharge of passengers, may be at ground floor or above in which case it is known as a Sky Lobby.

***Traction Sheave* -** Free turning pulley for elevator cables.

***Ventilation Opening* -** "Smoke hole" - opening providing for the movement of air in the shaft caused by the movement of the elevator.

BY ORDER OF THE FIRE COMMISSIONER AND THE CHIEF OF DEPARTMENT

Appendix E

AIR SUPPORT PLAN – HIGH RISE FIRES

DCN: 3.02.01 **A.U.C. 269**
September 9, 1993

AIR SUPPORT PLAN - HIGH RISE FIRES

Appendix E
Air Support Plan High Rise Fires AUC 269
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1. INTRODUCTION

1.1 In recent years, several high-rise fires have occurred throughout the world at which occupants became isolated from fire forces when they fled to the roof. Due to the media attention given to these events and the spectacular nature of helicopter evacuation, it can be anticipated that at future high-rise fires, people will ignore fire department advice and flee to the roof. Roof evacuation by helicopter is both hazardous and time consuming. Therefore, it shall only be undertaken as a last resort, and only upon the direction of the Fire Department Incident Commander (IC). However, large numbers of people on the roof cannot be ignored and the possibility exists that a helicopter approach may be the only access available.

At high-rise fires in which people were evacuated via helicopter, operations took a great deal of time, and presented an unwarranted risk to the rescuers and evacuees. FDNY observers who visited the scene of these fires concluded that evacuation was unnecessary since the people on the roof were never in any immediate danger. On the other hand, many of the fatalities at these fires were people who suffered smoke inhalation in the halls and stairwells while attempting to reach the roof. Had fire personnel been airlifted, ventilation and search of the stairwells and halls could have been effected. In order to address this problem, a plan to provide helicopter capabilities at high-rise fires has been developed in conjunction with the New York City Police Department.

2. DESCRIPTION OF THE AIR SUPPORT PLAN

2.1 Objectives:

2.1.1 Provide FDNY with the capability to place fire personnel on the roof of high-rise buildings, otherwise inaccessible due to fire conditions for the purpose of ventilation and search.

2.1.2 Control, comfort and direct people who view themselves as trapped and remote from help.

2.1.3 Provide the lobby command post with intelligence on roof conditions.

2.1.4 Evacuate persons in need of immediate medical attention.

2.1.5 Provide the capability to evacuate the roof as a last resort.

2.2 The plan is divided into three phases:

ALERT: Notification is made by the Manhattan Fire Department Dispatcher direct to the Police Aviation Unit upon transmission of a third alarm for a fire in a high-rise building.

ASSEMBLE: Fire Department units, Police Helicopters and Rappelling Team are assembled at a selected mobilization point.

AIRLIFT: Air Support Teams are airlifted to the vicinity of the roof of the fire building, pending the decision of the IC to actually land members on the roof.

2.3 Criteria For Use:

2.3.1 The decision to "Assemble" rests with the IC at the fire. The conditions under which Assembly may be ordered are generally, but not limited to:

A. Fire located above 10th floor in a high-rise building.

B. Access to the roof limited to exterior of building, via helicopter.

C. Fire in possession of two or more floors.

D. Interior access routes above fire blocked.

2.3.2 The decision to "Airlift" may be made only by an IC who is at the staff officer level.

2.3.3 If the decision is made by the Fire Department IC to utilize the High-Rise Support plan the operation shall be in conformity with guidelines contained in this document. This decision rests with the Fire Department IC until fire operations are completed.

2.4 Mobilization Points:

In the event of a major high-rise fire in the midtown area, most 3rd Division units will be engaged and streets in the midtown area are likely to be clogged with traffic. Similarly a high-rise fire in lower Manhattan, will involve most 1st Division units. For this reason, two high-rise helicopter mobilization points have been selected, each with a different High-Rise Roof Chief (HRRC) and different High-Rise Roof Teams (HRRT).

2.4.1 High-Rise Fire South of 23rd Street:

Mobilization Point	E. 34 St. Heliport.
HRRC's	Battalion 8, 9
HRRT's	Ladder Co. 2, 7, 21

2.4.2 High-Rise Fire North of 23rd Street:

Mobilization Point	Wall St. Heliport
HRRC's	Battalion 1, 4
HRRT's	Ladder Co. 6, 10, 15

2.4.3 For fires in high-rise buildings in other parts of the City, the selection of a mobilization point will be determined by the Manhattan Supervising Dispatcher.

3. PERSONNEL AND EQUIPMENT INVOLVED

3.1 High-Rise Roof Chief (HRRC) Duties

3.1.1 Upon order to "Assemble", respond to the designated mobilization point and rendezvous with the Police helicopters and Rappelling Team.

3.1.2 Obtain the following information through the Dispatcher while responding to the mobilization point:

A. Command channel

B. Tactical Channel for HRRT

C. Identification of Attack and Evacuation Stairs

D. Identification of the stairs that lead to roof

3.1.3 Notify the IC of the fire through the dispatcher when the High Rise Roof Teams, the Police helicopter/s and the Rappelling Team are assembled at the mobilization point.

3.1.4 Insure that HRRT's are on the proper handie-talkie channel prior to lift off.

3.1.5 Monitor both the Command channel for contacting the Lobby Command Post and the Tactical channel for communications with the HRRT. To accomplish this, it will be necessary to take the Battalion firefighter's handie-talkie.

3.1.6 If hardwired communication is established (warden phone, standpipe phone, telephone) use an HRRT member to assist with communications.

3.1.7 Be equipped with SCBA (Self-Contained Breathing Apparatus) and clipboard.

3.1.8 The HRRC's Battalion firefighter will remain at the mobilization point to provide security for the Battalion car and HRRT apparatus.

3.1.9 The HRRC's Battalion firefighter must obtain keys to both HRRT apparatus. If additional equipment is needed a helicopter will return to the mobilization point to transport it. The Battalion firefighter will monitor the department radio for instructions.

3.1.10 Upon the order to "Airlift", the helicopter will fly the HRRC and Rappelling Team to the fire building where the HRRC will make observations from the air and advise the IC to the need and advisability of a roof landing. If the IC orders a roof landing, the Police personnel will rappel and gain control of building occupants on the roof, prepare the roof for landing and guide the aircraft to land. The HRRC will advise the IC of the need for fire personnel on the roof. If the IC authorizes the placing of Fire Department personnel on the roof, a second helicopter will land the HRRT and the high-rise roof kit (HRRK). The HRRC will be in command of roof operations. If necessary, an additional HRRT can be airlifted to the roof.

3.1.11 Battalions 1, 4, 8 & 9 have been trained as HRRC's. If they are unavailable, any battalion may be selected.

3.2 High-Rise Roof Team (HRRT)

3.2.1 An HRRT consists of a ladder company made of an officer and five firefighters. Upon the order to "Assemble", the Manhattan Dispatcher will notify two HRRT's to respond to the designated mobilization point. The HRRC will designate units as primary and secondary HRRT. The primary HRRT will load the HRRK aboard the second helicopter and board the aircraft.

3.2.2 Upon the order to "Airlift", the primary HRRT will fly to the fire building and remain airborne in the vicinity of the fire building until landing is authorized by the IC via the HRRC or directly from the Command Post. Upon landing, they will operate under the HRRC. The secondary HRRT will remain at the mobilization point and await orders.

3.3 High-Rise Roof Kit (HRRK) See Fig. 1

3.3.1 Due to space and weight considerations aboard the helicopter, the only tools and equipment included in the High-Rise Roof Kit are:

A. 6 SCBA with 1 hour cylinder
B. 1 Bolt Cutter
C. 2 Halligan Tools
D. 2 Axes
E. 2 Search Ropes
F. 1 Rabbit Tool

3.3.2 Only these tools are to be brought to helicopter operations.

3.3.3 Tools shall be stowed on helicopter as per directions of Aircraft Commander.

3.4 NYPD Aviation Bureau

3.4.1 Under normal conditions, it can be anticipated that a time span of 30 to 40 minutes can be expected between the order to "Assemble" and pickup of fire personnel at the mobilization point. This time lag should be given consideration in the strategy of Incident Commanders at high-rise operations.

3.4.2 If two helicopters are available, the first will carry the HRRC and the Police Rappelling Team. The second will carry High-Rise Roof team. If only one helicopter is available, it will return to the Mobilization Point to pick up the HRRT after depositing the HRRC and the Rappelling Team on the roof.

3.5 N.Y.P.D. Emergency Service Division

The Police Emergency Service Division provides two important components of the Air Support Plan: A Command Post Communication Liaison and a Rappelling Team

3.6 Command Post Communication Liaison

3.6.1 Upon order to "Assemble", the nearest available emergency service radio car will be dispatched to the fire building. Their portable Special Operations Division (SOD) radio will be used in the Lobby Command Post to provide the Incident Commander (IC) of the fire with direct communication with the helicopter and the Rappelling Team on the roof.

3.6.2 Police Aviation will provide a radio headset in the helicopter for the HRRC to monitor the SOD channel.

3.6.3 One member of the Rappelling Team with a SOD radio will remain with the HRRC on the roof to act as a communicator with the helicopters and as a backup communication link with the Lobby Command Post.

3.7 Rappelling Team

"Rappelling" is defined as the "activity of lowering oneself by means of ropes onto a designated target". The duties of the Police Rappelling Team at a high-rise fire are as follows:

3.7.1 Control, comfort and direct persons who have fled to the roof. Until order is established, the helicopter cannot land for fear that people may rush to the aircraft causing injury to themselves or disability to the craft.

3.7.2 Preparation of the roof for helicopter landing.

3.7.3 First Aid - Tend to the immediate medical needs of people on the roof, freeing fire personnel for ventilation and search.

3.7.4 Ground Crew for Helicopters - the Team leader acts as landing officer, directing the helicopters to the landing site. Team members will also direct persons on and off the aircraft.

3.7.5 Communications - Provide communications for HRRC as per sec. 3.6.3

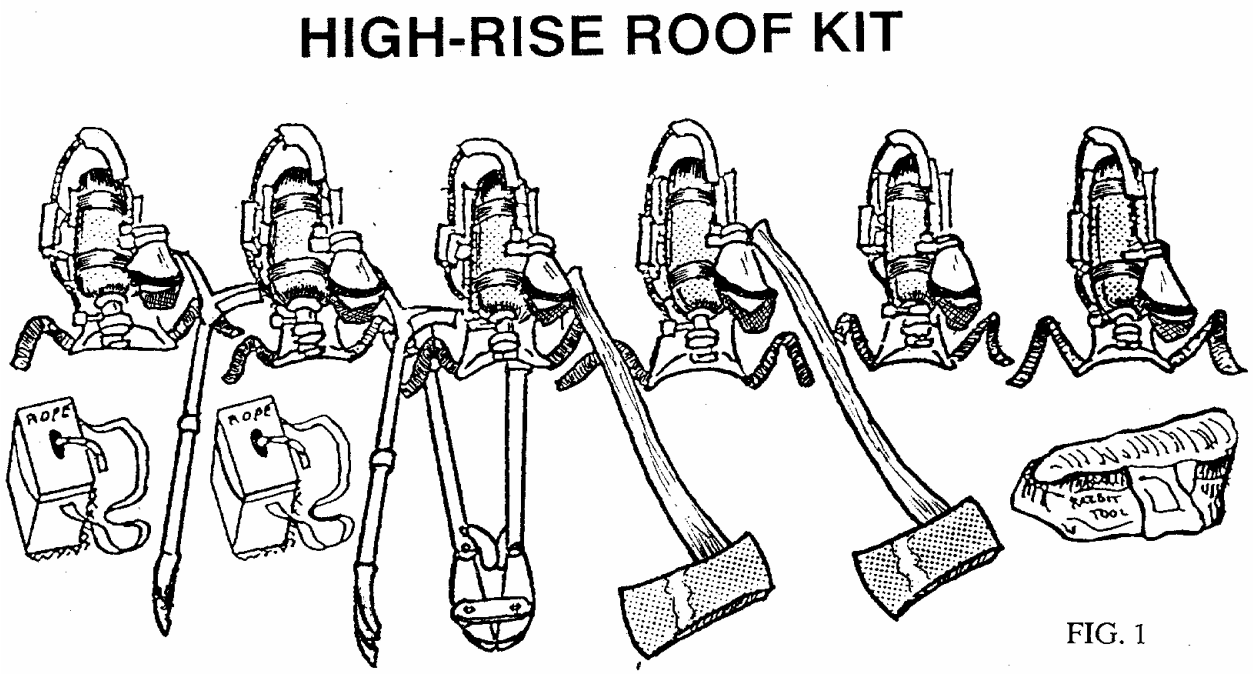

FIG. 1

6 SCBA (1 HR. CYL.)
2 AXES
2 HALLIGAN TOOLS
2 SEARCH ROPES
1 BOLT CUTTER
1 RABBIT TOOL

4. AIR SUPPORT PLAN OPERATIONS

4.1 Alert Phase

Upon receipt of a third alarm for a fire in a high-rise building the Manhattan Fire Department Dispatcher will contact the Police Aviation Unit. 718 692-1220

The purpose of the "Alert" phase is to allow the Police Aviation Unit time to prepare for Air Support Operations.

There will not be any movement of Fire Department personnel in this phase.

4.2 Assemble Phase

4.2.1 The IC at a high-rise fire will give the order to "Assemble" via Manhattan Dispatcher.

4.2.2 The Manhattan Communications Office will:

A. Notify the Police Dispatcher via Police City-Wide radio of the fire and to “Assemble" the Air Support Teams, at the proper mobilization point. (Sec. 2.4) Follow-up notification will be made by phone.

B Have the designated HRRC and HRRT respond to the mobilization heliport, or provide units if they are unavailable. This information must be transmitted to the Command Post at the fire building.

C. Obtain information required in Section 3.1.2 and relay to the HRRC.

4.2.3 The Police Operations Division will notify the Aviation Bureau and the Emergency Service Rappelling Team to respond to the mobilization point.

4.2.4 An Emergency Service radio car will be dispatched to the Fire Department Command Post at the fire scene for use of the SOD radio.

4.3 Airlift Phase

4.3.1 Upon the order to "Airlift," units at the mobilization point will proceed via helicopter/s to the vicinity of the roof of the fire building, pending the decision of the IC to actually land members on the roof.

4.3.2 Operate in accordance with orders received from the Command Post and with applicable sections of this circular.

5. SAFETY

5.1 All Department personnel must observe the following safety rules:

5.1.1 Approach and leave the helicopter only within the field of vision of the pilot and only from the front. (See Fig. 2).

5.1.2 Do not approach the tail section under any circumstances.

5.1.3 Approach and leave the aircraft in a semi-crouched position. Do not run.

5.1.4 Raise nothing above the head in the vicinity of the helicopter.

5.1.5 Each member will carry his/her mask and assigned tools to the helicopter. There must be no unnecessary movement in the area of the helicopter.

5.1.6 When loading HRRK, one member will enter the cabin and stow the equipment as it is passed to him/her.

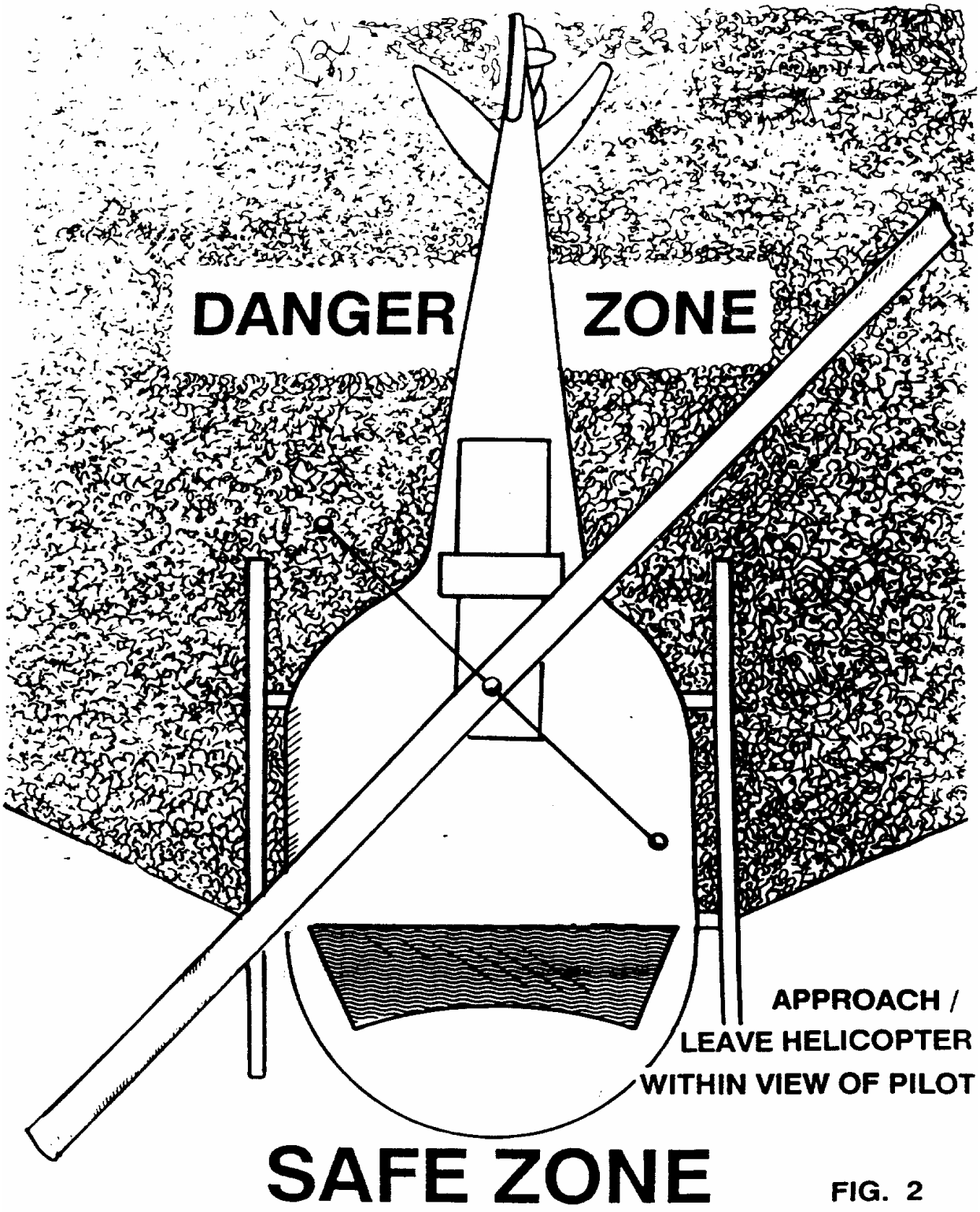
DANGER ZONE
APPROACH /
LEAVE HELICOPTER
WITHIN VIEW OF PILOT
SAFE ZONE

FIG. 2

5.1.7 Riding positions on the helicopter are designated by the Aircraft Commander.

5.1.8 Do not step on or place tools on or near the rubber pontoons of the helicopter.

5.1.9 Leave the helicopter only when directed by the pilot or co-pilot.

5.1.10 Be alert for other helicopter landings and takeoffs.

5.1.11 Due to unpredictable effect of ventilation in high-rise buildings, interior stairs or shafts must not be vented unless ordered by the IC of the fire.

5.2 The HRRT Officers' prime function during loading and unloading of the of the helicopter is to maintain direct control over the movement of his/her members.

The HRRT officer will:

5.2.1 Approach the helicopter after receiving the signal from the pilot.

5.2.2 Maintain a position alongside the helicopter at the rear of the compartment door.

5.2.3 Control approach of members.

5.2.4 Supervise loading/unloading.

5.2.5 Be the last one to board and the first to leave helicopter.

5.2.6 Monitor handie-talkie during flight.

5.2.7 Maintain same position by door during unloading.

5.2.8 Control route of members leaving helicopter.

5.2.9 Select an "assembly" area near bulkhead or other roof projection away from landing area, and have members proceed immediately to it.

6. PROGRAM MAINTENANCE

6.1 The Manhattan Borough Commander is the PROGRAM OFFICER and is responsible for:

6.1.1 Liaison with the N.Y.P.D.

6.1.2 Condition of all equipment required for the program.

6.1.3 Training.

6.1.4 Notifying the Bureau of Operations when major drills are planned.

6.1.5 Forwarding reports when items requiring the attention of the Chief of Operations surface.

BY ORDER OF THE FIRE COMMISSIONER AND THE CHIEF OF DEPARTMENT

Appendix F

APPROVED SAFETY BULLETIN 67
APPROVED RIDING POSITIONS ON APPARATUS

APPROVED RIDING POSITIONS ON APPARATUS

Appendix F
Approved Safety Bulletin 67 Approved Riding Positions on Apparatus
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1. Prior to the establishment of a riding position policy in November 1971, falls from a moving apparatus were averaging one a month. This number his been reduced; nevertheless five members fell from an apparatus in the year 1981 and four members have fallen in the first nine months of 1982.

2. Vehicular accident records of this Department indicate that the location of members on moving apparatus can be the difference between a safe trip or serious injury and even death. Choice of riding location has been an important factor in cases where the apparatus has hit a bump or depression in the road, made a sharp or unexpected turn, or was involved in an accident.

3. This bulletin classifies and illustrates riding positions in order to provide safer transportation of members. At the start of each tour, officers shall select riding locations commensurate with the number of members working, and assign each member a location. (See Pages 4 and 5, Examples of Riding Positions).

   Officers shall enter each member's location on "Riding List" (BF 4). Responsibility for enforcement rests on the officer, and responsibility for compliance rests on the individual member.

4. Bearing in mind that an enclosed, seated, belted position is the safest location while riding an apparatus, officers shall assign these positions first. The officer then assigns positions in a descending order of priority. Ex.: 1. Enclosed, seated, belted position; 2. Seated, belted position; 3. Standing - side positions/ with restraining devices; 4. without restraining devices.

   The rear step of the apparatus is never to be used as a riding position. Its sole function is to load and unload hose.

5. Members assigned to standing locations must maintain a firm grip at all times with both hands. If vertical hand rails are used, members should buttress themselves by using a second hand hold with their other hand. Remember, members must hold on with both hands...they are not to break their grip (to don clothing, reach for a tool, or change locations) while the apparatus is moving. Members must accept their personal responsibility to protect themselves to the greatest degree possible. When gates or guards are provided on side standing locations, they must be in place for proper protection.

6. Under no circumstances shall members sit on battery box, running board, steps, or turntable. Only designated seats, or other approved locations, shall be used. Where seats are provided, they shall be used.

7. The major part of the responsibility for falls from apparatus and resultant injury rests with the member who fell. Each member must recognize and accept this responsibility. Each individual member must take steps to prevent himself from falling from a moving apparatus.

8. Reasons for such falls have been:

    1. Sitting on turntable, or battery box.
    2. Not prepared for unexpected turn.
    3. Holding on to portable ladder which worked loose.
    4. Changing position of hands on straps or other hand holds.
    5. Apparatus making a turn or sudden stop.
    6. Reaching for a tool, mask, etc., before fire apparatus had stopped.
    7. Moving while apparatus is traveling.
    8. Donning fire clothing while apparatus is in motion.
    9. Not using available seat belts.
    10. Loose grip on hand rails.
    11. Lack of communication between Officer, chauffeur, and members riding, when apparatus stops and suddenly starts moving, catching members off guard.

    Note: A recent court case (New York State Court of Appeals) indicates that failure to use a seat belt is a factor which may be considered in compensating accident victims.

BY ORDER OF THE FIRE COMMISSIONER AND THE CHIEF OF DEPARTMENT

DEFINITIONS

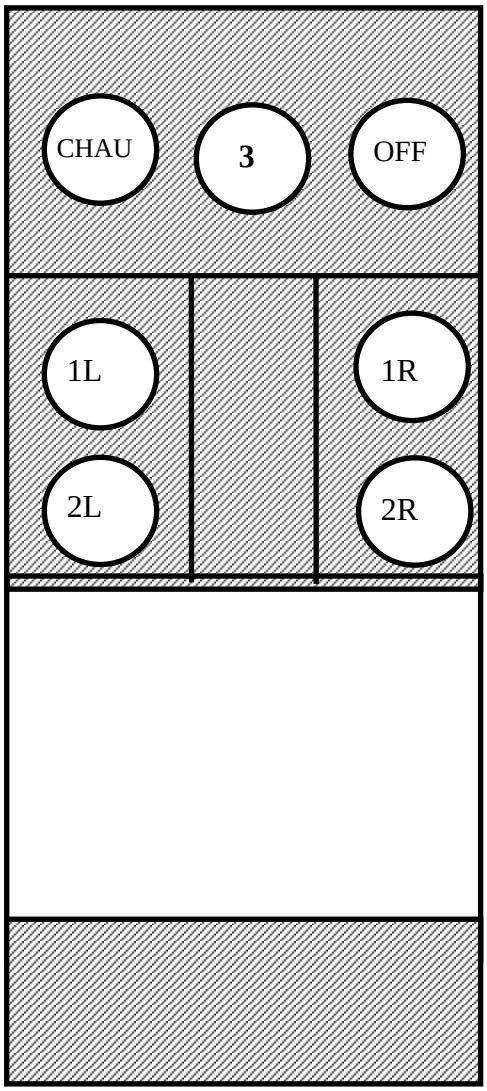
OFF	RIDING LOCATION OF OFFICER
CHAU	RIDING LOCATION OF ECC AND/OR QC
TILL	RIDING LOCATION OF TILLERMAN
	INDICATES AREA OVERHEAD IS COVERED
L	INDICATES LEFT SIDE OF APPARATUS
R	INDICATES RIGHT SIDE OF APPARATUS
C	INDICATES CENTER SEAT

NOTE: Numerals in circle, in front of letters “L” or “R’ indicate priority. (Unless otherwise indicated.)

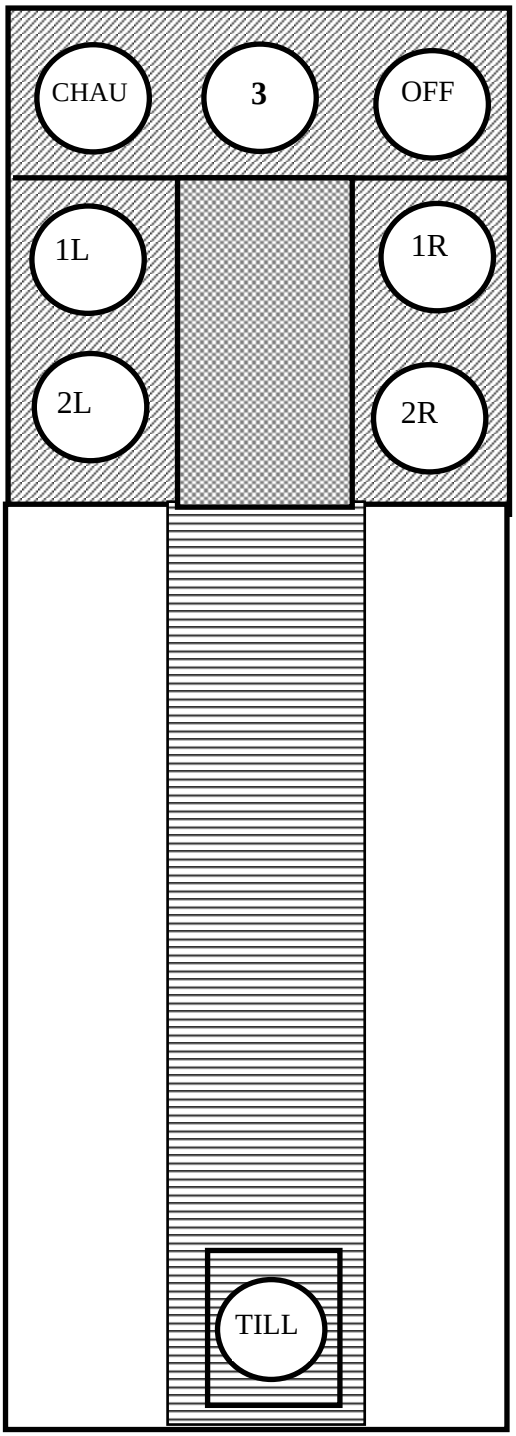
EXAMPLES:

1L	Indicates first priority and left side of apparatus
3R	Indicates third priority and right side of apparatus

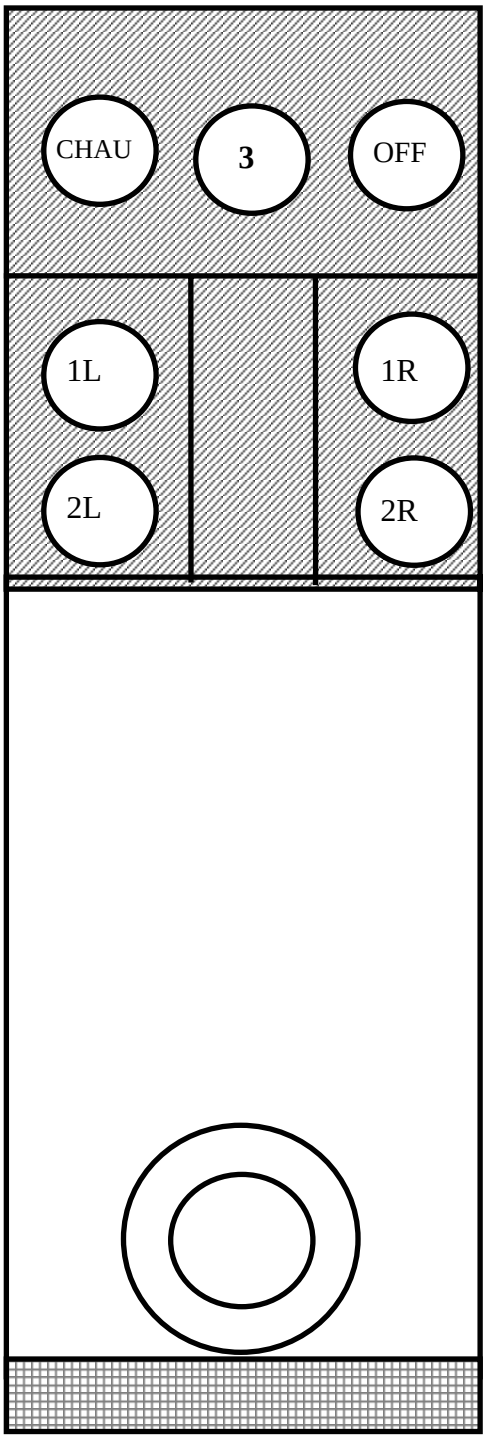
Example Of Pumper Riding Positions



Example of Ladder Riding Positions (Tiller Type)

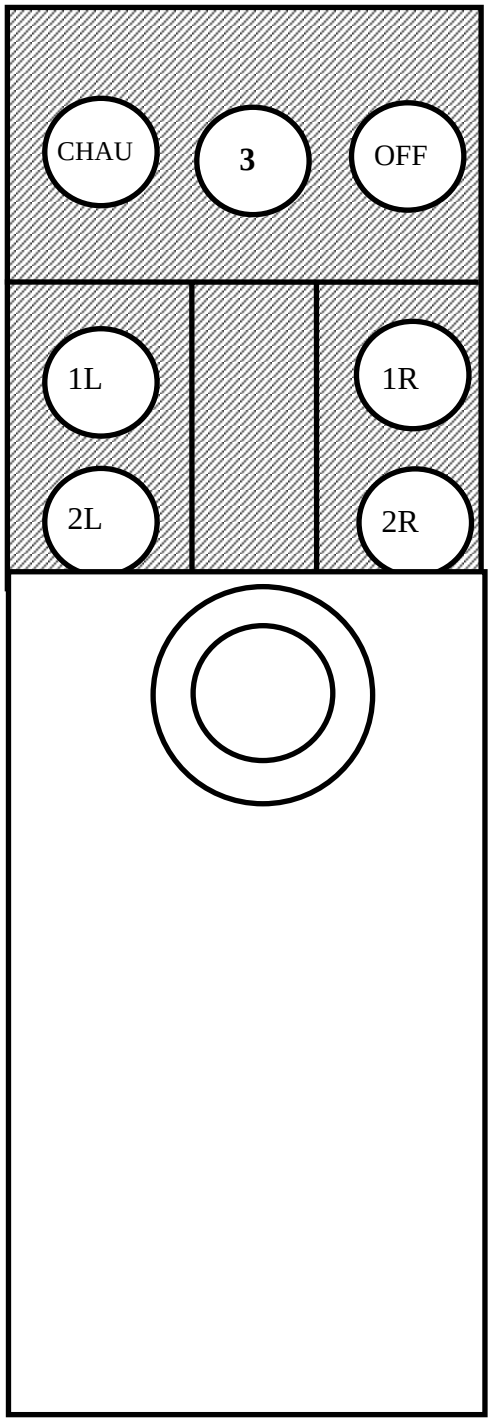


Example of Ladder Riding Positions (Rear Mount)



Note: It is absolutely prohibited to ride on rear step.

Example of Ladder Riding Positions (Tower Ladder)



Appendix G
TRAINING BULLETIN TOOLS 22 PORTABLE COMMAND POST

TRAINING BULLETIN
TOOLS 22
December, 1991

PORTABLE COMMAND POST

Appendix G
Training Bulletin Tools 22 Portable Command Post
Reproduced with permission of The Fire Department of the City of New York

1. INTRODUCTION

The Portable Command Post will assist the Incident Commander in efficiently executing the responsibility of incident management.

The Portable Command Post (PCP) will be carried in the division vehicle. Deputy Chiefs shall utilize the PCP at fires, emergencies and other incidents here its deployment will assist in the operation.

2. ADVANTAGES

2.1 Establishes a Fire Department Command presence at the scene.

2.2 Serves as a physical focal point for incoming Fire Department Units as well as other agencies reporting to the operation.

2.3 Provides a convenient means of direct radio communication with the Borough Communications Office.

2.4 Facilitates the recording of the location and status of Fire Department units.

2.5 Facilitate the recording of the ranking official present from other agencies.

2.6 When manned by an aide, the Incident Commander will be freed from the distraction of units and agencies reporting in to the operations.

2.7 Satisfies federal regulations regarding the establishment of a Command Post.

2.8 Provides own light for viewing and recording information.

2.9 Improve safety by promoting accountability of personnel, efficient use of resources and tactical planning.

2.10 As a visual aid the PCP will assist Incident Commander in assigning chief's area of responsibility.

3. DESCRIPTION

Portable Command Post is comprised of three components: case, power pack and stand.

3.1 Case - welded aluminum 18" X 28" X 8" containing the following:

3.1.3 Vertical Magnetic Surface (Figure I)

A. For recording box, time out, incident location and height, construction, dimensions if building involved.
B. Hold supply of magnetic identifiers.
C. Radio console
D. Light

3.1.2 Horizontal Magnetic and Marking Surface (Figure 2)

A. For recording unit location or status:
- Standby
- R&R
- Tactical location on diagram

B. For recording outside agencies' representatives

3.1.3 Magnetic Identifier (Figure 2)

A. Each division is supplied with pre-labeled identifiers of units they most frequently respond with.
B. Unmarked black identifiers are also supplied. Unit numbers can be written on with dry marking pens supplied with the post.
C. Additional permanent identifiers can be made using Dymo Label Makers with 1/2" tape.
D. Color coded:

Engine .....Black
Ladder & Tower Ladder .....Red
Battalions .....Gold
Special Units .....Blue
Sectors.....Purple

3.1.4 Radio

A. Motorola max trac

B. 25 Watt

C. 6 Channel

1 - Citywide
2 - Queens
3 - Brooklyn
4 - Manhattan
5 - Bronx/Staten Island
6 - Not in use

D. Antenna

- Magnetic base
- Place on a ferrous metal object.

Caution: Antenna must not be placed on Portable Command Post or within 3' of people.

3.1.5 Power supply compartment (Figure 3)

A. 12 volt maintenance free lead acid battery. Operational time averaging between 3 - 4 hours.

B. Charging plug

C. Wiring and terminal blocks

D. Micro switch which stops battery from charging when case is closed.

3.1.6 Rain shield - clear plastic attaches to top and bottom portions of case with velcro strips. Keeps PCP dry preventing icing on surfaces and running of dry markers.

3.1.7 Command Post Flag (Figure 3) - orange flag which fits in hole in top right-hand corner of case.

3.1.8 Light (Figure 3) - turn off when not in use to conserve battery.

3.2 Power pack (Figure 3) - battery charger with special plug which permits its use only with PCP.

3.2.1 Charger fed by 110 volt service and supplies 12 volts of DC current to PCP power plug.

3.2.2 PCP is supplied through charging plug located on left side lower portion of case.

3.2.3 Power pack should always be taken to location of the PCP. Necessary preparation should be made to permit its deployment.

3.2.4 Power pack is to be used during extended operations or if PCP battery is low.

3.2.5 Unit fits on the leg rails of the PCP. There it will be approximately 4" above the ground protected from runoff. Case will provide some protection from rain and stream spray.

3.3 Stand - (Figure 3)

3.3.1 Consists of folding aluminum legs which pivot at the center and nylon straps used to support the PCP case.

4. LOCATION

The following guideline are to be used in selecting site for PCP placement.

4.1 Where possible location should afford the Incident Command with a good view of operation.

4.2 Clearly visible to incoming units and other agencies.

4.3 Avoid loud noise areas such as a location adjacent to operating pumper or tower ladder.

4.4 Avoid areas likely to be sprayed with stream.

4.5 Avoid area likely to be disrupted by expanding operations.

4.6 When practical locate PCP near a vehicle or apparatus which would permit mounting of radio antenna.

5. SETTING UP PCP (Figure 3)

5.1 Place stand on firm flat surface.

5.2 Place PCP case on stand, open case and lock hinge arms.

5.3 Place magnetic base antenna on ferrous metal such as vehicle or apparatus.

5.4 Turn on light if necessary.

5.5 Turn on radio, insure it is set to Borough of incident's location.

6. USING PCP

6.1 Draw diagram of incident on horizontal surface.

6.2 Take appropriate unit identifier from vertical surface and place them on diagram according to location and duties assigned.

6.3 Utilize PCP radio for transmitting reports.

7. PRECAUTION

7.1 Antenna is not to be placed on portable Command Post.

7.2 Keep antenna at least 3' from people.

7.3 P C P lid must be open while charging its battery to prevent hydrogen build up and possible explosion.

7.4 Do not overcharge battery.

7.5 Portable Command Post could be blown over by high wind. During windy conditions, if unable to find appropriate sheltered area, position PCP to avoid wind from striking post from the operating side.

7.6 P C P will be carried in a secure place in the vehicle. If necessary protect it from damage caused by movement.

8. MAINTENANCE

8.1 Test radio weekly

8.2 Charge battery one hour per week and after each use.

8.3 Arrangements for repairs shall be made through the Bureau of Fire Communications.

Figure 1

VERTICAL MAGNETIC SURFACE

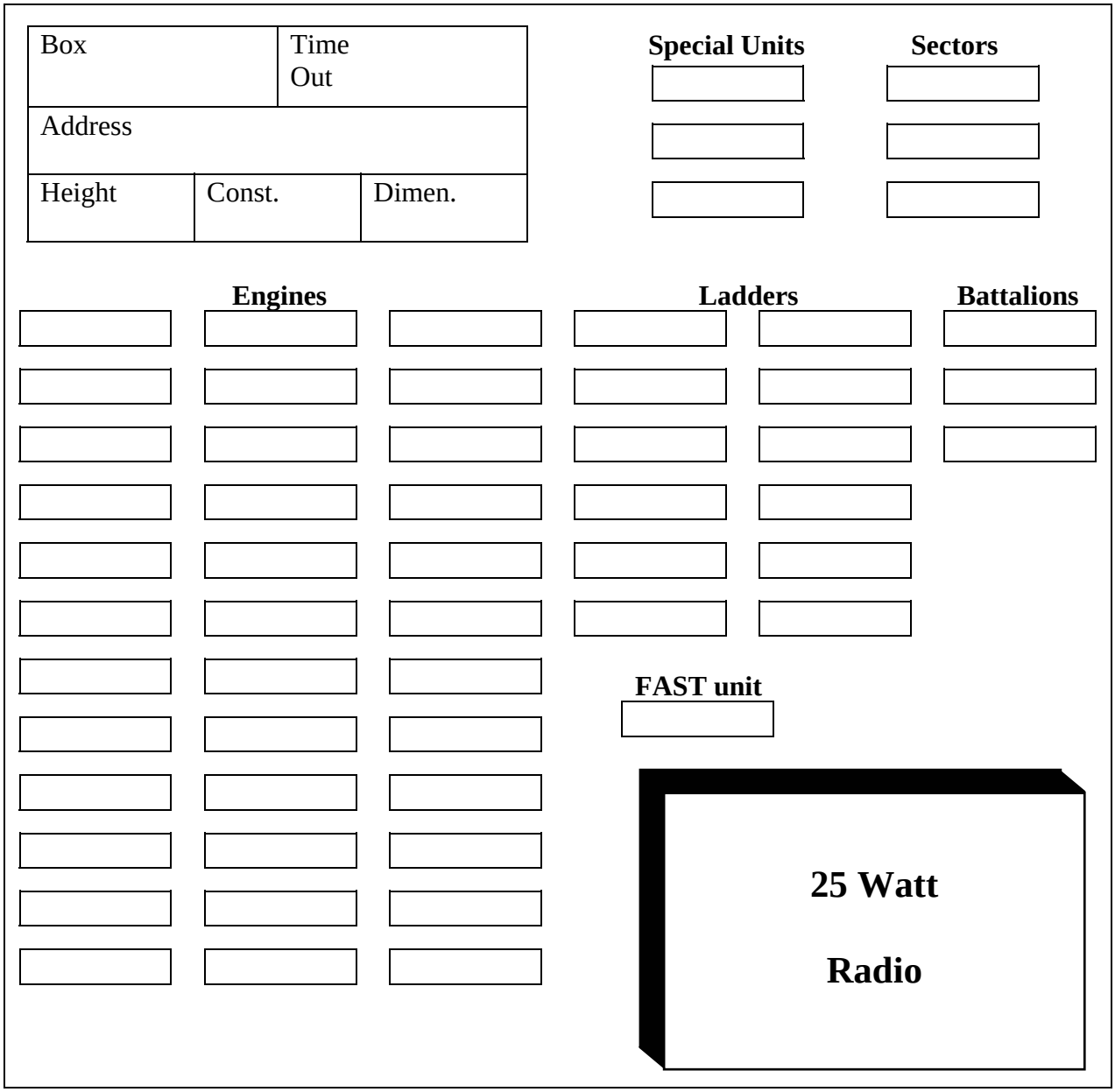
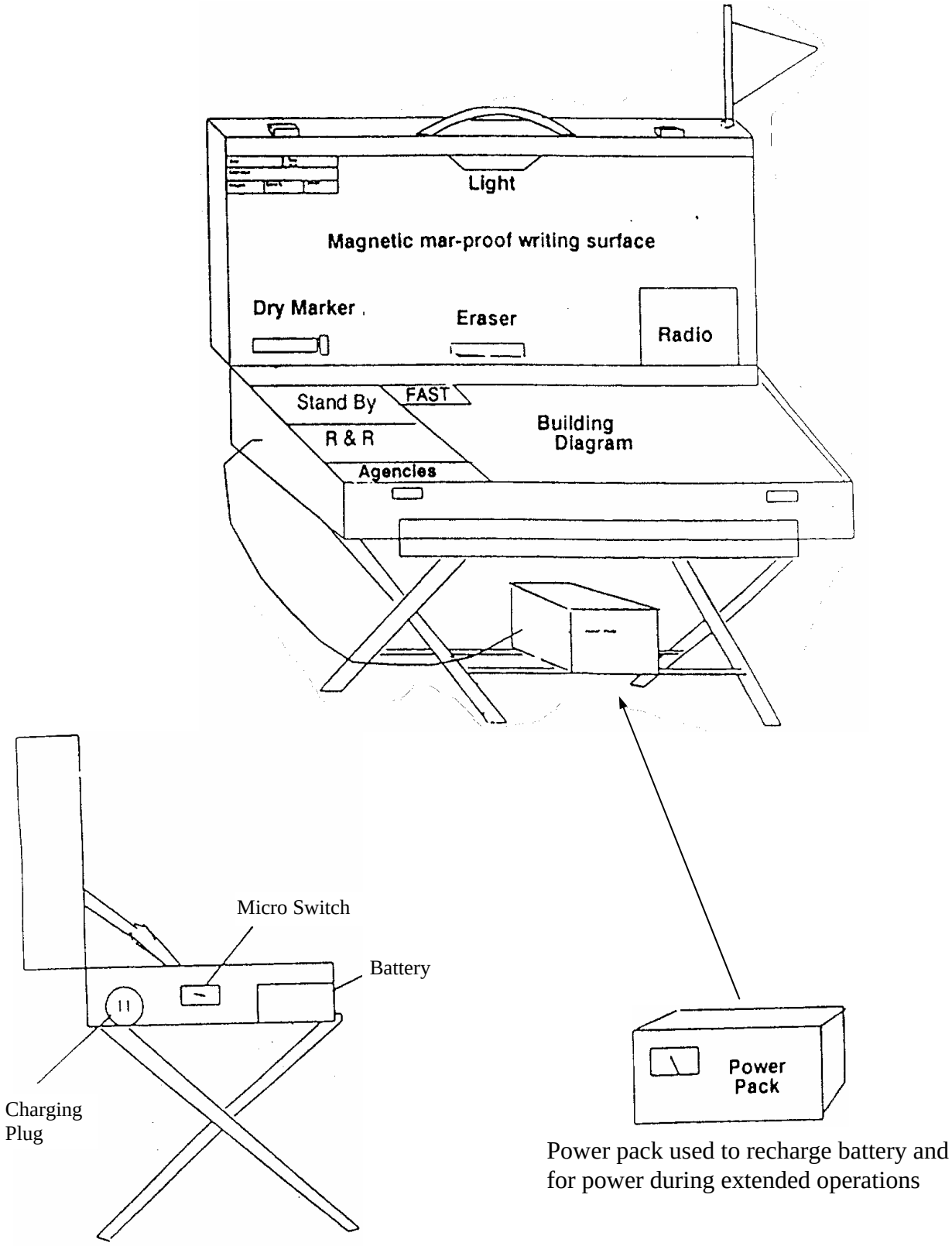


Figure 2

HORIZONTAL MAGNETIC SURFACE

<table>
<tr><td>Stand By</td><td>FAST unit</td></tr>
<tr><td>R & R</td><td rowspan="2">Draw a Diagram of Fire Building in this area.
Place magnetic identifiers on Fire Building diagram
to show how units are deployed.</td></tr>
<tr><td>Agencies
P.D.
E.M.S.
D.E.P.
Electric
Gas
Telephone
Press</td></tr>
</table>

Figure 3
PORTABLE COMMAND POST



Power pack used to recharge battery and for power during extended operations

BY ORDER OF THE FIRE COMMISSIONER AND THE CHIEF OF DEPARTMENT

Appendix H
REGULATIONS FOR RECALL

RECALL

Appendix H
Regulations Chapter 18 Recall
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18.1 RECALL PROCEDURE

18.1.1 In the event it becomes necessary to augment temporarily the numerical strength of manpower on duty within the Department during actual or potential emergency conditions, the signal 65-2 will be transmitted under jurisdiction and authorization of the Fire Commissioner.

18.1.2 Upon receipt of signal 65-2 transmitted to implement recall, chief and company officers shall follow instructions transmitted. Depending upon the area affected and the degree of necessity, the orders relative to scope of the recall will be announced over the Department radio, voice alarm, and by teleprinter messages.

18.1.3 Recall may be total (city-wide) or partial (confined to one or more boroughs). It may affect all units or selected units, such as engine companies only. The time frame may run from continuous duty to specific tours or hours.

18.1.4 Cancellation of recall will be by the 65-2 signal as above, under authority of the Fire Commissioner.

18.2 MEMBERS SUBJECT TO RECALL

18.2.1 During the period recall is in effect, all members, with exceptions noted below, shall be subject to recall duty in accordance with 65-2 instructions and provisions of this chapter.

A. Exemptions:
1. Members assigned to medical leave, limited service or light duty.
2. Members on vacation, military, death, special, or emergency leaves.

B. Conditional: (subject to discretion and as directed by the Fire Commissioner prior or subsequent to recall).
1. Pilots, marine engineers, assistant marine engineer, wipers.
2. Officers, members, firefighters 6th grade assigned to the Bureau of Training (including members who are regularly assigned to units but currently attending such courses as officer training, chauffeur training, etc.).
3. Full duty member - Detailed to other than fire duty.

18.2.2 During periods of limited recall ordered under directions attendant upon signal 65-2, members designated, whether by area, group assignment, rank, grade, or classification shall be retained or recalled and perform tours of duty as directed by the Fire Commissioner.

The exemptions and conditional provisions of Section 18.2.1 shall apply unless otherwise specified.

18.2.3 Upon receipt of recall signal, all units out of quarters in affected borough, other than those units operating at a fire or emergency, shall return to quarters immediately. Relocated and interchanged units shall be guided by instructions received from dispatchers.

18.3 NOTIFICATION OF MEMBERS

18.3.1 In those instances requiring a citywide recall, it shall be the responsibility of each member to monitor the news media and report for duty as required.

In limited recall situations where media coverage may be limited, officers on duty shall immediately notify affected off duty members as necessary.

18.3.2 Commanding officers shall, in order to insure prompt telephone notification of off duty members, maintain a current and accurate personnel record of emergency telephone numbers in the office record journal, as outlined in section 16.1.1 of the Regulations.

18.3.3 When necessary, notice by telephone shall be direct to affected members. If this is not possible, information shall be conveyed to a person of suitable age and discretion at the members residence or emergency telephone number for prompt relay to the member. In either case, officers on duty shall record in the company journal the time of telephone notification and name of the person notified.

18.3.4 Officers shall endeavor to have members notified of recall information by use of telephones not connected to Bureau of Fire Communications. If this method proves impracticable Department telephones may be used.

18.3.5 Accuracy of emergency telephone information in the personnel record of office record journal shall be the responsibility of individual members. Changes shall be promptly reported to the officer on duty, who shall immediately alter the record.

18.3.6 Members temporarily detailed to other units, affected by the transmission of a recall signal, shall report to such detailed units.

18.4 BUREAU OF TRAINING

18.4.1 Officers, members, (staff or members currently assigned to a training course), and firefighters 6th grade in training shall be subject to recall only under specific orders of the Fire Commissioner. Classes, unless otherwise directed, shall remain in session.

18.4.2 Members regularly assigned to operational units who are currently attending courses conducted by the Bureau of Training, under Departmental orders, when notified either by assigned unit or by an officer of the Bureau of Training that conditional recall exemption has been waived, shall comply with recall provisions presently in effect by reporting without delay, to assigned units.

18.4.3 Sixth grade firefighters enrolled in classes at the Bureau of Training shall, when utilization of their services during recall or other emergency has been directed by the Fire Commissioner, operate under orders and close supervision of officers of the Bureau of Training.

Mobilization, supervision and transportation of sixth grade firefighters to the scene of emergency operations shall be activated in accordance with planned arrangements and schedules devised by the chief of the Bureau of Training.

18.4.4 Officers assigned under recall to supervise sixth grade firefighters responding to emergency conditions, shall report in to Field Headquarters, or to the superior fire officer on duty in the area when Field Headquarters has not been established.

18.5 SPECIAL OPERATING PROCEDURE

18.5.1 After transmission of recall notification the following special regulations shall be effective:

A. When two chief officers are on duty in a division or a battalion, only one shall respond to an assigned alarm. The second chief shall operate according to instructions received from the citywide tour commander.

B. Special Units shall respond according to the Communications Manual, unless otherwise specified.

C. Deputy chiefs shall arrange to place spare apparatus in service. They shall cooperate with battalion chiefs in providing details of members to divide units and place the maximum number of companies in service. Dispatchers shall be advised when such companies are placed in service.

18.6 RELEASE OF MEMBERS

18.6.1 Release of members recalled or retained on duty under instructions attendant upon signal 65-2 may be accomplished, at the direction of the Fire Commissioner, by repetition of the signal 65-2 followed by orders specifying the hour and method for terminating emergency duties.

18.7 REPORTS

18.7.1 Commanding officers shall forward reports 24 hours after transmission of a recall signal recording the time each member reported for duty in response to such signal.

Appendix I
FIRE FIGHTING PROCEDURES HIGH RISE OFFICE BUILDINGS

HIGH-RISE OFFICE BUILDINGS

Appendix I
Fire Fighting Procedure High Rise Office Buildings
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CONTENTS

SECTION	TITLE	PAGE
	Glossary	i
1	**Introduction**	1
1.1	Purpose	1
1.2	Types of Buildings	1
2	**Description of Buildings**	2
2.1	General Description	2
2.2	Buildings Built Before 1945	2
2.3	Buildings Built After 1968.	3
2.4	Buildings Built Between 1945 and 1968	3
3	**Section Revoked**	
4	**Heating, Ventilation and Air Conditioning Systems**	4
4.1	Introduction	4
4.2	Description of HVAC systems	4
4.3	HVAC Strategic Operating Plan	6
4.4	Other Considerations	7
5	**Hydraulics**	8
5.1	Supply from Fire Department Pumpers	8
5.2	Pumper Pressures	9
	5.2.2 Chart	9
5.3	Operating Procedures	10
5.4	Building Fire Pump	10
5.5	Other Considerations	14

6	**Operations of First Alarm Battalion Chief**	15
6.1	Strategic Operating Plan	15
6.2	Implementing the Strategic Plan	16
6.3	Tactical Plan	17
6.4	Tactical Considerations	18
6.5	Operations Post	19
7	**Command Post Procedures**	21
7.1	Introduction	21
7.2	Communications	21
7.3	Lobby Command Post	23
7.4	Operations Post	28
7.5	Search and Evacuation Post	29
7.6	Staging Area	30
7.7	Forward Triage Area	31
8	**Class "E" Communications System**.	31
8	Introduction	31
8.2	Description	31
8.3	Utilization	34
9	**Ladder Company Operations**	36
9.1	Introduction	36
9.2	Ladder company response	36
9.3	First arriving ladder company	37
9.4	Second arriving ladder company	37
9.5	Third arriving ladder company	38
9.6	Fourth arriving ladder company	40
10	**Engine Company Operations**	41
10.1	Introduction	41
10.2	Engine company response	41
10.3	First arriving engine company	41
10.4	Second arriving engine company	42
10.5	Third & Fourth arriving engine company	42
10.6	Greater alarm engine companies	42
Appendix 1	Reference Figures	45

GLOSSARY

Access stairs A stairway, usually open, serving a number of floors of a common tenant. Also known as convenience stairs.

Air diffusers The air supply outlets of the heating, ventilation and air conditioning system (HVAC) into the conditioned space.

Attack stairway A fire stair being used by the Fire Department to gain access to the fire area, where the door between the stairway and the fire area is being maintained in an open position.

Blind shaft elevators Elevators serving the upper areas of a building in a shaft that is not equipped with hoistway doors on the lower floors.

Building evacuation supervisor When the fire safety director is not present in a class "E" office building occupied by less than 100 people above or below the street floor or by less than 500 people in the entire building, an employee trained by the fire safety director will man the fire command station and execute the fire safety plan.

Churning A condition in a centrifugal pump in which the impeller is rotating but no water is being discharged.

Core type building A building in which the elevators, stairway and building support systems are grouped together in one area of the building. This area could be in the center of the building as in a center core building or on one of the sides of the building as in a side core building.

Compartmentation The subdividing of floor areas by fire resistive separations into smaller spaces or compartments.

Curtain wall A non-bearing wall, built between piers or columns for the enclosure of the structure, but not supported at each story.

Damper A device to seal off or to control air flow in a HVAC system.

Diffusers See air diffusers.

ECC	Engine Company Chauffeur. A Fire Department member trained and qualified to operate Fire Department pumpers.
Elevator control panel	A visual display unit located in the lobby to indicate the status and location of all elevator cars and necessary controls for the operation of the cars.
Elevator door vane	The connection between the elevator car doors and the hoistway doors. It allows the elevator car doors to drive the hoistway doors.
Elevator machinery room	The area where the equipment is located that raises and lowers the elevator car. It can be at the top or bottom of the elevator shaft. In High-Rise buildings it is usually found at the top of the shaft.
Evacuation stairway	fire tower or a fire stairs that is remote from the fire area and used for the evacuation of the building occupants. A fire tower is the preferred evacuation stairs.
Fire dampers	A damper used to restrict the passage of heat.
Fire partition	A rated vertical unit or assembly of materials that separate one space from another within any story of a building.
Fire safety director	A designated employee holding a certificate of fitness from the Fire Department qualifying him to perform the duties as required.
Fire shutter, (reversible)	A fire damper that can be controlled from a remote location.
Fire tower	An enclosed stairway connected at each story by an outside balcony or fire proof vestibule vented to the outside.
Fusible link	A device designed to be actuated by an abnormal rise in temperature.
Hard wire communications	A system of communications in which wiring physically connects both lobby command post and other areas within the building. Viz.: Points of transmission and reception.
High-Rise communications kit	Handie-Talkie accessories designed to improve the performance of Fire Department Handie-Talkies when used within High-Rise buildings. (See AUC 179R addendum No. 2)

Key (1620) An official Fire Department alarm box key.

Key (2642) A standard key used by the elevator industry.

Locked door fail safe system A system where the lock mechanism is controlled electrically from a remote location.

Mechanical control center A location within a building where equipment is located for the monitoring of the building support systems. It has limited ability to control some of the building support systems. It may or may not be located on the same floor as the mechanical equipment rooms (MER).

Mixing dampers Dampers in the HVAC system which control the mixing of the return air and outside air.

Plenum An air compartment or chamber to which one or more ducts are connected and which form a part of an air distribution system. In High-Rise buildings the space between the suspended ceiling and the under side of the floor above is used as a plenum for the collection of the return air.

"Q" decking A type of composite floor construction in which corrugated steel is used to support the concrete floor. (See Fig. 2-1)

Reversible fire shutters See Fire Shutter (reversible).

Safety fire shutters See Fire Shutter (reversible).

Safety edge The leading edge of an elevator car door which causes the door to reverse its direction when it encounters an obstruction.

Set backs The area formed when the floor area of a building is reduced thus requiring the exterior wall of a building to be recessed.

Scissor stairs Two stairs constructed side by side in the core of a building in which their doors alternate the point of exit to opposite sides of the core.

Size-up An estimate of the conditions and problems of a fire or emergency situation by the officer in command.

Sky lobby	An elevator terminal point on an upper floor of a building where passengers can change from one bank of elevators to another.
Smoke ejector	A fan used by the Fire Department to move smoke or air.
Sound powered phone system	A portable hardwire telephone system powered by voice sound.
Staging area	An area established on a floor below the operations post to provide logistical support to the operations post.
Search and evacuation post	A position established above the fire operations to control and coordinate all operations in that area.
Standpipe kit	A collection of tools used by an engine company to effectively operate a hose line from a standpipe system.
Thermostatic detector	A device to detect an increase in temperature.
Variation	Permission given by the Department of Buildings and/or Board of Standards and Appeal to construct a building in variation with the existing Building Code.

1. INTRODUCTION

1.1 PURPOSE

The purposes of this book are:

1.1.1 To describe High-Rise Class "E" office buildings. Over 800 of these structures can be found in New York City.

1.1.2 To point out the problems and features of such buildings with regard to fire.

1.1.3 To establish methods of operating at fires in such buildings, and recommend precautions that should be taken.

1.2 TYPES OF BUILDINGS

1.2.1 The types of buildings included in this book are:

A. High-Rise Class "E" office buildings built before 1945.

B. High-Rise Class "E" office buildings built between 1945 and 1 968.

C. High-Rise Class "E" office buildings built after 1968.

Note: Many of these buildings are 200' x 400' in area with up to six stairways especially on the lower floors and with three or more stairways on the upper floors. However, others have only two stairshafts from lobby to roof with consequent reduction in our mobility and tactical flexibility.

Therefore, to permit an organized approach and deployment of our units this Bulletin is based upon a serious fire on the upper floors of a two-stairway office tower.

1. Because of the variation in construction techniques and the complexity of the High-Rise class "E" office buildings, the procedures outlined in this bulletin must be general in character and must differ substantially from the "Ladders 3" approach used at multiple dwelling fires.
2. In addition, the multitude of fire problems in these structures occupied with the human factor, i.e.; thousands of occupants on upper floors, severely limit the resources available on the first. alarm. As a result, new signals and response patterns will be introduced which demand all units operate in a controlled and coordinated manner.
3. As described in the operational Sections this article's aim is to establish critical priorities and assign chief officers and/or company units, not individual members or teams of members, to solve these problems.

2. DESCRIPTION OF HIGH-RISE CLASS "E" OFFICE BUILDINGS

2.1 GENERAL DESCRIPTION

2.1.1 100 feet or more in height.

2.1.2 Vary in area from 2,000 square feet to over 300,000 square feet.

2.1.3 Class 1 non-combustible.

2.1.4 Buildings shall be classified in the Class "E" occupancy group when they are primarily occupied for transacting business; for rendering professional services that may incidentally involve the storage of limited quantities of stocks of goods for office use or purposes. Buildings and spaces used for providing public and civic services shall also be classified in this group.

Examples are:

A. Office spaces

B. Showrooms

C. Banks

D. Telephone exchanges

E. Civic administration

F. Assembly occupancies such as restaurants, cafeterias, etc., also may be found in office buildings.

2.2 CLASS "E" HIGH-RISE OFFICE BUILDINGS BUILT BEFORE 1945

2.2.1 The construction techniques used in these buildings resulted in a "heavy-weight" building, usually weighing about 20 to 23 pounds per cubic foot.

2.2.3 Structural steel components were encased in concrete.

2.2.4 Exterior walls were of masonry construction.

2.2.5 Exterior walls were substantially tied to all floors.

2.2.6 Plenum type ceilings are generally not found in these buildings.

2.2.7 Normally steam heated.

2.2.8 Usually not centrally air conditioned.

2.2.9 Exterior windows were openable.

2.2.10 All buildings erected between 1938 and 1968 were required to have a fire tower. Some built prior to 1938 have fire towers.

2.2.11 Floors were constructed of reinforced concrete.

2.2.12 Core construction techniques were not used.

2.3 CLASS "E" HIGH-RISE BUILDINGS BUILT BETWEEN 1945 AND 1968.

2.3.1 The construction techniques used resulted in a "medium-weight" building, usually weighing between 10 and 20 pounds per cubic foot.

2.3.2 Fire towers were required in all of these buildings

2.3.3 The characteristics of these buildings are a mix of the pre- 1945 buildings and the post 1968 buildings. These buildings were required to conform to the 1938 Building Code but because of the numerous variances granted they used many of the construction techniques of the post 1968 buildings.

2.4 CLASS "E" HIGH-RISE OFFICE BUILDINGS BUILT AFTER 1968

2.4.1 The construction techniques used in these buildings resulted in a "lightweight" building, usually weighing about 8 to 1 0 pounds per cubic foot.

2.4.2 They were constructed with a lack of compartmentation.

2.4.3 The protection of the structural steel component is usually done by spraying on a fireproofing material.

2.4.4 Exterior walls are curtain walls constructed of a combination of glass and metal.

2.4.5 The method of securing the exterior curtain walls leaves a space of 6 to 12 inches which requires additional fire stopping.

2.4.6 The ceiling plenums of these buildings are extensive and lack fire stopping. they are used to return the air to the air-conditioning system and for electrical, communications and other building support equipment.

2.4.7 They are usually heated by the heating, ventilating, and air-conditioning system (HVAC).

2.4.8 HVAC systems are usually multi-floor systems.

2.4.9 Exterior windows are usually not openable.

2.4.10 Fire towers are not required.

2.4.11 Floors are light in weight usually consisting of lightweight concrete, "Q decking", etc. [See Fig. 2-1]

2.4.12 Core construction techniques are used extensively.

3. DELETED

4. HEATING, VENTILATION, AND AIR CONDITIONING SYSTEM (HVAC)

4.1 INTRODUCTION

4.1.1 The strategic objectives of good HVAC management are to use the HVAC system to limit the spread of fire and to control the movement of smoke within the building. Also, this system provides the greatest assistance to Fire Department members who are being deployed to control the fire, and who are conducting the primary search for any trapped occupants.

4.1.2 To utilize the HVAC system to its full potential during a fire in a High-Rise office building, the officer in command of the fire must know how the system functions and have a strategic plan for its use.

4.2 DESCRIPTION OF HVAC SYSTEMS

4.2.1 The HVAC systems found in High-Rise office buildings fall into two general categories:

A. Central air conditioning systems, in which the processing equipment supplies air to more than one floor.

B. Non-central air conditioning systems that serve only the floor on which the processing equipment is located.

Note: Because central air conditioning systems are the most commonly found in High-Rise office buildings and create the most problems during a fire, the main emphasis of this section will be central air conditioning systems.

4.2.2 The HVAC system may be divided into three sub-systems:

A. Processing equipment.

B. Supply of processed air to the floors of the building.

C. Return of the air from the floors to be reprocessed.

4.2.3 The processing of the air is usually done on the floors of the building where the mechanical equipment rooms (MER) are located.

4.2.4 The following equipment necessary for the processing of the air will be found on the MER floor: [see Fig. 4-1]

A. Outside air supply dampers.

B. Equipment for the filtering, heating, cooling and humidity control of the air.

C. Supply air fans.

D. Smoke and heat detectors.

E. Duct work to the supply air shaft.

F. Duct work from the return air shaft.

G. Return air fans.

H. Exhaust dampers.

I. Mixing dampers.

4.2.5 The supply of processed air to the floors is accomplished by the following: [see Fig. 4-2]

A. Supply air shaft.

B. Fire dampers.

C. Supply air ducts.

D. Air diffusers.

4.2.6 The return of air from the floors to be reprocessed is accomplished by the following. [see Fig. 4-2]

A. Return air inlets.

B. Return air plenums.

C. Fire dampers.

D. Smoke detectors.

E. Return air shaft.

4.2.7 In a typical centrally air conditioned High-Rise building the large volume of air required precludes the use of a single HVAC system. We will usually find a number of HVAC systems each supplying a group of floors. These groups are referred to as HVAC systems supply zones. [see Fig. 4-3]

4.2.8 The normal flow of air through an HVAC system is as follows:

A. Through the processing equipment. [see Fig. 4-1]

1. Air is returned from the building via the return air shaft (RAS) for reprocessing.
2. A return air fan (RAF) is used to assist the movement of air in the return air shaft (RAS).
3. Air from the return air fan then will flow through the mixing dampers.
4. The air is then mixed with a percentage of outside air. The amount is dependent upon outside air temperature and humidity and is determined by the building engineers on duty or by a computer.
5. The mixed air then is processed by flowing through filters, heating/cooling equipment and equipment to control its humidity.
6. The supply air fan is used to assist the movement of air into the supply air shaft.

B. Through the supply system. [see Fig. 4-2]

1. Air is distributed to the floors via the supply air shaft (SAS).
2. Air from the supply air shaft is distributed on each floor by ducts. The ducts are found in the plenum.
3. Fire dampers will be found in these ducts where the ducts meet the supply air shaft and wherever they pass through a rated fire partition.
4. Air from the supply ducts is distributed to the occupied areas by air diffusers mounted in the hanging ceiling.

C. Through the return system. [see Fig. 4-2]

1 . Air from the occupied areas flows through the return collectors into the plenums.

2. The air flows through the plenums to the return air shaft. The return air in the plenums is not ducted.

3. Fire dampers will be found where the air enters the return air shaft from the plenum on each floor and wherever the air flows through a rated fire partition.

4. The air then is returned to the processing equipment via the return air shaft.

4.3 HVAC STRATEGIC OPERATING PLAN

4.3.1 Determine the status of all the HVAC systems in the building. Any systems that have not been automatically shut down shall be manually shut down. This shall include both the supply and return fans.

Note: In some systems, the smoke detectors only shut down the supply fans and allow the return air fans to remain operating. The return fans will have to be shut down manually.

4.3.2 Before any further action can be taken with the HVAC system, the fire floor must be accurately determined.

4.3.3 All the HVAC systems shall be placed in the non-circulating mode by:

A. Opening all outside air supply dampers.

B. Closing all mixing dampers.

C. Opening all exhaust dampers. [see Fig. 4-1]

4.3.4 After the fire floor has been adequately determined, all HVAC zones that do not include the fire area shall have their supply fans activated. This will supply fresh outside air to these zones, pressurizing these zones and limiting the spread of smoke. It will also supply fresh outside air to any occupants on the floors in these zones.

4.3.6 Warning!
Whenever The HVAC Systems Are Reactivated, All Units Operating In The Building Shall Be Alerted To Report Any Adverse Effects.

4.4 OTHER CONSIDERATIONS

4.4.1 Automatic closure of the fire dampers is usually effected upon operation of an approved fusible link or other approved heat activated device located where they would be readily affected by an abnormal rise in temperature in the duct. Fusible links should have a temperature rating approximately 50 F above the maximum temperature that would normally be encountered with the system in operation or shut down.

A. Once a fire damper has closed it must be manually opened before air can pass thought the opening it is protecting.

4.4.2 Local Law No. 5 of 1973 requires an approved product of combustion ionization detecting device, or a combination of an approved smoke detecting device and an approved fixed temperature thermostatic device. These devices shall be located at the air return shaft at each floor in order to monitor each inlet to the return air shaft.

A. Activation of any of the detectors installed in an HVAC system shall stop the air supply into and the air return from the affected floor. The air supply and the air return are stopped by the activation of an approved remote controlled reversible fire shutter or by automatically shutting down the air supply fans and the air return fans serving the floor where activated.

B. The fans cannot be reactivated until the smoke detector has been cleared or the smoke detector relay has been electrically bypassed. This can be difficult and time consuming.

4.4.3 Temperature variations that occur in the periphery of the building, due to weather changes and movement of the sun, require supplementary treatment of the air. This is accomplished by the following: [see Fig. 4-4]

A. Air supply may be from the main air supply shaft or from a separate periphery air supply shaft.

B. The air supply is ducted through the plenum on the floor below to the periphery of the building.

C. Flexible connectors are used between the ducts and the periphery air treatment equipment on the floor above.

1. Fire experience has shown that fire entering the plenum can extend from one floor to another when these flexible connectors fail.

D. The air then is passed through the air treatment equipment to meet the demands of the periphery. Piping containing heated or chilled water is used to condition the air. The air then is discharged into the periphery of the building.

E. The air is returned through the normal air return system.

4.4.4. The chief in charge must contact the building engineer and obtain the following information concerning the HVAC system:

A. Location of the MER floors and the zones they supply.

B. Special HVAC zones in the building (Theaters, Restaurants, Computer Rooms, Stores, etc.).

C. Central control of the HVAC systems and their location.

D. Number of return air shafts and their location.

E. If return air shafts are common to more than one HVAC supply system.

F. If supply and return dampers on each floor are controllable from a central location.

G. If there is a periphery air supply system.

4.4.5 Due to variations found, chief officers must consult building engineers to become familiar with HVAC systems in their district.

5. HYDRAULICS

5.1 SUPPLYING HIGH-RISE STANDPIPE SYSTEM USING FIRE DEPARTMENT PUMPERS

5.1.1 CLASSIFICATION OF PUMPERS

A. Conventional pumpers: Two-stage 1000 gpm or 2000 gpm pumpers.

B. High-Pressure pumper: A pumper with a third stage capability. The third stage can supply 500 gpm at 700 psi.

5.1.2 To insure adequate water supply to the standpipe system:

A. Supply the system with at least two pumpers.

B. Supply at least two separate Siamese's.

C. If only one Siamese is available, supply the first floor hose outlet with the second line.

D. When a High-Pressure pumper is going to activate the 3rd stage, only one 3" special high pressure hose supply line may be stretched into a Siamese connection.

E. To insure that water is being supplied to the standpipe system:

1. When the pumper is equipped with flow meters, use a discharge gate to which a flow meter is connected.
2. If the pumper is not equipped with flow meters, it must be monitored to prevent churning and overheating of the water in the pump.
3. Chauffeurs supplying the standpipe system must coordinate their pumping pressure.

F. If the building is equipped with a combination standpipe/sprinkler system (yellow Siamese caps), augmentation is required.

5.2 PUMP PRESSURES

5.2.1 To simplify computing pump pressure when supplying a standpipe system, a chart has been formulated. These calculations are based on nozzle pressure, friction loss of three lengths of 2-1/2" hose, head loss, system friction loss and friction loss of two lengths of 3-1/2" hose supplying the Siamese.

5.2.2 Chart.

RECOMMENDED PUMP PRESSURES

FIRE	FLOOR(S)	CONTROLLING NOZZLE		FOG NOZZLE	
Floors	1 - 10	150	psi	200	psi
Floors	11 - 20	200	psi	250	psi
Floors	21 - 30	250	psi	300	psi
Floors	31 - 40	300	psi	350	psi
Floors	41 - 50	350	psi	400	psi
Floors	51 - 60	400	psi	450	psi
Floors	61 - 70	450	psi	500	psi
Floors	71 - 80	500	psi	550	psi
Floors	81 - 90	550	psi	600	psi
Floors	91 - 100	600	psi	650	psi
Floors	101 - 110	650	psi	700	psi

5.2.3 If the height of the fire floor requires pressure in excess of 250 psi the officer in charge can order higher pressures at the pumper if the following precautions are followed:

A. All civilian and Fire Department personnel are removed from a zone 50 feet on each side of the hose line supplying the siamese. 3" special high-pressure hose must be used.

B. Warning tapes, stanchions or utility ropes are utilized to maintain this area clear.

C. A Battalion Chief is designated to control this pumping operation.

D. An audible alert be used to inform civilians and personnel on the scene. (Public address systems on apparatus may be utilized)

E. Supply line to the siamese or standpipe outlet valve must be secured by utility rope to a substantial object.

F. Only special high-pressure fittings may be used. They are painted white and are noticeably heavier than standard fittings.

G. Maintain safety zones of at least 50' around a working pumper (high-pressure) in all directions.

H. Supply lines must be connected to the pumper on the side opposite the control panel.

I. Unused gated inlets and outlets must be closed and all caps secured to the pumper.

J. Each pumper being utilized at pressures in excess of 250 psi must be controlled by the E.C.C., assisted by an E.C.C. from a non-operating pumper.(One man to operate pumper and one man to maintain radio communications)

K. Command post to establish radio communications with all units involved in high-pressure pumping operation.

L. During high-pressure pumping, members must not utilize stairways as staging or rest areas. Utilize minimum amount of personnel in stairways served by standpipes.

M. The Chief in Command must designate a unit(s), to control and mark off safety zones.

Note: On the scene, the Safety Operating Battalion may be utilized to control this operation.

5.2.4 When the fire is above the 50th floor, or the building water supply is unsatisfactory, it may be necessary to use the third stage of the high-pressure pumper. Only the Chief in Charge of the fire may order this use. Chauffeurs of high pressure pumpers must ensure that tether security ropes are in place prior to activating the third (3rd) stage of the pump.

5.3 OPERATING PROCEDURES

5.3.1 Pump pressure must be increased slowly and floor outlet valves opened slowly to avoid pressure surges at the nozzle.

5.3.2 Member operating floor outlet valve must open it sufficiently to provide the required nozzle pressure as determined by the officer supervising the line.

5.4 MANUALLY OPERATED BUILDING FIRE PUMPS

5.4.1 Introduction

A. The purpose of this section is to familiarize members with manually operated fire pumps.

B. The 1968 Building code requires a manual fire pump to supplement the standpipe system in buildings over 300 feet high. The 1938 Building Code requires a manual fire pump in buildings over 250 high.

C. Many times there are manual fire pumps in other than High-Rise buildings. The same guidelines should be used in all buildings where building fire pumps exist.

D. It always has been the responsibility of building engineers to start the building fire pumps and this section in no way releases them from this assignment. We have found, however, that some engineers have been assigned to other duties when a fire starts. There is also the possibility that the building engineer might not be on duty at the time of the fire.

5.4.2 Pump room location.

A. Follow signs or directions to the pump room which is normally located on the lowest floor (cellar or sub-cellar-cellar).

B. Locate the pump and note the gauges on (C) inlet and (D) discharge lines. [see Figs. 5-1, 5-2 and 5-3]

C. Locate the bypass valve (B) on the discharge side of the fire pump. The discharge side can be readily identified by examining the gauges. The discharge gauge is calibrated for higher pressures than the inlet gauge.

D. The bypass valve should be in the closed position (stem in). Some engineers keep them open for test purposes, so they must be checked by the ECC assigned to operate the pumps. If they are found to be open, they should be closed by turning in a clockwise direction.

E. Some systems are quite complex and the bypass valve is not readily discernible . If such a situation is present, it is permissible to start pump as ordered without checking bypass valve. Notify the engineer upon his arrival of this and any other actions taken. The efficiency of the pump will be affected if the bypass is open. A loss of 25 % can be expected in an 8" riser, and a loss of 45% can be expected in a 6" riser, with the bypass open.

F. Locate the Fire Pump Control cabinet [see Figs. 5-4 and 5-5] in the vicinity of the pump and read the instruction plaque. (7)

5.4.3 Description of control cabinet.

A. The control cabinet for a 750 gallon fire pump will be in the shape of a large cube. It varies from 6' x 6' x 6' to as large as 8' x 8' x 8' in the older models. The front of the cabinet will be the control panel. [see Figs. 5-4 and 5-5]

5.4.4 Four step procedure for starting of fire pumps, using the control panel.

OPERATION	LOCATION
A. Close knife switch (1) to on position. [Fig. 5-4 or 5-5]	1. On front panel (or) 2. Inside panel door
B. Close circuit breaker(s) (2) & power "on" light will glow.	1. On front panel (or) 2. Inside panel door
C. Push starting button (3) & pump "on" light will glow. [Fig. 5-4 or 5-5]	1. On front panel (or) 2. Inside panel door (or) 3. Adjacent to panel door
D. Move selector lever (4) to desired position increasing pump speed and thereby increasing pressure.	1. On front panel (or) 2. Inside panel door (or) 3. On outside cabinet on either side of front panel

5.4.5 The fire pumps should now be operating, if they have failed to start, the emergency power lever located at the panel shall be used. Push or pull to "on" position (5). [see Fig. 5-4 or 5-5]

5.4.6 Additional duties of the member assigned will include:

A. Contact be maintained with fire command station, via

1. Handie-talkies (or)
2. Fire Command station phone located in pump room.

B. Checking of the pressure gauge on the discharge side of the fire pump located near the riser. This is to insure that the pressures called for are being maintained. The following chart will help determine the proper setting of the speed selector lever. The building management is encouraged to provide just such a chart. The chart they supply should be located at the control panel and may vary slightly depending upon efficiency of the pump.

5.4.7 Recommended Pump Pressure

FIRE FLOORS	CONTROLLING NOZZLE	FOG NOZZLE
Floors 1 to 10	150 psi	200 psi
Floors 10 to 20	200 psi	250 psi
Floors 20 to 30	250 psi	300 psi
Floors 30 to 40	300 psi	350 psi
Floors 40 to 50	350 psi	400 psi

5.4.8 Building fire pump data.

A. The engineers should be used if available but they may not have any knowledge of the pressures required to supply hose lines on upper floors. ECC shall be assigned to either assist the engineer, or to start and operate the building fire pumps.

B. Building fire pumps are usually located in the cellar or sub-cellar and fire lines connected to them should be painted red.

C. Pump capacity is usually 750 gpm Most High-Rise buildings have two pumps side by side which are connected in the parallel position.

D. The operation of these pumps is usually standard from building to building even though the physical layout may differ.

E. Some buildings have a combination standpipe/sprinkler system with the siamese connected to both systems. The same starting procedures will apply in these buildings. The usual arrangement for the fire pumps is that one will be automatic and one manual. The automatic fire pumps may be of smaller capacity. (250 gpm or 500 gpm).

F. When a building is equipped with two manual fire pumps, as is the case in most High-Rise buildings, each pump will have its own control panel. Both pumps shall be started and used.

G. Since fire pumps are connected in parallel position, it is necessary to have both pumps operating at or near the same pressures. Should one manual pump be operated at a pressure far in excess of the other, it could partially overcome the check valve making the second pump less efficient. A visual check should be made of the discharge gauges of both pumps. When both are operating correctly, the pressures should be equal or nearly so.

H. Where one gauge reading is considerably lower than the other, the pressure can be increased on the less efficient pump by moving the pump position lever to a higher position.

I. When the engineer of a building is present, this should be left to him to adjust since he will be familiar with the system's maintenance history and prior malfunctions.

J. Near each fire pump is a standpipe phone providing direct communication with the lobby command post.

K. When the command to shut down the building fire pumps is received, and the engineer in charge is not available, the pumps are deactivated by reversing the starting procedure.

1. Return pump position lever to lowest speed.
2. Push "off" button.
3. Open circuit breakers.
4. Open knife switch-(off position).
5. Advise the lobby command post that the pumps have been deactivated.

5.5 OTHER CONSIDERATIONS

5.5.1 The building fire pumps shall be capable of delivering their rated capacity at a pressure of 50 psi at the highest floor hose outlet.

5.5.2 A relief valve is required at the fire pump limiting the pressure to 15 psi above that required to deliver its rated capacity at 50 psi to the highest floor outlet.

5.5.3 Because of the above restrictions, the building fire pump may not be capable of supplying adequate nozzle pressure to hose lines at the upper floors. The primary water supply to the standpipe system in many buildings is a gravity tank. In many instances, there will be inadequate head pressures supplied to the uppermost floor-hose outlets supplied by that gravity tank. For these reasons, the primary water supply for Firefighting in most operations shall be the Fire Department pumpers.

5.5.4 When the building fire pumps and Fire Department pumpers are being used to supply the standpipe system, both systems must be monitored to prevent overheating caused by churning.

5.5.5 The high pressures required to supply water to the upper floors of a High-Rise building limit the amount of water that a Fire Department pumper can supply. A good “rule of thumb" is to have a separate pumper supply the standpipe system for each hand line in operation.

6 OPERATIONS OF FIRST ALARM BATTALION CHIEF

6.1 STRATEGIC OPERATING PLAN

6.1.1 The following is a basic strategic operating plan for use at major High-Rise fires. (Listed in order of importance)

A. Determine specific fire floor (if possible) or the floors on which smoke is reported from any information that is available to you in the building lobby.

1. Frequently (especially during off business hours) specific fire floor information will not be available other than a report of smoke on numerous floors (e.g. 20th to 35th floors).

B. Verify fire floor. Sift information received from responsible occupant/building management personnel and/or first arriving ladder company.

1. We must determine the fire floor location as rapidly as possible. All future actions hinge on this vital piece of information.

C. Simultaneously, or as soon as possible, begin the process of controlling evacuation.

1. Occupants of numerous floors may have self-initiated evacuation causing almost a mob scene or near panic in stair shafts or building lobby.
2. Due to large floor areas or maze like corridors, occupants on the fire floor may be unaware of the fire until it is too late to evacuate. Search of large areas will be required.
3. Search and evacuation of the floor above the fire will also be required as soon as possible.

D. Gain control of the building systems.

1. Elevators.
2. HVAC.
3. Communications.
4. Fire pumps.

E. Confine and extinguish the fire.

1. Experience indicates any serious fire will require a large commitment of units and equipment because of extensive logistic problems and a need for frequent relief of members.

F. Battalion Chief assignments and duties at High-Rise fires are pre-determined only for the Lobby and Operations Posts. Battalion Chief operations after these positions are covered shall be designated by the Incident Commander. The Search and Evacuation, Staging area, and Attack positions shall be assigned as conditions dictate. Section 6.5.4 defines fire situations where the services of "Attack Chief" shall be utilized.

6.2 PROCEDURES TO IMPLEMENT THE STRATEGIC OPERATING PLAN

6.2.1 For the first arriving battalion chief to achieve the above outlined strategic operating plan, the prime position is at the lobby command post. From this Post he will have control over all building systems through the fire safety director or his surrogate. He will receive first hand information about other problems that may develop on floors above the fire through the building communications networks. He will have liaison with the Police Department for control of the lobby and the streets in the vicinity of the fire building, Under the direct control of an alert and knowledgeable battalion chief, the lobby position is of prime importance. To provide continuity of operations, it is essential that the first arriving battalion chief remain at the lobby command post to assist the chief in charge of operations. He shall remain at the lobby command post until his services are no longer deemed necessary.

6.2.2 The first arriving battalion chief will be required to make an initial size up to determine the adequacy of the response and the need for additional response.

A. A 10-76 signal shall be transmitted when a report of fire is confirmed. Any fire in a High-Rise office building which requires the stretching and operating of one hose line will necessitate the use of "All Hands."

B. A second alarm is warranted for any visible fire or smoke emanating through the exterior skin of the building or when a serious fire has been verified.

C. Because of the large number of occupants in High-Rise office buildings, even fires of a minor nature may require additional units to prevent unnecessary evacuation and panic.

6.2.3 The first arriving battalion chief shall establish liaison with the fire safety director if present, or his surrogate to determine the following:

A. Has the fire floor definitely been determined?

B. What is the extent of the evacuation that has been implemented?

C. Have there been any reports of severe life hazards?

D. What is the status of the elevators and the HVAC system?

E. Are there any access stairs in the vicinity of the reported fire floor?

F. What communications have been established between the fire floor and the lobby command post?

G. What communications have been established between the lobby command post and the occupants of the building?

6.2.4 The battalion chief should arrange for the fire safety director or the evacuation supervisor to make an announcement over the PA system or the intercom system. "This is your Fire Safety Director, Dr. John Doe. The New York City Fire Department has just arrived to extinguish a fire on the floor. As they obtain information, we will pass it along to you. If your assistance is required, I will make such an announcement. In the meantime, please remain calm at your place of employment."

6.2.5 The fire safety director MUST be informed to remain in the lobby where his assistance will be available at any time.

6.2.6 Obtain copies of the floor plan of the fire floor from the fire safety director.

6.2.7 As soon as possible, the first arriving battalion chief shall start obtaining the additional information required by the High-Rise check list. [see Fig. 6-11]

6.3 TACTICAL PLAN

6.3.1 To achieve the basic strategic plan, the first arriving battalion chief shall use the following tactics:

A. Contact any units that are on the scene before his arrival, to ascertain their location, fire conditions, and the operations they have implemented. This information may be obtained from the Fire Department member who is manning the command post pending the arrival of the battalion chief.

B. Deleted

C. The placement of the 10-76 assignment shall be as follows:

1. The first and second arriving engine companies shall be teamed to stretch and operate the first line.
2. The third and fourth arriving engine companies shall be used to stretch and operate the second line.
3. The first arriving ladder company shall be assigned to search and evacuate the fire floor.
4. The second arriving ladder company shall be assigned to augment the search and evacuation of the fire floor.
5. The third arriving ladder company shall be assigned to search and evacuate the floor above the fire.
6. The fourth arriving ladder company shall be assigned similarly, to operate on the upper floors.
7. The rescue company shall be used to perform special tasks as determined by the officer in command of the fire.
8. The second arriving battalion chief shall be assigned to establish and operate the operations post. (See Section 6.5)

6.4 TACTICAL CONSIDERATIONS

6.4.1 A prime decision that the first arriving battalion chief must make is the placement of the first line. The following conditions must be considered:

A. To select the stairway from which to operate the first line (attack stairway), evaluate information received form operating units as to the location of the fire in relation to the stairways and the standpipe system.

B. The number of stairways serving the fire floor.

C. The stair or stairways being used by the occupants of the building.

1. A line shall not be operated from a stairway until it has been cleared of building occupants.
2. A stairway shall be selected for evacuation of building occupants (evacuation stairway) preferably a fire tower if available.
3. The specific fire floor and the floor above are initially all that are required to be evacuated. However, occupants of many other floors may self-initiate evacuation utilizing any or all stairways until instructed otherwise.

6.4.2 After the placement of the first line has been determined, the first arriving battalion chief then must consider the need for and the placement of the second line. The items to be considered in making this decision are:

A. Information received from operating units.

B. Number of stairways available to the fire area.

C. Type of construction:

1. center-core construction.
2. side-core construction.
3. non-core construction.

D. Location of the stairway with regard to the core.

E. Has the first line been stretched to the most advantageous position for attacking fire?

F. Has search and evacuation of the fire floor been completed.

6.4.3 Considering all the above items the placement of the second line may be used to:

A. Reinforce the position of the first line.

B. Protect the position of the first line.

C. Protect the search and evacuation of the fire floor.

D. Contain and confine fire spread and/or prevent fire from wrapping around the core and endangering operation of the first line.

6.4.4 Is this fire within the reach of outside streams?

6.4.5 Are there any set-backs in the vicinity of the fire floor, which may be used for:

A. Ventilation?
B. Attack on the fire?
C. Search and evacuation?

6.4.6 Are there any horizontal exits to other buildings near the fire floor, which must be protected or may be used advantageously in the operation?

6.4.7 The time of day must be considered as this will affect:

A. The occupancy load.
B. The status of the buildings systems.
C. The response time of the units.

6.4.8 Ventilation by the removal of windows on the fire floor or other floors is not an initial consideration. It should be delayed until an evaluation can be made of its effect on air movement in the fire area and throughout the building. Before ventilation by the removal of windows is undertaken, safety precautions have to be taken in the area that will be affected by falling glass shards.

6.5 OPERATIONS POST

6.5.1 The second arriving battalion chief shall establish and man the operations post.

6.5.2 Establishment of the operations post.

A. It shall be established on the first floor below the fire, where conditions permit.
B. The location of the operations post shall insure reliable communications with the operating units and the lobby command post.
C. The operations post shall be equipped with the following:
   1. High-Rise communications kit.
   2. Resuscitator.
   3. Masks for all personnel required for the operations of this post.
   4. Copy of the floor plan.
   5. Operations post log. [see Fig. 6-2]

6.5.3 The chief in charge of the operations post shall be responsible for:

A. Control and coordination of the units operating on the fire floor and the floor above.

B. All communications between the operations post and the units operating within his sector.

C. All communications between the operations post and the lobby command post.

D. The implementation of the tactical procedures as received from the lobby command post.

E. Advising the lobby command post of conditions, problems and the need for additional units.

F. Consulting with the lobby command post as to additional tactical procedures required.

G. Communications with the staging area once it has been established.

H. Keeping in reserve an adequate number of units at the operations post for the orderly relief of unit operating on the fire floor and the floor above.

6.5.4 When conditions require, the third and fourth arriving battalion chief will operate under the direction of the chief in charge of the Operations Post. The Attack Chief shall direct unit attacks on the fire floor, and communicate progress reports to the Operations Post. Attack Chief and shall be assigned as conditions dictate.

7. COMMAND POST PROCEDURES

7.1 INTRODUCTION

7.1.1 Fires in High-Rise office buildings place unique demands upon the fire service. The large floor areas, the height of the buildings, the large number of occupants and the complex building support systems, all require that the fire service establish procedures to command, control and coordinate our operations at fires within these buildings.

7.2 COMMUNICATIONS

7.2.1 The command, control and coordination of fire department operations at fires in High-Rise office buildings require a well defined and structured communications network, composed of the following elements: [see Fig. 7-1]

A. Equipment:

1. Fire Department Handie-Talkies.
2. High-Rise communications kits.
3. Fire Department radio.
4. Hard wire communication as follows:
   a. Class "E" system.
   b. Standpipe telephones.
   c. In-house telephones.
   d. Outside telephones.
   e. Sound-powered phone systems.
5. Building Handie-Talkie radio network.

Note: At the present time extensive experimentation is being conducted with a Cross Band Repeater Radio System (WNYF-1st Issue 1981) and Sound Powered Phone Systems which will substantially alter our High-Rise communication procedures.

B. The lobby command post will be the center of all communications, and shall establish the following communications network:

1. Department radio and hard wire with the Fire Department dispatcher.
2. Handie-Talkie communications on the command channel with the operations post, staging areas and search and evacuation post. Hard wire communications also shall be established.
3. The chief in charge of the lobby command post shall operate on the command channel. His aide shall operate on and monitor the primary tactical channel.
4. Further information on Lobby Command Post in contained in Section 7.3.

C. The chief-in-charge of the operations post shall establish the following communications network:

1. Handie-Talkie communications on the primary tactical channel with the units under his command. When the operations post is established, units under its command shall not communicate with the lobby command post unless urgent.
2. Handie-Talkie communications with the lobby command post on the command channel. Hard wire communications also shall be established.
3. Handie-Talkie communication between the operations post and the staging area shall be conducted on the command channel.
4. The chief-in-charge of the operations post shall operate on the primary tactical channel. His aide shall operate on the command channel.
5. Further information on Operational Post is contained in Section 7.4.

D. The chief in charge of the search and evacuation post (SAE) shall establish the following communications network:

1. Handie-Talkie communication with the units under his command on the secondary tactical channel. When the SAE post is established, units under its command shall switch to secondary tactical channel and shall not communicate with the lobby command post unless urgent.
2. Handie-Talkie communications with the lobby command post on the command channel. Hard wire communication also shall be established.
3. The chief in charge of the search and evacuation post will operate on the secondary tactical channel. His aide will monitor and operate on the command channel.
4. Further information on Search and Evacuation Post is contained in Section 7.5.

E. The chief in charge of the Staging Area shall establish the following communications network:

1. Handie-Talkie communications with the lobby command post and the operations post on the command channel. Hard wire communications also shall be established with the lobby command post.
2. The chief in charge of the staging area shall operate on the command channel. His aide shall monitor the primary tactical channel.
3. Further information on Staging Area is contained in Section 7.6.

7.2.2 In all communications directed to the lobby command post, the operations post, the search and evacuation post and the staging area, the post designation shall be used rather then the unit designation. Examples:

A. "Operations post to lobby command post

B. "Ladder 8 to operations post."

C. "SAE post to lobby command post."

D. "Lobby command post to staging area."

7.2.3 High-Rise communications kits shall be utilized at lobby command post (2), operations post (1) and staging area (1). [see Figure 7-1]

7.3 LOBBY COMMAND POST

7.3.1 The early establishment of a lobby command post will enable the chief in charge to exert central control over:

A. Evacuation.

B. Building systems.

C. The Fire Department units being deployed to locate, confine and extinguish the fire.

7.3.2 To assist the lobby command post, it may be necessary to establish areas of command as follows:

A. Operations post.

B. Search and evacuation post.

C. Staging area.

7.3.3 Location and description of lobby command post.

A. The lobby command post is established by the arriving units in an area in the building and manned by each succeeding officer in command. From this post operations conducted in the building by Fire Department units are coordinated and controlled. It shall afford the officer in command access to the following:

1. The fire safety director.
2. The fire safety plan.
3. Floor plans.
4. The class "E" communications system.
5. Outside telephone lines.
6. In-house telephone lines if available.
7. Building, elevator and window keys.

B. The lobby command post shall be established at a location that provides the following:

1. Accessibility to incoming units.
2. Control of the elevators.
3. Control of the building fire command station.
4. Facilities for communications with the following:
   a. Dispatchers.
   b. The fire pump room.
   c. The HVAC control center.
   d. The operations post, SAE post and the staging area.
   e. The building occupants.

7.3.4 Manning of the lobby command post.

A. The first arriving officer shall establish the lobby command post. In the event that he leaves the lobby command post before the arrival of a chief officer he shall designate a member to man the lobby command post, preferably the chauffeur of the first arriving ladder company. This member shall then note the units leaving the lobby command post and their destination.

B. The first arriving battalion chief shall assume command of the lobby command post. When he is relieved by the deputy chief, he shall remain at the lobby command post to assist in its operation.

7.3.5 Operations of the lobby command post.

A. The initial operations performed by the first arriving battalion chief are outlined in section 6. To continue the initial operation and to meet the demands of an expanding fire situation the following shall be necessary:

1. Determine the need for additional evacuation and develop a plan for its implementation.
   a. If necessary, establish a search and evacuation post (SAE).
2. Complete the command post check list.
3. Determine the need for additional assistance. (See Section 7.3.6)
4. Implement a plan for the use of the HVAC system.
5. Supply additional units as required to the operations post.
6. Provide additional mask cylinders to the operations post.
7. Account for elevators in all banks.
8. Using the floor plan for the fire floor, plot the location of the fire, the stairway or stairways being used for the attack, the stairway or stairways being used for evacuation and the location of the elevators in relation to the fire.

9. Determine the safety of the service elevator for Fire Department use.
10. Provide fire department personnel to man and operate all elevators being used.
11. Determine the need for and if necessary, establish a staging area.
12. Establish a communications network as outlined in Section 7.2.

Note: The above twelve items will require time, a systematic approach and the assistance of one or more additional chief officers to assure each item is checked and updated as conditions change.

7.3.6 Deleted.

7.3.7 The chief in charge of the lobby command post has the responsibility of supplying logistical support to the operations post, SAE post and the staging area. This support shall consist of manpower and equipment. To accomplish this, he shall do the following:

A. Supply sufficient units to the operations post to support the operations on the fire floor and the floor above.

B. Supply sufficient units to the SAE post to support the operations on the floors above the fire. At least one unit for every five floors to be covered shall be supplied (use more units if necessary).

C. Supply sufficient units to the staging area to enable it to meet the needs of the operations post. At least three engines and two ladder companies shall be at the staging area for immediate support of the operations post.

D. Supply sufficient spare Scott cylinders to the staging area to support operations. A supply of at least 20 spare cylinders shall be maintained at the staging area.

E. Engine companies reporting to the staging area shall bring with them the following equipment unless otherwise directed:

1. A mask for each member.
2. A standpipe kit and a nozzle.
3. A length of hose per member.
4. A spare Scott cylinder for each member.

F. Ladder companies reporting to the staging area shall bring with them the following equipment, unless otherwise directed:

1. A mask for each member.
2. Two sets of forcible entry tools and six foot hooks.
3. Search and utility ropes.
4. A spare Scott cylinder for each member.

G. The High-Rise Unit shall be used by the chief in charge of the lobby command post as a logistical support unit to supply the following:

1. Spare Scott cylinders to the staging area or other areas of the building where required.
2. Special tools and equipment to areas of the building as directed by the chief in charge.

7.3.8 A predesignated unit, that has been trained and equipped to operate as a command post company, shall be utilized to assist the chief in charge of the lobby command post. Its duties shall be as follows:

A. Maintain the command post log. [see Fig. 7-2]

B. Control the operations of all the elevators.

C. Insure the proper manning of all elevators.

D. Any other duties as deemed necessary by the chief in charge of the lobby command post.

7.3.9 Smoke movement in High-Rise buildings and measures to control or remove it are subjects of continuing research. Based on past fire experience and the behavior of normal air movements in tall buildings, a plan for the removal of smoke from the fire building may be developed. Ventilation of High-Rise office buildings shall be supervised and implemented by the chief in charge of the lobby command post. He shall attempt to control the movement of smoke within the building by the following means:

A. The use of the HVAC systems as outlined in Section 4.

B. The use of the Fire Department smoke ejectors (two 9,500 CFM fans) to supply air to the attack stairway three floors below the fire floor. With the doors closed at the top and bottom of the stairway, this will pressurize the stairway in the vicinity of the fire floor, decreasing the stack effect and limiting the spread of smoke throughout the building This will also decrease the effect of drawing the heat and smoke to the stairway causing the member making the attack to be in a high heat area.

C. The smoke ejectors may also be used with the doors open at the top and bottom of the stairway. This will increase the stack effect and assist in the removal of smoke via the stairway,.

D. Vertical ventilation is venting the top and bottom of vertical shafts to the outer air. Vertical ventilation is influenced by the stack effect as follows:

1. Its effect becomes noticeable in buildings over 60 feet, and increases as the building's height increases.
2. Its effect can be either positive or negative.
   a. The positive stack effect is the upward movement of air in a vertical shaft.
   b. The negative stack effect is the downward movement of air in a vertical shaft.

3. Positive stack effect increases as the outside air temperature decreases in relation to the temperature inside the building.

4. Negative stack effect may occur when the outside temperature is greater than the temperature inside the building. Its possibility is greatest when the outside air temperature is above 90 F.

5. Its effect is intensified by the speed and direction of the wind.

6. To obtain the greatest benefit from the stack effect, the doors at the top and bottom of the stairway must be opened when a stairway is used for smoke removal. The street floor near this stairway must also be vented to the outer air.

CAUTION: When using a stairway for smoke removal, an adverse condition could occur on the fire floor, causing heat and flames to be drawn toward the stairway being used. The drawing of heat and smoke toward stairways is especially evident whenever fire towers have been utilized. Due to this experience, fire towers are not recommended for use as fire attack stairs.

E. Horizontal ventilation by the removal or opening of windows is begun, safety precautions shall be taken in the area that will be affected by failing glass shards.

1. Horizontal ventilation should be the last consideration as its effects are least likely to be beneficial.

a. The stack effect of vertical shafts could cause the movement of air into the building and not allow the smoke to escape to the exterior.

7.3.10 The chief in charge of the lobby command post shall control street operations as follows:

A. Establish communication with the police department superior officer on the scene to clear pedestrian and vehicular traffic on all sides of the fire building.

B. Establish exterior inspection by Fire Department personnel of all sides of the fire building to report the following:

1. Fire and smoke conditions.

2. Persons in distress.

3. Any unusual conditions.

7.3.11 Other considerations of the chief in charge of the lobby command post shall include:

A. The early response of the mask service unit.

B. The establishment of a suitable area within the building for the treatment of injured civilian and Fire Department personnel.

C. The response of emergency medical service and Fire Department ambulances.

7.4 OPERATIONS POST

7.4.1 The operations post is an area in the building established by the second arriving battalion chief. Its purpose is the control and coordination of all operations conducted on the fire floor and initially on the floors above.

7.4.2 The operations post shall be established at a location that provides:

A. Proximity to the units operating on the fire floor usually the floor below the fire.

B. Hard wire communications to the lobby command post (Building internal phone system or NYFD Sound Powered Phone System).

C. Reliable Handie-Talkie communications with the units operating under his command.

D. Adequate space for units being held in reserve.

E. Accessibility to units reporting to the operations post.

7.4.3 The operations post shall be equipped with:

A. At least two Handie-Talkies.

B. The High-Rise communications kit.

C. A resuscitator.

D. Masks for all members assigned to the operations post.

E. A copy of the floor plan.

F. The operations post log. [see Fig. 6-2]

7.4.4 The operations post shall be manned as follows:

A. Prior to the arrival of the second battalion chief, the chief in charge of the lobby command post shall designate an officer of one of the first arriving units to coordinate the operations on the fire floor and the floor above.

B. The second arriving battalion chief shall establish and command the operations post, assisted by his aide.

C. The second arriving battalion chief shall remain in command until relieved by the special called deputy chief responding on the 10-76 signal.

D. The deputy chief in charge of the operations post may establish sectors commanded by attack chiefs to coordinate and control units operating on the fire floor and the floor above.

7.4.5 The operations performed by the chief in charge of the operations post are outlined in Section 6.5. In addition, he shall:

A. Insure that the attack stairway has been cleared of building occupants for at least five floors above the fire.

B. Insure that the evacuation stairway is maintained safe for any required evacuation and for use by Fire Department personnel.

C. Review the operations of the first arriving units to determine the need for changes in tactics or procedures.

D. Advise the lobby command post as to the need for and the placement of the second line in accordance with procedures as outlined in section 6,4.2 and 6.4.3.

E. Prior to the establishment of the staging area, advise the lobby command post of the need for:

1. Additional units.
2. An adequate supply of Scott cylinders.
3. Any additional equipment that may be needed.

F. After the establishment of the staging area, obtain the items as listed in "E".

G. Advise the lobby command post of the need for additional evacuation of the floors above the fire.

7.5 SEARCH AND EVACUATION POST (SAE)

7.5.1 The SAE post is established within the building by the third or fourth arriving battalion chief. Its purpose is the control and coordination of all operations conducted above the fire operations (fire operations is defined as the fire floor and one floor above).

7.5.2 The criteria for the location of the SAE post shall be dependent on the following:

A. Fire location and severity

B. Handie-Talkie effectiveness

C. If possible the SAE post shall be established on a floor which is not serviced by the same bank of elevators as the fire floor. [see Fig. 7-3]

Example:

1. If the fire were on a floor serviced by the low rise bank of elevators the SAE post would be established on the 17th floor or at least five floors above the fire floor.
2. If the fire were on a floor serviced by the intermediate bank of elevators the SAE post would be established on the 31st floor or at least five floors above the fire floor.
3. When the fire is on a floor serviced by the High-Rise bank of elevators, the SAE post should be established five floors above the fire.

7.5.3 The SAE post shall be equipped as follows:

1. At least 2 Handie-Talkies.
2. A resuscitator.
3. Masks for all members assigned to the SAE post.
4. A spare Scott cylinder for each member assigned to the SAE post.
5. Floor diagram, Pad and Pen.

7.5.4 The SAE post shall normally be manned by the third or fourth arriving battalion chief and his aide.

7.5.5 The chief in charge of the SAE post shall be responsible for the following:

A. The control and coordination of all units operating above the fire operations area.

B. Obtaining from the lobby command post sufficient units for the operations on the upper floors. All units assigned above the fire operations area shall bring with them a spare Scott cylinder.

C. Preventing unnecessary evacuation and avoiding panic.

D. Controlling necessary evacuation.

1. By the use of the evacuation stairs.
2. By the use of smoke-free blind shaft elevators manned by Fire Department personnel.

E. Preventing the use of the attack stairs for evacuation.

F. Ensuring that all floors above the fire operations area have been searched.

G. Establishing the required communications as outlined in Section 7.2.1 D.

H. Advising the lobby command post of conditions and problems encountered on the upper floors.

7.6 STAGING AREA

7.6.1 The staging area is established within the building by a battalion chief. Its purpose is to provide logistical support to the operations post.

7.6.2 The staging area shall be established at a location:

A. Two floors below the operations post.

B. Where there is adequate space to hold units and equipment in reserve.

C. Where the units have ready access to the operations post.

D. That provides hard wire communications to the lobby command post.

E. That provides reliable Handie-Talkie communications between the staging area and the operations post and the lobby command post.

F. That is accessible to units reporting to it.

7.6.3 The staging area shall be equipped as follows:

A. At least two Handie-Talkies.

B. The High-Rise communications kit.

C. Resuscitator.

D. Staging area log. [see Fig. 7-4]

7.6.4 The staging area shall be manned by a battalion chief and his aide.

7.6.5 The chief in charge of the staging area shall be responsible for the following:

A. Control of all units being held in reserve and those units on R & R.

B. Obtaining from the lobby command post sufficient units to adequately meet the demands of the operations post. At least three engine and two ladder companies shall be maintained in reserve at the staging area.

C. Maintaining communications with the operations post on the command channel.

D. Maintaining at least 20 spare Scott cylinders.

E. Providing for the treatment and transportation of all injured members to the lobby command post.

7.7 FORWARD TRIAGE AREA

7.7.1 The Forward Triage Area (FTA) is established within the building by the Incident Commander.

7.7.2 Its purpose is to ensure the prompt response to fire victims and members.

7.7.3 The FTA shall be established in an environmentally safe location on a floor below the staging area. If conditions deteriorate on this floor, EMS personnel shall change locations. The IC shall be advised.

7.7.4 The IC shall determine, in consultation with the senior Bureau of EMS (BEMS) officer on scene, proper staffing levels of EMT's, Medics and EMS supervisors for the FTA.

8. CLASS "E" COMMUNICATION SYSTEMS

8.1 INTRODUCTION

Because of the large number of people working in office buildings, the large floor areas and the number of floors involved, a system to alert and direct the occupants in the event of a fire and to transmit an alarm to the Fire Department is required. To meet this need, Local Law No. 5 of 1973 provides for the installation of a Class "E" communications system in Class "E" office buildings.

8.2 DESCRIPTION

8.2.1 Class "E" communications systems shall consist of:

A. The fire command station located in the lobby of the building near the elevator control panel.

B. Loudspeakers, operated from the fire command station, which are located on all floors, in all elevators and in all stairway enclosures.

C. Floor warden stations on each floor which provide two-way communications with the fire command station.

D. Manual fire alarm sending stations on each floor.

E. Associated systems:

1. Smoke detection systems.
2. Sprinkler water flow alarms.
3. Thermostatic alarms.
4. Locked door fail safe system.

8.2.2 The fire command station shall include:

A. A hinged cover which permits the flashing "FIRE" signal to be seen. The hinged cover shall be provided with a lock and key.

B. An information display unit capable of monitoring the following systems in order of priority:

1. Manual fire alarm.
2. Smoke detectors.
3. Sprinkler water flow alarms.
4. Elevator lobby detectors.
5. Fire alarm activation.
6. Central office notification.
7. Fan system on / Fan system off.
8. Locked door fail safe system.
9. Fire system trouble.
10. Fire signal trouble.
11. Tamper switch alarm.
12. Power source indicator.
13. Test/normal mode switch.
14. Other information displays as desired.

C. Two-way communications between the fire command station and the following:

1. Floor warden stations.
2. Mechanical control center.
3. Elevators.
4. Air handling control rooms.
5. Elevator machinery rooms.

D. A public address system to all floors, elevators and stairways either selectively or collectively.

E. The capability to transmit an alarm from the fire command post to the Fire Department via a central station.

F. While Local Law No. 5 mandates specific controls and items that must be displayed at the command station, it gives wide latitude to each manufacturer regarding the physical design and hardware that may be used. As a result, many different systems are utilized. This makes an intimate knowledge of each system difficult. Utilize building engineers or fire safety directors (if available) to assist in extracting all information possible from the equipment and an accurate input of Fire Department requirements as ordered by the chief in command of the fire.

8.2.3 A floor warden station shall be located on each floor between the required exits. It shall be provided with:

A. A telephone type handset.

B. Capability to activate a visual and audible signal at the fire command station.

C. Two-way voice communications with the fire command station.

D. Provisions for making announcements over the loudspeaker system on the floor where it is located.

E. A handset, housing and door painted red and lettered "Fire Emergency-Open Door to Operate".

8.2.4 At least one manual fire alarm sending station shall be located in each path of escape in each story of a building. Additional stations shall be installed so that no point on any floor shall be more than 200 feet from the nearest station. The activation shall cause:

A. Automatic transmission to the Fire Department via a central station.

B. A visual and audible signal at the fire command station, mechanical control center and the regularly assigned location of the fire safety director.

C. Sounding of the alarm on the fire floor and the floor above.

8.2.5 An approved combustion ionization detection device or a combination of an approved smoke detecting device and an approved fixed temperature thermostatic device shall be installed:

A. At each elevator landing, the activation of this device shall:

1. Recall the elevators.
2. Sound the fire alarm signal on the fire floor and the floor above.
3. Cause a fire alarm signal to be transmitted to the Fire Department via a central station.
4. Cause a fire alarm signal to be sounded at the fire command station, the mechanical control center and the regularly assigned location of the fire safety director.
5. Stop the air supply into and the return air from the floor where activated.
6. Activate the air exhaust fans and dampers in the smoke shaft or the pressurizing fans in the stair enclosure.
7. Unlock the doors on the locked fail safe system.

B. Within the HVAC system, the activation of this device shall accomplish all of the actions listed in 8.2.5A with the exception of recalling the elevators.

8.2.6 The activation of a sprinkler water flow alarm shall accomplish all of the actions as listed in Section 8.2.5A.

8.3 UTILIZATION OF THE CLASS "E" SYSTEM

8.3.1 The chief in charge of the command post will be able to obtain the following information from the fire command station:

A. The location and time of activation of the:

1. Manual pull stations.
2. Smoke detecting devices.
3. Thermostatic detecting devices.
4. Sprinkler water flow alarms.

B. Status of the HVAC system.

C. Status of the elevators.

8.3.2 The communication features of the class "E" system can be used as follows:

A. The public address system:

1. To communicate with the building occupants.
2. To control evacuation.
3. To communicate with Fire Department personnel.

B. The warden telephone system:

1. To communicate with the floor wardens.
2. To establish hardwire communications with Fire Department personnel at the:
   a. Operations Post.
   b. SAE Post.
   c. Staging area.
   d. Other locations.

C. Two-way communications with:

1. Elevators.
2. Fire Pump room.
3. Mechanical control center.
4. Air handling control center.

9. LADDER COMPANY OPERATIONS

9.1 INTRODUCTION

9.1.1 Fires in High-Rise office buildings present unusual complex problems to the first arriving units. It is essential that the first alarm ladder companies define the fire problem and convey this information to the officer in charge and provide for the rescue and evacuation of occupants in affected areas. The information gathered by the first alarm ladder companies and relayed to the lobby command post will determine to a large extent the success of the overall fire operations.

9.2 LADDER COMPANY RESPONSIBILITIES

9.2.1 General goals of first alarm ladder companies.

A. Gain control of elevators.

B. Locate fire floor and determine the best access thereto.

C. Ascertain the general area and extent of the fire on the floor.

D. Provide the necessary search and evacuation of occupants on the fire floor.

E. Conduct a preliminary search and examination of the floor above the fire.

F. Initiate search and examination of the upper most floors of the building.

G. Reconnaissance of the exterior of the building.

9.3 FIRST ARRIVING LADDER COMPANY

9.3.1 The first arriving ladder company shall:

A. Obtain as much information as possible from the fire safety director or his surrogate as to:

1. Location of the fire.
2. Evacuation procedures that have been implemented.
3. Status of elevators.
4. Access stairs serving the fire floor.

B. Prior to leaving the lobby:

1. Determine the elevator bank that provides the safest access to the fire area and place the elevator cars to be used on "Firemen Service".
2. Obtain floor plan of the fire area. If only one copy is available do not remove it from the fire command station.
3. Obtain keys necessary to gain access to the fire floor.
4. Insure that the lobby command post is manned by a fire department member.

5. Due to HVAC and the stack effect, smoke can permeate the entire zone (up to 25 floors) and cause confusion as to the specific fire floor. Numerous reports of fire or smoke may be received and even the original alarm may be from the incorrect floor. Always be prepared for the unexpected, especially when elevators are being utilized.

C. Conduct a preliminary inspection of the exterior of the building by the chauffeur for:

1. Persons in distress.
2. Smoke or fire showing through the skin of the building.
3. The need for any exterior operations.

D. Proceed to a floor at least two floor below the fire floor using a "Firemen Service" elevator as outlined in section 3. A fireman equipped with a Handie-Talkie shall be assigned to remain with the elevator and to operate the elevator until relieved.

E. Upon arrival at the floor below the fire. conduct the following operations and relay all information obtained to the lobby command post:

1. Determine if the reported fire floor is the correct location and return the elevator to the lobby to transport the engine companies.
2. Determine the heat and smoke condition on the fire floor.
3. Determine the life hazard on the fire floor and initiate evacuation procedures where required.
4. Determine the location of the fire on the floor and select a stairway with a standpipe that will provide the best attack on the fire.
5. Conduct a primary search of the fire floor.
6. Provide support to the advancing Engine Company by:
   a. Removing obstructions.
   b. Forcing entry.
   c. Opening the ceiling to expose the plenum.

9.4 SECOND ARRIVING LADDER COMPANY

9.4.1 Due to the utilization of manpower from the 1st arriving Ladder Company for:

A. Examination of building exterior.

B. Elevator car operator.

C. Temporary Lobby Command Post supervisor, plus the large area that MUST be searched mandates that the second arriving Ladder Company assists in the search and evacuation of the fire floor.

9.4.2 The second arriving ladder company shall:

A. Report to the lobby command post.

1. Determine if the fire floor has been verified by the first arriving ladder company.
2. Obtain an elevator car that provides the safest access to the fire area and place the car on "Firemen Service". If possible, the same elevator car used by the 1st arriving, ladder (manned by a H.T. radio equipped member of the 1st ladder company) should be utilized. If a different car must be utilized, a H.T. radio equipped member of the 2nd ladder shall be assigned to remain with the elevator and operate car until relieved.
3. Upon arriving at the floor below the fire (or on the fire floor) obtain as much information as possible from the 1st arriving ladder company - areas searched, fire area location, occupants reported missing, etc.
4. Coordinate the search operation of fire floor with first arriving ladder company.

9.5 THIRD ARRIVING LADDER COMPANY

9.5.1 The third arriving ladder company shall:

A. Report to the lobby command post.

1. Determine if the fire floor has been verified by either the 1st or 2nd arriving ladder company.
2. Obtain an elevator that provides the safest access to the fire area and place the car on "Firemen Service".
3. Proceed to a floor at least two floors below the fire floor, using a "Firemen Service" elevator as outlined in section 3.

   Note: The 1st arriving and possibly the 2nd arriving ladder company will already have a H.T. radio equipped member operating one of the "Firemen Service" elevators. Use these cars if available rather than losing a member to operate another car. In ALL cases each elevator car used to transport Fire Dept. members a H.T. equipped member shall be assigned to operate the car. These cars shall then be returned promptly to the lobby to transport additional men or equipment.

B. Upon arriving at the floor below the fire, obtain as much information as possible from the 1st or 2nd arriving ladder company OR by a rapid survey or reconnaissance of this floor and stairway serving it. Signs posted in elevator lobbies ("YOU ARE HERE" signs) can also be used for such familiarization. The Officer and member shall then:

1. Determine the number of stairways serving the fire floor and the floor above.
2. Proceed to the floor above the fire via a stairway other than the attack stairway.
3. Determine which stairway is the best stairway to be used by the occupants for evacuation and advise the lobby command post.
4. Examine the floor above the fire and report to the lobby command post the following:
   a. The heat and smoke conditions.
   b. The status of the evacuation.
   c. Any extension of the fire.
   d. Presence of Access Stairs - Down to Fire Floor or Upward to Floor Above.
5. Examine all stairways for occupants and smoke condition.
6. Remove all occupants from the attack stairway for a reasonable distance above the fire floor and prevent its use by the occupants.
7. If difficulty is encountered in clearing the attack stairway of occupants, the officer shall advise the first arriving ladder company or the operations post to withhold the attack until the occupants have been safely removed.
8. Conduct a primary search of the floor above the fire.

C. When his operations are completed on the floor above the fire, report to the operations post either physically or via H. T Radio.

D. Notification to Chief in Charge of Command Post or Operational Post of Missions NOT accomplished can be more important than assignments accomplished.

9.6 FOURTH ARRIVING LADDER COMPANY

9.6.1 The Fourth arriving ladder company shall:

A. Report to the lobby command post.

1. Each member shall be equipped with an extra Scott cylinder.

2. Obtain an elevator that provides the safest access to the roof.

   a. If the fire is on a floor that is not serviced by the High-Rise bank of elevators, the High-Rise bank will be used if it is in a blind shaft.

   b. If the fire is on a floor that is serviced by the High-Rise bank of elevators, they shall proceed to a location below the fire floor and then use a stairway other than the attack stairway to proceed to the roof.

   c. If the High-Rise bank of elevators is used, assign a member equipped with a Handie-Talkie to operate the "Firemen Service" elevator until relieved.

B. Upon arrival at the roof area the officer shall:

1. Report the following conditions to the lobby command Post.

   a. Smoke and heat conditions in the area and in the stairways.

   b. The presence of any building occupants.

   c. All means available for roof ventilation, especially over stair ways and elevator shafts.

   d. Any unusual conditions.

   e. Fire or occupants at windows visible from roof.

C. Not undertake roof ventilation unless ordered by the Chief in Charge of the lobby command post.

D. Determine the identification of all stairways and elevator shafts so that when ordered, the correct ventilation can be carried out.

E. Conduct a primary search of the top five floors.

F. Remove any occupants to a safe area or assure the occupants what they are safe to remain where they are.

G. Remain in the roof area to monitor and report any changing condition until other wise ordered by the lobby command post.

H. A logical assignment after roof operations would be the terminal floor of elevator bank serving the fire floor.

I. Operate under the control of the lobby command post until the SAE post is established. They shall then operate under the command of the SAE post.

9.7 CARBON MONOXIDE METERS

9.7.1 All ladder companies equipped with Carbon Monoxide Meters, when responding to hi-rise fires after the Second Alarm assignment, shall report to the Lobby Command Post with their Meters.

10. ENGINE COMPANY OPERATIONS

10.1 INTRODUCTION

10.1.1 The many variables and complexities built into High-Rise office buildings may be compounded by both the fire location and the fire load within the tenant space on the floor.

10.1.2 Many fires will be within easy reach of hose streams operated from the immediate area of the stairway enclosure, but other fires may require both the combining of rolled up lengths and manpower of the first and second due units to advance the first hose line.

10.2 ENGINE COMPANY RESPONSIBILITIES

10.2.1 The general goals of the first alarm engine companies are:

A. To stretch sufficient hose to reach the fire and be able to operate effectively during the initial stages of operation.

B. Provide relief of the member operating the first hose lines.

C. Supply the standpipe and sprinkler systems as per sec. 5.

10.3 FIRST ARRIVING ENGINE COMPANY

10.3.1 The first arriving engine company shall:

A. If first to arrive, obtain as much information as possible from the fire safety director or his surrogate with regard to:

1. Location of the fire.
2. Evacuation procedure that have been implemented.
3. Status of the elevators.
4. Access stairs serving the fire floor.

B. Remain at the lobby command post until the first ladder company has verified the fire location.

C. Proceed to the upper floor via the elevator manned by the member of the first ladder company.

D. With the assistance of the second arriving engine company, stretch a hose line from the standpipe outlet on the floor below the fire in the designated stairway.

E. Operate the first hose line until relieved by the second arriving engine company.

10.4 SECOND ARRIVING ENGINE COMPANY

10.4.1 The second arriving engine company shall:

A. Report to the officer in command of the lobby command post.

B. Proceed to the location of the first engine company via a manned "Firemen Service" elevator.

C. Assist the first arriving engine company in stretching sufficient hose to reach the fire.

D. Provide Handie-Talkie communications between the standpipe outlet and the nozzle by having the officer of the second arriving engine company remain at the outlet until the hose line is operating at the correct nozzle pressure.

E. Leave the fire area when the hose line has been stretched and is operating so as not to deplete their air supply.

F. Coordinate with the officer in command of the first hose line so that the relief of members operating the line can be accomplished before their masks are expended.

10.5 THIRD AND FOURTH ARRIVING ENGINE COMPANIES

10.5.1 The third and fourth arriving engine companies shall:

A. Report to the chief in charge of the lobby command post.

B. Operate in a manner similar to the first and second engine companies to stretch the second hose line.

C. Stretch and operate the second hose line as directed by the chief in charge of the operations post or the lobby command post. This hose line may be used to:

1. Reinforce the position of the first line.
2. Protect the position of the first line.
3. Protect the search and evacuation of the fire floor.
4. Contain and confine fire spread and/or prevent fire wrapping around the core and endangering operation of the first line.

10.6 GREATER ALARM ENGINE COMPANIES

10.6.1 Greater alarm engine companies shall report to the lobby command post for assignment to the operations post, SAE post or the staging area. Some of the duties they may be assigned to are:

A. Relieve any of the first alarm units.

B. Stretch additional hose line on the fire floor or the floors above.

C. Assist in the search and evacuation of upper floors.

D. Transport special tools and equipment to the staging area.

10.6.2 Units, without specific orders to the contrary shall bring masks, rolled up lengths and spare Scott cylinders to lobby area. If not required for their specific use, such equipment will be added to staging area supply for future use by units engaged in actual fire fighting operations.

BY ORDER OF THE FIRE COMMISSIONER AND THE CHIEF OF DEPARTMENT

APPENDIX 1 - REFERENCE FIGURES

Appendix I
Fire Fighting Procedure High Rise Office Buildings
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Figure 2-1

COMPOSITE FLOOR

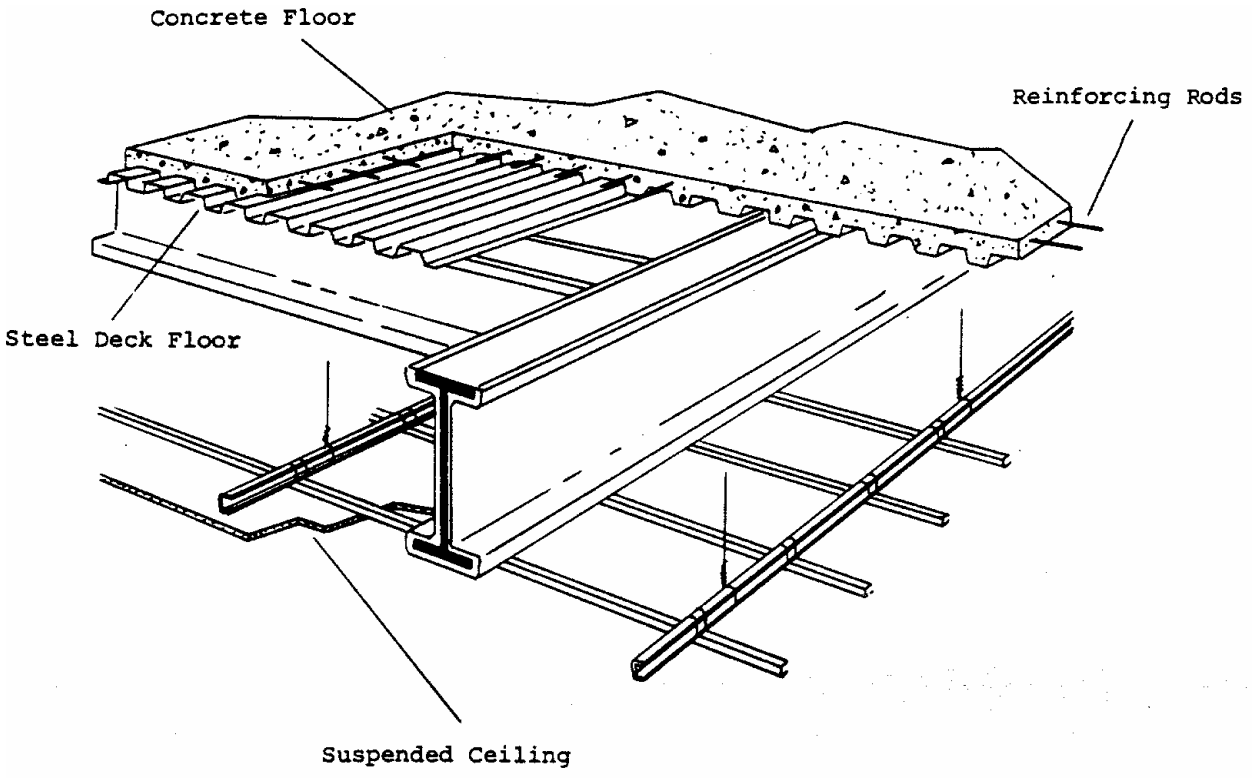


Figure 4-1

MER EQUIPMENT

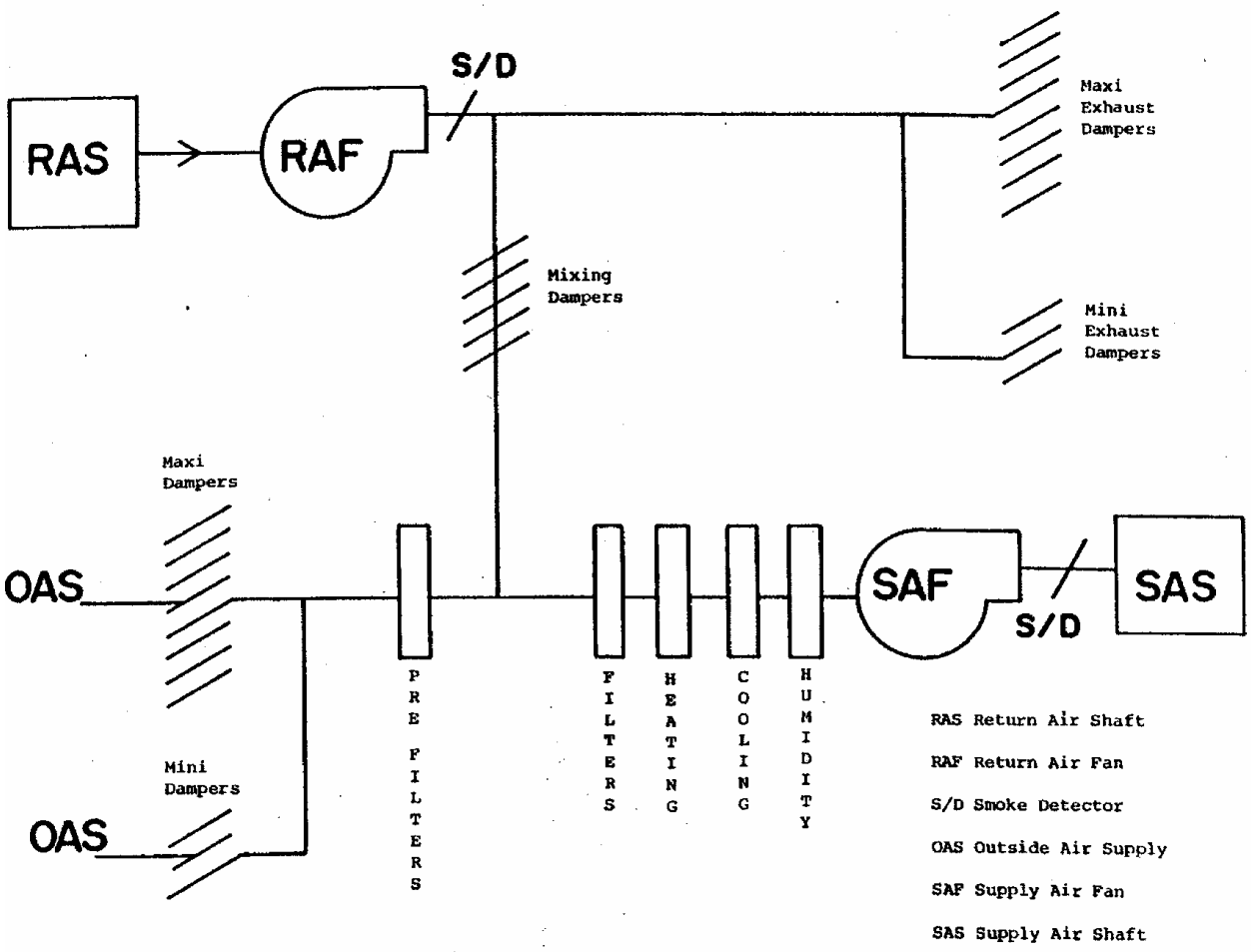


Figure 4-2

HVAC DISTRIBUTION SYSTEM

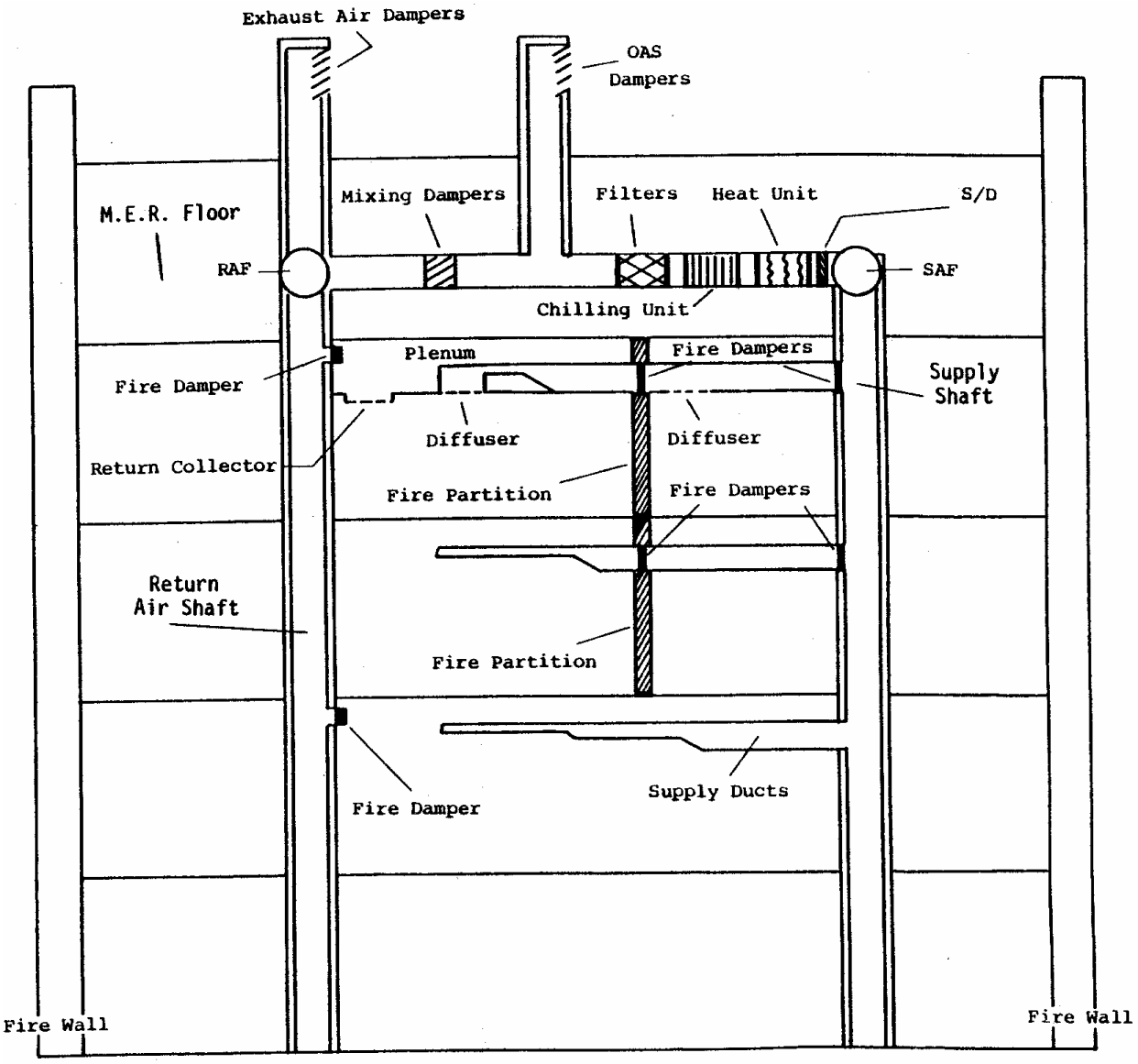


Figure 4-3

HVAC ZONES

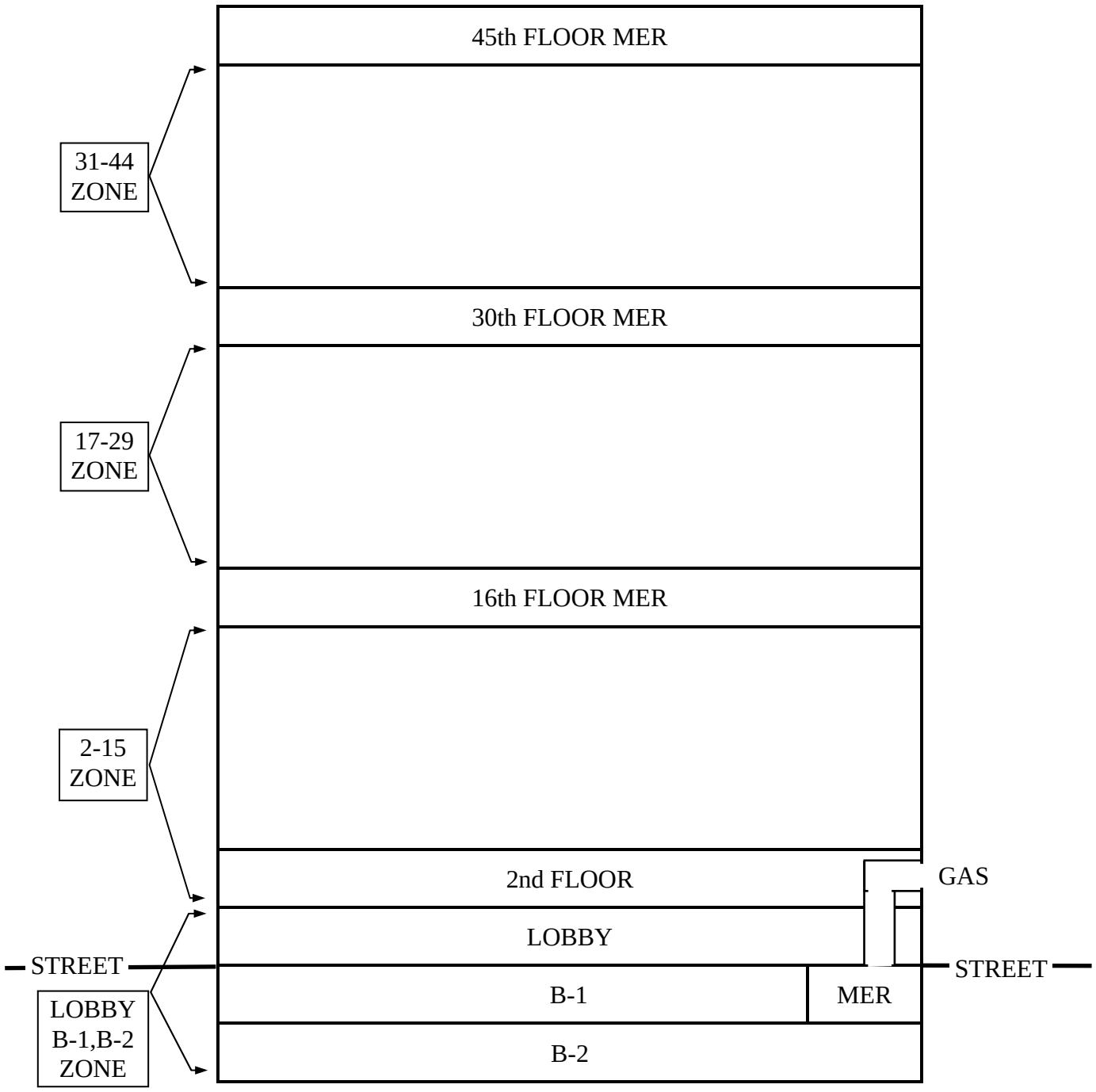
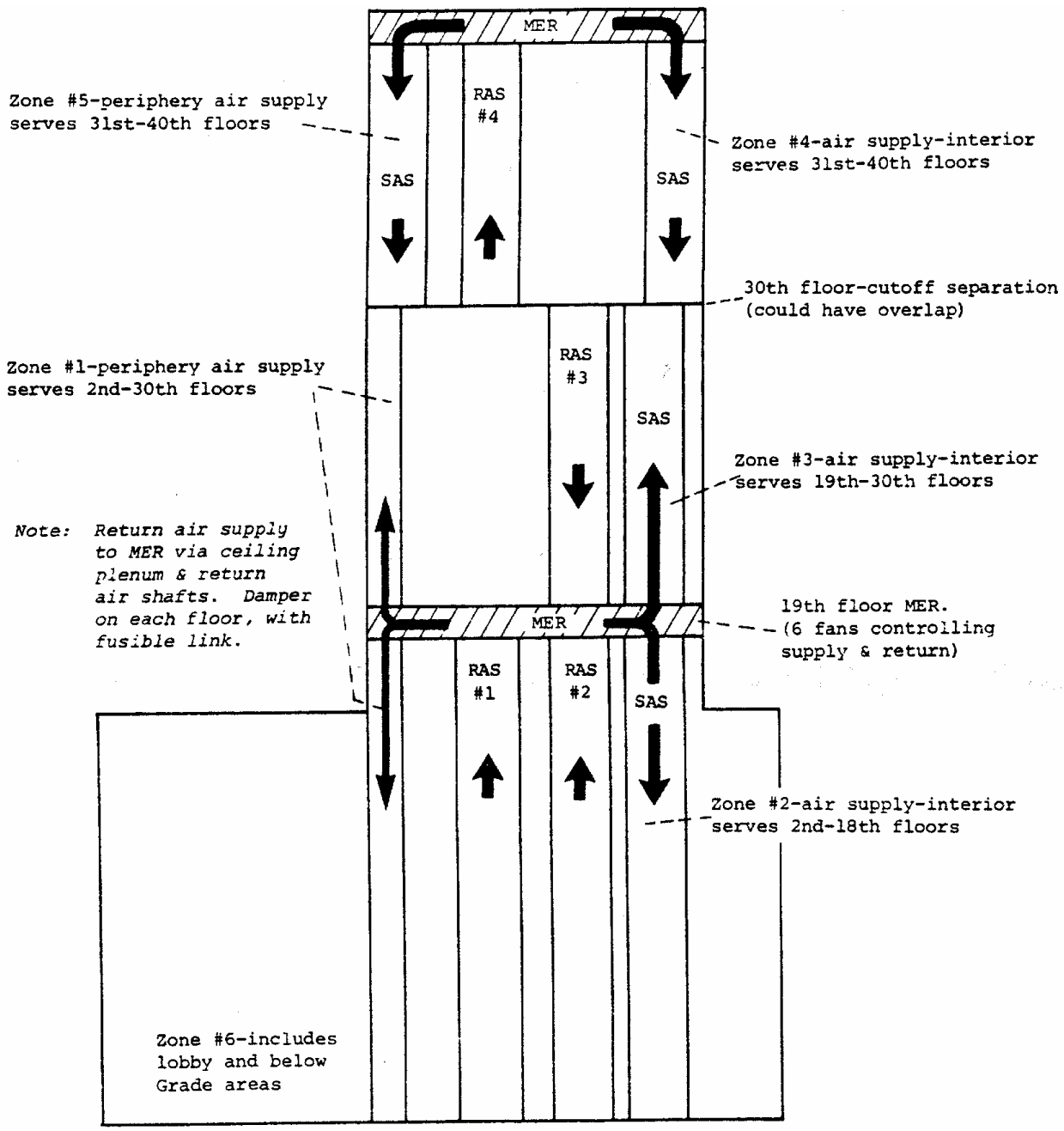


Figure 2-1

HVAC (6 ZONES)



NOTE: Drawing simplified, each supply zone could be interchanged due to fan arrangement

Figure 5-1

MODEL FIRE PUMP
SHOWING POSSIBLE BYPASS & BYPASS VALVE LOCATION

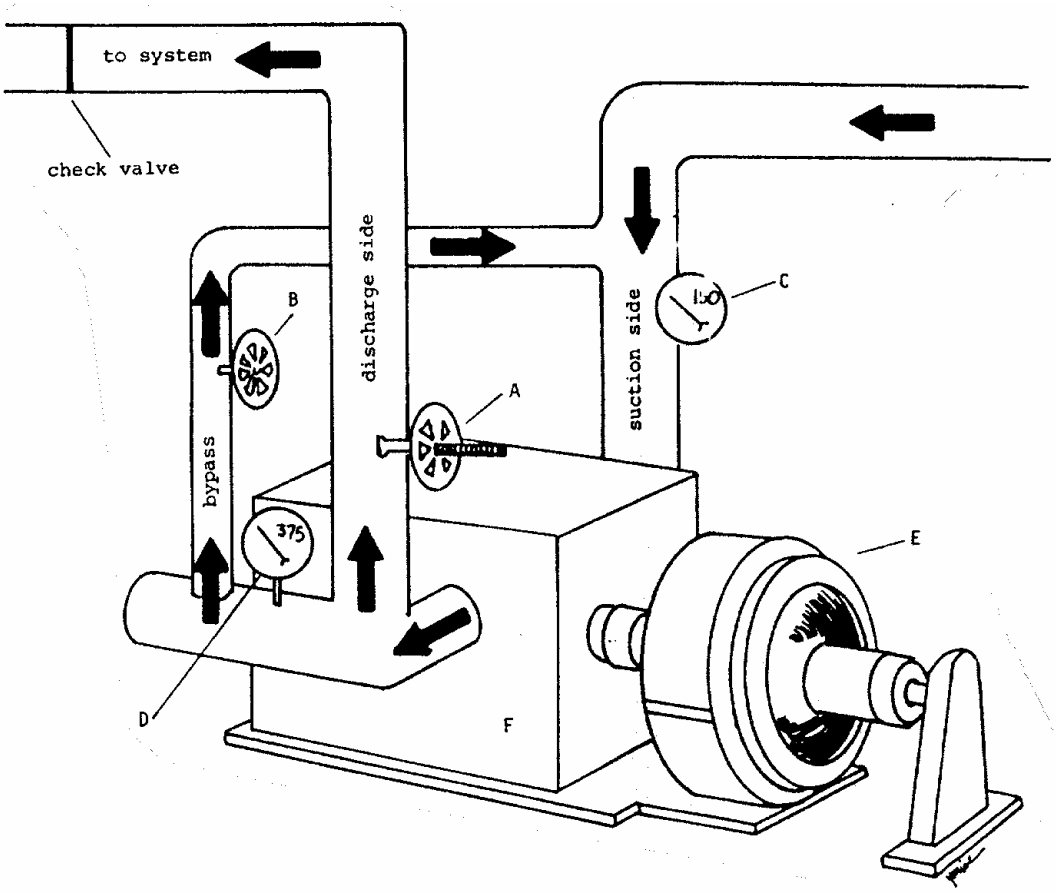
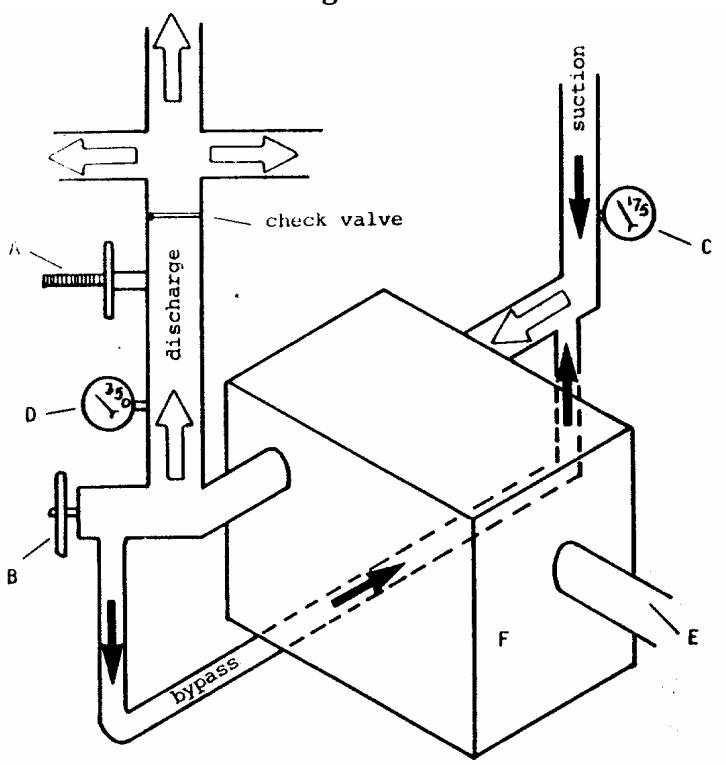


Figure 5-2



MODEL FIRE PUMP SHOWING POSSIBLE BYPASS & BYPASS VALVE LOCATION			
A.	OPEN O.S.&Y. VALVE	E.	TO DRIVE MOTOR
B.	CLOSED	F.	CENTRIFUGAL
C.	INLET GAUGE	→	DESIGNATES DIRECTION OF WATER FLOW
D.	DISCHARGE GAUGE		

Figure 5-3

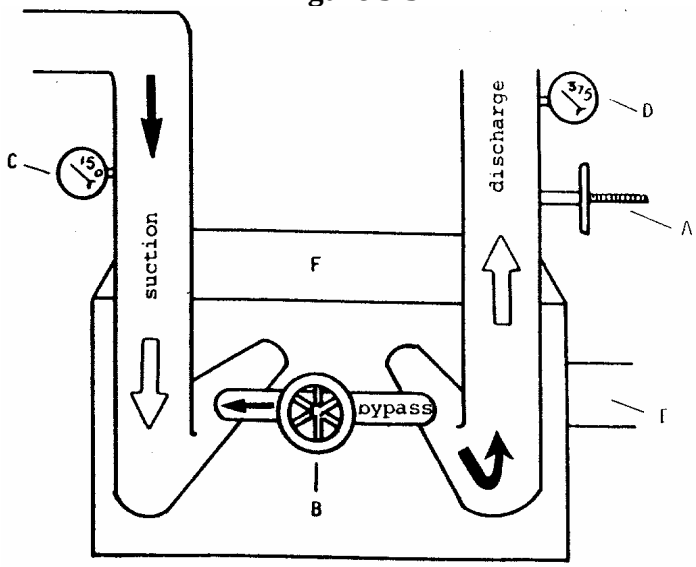
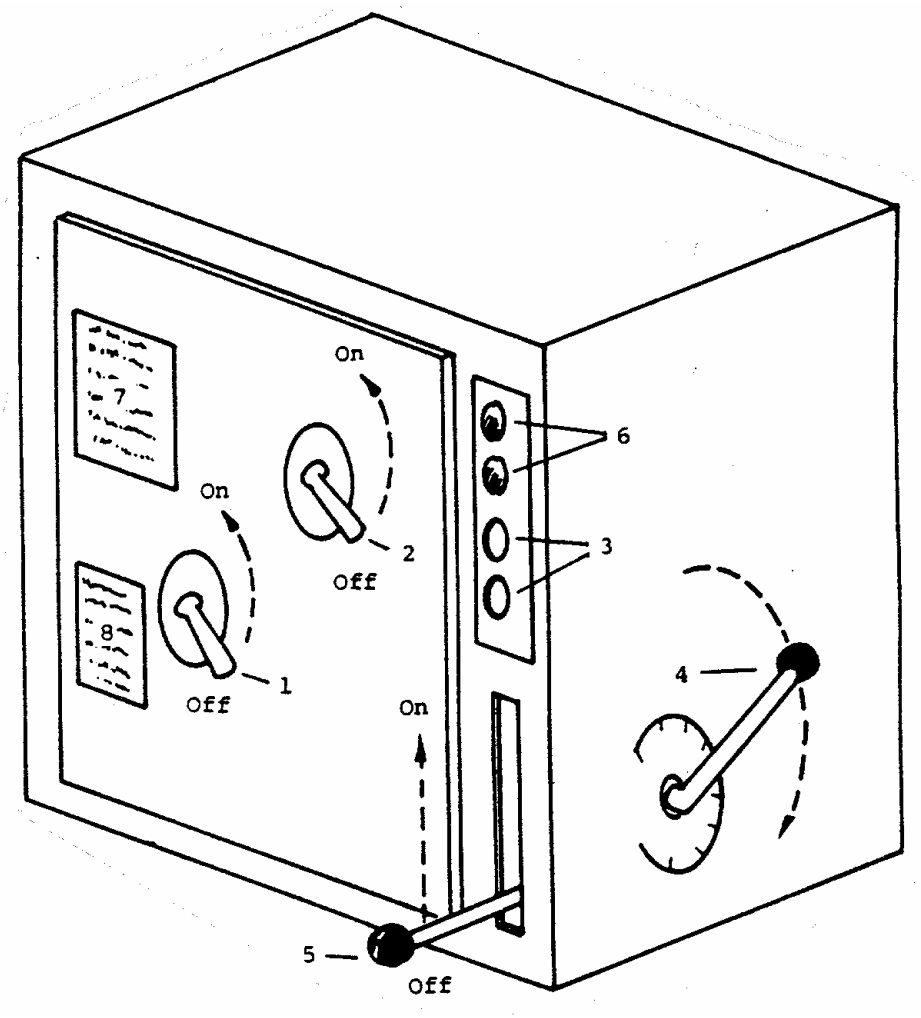


Figure 5-4

FIRE PUMP CONTROL
(FIRETROL)



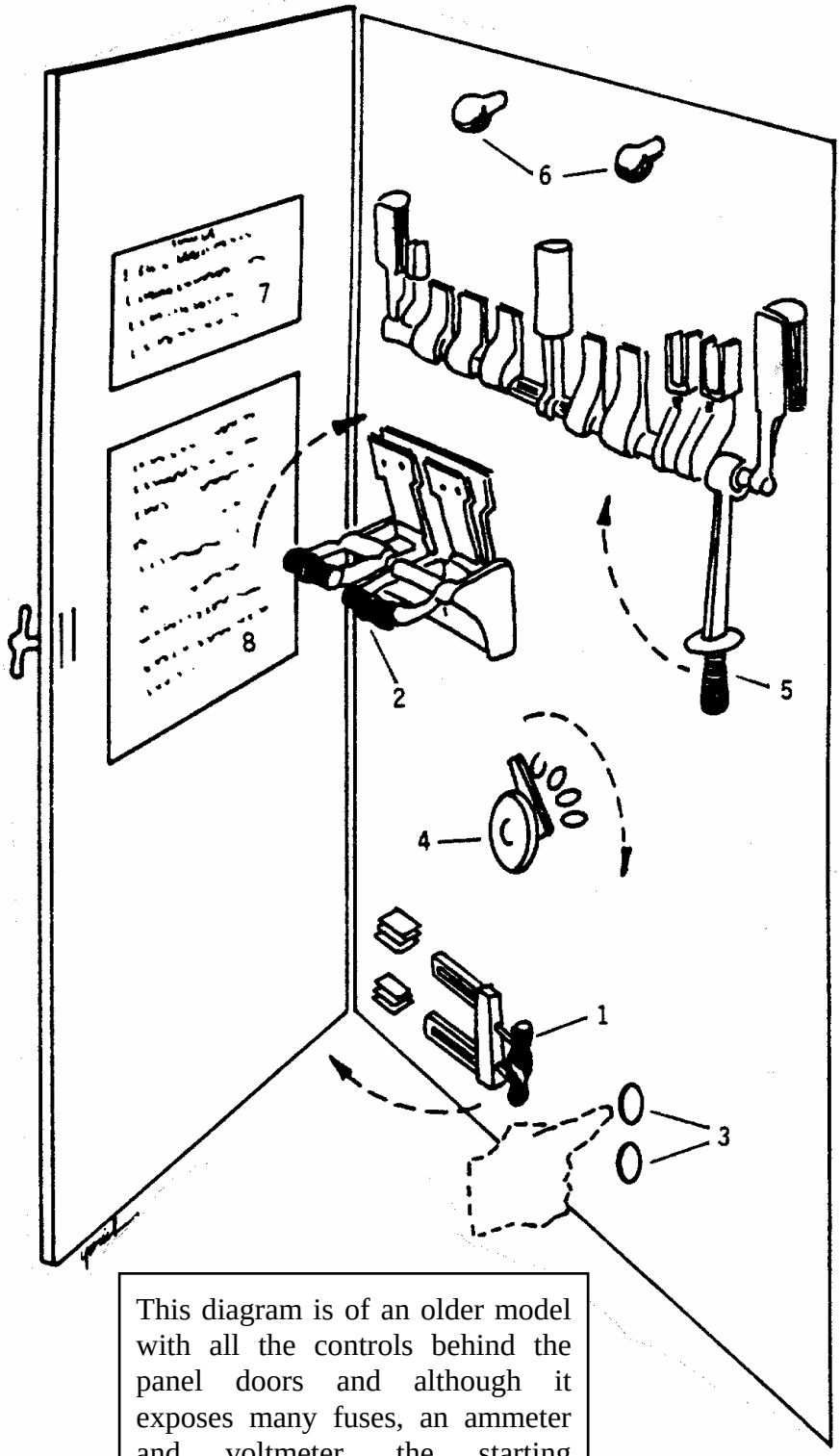
1. Knife switch control
2. Circuit breaker control
3. Start-Stop buttons
4. Pump position lever (speed)
5. Emergency power control lever
6. Power “on”, Pump “on” lights
7. Instruction panel
8. Pump pressure chart

Control Panels may vary in appearance, but operational sequence remains the same.

On newer models such as the illustrated controls above, the controls are located on the outside of a locked door which covers the fuses and high voltage lines. This simplifies the operation because the operator sees only the starting mechanism that is needed for operation.

Figure 5-5

FIRE PUMP CONTROL PANEL



1. Knife switch
2. Circuit breakers
3. "ON" - "OFF" buttons
4. Pump speed lever
5. Emergency power lever
6. Power "on", pump "on" lights
7. Instruction panel
8. Pump pressure chart

When the proper sequence is followed as outlined, the power "on" light will glow with the closing of the circuit breakers and the pump "on" light will glow with the pushing of the starting button.

NOTE

A variation of this panel may have the knife switch inside panel door as shown with all other controls on the outside of door, through holes in door. On this type it will be necessary to open door to close knife switch before reclosing door and completing operation.

This diagram is of an older model with all the controls behind the panel doors and although it exposes many fuses, an ammeter and voltmeter, the starting mechanism parts and sequence remain the same

Figure 6-1
HIGH RISE CHECK LIST

Fire Location & Conditions

Fire Location_____
Fire Conditions Heavy ☐ Med ☐ Lt ☐
Smoke Conditions Heavy ☐ Med ☐ Lt ☐
Heat Conditions Heavy ☐ Med ☐ Lt ☐

Elevators

	Yes	No
Elevators Down	☐	☐
Fireman Service	☐	☐

No. of Cars for F.D. Use
Low _____Med _____ High _____
Floors Served

Building Information

	Yes	No
Sprinklered	☐	☐
Floor Plans	☐	☐
Stair Re-entry Keys	☐	☐
Window Keys	☐	☐
Occupancy Keys	☐	☐
Open Stairs-Fire Occ.	☐	☐
Building Setbacks	☐	☐

Communications

	Yes	No
Class "E"	☐	☐
Public Address	☐	☐
S.P. Phone	☐	☐
To Fan Rooms	☐	☐
To Engineer	☐	☐
Public Telephone	☐	☐
Alarm System Turned Off	☐	☐

Life Hazard

	Yes	No
Trapped	☐	☐
Fire Floor Evac.	☐	☐
Floor Above Evac.	☐	☐
Primary Search Compl.	☐	☐
Secondary Search Compl.	☐	☐
Elevators Searched	☐	☐

HVAC (Heating, Ventilation, Air Conditioning)
Shut Down Yes☐ No☐
*Mer_____ Floor Serves _____To ____
Mer _____ Floor Serves _____To ____
Mer _____ Floor Serves _____To ____
Number of Zones_____
*Mer Mechanical Equipment Room

Stairs Identification

Letter	Floors	Served	S.P.	Evac.
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Scissor Type Stairs Yes☐ No☐

Water Supply

	Yes	No
Standpipe Fed	☐	☐
Sprinkler Fed	☐	☐
Bldg. Fire Pumps On	☐	☐

Unit(s) Feeding Stp.
Pressures Required
1-10(150#) 10-20(200#) 20-30(250#)
30-40(300#) 40-50(350#) 50-60(400#)

UNIT LOCATIONS

1st Eng. Floor _____ Stair _____
2nd Eng. Floor _____ Stair _____
3rd Eng. Floor _____ Stair _____
4th Eng. Floor _____ Stair _____
2nd Batt. Ch. Floor _____ Stair _____
3rd Batt. Ch. _____

1st Ladder Floor _____ Stair _____
2nd Ladder Floor _____ Stair _____
3rd Ladder Floor _____ Stair _____
Rescue _____
Assignment

Figure 6-3

SAMPLE BUILDING FLOOR PLAN AND PROFILE

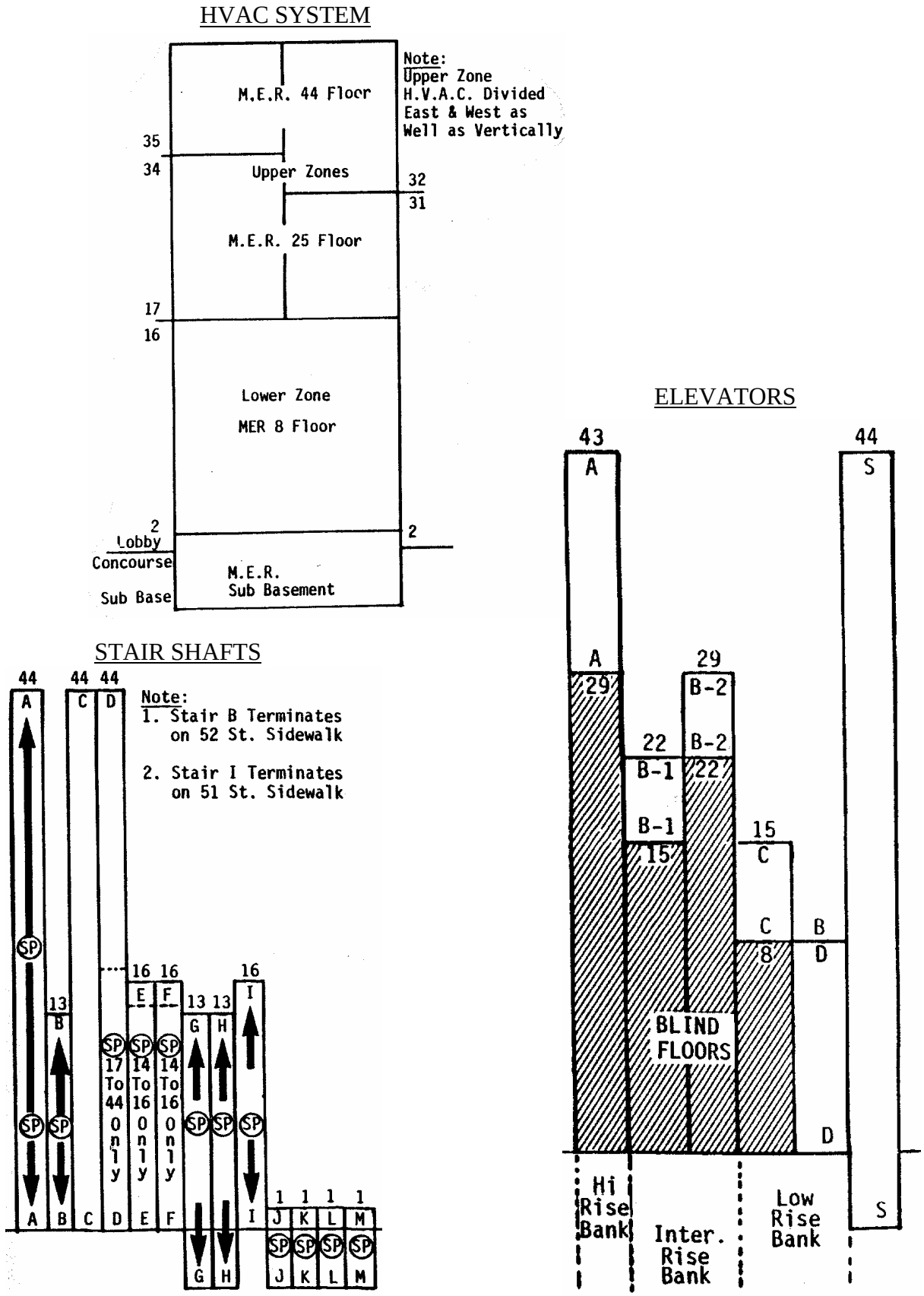


Figure 6-4

SAMPLE TIPS DATA SHEET

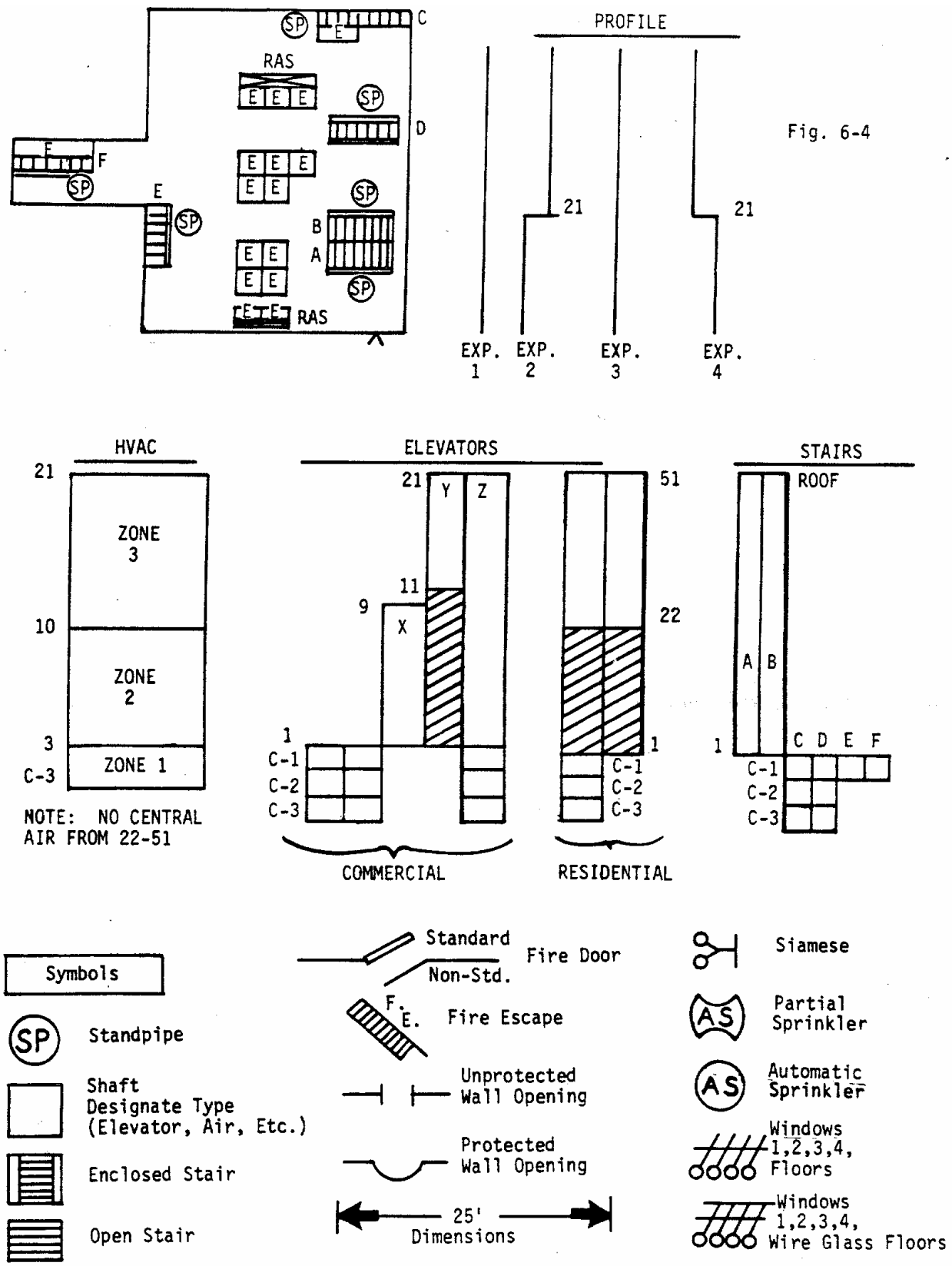


Fig. 6-4

Figure 6-2
OPERATIONS POST LOG

Hose Line	Floor/Stair	Unit(s)	Time	Unit Relief	In Time	Unit Relief	In Time	Unit Relief	In Time	Unit Relief
Line #1										
Line #2										
Line #3										
Line #4										
Line #5										
Line #6										
Ladder Cos.	**Assignment**									
1st Ladder										
2nd Ladder										
3rd Ladder										
4th Ladder										
5th Ladder										
Rescue Co.										
Batt. Chief										
Batt. Chief										

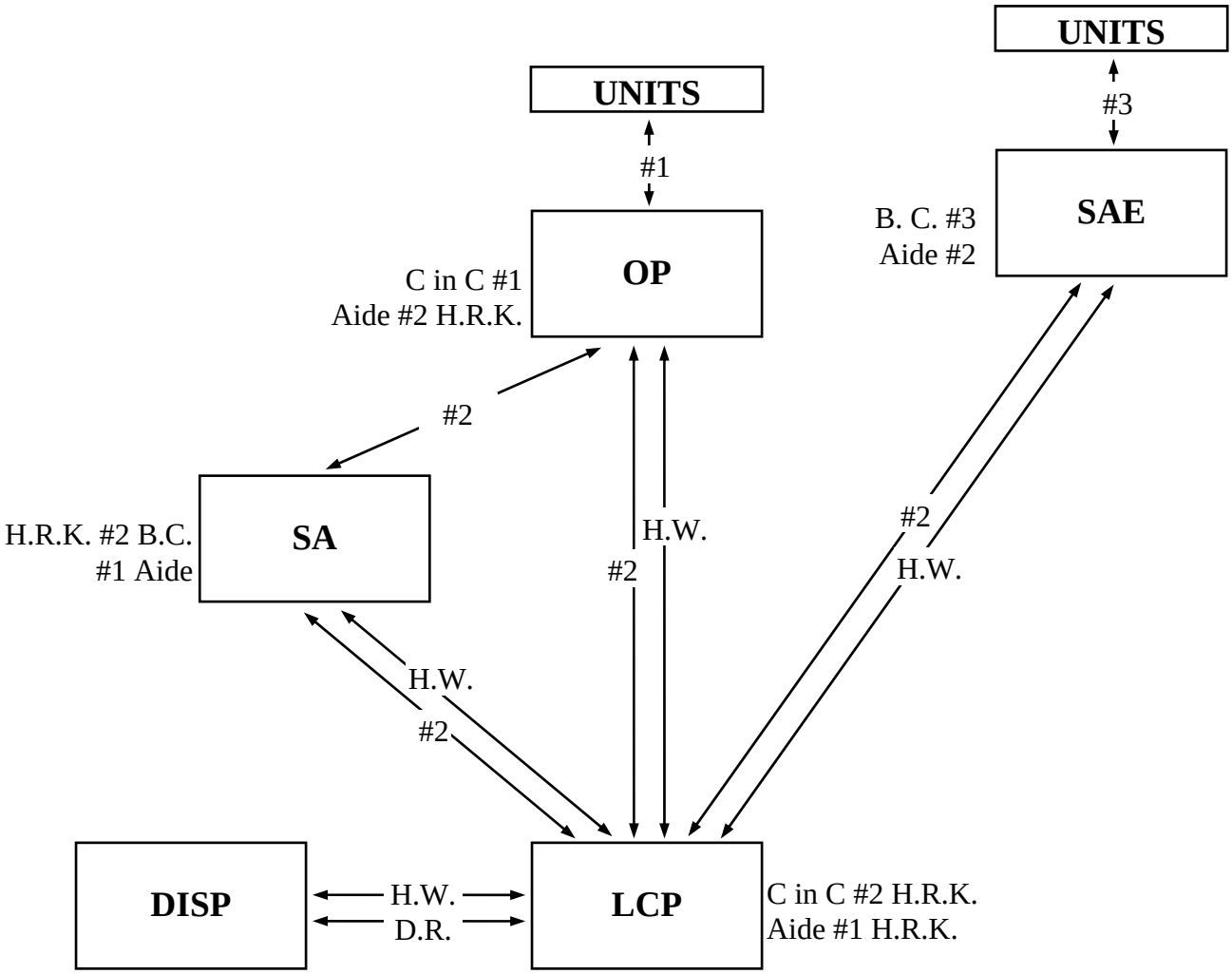
Reserve Unit At Operation Post Units relieved from fire operations shall report to the operation post.

Engine _____ Ladder _____ Engine _____ Ladder _____

Engine _____ Ladder _____ Engine _____ Ladder _____

Figure 7-1

COMMUNICATIONS NETWORK



LEGEND	
#1	Tactical
#2	Command
#3	Second Tactical
H.W.	Hard Wire
D.R.	Dept. Radio
LCP	Lobby Command Post
SA	Staging Area
OP	Operations
SAE	Search & Evacuation post
HRK	High Rise (Communications) Kit

H.W. - Hardwire Components

1. Class E System
2. Standpipe Telephone
3. Outside Telephone
4. In-house Telephone
5. Sound Power Field Telephone

Figure 7-2

LOBBY COMMAND LOG

Units Reporting To Lobby Command Post	Units To Operations Post	Units To SAE Post	Units To Staging Area	Units In Reserve At Lobby Command Post

Figure 7-4

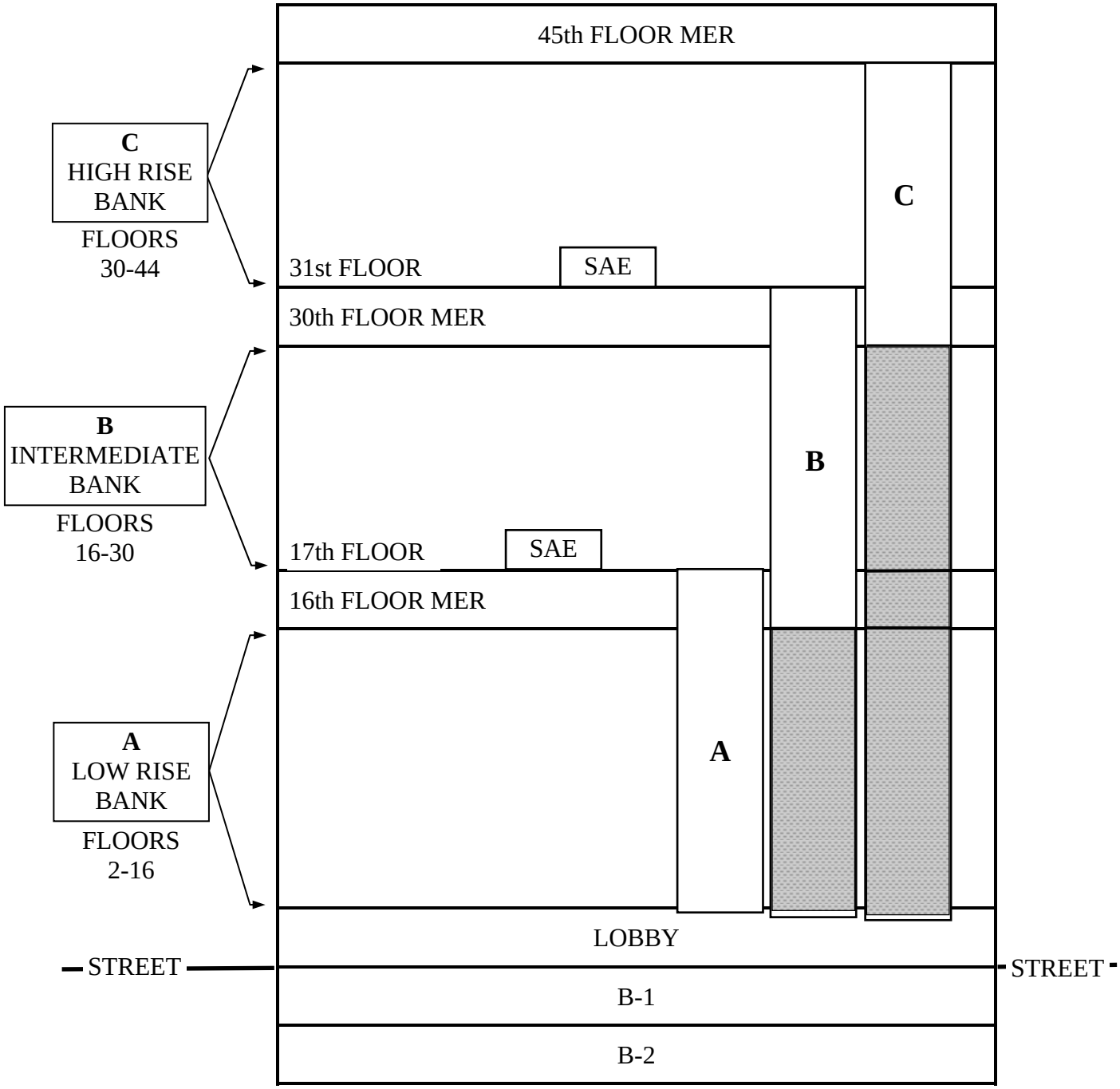
STAGING AREA LOG

Units Reporting In		Units Departing			Units Returning		
Units	Time	Unit	Assignment	Time	Units	Time	Serviceable

RECORD OF INJURIES

Unit	Name	Time	Injury	Disposition

Figure 7-3



NOTE: Shaded area is a blind shaft

Appendix J
WORLD TRADE CENTER EMERGENCY PROCEDURES MANUAL 2001

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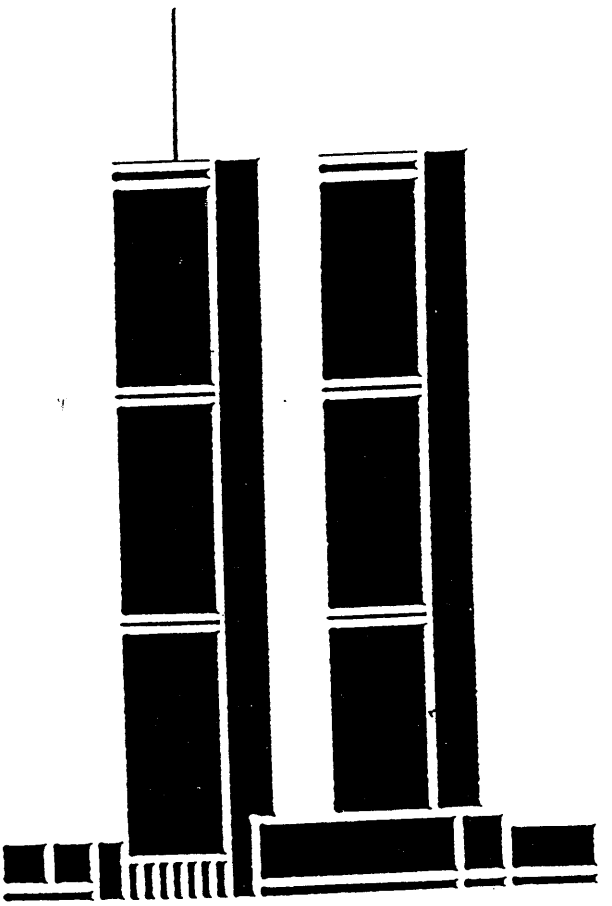
WORLD TRADE CENTER



EMERGENCY PROCEDURES MANUAL

2001

CONFIDENTIAL

INTRODUCTION

Attached is the 2001 version of the World Trade Center Emergency Procedures Manual. This manual outlines response procedures and protocol for World Trade Center Emergency Response Personnel. The original document was prepared in 1988 and has been updated and expanded on an annual basis since.

Each chapter is divided into two sections - "General Information" and "Response". The "General Information" section is subdivided and provides the Scope of the chapter, which summarizes the content and applicability of the procedures; Major Responsibilities, which provides a brief overview of the responsibilities of responding units; and Notifications, which identifies the emergency notifications which must be made by staff. The "Response" section provides detailed instructions and responsibilities to be followed by all responding staff.

It should be noted that this manual contains priority and/or restricted information and is distributed on a "need-to-know" basis to authorized staff having duties associated with emergency response within the World Trade Center. The information contained herein is confidential and as such, appropriate precautions shall be taken to secure this document. It may not be copied, reproduced or distributed without authorization from the Port Authority Life Safety and Security Division.

This manual supersedes all previous copies of the Emergency Procedures Manual and upon receipt of this document, all previous versions must be discarded in an appropriate manner, such as shredding or otherwise destroying.

CONFIDENTIAL

TABLE OF CONTENTS

CHAPTER 1	ASBESTOS CONTAMINATION
CHAPTER 2	BOMB THREATS
CHAPTER 3	CHEMICAL AND FUEL RELEASES
CHAPTER 4	COOLING SYSTEM FAILURES
CHAPTER 5	DOMESTIC WATER OUTAGES
CHAPTER 6	ELEVATOR EMERGENCIES
CHAPTER 7	FIRE EMERGENCIES
CHAPTER 8	FLOODS
CHAPTER 9	NATURAL GAS LEAKS
CHAPTER 10	LABOR DISPUTES & DEMONSTRATIONS
CHAPTER 11	MEDICAL EMERGENCIES
CHAPTER 12	NATURAL DISASTERS
CHAPTER 13	POWER FAILURES
CHAPTER 14	STRUCTURAL INTEGRITY
APPENDIX A - O	

CHAPTER 1

ASBESTOS CONTAMINATION

CHAPTER 1

ASBESTOS CONTAMINATION

GENERAL INFORMATION	1-1
Scope	1-1.1
Major Responsibilities	1-1.2
Notifications	1-1.3
RESPONSE	1-2
Environmental	1-2.1
Operations and Maintenance Management	1-2.2
Life Safety and Security	1-2.3
Police	1-2.4
Construction Division	1-2.5
Property Management	1-2.6

ASBESTOS CONTAMINATION

1-1.1 SCOPE

This response procedure covers Asbestos Containing Material (ACM) contamination caused by the sudden, unexpected release, or potential release, of asbestos into the atmosphere. Contamination may result from:

- Damaged thermal insulation or fireproofing.
- Fire, flood or explosion damage within an area containing asbestos.

Note: For elevator shaft fireproofing fallout, refer to Chapter 6 for specific procedures.

Where an immediate threat to life and property exists, responding staff shall take initial action as covered in other chapters of this manual and shall consider these asbestos contamination procedures subordinate to overall life safety when stabilizing the initial emergency.

1-1.2 MAJOR RESPONSIBILITIES

Environmental

- Direct and monitor asbestos cleanup for compliance with Port Authority asbestos policies and applicable state and federal regulations. Perform bulk and air sampling and analysis.

Operations and Maintenance Management

- Mechanical Section: Secure all affected mechanical systems.
- Electrical Section: Secure all affected electrical systems.
- General Maintenance Section: Secure all affected structural systems.
- Environmental Coordinator: Assess condition and extent of contamination, determine cleanup procedures, and coordinate the activities of the Environmental Division and abatement contractor.

Construction Division

- Participate as requested by the Environmental Coordinator.

Life Safety and Security

- Authorize and conduct evacuation, monitor fire/life safety concerns and authorize use of security officers to secure contaminated areas.

Operations Control Center

- Coordinate elevator response; initiate appropriate notifications.

Police

- Respond and, as requested by Environmental or other appropriate Units, establish perimeter at point(s) dictated by events and prevent reentry of unauthorized personnel. Contact PATH ESU if needed.

Property Management

- Act as the WTC Liaison Officer.
- Coordinate with appropriate WTC Units on issues directly impacting tenants.
- Disseminate information to tenants.

1-1.3 NOTIFICATIONS

The initial report of an asbestos release event shall be made to the Operations Control Center, detailing the precise location, nature and extent of the incident in accordance with Exhibit 1A, contained herein.

All of the notifications, which are to be made by the Operations Control Center Supervisor and the Police Desk Officer, are listed in Exhibit 1B, contained herein.

1-2 RESPONSE

1-2.1 ENVIRONMENTAL

When notified by the WTC Environmental Coordinator:

- Respond to contaminated area and immediately evaluate the extent of contamination. Commence air monitoring inside and outside of affected area(s).
- Assess cleanup process and advise Environmental Coordinator of any required actions beyond those already taken.
- Oversee environmental performance of cleanup contractors.
- Determine if notification must be transmitted to New York State Department of Labor.
- Ensure ACM is disposed of properly (refer to Exhibit 1C).

1-2.2 OPERATIONS AND MAINTENANCE MANAGEMENT

Note: ***Only staff who have been trained to handle asbestos will participate in asbestos contamination emergencies.***

Duty Supervisor

- Personally observe and assess conditions to determine the nature and scope of the potential hazard with the appropriate section supervisory staff (Contract or Port Authority).
- Notify Operations Control Center Supervisor that an actual ACM contamination emergency has occurred and initiate contact with the Environmental Coordinator.
- In the case of contamination in an elevator cab, secure all elevators in common shafts.

If the incident occurs from a flood in open areas:

- For Small Floods, evacuate the immediate area.
- For Medium Floods, evacuate the immediate and surrounding area (10 ft. radius).
- For Large Floods, evacuate the immediate and surrounding area (25 ft. radius).

If the incident occurs from a flood in single occupant office, rest room, janitor closet, etc.:

- Request that occupant(s) evacuate the area and close (lock) the door to keep unauthorized personnel out.
- If the incident occurs from a fire or an explosion, notify the Life Safety and Security supervisor who will direct that the heating, ventilation and air conditioning (HVAC) system be operated on "smoke purge" mode or as directed or approved by the Fire Safety Director, New York City Fire Department Chief Officer in charge and/or the New York City Police Department Bomb Squad.

- Request the Mechanical Section to secure the HVAC supply system to the area and operate fan(s) on full exhaust.

Note: Exhaust systems in toilets and service closets should remain on during clean up.

- If cleanup of the affected area can not be immediately started, direct Operations and Maintenance Management staff to cover the fallout debris with polyethylene sheeting to prevent disturbance by unauthorized personnel.

Direct janitorial services contractor to:

- Respond to the area to contain any water with dikes and to remove it using proper procedures.

- Spread plastic sheeting and secure with duct tape to minimize water damage to furnishings and carpets. Remove all debris from desks - typewriters, telephones, papers, books, computers, etc.

Direct other Operations and Maintenance Management staff to:

- Secure the entry and exit points to affected area to unauthorized personnel.
- Establish a demarcation line with warning signs/barriers.
- Assist Life Safety & Security with evacuation, if requested.

After repairs and cleaning are completed and clean air monitoring results indicate fiber counts below .01f/cc, area can safely be reoccupied. Barriers must be removed, HVAC system restored to normal operations and occupants informed that space can be safely reoccupied. Affected elevators must be restored to normal service. If pre-clean up fiber counts are .01f/cc or higher, then final air clearance is required.

Environmental Coordinator

- Assess nature and extent of ACM contamination.
- Coordinate overall response of responding units.
- Based upon nature and extent of the contamination, develop a response and clean-up plan.
- Determine when response is terminated
- Supply updated ACM survey data to Life Safety & Security and Operations & Maintenance Management staff.

Mechanical Section

Under the direction of the Environmental Coordinator:

- Respond to site, or safe area as directed.
- Secure all affected mechanical equipment systems as directed.
- At minimum, the HVAC supply system should be secured and return system should be activated on full exhaust. Note: If the emergency response is the result of a fire or an explosion, any actions taken concerning the HVAC system must be coordinated with Fire/Life Safety staff.
- Perform repairs and restore normal service when requested to do so by the Environmental Coordinator (isolate the affected floor(s) if possible and restore HVAC to the unaffected areas).
- Treat all potentially contaminated water using a HEPA water filter and properly dispose of contaminated water.

Electrical Section

Under the direction of the Environmental Coordinator:

- Respond to area, or safe area as directed.
- Secure all affected electrical systems (i.e. light fixtures, smoke detectors, etc.)
- Perform repairs and restore normal services when requested to do so.
- Assist in the cleanup and/or response as directed by the Environmental Coordinator.

General Maintenance Section

Under the direction of the Environmental Coordinator:

- Respond to area, or safe area as directed.
- Secure all affected structural systems - i.e. support sagging ceilings, remove loose ceiling tiles, install temporary polyethylene sheeting in the ceiling, etc.
- Fabricate enclosure to facilitate clean up.
- Assist in the cleanup and/or response as directed by the Environmental Coordinator.

1-2.3 LIFE SAFETY AND SECURITY

Life Safety and Security Supervisor

- Establish a secure area as requested.
- Deploy necessary security personnel to maintain secure perimeter.
- Deploy necessary security personnel to secure evacuated floors/zones and to prevent reoccupancy.
- Monitor crowd control activities.
- Dispatch "key-runs".
- If necessary, issue temporary identification cards to personnel involved in operation.
- Maintain appropriate files.
- Direct evacuation, if necessary.
- Oversee event from fire/life safety standpoint.
- Coordinate all activities with the New York City Fire Department, if necessary.

Operations Control Center

- Initiate all appropriate notifications.
- Information regarding ACM should be referred to as "Code 3".
- Determine if shafts are deemed negative or positive for ACM based on survey information.

Elevator Starter

- Secure all elevators in common shaft and close doors.

- Collect all available information and report same to the Operations Control Center.
- Complete "Fireproofing Fallout Procedures" form.

1-2.4 POLICE

- Assist in evacuation as requested.
- Prevent unauthorized re-entry if requested by Life Safety & Security staff.

1-2.5 CONSTRUCTION DIVISION

- Participate when requested by the Environmental Coordinator.

1-2.6 PROPERTY MANAGEMENT

- The General Property Manager responsible for the property involved in the incident will assume full responsibility as the WTC Liaison Officer and will be stationed in the lobby at the Fire Command Station/Elevator Console area.
- The General Property Managers from the other buildings along with the Senior Property Manager and staff of the affected property will assist the Liaison Officer in the lobby.
- The Senior Property Managers and their staff from the unaffected properties will report to the Situation Room and Property Management Office at the Operations Control Center and activate all telephones, computers and the Emergency Tenant Notification System.
- The Senior Property Managers will assume all responsibility for disseminating all pre-cleared information to staff and tenants. One staff member will act as the official scribe, maintaining a constant record of events as they occur.
- The Liaison Officer will be responsible for notifying the Chief Operating Officer and Media Relations, if applicable, and will work closely with Senior World Trade and Port Authority Staff as well as all World Trade Center Units – Life Safety & Security, Police, Vertical Transportation, Engineers Office, Central Systems, General Maintenance, Locksmith Shop, Construction, Project Management and Operations Management.
- If necessary, a representative from Media Relations will also be in the lobby to field questions from the media/press.

EXHIBIT 1A
KEY INFORMATION

To allay unnecessary concern in affected areas, all radio transmissions should refer to "asbestos" as "ACM" (Asbestos Containing Material).

Specifics of Incident	Precise location of incident. Identify type of ACM and incident: Thermal Insulation Fireproofing Flood Fire Explosion Quantify linear or square feet of damage If fallout is in elevator cab pit or on top of cab, identify amount and whether passengers are involved. If a Flood, identify specific type: Small Flood : damage to approx. ten (10) ceiling tiles or less. Medium Flood : damage of ten (10) to fifty (50) ceiling tiles. Large Flood : damage of more than fifty (50) ceiling tiles. If a fire, explosion or other type of impact, identify the floor and location where asbestos may have been disturbed.

EXHIBIT 1B
NOTIFICATIONS

Individuals or their alternates must be paged and/or contacted at home if the incident occurs off-hours.

Refer to Appendix A for specific names and telephone numbers.

FROM	PRIORITY	TO
OCC	1st	Operations & Maintenance Management Supervisor Life Safety & Security Supervisor Environmental Coordinator Police Desk
	2nd	Security & Life Safety Director Fire Safety Director Manager, Operations & Maintenance Management Supervising Engineer Maintenance Supervisor (General Maintenance) Maintenance Supervisor (Mechanical) Maintenance Supervisor (Electrical) Manager, Vertical Transportation Appropriate General Property Manager Appropriate Senior Property Manager Appropriate Property Manager All individuals listed in "Asbestos Contamination" paging group
Police Desk	1st	Police Supervisor

Note: It is the responsibility of the Environmental Construction Division to notify the New York State Department of Labor and US Environmental Protection Agency whenever significant asbestos contamination occurs.

EXHIBIT 1C
ASBESTOS CLEANING AND DISPOSAL METHODS

Approved Cleaning Methods

1. All decontamination procedures shall include wet-cleaning and/or HEPA (High Efficiency Particulate Absolute) vacuuming.
2. All water from an asbestos work area is considered contaminated and shall be disposed of as such.
3. All surfaces, fixtures, furnishings and equipment in the designated asbestos work area shall be decontaminated through wet-cleaning or damp wiping and/or HEPA vacuuming. Dry-sweeping, dry-dusting or non-HEPA filtered vacuuming is prohibited.
4. All tools and equipment are to be decontaminated before being removed from the work area.

Decontamination Procedures for Tools and Equipment

1. All tools and equipment are to be HEPA vacuumed and/or wet-cleaned before being removed from the work area.
2. All HEPA vacuums are to be decontaminated before being removed from the work area.
3. Personal protection, except respirators, are to be removed and placed in a disposal bag before exiting the enclosure.
4. Fire brigade equipment including SCBA, bunker gear, boots and helmets are to be HEPA vacuumed and/or wet-cleaned before returning them to storage. Any fire cart inside work area must be wet-cleaned inside and out.
5. If an enclosure has been constructed, all surfaces must be wet-cleaned and HEPA vacuumed prior to dismantling.

Storage and Disposal of Asbestos Contaminated Waste

1. All asbestos contaminated waste must be disposed of in US OSHA/EPA "Asbestos" marked 6 mil. disposal bags. All bags shall be double bagged, goose necked and taped closed with duct tape.
2. All asbestos contaminated waste is to be adequately wet down prior to sealing bags.
3. No metal debris shall be placed in plastic bags. Such debris shall either be wet-cleaned and disposed of as construction debris or must be placed in properly marked fiber drums for asbestos disposal.
4. All asbestos waste must be kept separate from any other waste.
5. All asbestos waste will be stored in a designated area at the World Trade Center as designated by the Environmental Coordinator.

CHAPTER 2

BOMB THREATS

CHAPTER 2

BOMB THREATS

GENERAL INFORMATION	2-1
Scope	2-1.1
Major Responsibilities	2-1.2
Notifications	2-1.3
RESPONSE	2-2
Police	2-2.1
Life Safety and Security	2-2.2
Operations and Maintenance Management	2-2.3
Vertical Transportation	2-2.4
New York City Police Department	2-2.5
New York City Fire Department	2-2.6
Property Management	2-2.7
Exhibit 2A	
Exhibit 2B	
Exhibit 2C	

BOMB THREATS

2-1.1 SCOPE

This procedure covers the appropriate response to general bomb threats, specific bomb threats, suspicious packages and hazardous devices at the World Trade Center complex.

2-1.2 MAJOR RESPONSIBILITIES

GENERAL THREATS

Police

- Assess situation
- Document incident
- Protect life and property
- Protect and preserve scene

Life Safety and Security

- Confer with Police Officials, present information to WTD Director and ascertain the need for evacuation in general threat situations within public areas. In tenant spaces (along with Police and Property Management staff), present available information to a tenant representative(s).
- Deploy necessary security personnel to maintain secure perimeter.
- Coordinate all fire/life safety activities with the New York City Fire Department.
- Authorize use of security officers as required.

Operations and Maintenance Management

- Assist with evacuation if requested.
- Determine risk to nearby utility systems - secure same, if necessary.

New York City Police Department Bomb Squad:

- Make all technical decisions, coordinate activities with Port Authority Police.

New York City Fire Department:

- Respond and operate in precautionary "stand by" mode.
- In the event of fire/explosion, coordinate activities with Fire Safety Director.

Property Management

- Act as the WTC Liaison Officer.
- Coordinate with Life Safety & Security and Police on issues impacting tenants.
- Disseminate information to tenants.

SPECIFIC THREATS

Police

- Assess situation
- Document incident
- Protect life and property
- Protect and preserve scene

Life Safety and Security

- Confer with Police Officials, present information to WTD Director.
- Deploy necessary security personnel to maintain secure perimeter.
- Coordinate all fire/life safety activities with the New York City Fire Department.
- Authorize use of security officers as required.

Operations and Maintenance Management

- Assist with evacuation if requested.
- Determine risk to nearby utility systems - secure same, if necessary.

New York City Police Department Bomb Squad:

- Make all technical decisions, coordinate activities with Port Authority Police.

New York City Fire Department:

- Respond and operate in precautionary "stand by" mode.
- In the event of fire/explosion, coordinate activities with Fire Safety Director.

Property Management

- Act as WTC Liaison Officer.
- Coordinate with Life Safety & Security and Police on issues impacting tenants.

2-1.3 Notifications

Initial report of a bomb threat will be made to the World Trade Center Police Desk detailing, as much as possible, the type of bomb threat and the information identified in Exhibit 2A. All notifications to be made are listed in Exhibit 2B.

2-2 RESPONSE

2-2.1 POLICE

Note: *All threats should be treated as genuine until it can be established otherwise. Removal, disarming and all technical decisions regarding the suspected device will be made only by qualified personnel such as a Bomb Technician from the New York City Police Department Bomb Squad.*

Bomb threat incidents can be divided into three categories:

General Threat – a telephone call is received by a police agency, the media or a business. Police Officers will be instructed to thoroughly inspect their assigned posts, paying special attention to unusual items or unattended packages. In tenant spaces, Officers should meet with tenant representatives who are familiar with the area and do a through check. At no time should civilians be placed in danger. In "non-public" areas of the complex (MER's, EMR's, Electrical Substations, etc.), Officers should meet with appropriate maintenance personnel and do a through check of the area.

Unattended Item – When the Police Desk receives a report regarding an unattended package, or an unattended package is observed by a Police Officer, it is necessary for Police personnel to respond and evaluate the scene. A PAPD Explosive Detection Team (EDT) K-9 Unit should be utilized to investigate further. If the K-9 Unit does not indicate the presence of danger, the item will be secured by the Officers; if the K-9 does indicate that a possible explosive device is present, the area will be secured and evacuated as deemed necessary by Police Supervision. PATH ESU, NYPD ESU and the NYPD Bomb Squad will be contacted. PAPD Police personnel will proceed as directed by the NYPD Bomb Squad.

Suspicious Package – (note – EDT K-9 Teams do not respond to incidents involving suspicious packages). Responding Police Officers should evacuate the area and establish a perimeter of 1000 feet (or greater) if needed. PATH ESU, NYPD ESU and the NYPD Bomb Squad will be contacted. PAPD Police personnel will proceed as directed by the NYPD Bomb Squad.

Documentation

- Desk officer(s) will obtain as much information as possible (Exhibit 2A).
- Desk officer(s) will make notifications according to Exhibit 2B.

Search (and Evacuation - if Warranted)

- Public Areas - Police patrol units.

- Tenant Areas - Depending on the size of the area, a supervisor will assess staffing needs for search area. Depending on the level of risk, a tenant representative familiar with the area will accompany the police on the search. No civilian(s) will be placed in undue danger.

Suspicious Object Located

- Identify danger area; secure area with a clear zone of at least 1000 feet, including floors above and below the object.
- Depending on the size and location of the object, greater areas of evacuation may be necessary.
- The Police Desk will request the response of the New York City Police Department Bomb Squad and make other necessary notifications.
- The New York City Police Department Bomb Squad may make a determination for larger evacuation area. Such determinations will be coordinated with the Port Authority Police and related WTC Units.

Evacuation

- The ranking police supervisor will evaluate and determine the evacuation scope and size.
- Upon making evacuation decisions, procedures in Exhibit 2C will be followed.

Protection of Life and Property

- Appropriate assistance will be provided to individuals who may have difficulty evacuating the area on their own.
- Evacuations will be done via elevator unless there is potential for the elevator cars to be involved.
- Upon completion of the evacuation, all elevators servicing the affected floor(s) will be secured as required.
- Depending on the circumstances, doors in the immediate vicinity of the object may be opened to minimize primary damage from the blast and secondary damage from fragmentation.

Protection and Preservation of the Scene

- The scene of the incident must be secured as soon as possible.
- Potential evidence must be preserved. It should not be damaged, moved or disposed of.
- Depending on the nature of the incident, several agencies may arrive on site to conduct investigations.
- Accurate notes of events that transpire at the scene must be maintained.

Crowd Control

- Sightseers and bystanders must be kept at a safe distance.
- Officers should maintain control of evacuees, and not allow individuals to return to the area(s) evacuated without clearance from the Incident Commander.
- Areas surrounding the scene should be secured and only authorized individuals allowed access.

Media

- Coordinate with LS&S, O&MM and Property Management to designate an appropriate area for media, press, etc. to gather.
- Notify Port Authority Media Relations.

2-2.2 LIFE SAFETY AND SECURITY

Life Safety and Security Supervisor

- Deploy security personnel to maintain secure perimeter.
- Dispatch "key runs" as necessary.
- Respond to appropriate Fire Command Station and direct use of public address (evacuation) announcements if required.
- Oversee event from fire/life safety standpoint.
- Coordinate all activities with New York City Fire Department as required.

Operations Control Center Supervisor

- Direct appropriate elevator starters/operators to have designated cars standby for emergency use.
- Make appropriate notifications as listed in Exhibit 2B.
- To reduce the anxiety of visitors at public facilities, including Windows on the World and the Top of the World Observation Deck, notification must be made to the Restaurant and Deck Supervisors as appropriate, so they are aware of the facility emergency. This is necessary when emergency response personnel and vehicles respond to the building entrances where they are highly visible.

2-2.3 OPERATIONS and MAINTENANCE MANAGEMENT

Duty Supervisor

- At the request of Life Safety & Security, assist in evacuation procedures and in keeping unauthorized individuals out of, and away from, the affected area.
- Deploy staff to each lobby and skylobby elevator starter's console.

- Monitor Police communications at the Police Desk, either personally or through a subordinate and relay status of the situation to affected and appropriate civilian staff.

For discovery of a possible device or when an evacuation is necessary:

Mechanical Section

- Advise Operations Control Center and appropriate Fire Command Stations of nearby utility systems.
- Operate fire protection systems (refer to Fire Emergency Chapter).
- Determine need to secure affected mechanical systems and make appropriate recommendations.

Electrical Section

- Advise Operations Control Center and appropriate Fire Command Stations of nearby utility systems.
- Determine the need to secure affected electrical systems and make appropriate recommendations.
- Stand by to operate emergency power systems and provide portable emergency power where needed or requested.

2-2.4 VERTICAL TRANSPORTATION

Elevator Contractor

- Advise Operations Control Center and appropriate Fire Command Stations of nearby elevator shafts and equipment.

2-2.5 NEW YORK CITY POLICE DEPARTMENT BOMB SQUAD

- As requested by PAPD, respond to the scene and take appropriate action.
- Advise Police and Fire/Life Safety if an evacuation is necessary.

2-2.7 NEW YORK CITY FIRE DEPARTMENT

- Respond and initiate appropriate precautionary activities.
- Upon notification of a fire or explosion, respond to the designated location immediately initiating suppression/extinguishment activities.
- Perform associated rescue duties.
- Coordinate activities with the Fire Safety Director.

2-2.8 PROPERTY MANAGEMENT

- The General Property Manager responsible for the property involved in the incident will assume full responsibility as the WTC Liaison Officer and will be stationed in the lobby at the Fire Command Station/Elevator Console area.
- The General Property Managers from the other buildings along with the Senior Property Manager and staff of the affected property will assist the Liaison Officer in the lobby.
- The Senior Property Managers and their staff from the unaffected properties will report to the Situation Room and Property Management Office at the Operations Control Center and activate all telephones, computers and the Emergency Tenant Notification System.
- The Senior Property Managers will assume all responsibility for disseminating all pre-cleared information to staff and tenants. One staff member will act as the official scribe, maintaining a constant record of events as they occur.
- The Liaison Officer will be responsible for notifying the Chief Operating Officer and Media Relations, if applicable, and will work closely with Senior World Trade and Port Authority Staff as well as all World Trade Center Units – Life Safety & Security, Police, Vertical Transportation, Engineers Office, Central Systems, General Maintenance, Locksmith Shop, Construction, Project Management and Operations Management.
- If necessary, a representative from Media Relations will also be in the lobby to field questions from the media/press.

EXHIBIT 2A

BOMB THREAT CHECKLIST

Date of call: _____ Time of call: _____ Length of call: _____

Sex of caller: _____ Male _____ Female

Exact wording of threat:

_____

_____

_____

_____

_____

If the caller seems agreeable to further conversation ask questions such as

When is the bomb going to explode? _____

Where is the bomb? _____

What does it look like? _____

What kind of bomb is it? _____

What will cause it to explode? _____

Did you place the bomb? _____

Why? _____

Where are you calling from? _____

What is your address? _____

What is your name? _____

Voice characteristics (circle)

Calm	Disguised	Stutter	Slow	Giggling
Deep	Stressed	Accent	Nasal	Angry
Sincere	Lisp	Crying Loud	Squeaky	Slurred
Intoxicated	Broken	Rapid Excited	Normal	Pleasant

If voice is familiar, whom did it sound like? _____

Background noise (circle)

Office	Factory	Animals	Quiet	Street
Traffic	Aircraft	Trains	Boats	Music
Voices	Party atmosphere	Mixed	Other	

Accent (circle)

Local	Foreign	Race	Not local

Person receiving call:_____

Telephone number call received at:_____

Other information:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

REPORT CALL IMMEDIATELY TO WTC POLICE (435-3540)

NOTE: In order to avoid causing unnecessary concern, all radio transmissions should refer to a bomb threat as a "Possible 8-28".

EXHIBIT 2B
NOTIFICATIONS

WARNING: Radio and cellular equipment should not be utilized to communicate near a suspected device since transmission frequencies may cause premature detonation.

Individuals or their alternates must be paged and/or contacted at home if the incident occurs off-hours.

Refer to Appendix A for names and telephone numbers.

STAGE	FROM	TO
Bomb Threat	**Police Desk**	All Police Officers Police Supervisor Tactical Response Bureau Operations Control Center Central Police Desk PATH ESU NYPD 1st Precinct NYPD ESU NYPD Bomb Squad FBI (NYC office)
	OCC	Security Director Security Supervisor LS&S Supervisor Fire Safety Director Manager, Operations & Maintenance Management O&MM Duty Supervisor Appropriate Property Manager Senior Property Manager General Property Manager Supervising Engineer Manager, Vertical Transportation All individuals listed in the "Bomb Threat" paging chapter

STAGE	FROM	TO
Discovery of Possible Device	**Police Desk**	NYPD *and...* FDNY *and...* FDNY Bureau of EMS *and...* Operations Control Center
	OCC	All individuals listed in "Bomb Threat" paging chapter informing that a possible device was found *and...* Security Director Security Supervisor Fire Safety Director Manager, Operations & Maintenance Management Supervising Engineer Manager, Vertical Transportation Appropriate Property Manager(s) Senior Property Manager General Property Manager Supervisor, Electrical Contract Supervisor, Mechanical Contract Supervisor, Structural Contract Supervisor, Elevator Contract

NOTE: If the concourse or the entire complex is to be evacuated, the following must be notified: NYC Transit Authority, PATH, Marriott Hotel, US Customs House, 7 WTC, the World Financial Center and Bankers Trust Building.

EXHIBIT 2C
EVACUATION PROCEDURES

- The time factor for evacuation is one half hour before reported time of detonation to one hour after.
- A floor by floor, word of mouth notification will be the key to an orderly and safe operation. Upon the request of appropriate WTC Management, the Fire Safety Director (or LS&S Supervisor) will direct public address announcements.
- There are three types of evacuation: Localized, Building, or the Entire Complex.

Localized Evacuation:

Office Space:

- Evacuate the entire affected floor as well as one (1) floor above and one (1) floor below (this may be expanded depending on the circumstances).
- Local elevator banks may be used depending on the circumstances.
- Fire Safety Floor Wardens will assist in the search and verify that all persons have been evacuated if there is no personal risk.
- The Police will conduct a secondary search.

Public Areas:

- Identify danger area(s) and maintain a clear radius of at least 1000 feet. Banks, restaurants, etc., require special attention due to glass fragmentation and flying debris. Persons in area should be evacuated quickly to an assembly point distant enough so as not to expose them to risks of a blast.

Building or Entire Complex Evacuation:

When evacuating Buildings One, Two, Four and Five simultaneously, it will be necessary to estimate the amount of staff needed. The Police will, if necessary, request mobilization of other units from the Central Police Desk. The Police will utilize existing WTC Evacuation Procedures and coordinate activities with the Fire Safety Director who will direct appropriate evacuation announcements and activities.

- Partial Evacuation: Evacuation of floors within one zone serviced by one elevator bank.
- Phased Evacuation: Evacuation of all floors within one zone.
- Mass Evacuation: Evacuation of all zones within one building.
- Total Evacuation: Evacuation of all buildings within the complex.

Exhibit 2C Continued...

NOTE: For Building or the Entire Complex Evacuation, assemble evacuees outside the appropriate building as follows:

- 1 WTC: Exit through lobby portals, up the escalators and onto the pedestrian bridge leading to the World Financial Center.
- 2 WTC: Exit to Liberty Street.
- 3 WTC: (Marriott Hotel) Liberty Street (2 WTC), West Street (1 WTC).
- 4 WTC: Elevator Bank "West" exit to Church Street. Elevator Bank "East" exit to Liberty Street.
- 5 WTC: Exit through Vesey Street doors to West Broadway.
- Concourse: Use all exits and refer to Appendix C - Concourse Evacuation.

Refer to Appendix B for maps of the complex.

Police, Security and O&MM staff with "bull horns" should be posted inside and outside each tower facing the greatest concentration of evacuees to make announcements.

CHAPTER 3

CHEMICAL AND FUEL RELEASES

CHAPTER 3

CHEMICAL AND FUEL RELEASES

GENERAL INFORMATION	3-1
Scope	3-1.1
Major Responsibilities	3-1.2
Notifications	3-1.3
RESPONSE	3-2
Environmental Coordinator	3-2.1
Operations and Maintenance Management	3-2.2
Life Safety and Security	3-2.3
Police	3-2.4
Property Management	3-2.5
HAZARDOUS MATERIALS AWARENESS	3-3
General Information on Hazardous Materials	

3.0 HANDLING AND DISPOSAL PROCEDURES FOR SELECTED HAZARDOUS MATERIALS

The following hazardous materials have been identified as the most frequently encountered on the World Trade Center Truck Docks:

- Gasoline
- Fuel oil/diesel fuel
- Battery acid
- Anti-freeze (or ethylene glycol)
- Liquefied petroleum gas or Propane
- Freon R-22

When considering procedures for handling and disposal of the aforementioned five hazardous materials, the type and size of the incident must be evaluated. The procedures set forth in this section are not intended to instruct facility personnel in handling a major emergency incident such as a fire involving a tanker truck loaded with gasoline or diesel fuel, etc. They are intended to provide instruction in the event of a vehicular accident in which the vehicle fuel tank has ruptured; a truck or car battery has split, releasing battery acid; a radiator has ruptured, causing an anti-freeze spill; or a small (less than 100 pounds) propane cylinder is leaking on a camper or in a vehicle. In situations of such magnitudes, these hazardous materials can be handled safely, if, they are handled correctly.

The potential hazards, emergency actions, handling and disposal procedures for gasoline, fuel oil/diesel fuel, battery acid, anti-freeze (or ethylene glycol), or liquefied petroleum gas or propane are provided in this section.

3.1 GASOLINE (ID #1203)

FIRE OR EXPLOSION

- Gasoline is a flammable liquid that may be ignited by heat, sparks or flames.
- Vapors are heavier than air and may travel to a source of ignition and flash back.
- Containers may explode in heat of fire.
- Run-off to sewers may create fire or explosion hazard.

HEALTH HAZARDS

- Gasoline may be poisonous if inhaled as a liquid or absorbed through the skin.
- Vapors may cause nose and throat irritation, drowsiness, nausea, dizziness or suffocation especially in enclosed spaces, such as the tunnels.
- Gasoline may act as an irritant and cause itching and burning of skin and eyes.

- Moderate eye irritation may be experienced after approximately one hour of exposure.
- If ingested, gasoline causes a burning sensation in the mouth, throat and stomach. Vomiting, diarrhea, drowsiness and intoxication may follow. As little as 3 to 4 ounces may be fatal.
- Fire may produce irritating poisonous gases.
- Run-off from fire control or dilution water may cause pollution.

3.1-1 EMERGENCY ACTION

PERSONAL PROTECTION

- Keep unnecessary people away; isolate the hazard area and deny entry.
- Stay upwind; keep out of low areas.
- Avoid breathing vapors and all bodily contact.
- Wear Self Contained Breathing Apparatus including full protective clothing (helmet, bunker pants, bunker coat, fire boots and fire gloves).
- If water pollution occurs, notify the Environmental Coordinator.

FIRE RESPONSE

Small fires involving gasoline are those resulting from vehicular accidents where the quantity is limited. In such instances apply:

1. Purple K (Dry Chemical)
2. Foam
3. Water Fog

Large fires involving gasoline are considered to be any large scale incidents such as a gasoline tank truck fires where the gasoline cargo is, or has, the potential to be involved. In such instances:

1. Call for assistance
2. Evacuate the area, withdraw and deny entry.
3. Proceed with caution.
4. Restrict access to the area.
5. Keep unprotected personnel upwind of the spill area.
6. Avoid contact with the spill material.
7. Eliminate ignition sources; do not permit flares, smoking or flames in the hazard area.
8. Prevent liquid from entering sewers and confined spaces.
9. Protect sewers and waterways from contaminated water run-off with absorbent pillows and pads.
10. Use water fog to reduce vapors.

Small spills involving gasoline are those resulting from a ruptured fuel tank or vehicular accidents where the quantity is limited. In such instances, the material may be soaked up with sand or absorbs and place into 55 gallon drums (DOT-17H) for later disposal.

Large Spills involving gasoline are considered to be any large scale incidents such as a tank truck with a leaking cargo of gasoline. In such instances, dike far ahead of the spill for contaminated blanket with foam from a safe distance. Cleanup and disposal will be carried out by personnel other then WTC staff.

FIRST AID

- Call for emergency medical assistance.
- If inhaled, move victim to fresh air; keep warm and at rest.
- If in respiratory distress, administer rescue breathing.
- If breathing is difficult, administer oxygen.
- In case of contact with the material, immediately flush eyes with running water for at least 15 minutes. Wash skin with large amounts of soap and water.
- Remove and isolate gasoline contaminated clothing and shoes at the site.

3.2 FUEL OIL / DIESEL FUEL (ID #1993)

FIRE OR EXPLOSION

Fuel oil/diesel fuel is a combustible liquid that may be ignited by heat, sparks or flames. Accumulations of vapors from the heated liquid in confined spaces may result in explosions if ignited. Containers may explode in the heat of a fire. Run-off into sewers or similar confined spaces may create fire or explosion hazard.

HEALTH HAZARDS

- Fuel oil/diesel fuel vapors (in high concentration) may cause headache, slight giddiness, and possible irritation of the eyes, nose, and lungs, especially in enclosed spaces.
- Contact with fuel oils may irritate or cause drying and cracking of the skin.
- Contact with the eyes may result in slight irritation or, in most cases, no injury.
- If ingested, fuel oils may cause nausea, vomiting, cramping and possible central nervous system depression. Aspiration into the lungs during vomiting may result in coughing, gagging, difficulty breathing, etc. with possible severe consequences.
- Fire may produce irritating, toxic smoke.
- Run-off from fire control or dilution water may cause pollution.

3.2-1 EMERGENCY ACTION - PERSONAL PROTECTION

- Keep unnecessary people away; isolate the hazard area and deny entry.
- Stay upwind; keep out of low areas.
- Avoid breathing vapors and all bodily contact.
- Wear Self Contained Breathing Apparatus including full protective clothing (helmet, bunker pants, bunker coat, fire boots and fire gloves).
- If water pollution occurs, notify the Environmental Coordinator.
- If inhaled, move victim to fresh air; keep warm and at rest.
- If in respiratory distress, administer rescue breathing.
- If breathing is difficult, administer oxygen.
- In case of contact with the material, immediately flush eyes with running water for at least 15 minutes. Wash skin with large amounts of soap and water.
- Remove and isolate gasoline contaminated clothing and shoes at the site.

FIRE RESPONSE

Small fires are considered those resulting from vehicular accidents where the quantity is limited. In such instances apply:

1. Purple K (Dry Chemical)
2. Foam
3. Water Fog

Large fires are considered to be any large scale incidents such as a tank truck fire where the cargo is, or has the potential to be, involved. In such instances:

- Call for assistance
- Evacuate the area, withdraw and deny entry.
- Proceed with caution.
- Restrict access to the area.
- Keep unprotected personnel upwind of the spill area.
- Avoid contact with the spill material
- Eliminate ignition sources; do not permit flares, smoking or flames in the hazard area.
- Prevent liquid form entering sewers and confined spaces.
- Protect sewers and waterways from contaminated water run-off with absorbent pillows and pads.
- Use water fog to reduce vapors.

Small spills are those resulting from a ruptured fuel tank or vehicular accidents where the quantity is limited. In such instances, the material may be soaked up with sand or absorbed and place into 55 gallon drums (DOT-17H) for later disposal.

Large Spills are considered to be any large scale incidents such as a tank truck with leaking cargo. In such instances, dikes must be established far ahead of the

spill for containment. Cleanup and disposal will be carried out by personnel other then WTC staff.

FIRST AID

- Call for emergency medical assistance.
- If inhaled, move victim to fresh air; keep warm and at rest.
- If in respiratory distress, administer rescue breathing.
- If breathing is difficult, administer oxygen.
- In case of contact with the material, immediately flush eyes with running water for at least 15 minutes. Wash skin with large amounts of soap and water.
- Remove and isolate fuel contaminated clothing and shoes at the site.

3.3 BATTERY ACID (ID #2796)

FIRE OR EXPLOSION

- Battery acid is a combustible material that may burn but does not ignite readily.
- Highly corrosive to many metals and bodily tissues.
- Battery acid is a strong oxidizer and a highly reactive substance.
- May ignite other combustible materials (wood, paper, oil, etc.)
- Reacts violently with water.
- Flammable poisonous gases may accumulate in tanks used to transport battery acid.
- Run-off into sewers or similar confined spaces may create a fire or explosion hazard.

HEALTH HAZARDS

- Poisonous if inhaled or swallowed.
- If ingested, battery acid may cause burns of the mouth and throat and cause other severe consequences.
- Contact with skin or eyes causes sever burns.
- Fumes and mists may cause irritation of the eyes, nose, throat and respiratory tract.
- Run-off from fire control or dilution water may cause pollution.

3.3-1 EMERGENCY ACTION

PERSONAL PROTECTION

- Keep unnecessary people away; isolate the hazard area and deny entry.
- Stay upwind; keep out of low areas.
- Avoid breathing vapors and all bodily contact.

- Ventilate closed spaces before entering them.
- Wear Self Contained Breathing Apparatus including mask and full protective clothing (helmet, bunker pants, bunker coat, fire boots and fire gloves).
- If water pollution occurs, notify the Environmental Coordinator.

FIRE RESPONSE

DO NOT GET WATER INSIDE CONTAINERS OF BATTERY ACID.

Small fires are considered those resulting from vehicular accidents where the quantity is limited. In such instances apply:

- Purple K (Dry Chemical)
- Water in flooding quantities as fog or spray.

Large fires are considered to be any large scale incidents such as a tank truck fire where the cargo is, or has the potential, to be involved. In such instances:

- Call for assistance.
- Evacuate the area, withdraw and deny entry.
- Stay upwind.

SPILL OR LEAK RESPONSE

- Proceed with caution.
- Restrict access to the area.
- Keep unprotected personnel upwind of the spill area.
- Avoid contact with the spill material (do not touch the spilled material).
- Prevent liquid form entering sewers and confined spaces.
- Protect sewers and waterways from contaminated water run-off with absorbent pillows and pads.
- Take into account while planning the response, that battery acid is corrosive and reactive.
- Use water fog to reduce vapors but do not put water directly on the leak or spill area.

Small Spills involving battery acid are those resulting from vehicular accidents where the quantity is limited. In such instances, dike the spill with sand or absorbent material neutralize contained battery acid with soda ash; do not apply water. Place collected material into 55 gallon drums (DOT-17H) for later disposal.

Large Spills involving battery acid are considered to be any large scale incidents such as a leaking drum or tank trucks loaded with battery acid that are leaking. In such instances, dike far ahead of the spill for containment using sand or absorbent material. Evacuate the area, withdraw and deny entry. Cleanup and disposal will be carried out by personnel other then WTC staff.

FIRST AID

- Call for emergency medical assistance.
- If inhaled, move victim to fresh air; keep warm and at rest.
- If in respiratory distress, administer rescue breathing.
- If breathing is difficult, administer oxygen.
- Speed in removing the material from the skin is of extreme importance.
- In case of contact with the material, immediately flush the affected area with large amounts of water.
- In case the material contacts the eyes, immediately flush the eyes with water for at least 15 minutes occasionally lifting the eyelids; immediately obtain emergency medical assistance.
- Remove and isolate battery acid contaminated clothing and shoes at the site; place in 55 gallon drums (DOT-17H) for disposal.

3.4 ANTI-FREEZE (ID #1142)

FIRE OR EXPLOSION

- Anti-freeze is also known as ethylene glycol. It can be a flammable or combustible material and may be ignited by heat, sparks or flames.
- Vapors may travel to a source of ignition and flash back.
- Containers may explode in the heat of a fire.
- Vapor explosion hazard indoors, or outdoors in sewers or similar confined spaces.
- Run-off into sewers or similar drainage structures may create fire or explosion hazard.

HEALTH HAZARDS

- Anti-freeze may be poisonous if inhaled, ingested, or absorbed through the skin.
- Vapors may cause dizziness or suffocation especially in enclosed spaces such as tunnels
- If ingested, Anti-freeze may cause intoxication, 3-4 ounces may fatal.
- Fire may produce irritating or poisonous gases.
- Run-off from fire control or dilution water may cause pollution.

3.4-1 EMERGENCY ACTION

PERSONAL PROTECTION

- Keep unnecessary people away; isolate the hazard area and deny entry.
- Stay upwind; keep out of low area, avoid breathing vapors and all bodily contact.

- Wear Self Contained Breathing Apparatus including mask and full protective clothing (helmet, bunker pants, bunker coat, fire boots and fire gloves).
- If water pollution occurs, notify the Environmental Coordinator.

FIRE RESPONSE

Small fires involving anti-freeze or ethylene glycol are considered those resulting from vehicular accidents. In such instances apply:

- Purple K (Dry Chemical)
- Water Fog

Large fires involving anti-freeze or ethylene glycol are considered to be any large scale incidents such as drum or tank trucks loaded with anti-freeze that are involved in a fire. In such instances:

- Call for assistance
- Evacuate the area, withdraw and deny entry.

SPILL OR LEAK RESPONSE

- Proceed with caution.
- Restrict access to the area.
- Keep unprotected personnel upwind of the spill area.
- Avoid contact with the spill material.
- Eliminate ignition sources; do not permit flares, smoking or flames in the hazard area.
- Prevent liquid form entering sewers and confined spaces.
- Protect sewers and waterways from contaminated water run-off with absorbent pillows and pads.
- Use water fog to reduce vapors.

Small spills of anti-freeze or ethylene glycol are those resulting from vehicular accident in which the quantity is limited. In such instances, soak up with sand or absorb and dispose.
Large spills involving anti-freeze or ethylene glycol are considered to be any large scale incidents such as a those involving leaking shipments of anti-freeze or ethylene glycol in drums or other shipping containers. In such instances, dike far ahead of the spill for containment. Cleanup and disposal will be carried out by personnel other then WTC staff.

FIRST AID

- Call for emergency medical assistance.
- If inhaled, move victim to fresh air; keep warm and at rest.
- If in respiratory distress, administer rescue breathing.

- If breathing is difficult, administer oxygen
- In case of contact with the material, immediately flush eyes with running water for at least 15 minutes.
- In case of skin contact, rinse the area with water; then wash with soap and water.
- Remove and isolate anti-freeze contaminated clothing and shoes at the site.

3.5 LIQUEFIED PETROLEUM GAS [LPG] (ID #1075) AND PROPANE (ID #1978)

FIRE OR EXPLOSION

- Liquefied petroleum gas (LPG) and propane are extremely flammable gases which may be ignited by heat, sparks or flames.
- Vapors of LPG and propane are heavier than air and may travel to a source of ignition and flash back.
- LPG or propane fires burn hotter and noisier than most fires.
- Containers may explode in the heat of a fire.
- Vapor explosion hazard exists indoors or outdoors in sewers and similar drainage structures.
- When the material is involved in a fire condition the containment cylinder, tank, or tank car may violently rupture and "rocket".

HEALTH HAZARDS

- Vapors of LPG or propane may cause dizziness, drowsiness, unconsciousness, or suffocation; can asphyxiate by the displacement of air. Contact with liquid LPG or propane may cause frostbite as well as skin and eye irritation.

PERSONAL PROTECTION

- Keep unnecessary people away; isolate the hazard area and deny entry.
- Stay upwind; keep out of low area.
- Avoid breathing vapors and all bodily contact.
- Wear Self Contained Breathing Apparatus including full protective clothing (helmet, bunker pants, bunker coat, fire boots and fire gloves).

FIRE RESPONSE

Small fires involving LPG or propane are those that involve cylinders of 100 lb. capacity or less such as those that may be carried on the outside of campers or recreational vehicles.
In such instances apply:

- Purple K (Dry Chemical)

- Water Fog
- Foam

OTHER RESPONSE INFORMATION

- Approach any LPG or propane fire with the wind at your back.
- Keep all persons out of the vapor cloud area.
- Eliminate ignition sources; do not permit flares, smoking or flames in the hazard area.
- STAY AWAY FROM THE ENDS OF THE CYLINDERS.
- When LPG or propane are involved in a fire condition, cylinders or tanks may violently rupture.
- Apply Purple K, water fog or foam while facing the side of the container.
- Remember that LPG and propane are heavier than hair.
- Control of the cylinder is the first objective, not extinguishing the fire.
- Gain control by keeping the cylinder cool and shutting off the source of the fuel.
- Most small LPG or propane fires can be controlled if there is ample water available. Use water to keep the cylinder cool and to dissipate any unburned fuel.
- Approach the cylinder to close the shutoff valve behind a water fog. Keep the fog spray level as you approach he cylinder. Leave the container in the same way, behind the safety of a water fog.
- The shutoff valve closes just like a water faucet - turn it clockwise for "off".
- Unburned fuel can present a danger if not dissipated. Continue to wash down area even after the fire is extinguished. Carefully check and wash down all low areas such as sewers or similar drainage systems.
- Cleanup is vital to prevent a second fire, which has the potential to be worse than the first.

NOTE: Some LPG or propane fires, due to their location, lack of adequate water and certain other conditions, cannot be controlled. In such instances, CALL FOR ASSISTANCE. Evacuate the area, withdraw and deny entry.
Large fires involving LPG or propane are those that involve cylinders of 100 lb. capacity or more. For instance, the cargo of a tank truck loaded with LPG or propane or shipments of LPG or propane greater than a 100 lb. cylinder.
In such instances:

- Call for assistance
- Evacuate the area, withdraw and deny entry.
- STAY AWAY FROM THE ENDS OF THE CYLINDERS OR TANKS.
- Under fire conditions, cylinders or tanks may violently rupture.
- Isolate the area for 1/2 mile in all directions if a tank truck is involved in a fire.
- Eliminate ignition sources; do not permit flares, smoking or flames in the hazard area. Explosion may result if vapors are ignited in confined areas

(such as the tunnels). Take into account the extremely volatile and flammable nature of LPG and propane when planning the response.

- Beware of possible heavy gas accumulations in low areas, especially in confined areas.
- Use water fog to reduce vapors and fumes.
- Consult qualified experts for assistance.

FIRST AID

- Call for emergency medical assistance.
- If inhaled, move victim to fresh air; keep warm and at rest.
- If in respiratory distress, administer rescue breathing.
- If breathing is difficult, administer oxygen.
- In case of contact with eyes, immediately flush eyes with running water for at least 15 minutes occasionally lifting the eyelids.
- Remove and isolate liquefied petroleum gas (LPG) and propane contaminated clothing and shoes at the site.

3.6 FREON R-22

FIRE OR EXPLOSION

Freon R-22 is a colorless and nonflammable material that has slight ethereal odor.

HEALTH HAZARDS

Vaporization of excessive amounts of this product can deplete or replace oxygen necessary for breathing. It may cause light-headedness and giddiness. In confined/enclosed spaces or areas with ventilation, Freon R-22 may be hazardous to health. Exposure to concentration of this product may induce cardiac arrhythmia in some individuals.

3.6-1 EMERGENCY ACTION

PERSONAL PROTECTION

When handling liquid, have gloves and eye protection. Use air mask with independent air supply in high concentrations.

SPILL OR LEAK RESPONSE

Ventilate area, especially low places where heavy vapors might collect. Remove open flames.

FIRST AID

If inhaled, remove to fresh air, call a physician. Do not give epinephrine or similar medication. In case of skin or eye contact with the material, flush with water.

SPECIAL PRECAUTIONS

Store containers in a clean, dry area. Do not heat above 125°F.

SPECIFIC PRECAUTIONS

In the event of a major refrigeration leak to the atmosphere in the Central Refrigeration Plant (B-5) or the Auxiliary Refrigeration Plant (B-6), evacuate area and report the location & size of leak to the OCC desk. Re-entry to the space by emergency responders should be made utilizing Self Contained Breathing Apparatus and with instruments to measure oxygen levels

3.7 SODIUM HYPERCHLORITE

HEALTH HAZARDS

- Inhalation:
- Fumes from spill are very irritating to mucous membranes.
- Very little hazard from properly stored solution.
- Skin Contact:
- Irritant, reddening of skin, skin damage.
- Eye Contact:
- Severe irritation.
- Ingestion:
- Causes irritation of membranes of the mouth, throat, and stomach pain and possible ulceration.

FIRE AND EXPLOSION

- Flashpoint: Nonflammable.
- Special Fire Fighting Procedures: Avoid fumes from spilled or exposed liquid, dilute copiously, ventilate, and be prepared to use respiratory protection if needed. Acid contamination will produce very irritating fumes similar to chlorine gas.
- Unusual Fire And Explosion Hazards: Bleach decomposes when heated; decomposition products may cause containers to rupture or explode. Vigorous reaction possible with organic materials or oxidizing agents; may result in a fire.

SPILL OR LEAK RESPONSE

- Waste Disposal Method: Reduce with chemicals listed below. Keep on alkaline side and dilute with copious quantities of water. Main end product is salt water (NaCL).
- Handling Spills: Flush with water to dilute as much as possible, avoid heat and contamination with acid materials. Do not use combustible materials such as sawdust to absorb hypochlorite. Neutralizing Chemicals: Reducing agents such as bisulfites or ferrous salt solutions; some heat will be produced.

3.7-1 EMERGENCY ACTION

FIRST AID

- Eyes: Copious eye wash with water for at least 15 minutes. Consult an eye specialist immediately.
- Inhalation: Remove person to fresh air.
- Ingestion: If accidentally swallowed, drink water, milk and obtain medical attention. DO NOT USE BAKING SODA OR ACIDIC ANTIDOTES.

SPECIAL PRECAUTIONS

- Ventilation: No special ventilation required unless bleach is exposed to decomposition condition; i.e., spills or acidic conditions.
- Respiratory: When fumes are present use NIOSH approved respirator with acid type canister.
- Eyes: Use goggles when dispensing solutions stronger than household bleach (7%).
- Gloves: Use rubber or plastic gloves when exposed to solutions stronger than household bleach (7%).

4.0 HANDLING AND DISPOSAL PROCEDURES FOR ALTERNATE FUELED VEHICLES

This exhibit contains guidelines and procedures to be used if a leak of fire is encountered on an alternate fueled vehicle. Vehicles may be fueled by compressed natural gas or methanol. These instructions are for handling of fires/leaks when methanol or Compressed Natural Gas is used as a vehicle fuel and not as cargo.

4.1 COMPRESSED NATURAL GAS FUELED VEHICLES

Compressed Natural Gas (CNG) fueled vehicles are duel fueled and use CNG and gasoline alternately. They will have dual storage tanks, CNG and gasoline.

CNG vehicles are marked by a diamond shaped symbol with CNG written on the label with white lettering. The vehicle may also be marked by a New York State DOT label or a flammable label.

Natural gas is a flammable, non-toxic, and lighter than air product. The following should be noted for CNG fueled vehicles:

- They may have more than one cylinder
- Manual shutoff valves can be in different locations
- Valves are not required to be color coded, this depends upon the size and style of the vehicle.

CNG tanks are equipped with pressure relief devices. They have combination rupture disc/fusible plugs which activate at a pressure of 5000 psi. Release of the pressure relief valve releases the CNG in the cylinder.

PERSONAL PROTECTION

- Wear Self Contained Breathing Apparatus including full protective clothing (helmet, bunker pants, bunker coat, fire boots and fire gloves).
- Keep unnecessary people away; isolate hazard area, and deny entry.
- Stay upwind, keep out of low areas.

ENGINE COMPARTMENT FIRE

- Turn off the manual shut-off valve, (clockwise 1/4 turn) to shut off the CNG supply to the engine. Follow standard operating procedure for extinguishing engine and ignition fires. The flow of natural gas should shut off when the engine stops or when the supply is shut off. If the natural gas cannot shut off and is burning, allow the natural gas to burn and protect the exposure.

LEAKS

- Evacuate immediate area downwind.
- Eliminate all ignition sources.
- Shut off the engine ignition switch and turn off the MANUAL SHUTOFF VALVE (clockwise 1/4 turn) to shut off the CNG supply to the engine. If the manual shutoff valve cannot be located or does not operate, shut off the supply by turning the individual tank(s) valves clockwise.

TANK COMPARTMENT FIRE

- If tank is exposed to fire, cool with a fog stream and shut off the manual shut-off valve or the individual tank valve(s) (turn clockwise).
- If the tank is not accessible, or if the pressure relief valves have opened, use the fog stream to protect exposures and allow the natural gas to burn at vents.

NOTE:

If the pressure relief valve has activated it will not reset and all the gas from the cylinder will be released. Once activated, the flow cannot be stopped by turning off the manual shutoff valve or the individual cylinder valves.

4.2 METHANOL FUELED VEHICLES

Unlike CNG vehicles, Methanol fueled vehicles are fueled by methanol only. Methanol is a poisonous chemical that can affect the body acutely and chronically through inhalation, ingestion, or repeated or prolonged skin absorption.

Methanol fueled vehicles are marked with a Methanol Fueled Vehicle Label and buses are identified by lettering on the front, rear, and both sides as "methanol powered".

4.2-1 POTENTIAL HAZARDS OF METHANOL (ID #123)

- Methanol is a highly flammable liquid with a flash point of 54 degrees F.
- Methanol is soluble in liquid.
- Methanol vapors are slightly heavier than air and will flow along the ground collecting in low areas.
- Methanol burns clearly (little smoke) and its pale blue flame may be difficult to see in bright sunlight.

HEALTH HAZARD

- Methanol is both an eye and skin irritant.
- Inhalation of vapor concentration can produce drunkenness, drowsiness, blurred vision and unconsciousness or death.
- The effects of methanol exposure may be delayed 24 hours or longer.

PERSONAL PROTECTION

- Wear Self Contained Breathing Apparatus and full protective clothing.
- Keep unnecessary people away; isolate hazard area, and deny entry.
- Stay upwind, keep out of low areas.

SPILL OR LEAKS

- Eliminate ignition sources in the immediate area and downwind of the spill.
- Evacuate area:
- down wind
- where the life hazard is the greatest
- expand evacuation as necessary
- Approach from upwind.

- Use fog stream to channel the vapors away from possible ignition sources. Since methanol is soluble in water, a fog stream will absorb and dilute methanol vapors. To be most effective, apply fog stream down wind of spill.
- Dike spills with sand, dirt or other materials.
- Keep the spill as cool as possible.
- Blanket pools of liquid with alcohol foam to inhibit vapor generation.

FIRES

METHANOL IS DESTRUCTIVE TO ORDINARY FOAM. ALCOHOL-TYPE FOAM MUST BE USED.

For small fires, Type B dry chemical extinguishers are adequate. Purple K is the most effective form of the dry chemical extinguishing agents. Most methanol fueled buses are equipped with a Purple K extinguisher, which is usually located in the area of the operator's seat.

Application of large amounts of water will dilute the methanol, rendering it nonflammable, therefore, adequate water supply must be available. Run-off should be contained by dikeing or other means to-prevent entry into sewers and to assist in the dilution.

NOTE: A methanol fire may be invisible during daylight hours or in bright light.

CHEMICAL AND FUEL RELEASES

3-1 GENERAL INFORMATION

3-1.1 Scope

This procedure covers the response to a hazardous chemical and/or fuel leak. Also included is a section on Hazardous Materials Awareness, which provides essential information in dealing with chemical and related emergencies.

Without the proper training or equipment, aggressive action has no place at a chemical spill incident and will only lead to unnecessary exposure of personnel. There may be situations where, due to the nature of the chemical, the proper action may be no action other than to evacuate the affected area.

Immediate action must be taken during a fuel leak. The important actions during a fuel emergency involve the evacuation of affected areas, the elimination of potential ignition sources and the ventilation the area.

3-1.2 MAJOR RESPONSIBILITIES

Environmental Coordinator

- Evaluate nature and extent of environmental and response worker hazards.
- Initiate appropriate containment and control measures, coordinate with staff departments and regulatory agencies.

Life Safety and Security

- Deploy necessary security personnel to maintain secure perimeter.
- Monitor crowd control activities.
- Authorize use of "key runs".
- Coordinate all fire/life safety activities with the New York City Fire Department.
- Evaluate fire/life safety hazards.
- Direct public address announcements, if required.
- Arrange for emergency elevator service.
- Initiate appropriate notifications.

Police

- Respond to scene.
- If necessary, have Fire Brigade "stand by".
- If necessary, contact PATH ESU.
- Make notifications and prevent unauthorized access to the affected areas.

New York City Fire Department Hazardous Materials Unit

- Make all technical decisions and advise all appropriate units.

Operations and Maintenance Management

- Assist with evacuations when requested.
- Assist with defensive spill control procedures when requested.
- At the request of the Environmental Coordinator or Fire Safety Director, the Mechanical Section will remotely operate ventilation and exhaust systems as directed to prevent accumulations of vapors.

Property Management

- Act as WTC Liaison Officer.
- Coordinate with appropriate WTC Units on issues impacting tenants.
- Disseminate information to tenants as appropriate.

3-1.3 NOTIFICATIONS

Initial reports of a chemical and/or fuel leak will either be made to the Operations Control Center or the Police Desk, identifying the condition and location of the spill, the presence of fire, smoke, fumes, pools of liquid, etc. as well as any other pertinent information.

All notifications, listed in Exhibit 3A, are made by the Operations Control Center Supervisor, the Police Desk Officer and the Environmental Coordinator.

EXHIBIT 3A
NOTIFICATIONS

Refer to Appendix A for names and telephone numbers.

Individuals or their alternates must be paged and/or contacted at home if the incident occurs off-hours.

FROM	TO
OCC	Police Desk Life Safety and Security Supervisor Environmental Coordinator Fire Safety Director Security & Life Safety Director Manager, Operations & Maintenance Management Supervising Engineer O&MM Duty Supervisor Supervisor, Mechanical Contractor Supervisor, Electrical Contractor Appropriate Property Manager(s) Appropriate Senior Property Manager Appropriate General Property Manager All individuals listed in "Chemical Release" paging chapter
Police Desk	Operations Control Center Police Supervisor New York City Fire Department Emergency Medical Services Central Police Desk Environmental Coordinator Fire Safety Director Life Safety & Security Supervisor

EXHIBIT 3A
NOTIFICATIONS

CONTINUED

FROM	TO
Environmental Coordinator	Life Safety & Security Personnel Police Desk Risk Management Division EPA National Response Center New York State DEC New York City DEP Facility Haz-Mat Response Team

3-2 RESPONSE

3-2.1 ENVIRONMENTAL COORDINATOR

Note: ***During off-hours, the Life Safety and Security Supervisor assumes the role and responsibilities of the Environmental Coordinator.***

- Ensure that protective clothing and equipment are utilized by all responding personnel.
- Attempt to identify the chemical and/or fuel involved by looking for any visible placards, labels, chemical or fuel names, identification numbers, symbols, information on the container, tank, drum, vehicle or published references.
- In conjunction with the Fire Safety Director and Police supervisor, and based on regulatory and technical guidelines, determine what actions will be taken to contain the leak or spill.
- Depending on the degree of imminent danger, order an evacuation of the affected area.
- Direct the Mechanical Section to remotely operate ventilation & exhaust systems to prevent an accumulation of vapors.
- Ensure that no chemical or fuel will be disposed of without the direction and advice of the New York City Fire Department Hazardous Materials Unit and Port Authority Environmental Management Division Hazardous Materials Unit.
- Upon consultation with the Manager, Operations & Maintenance Management, Supervising Engineer and Fire Safety Director, make notifications to the Environmental Protection Agency National Response Center and the New York State Department of Environmental Conservation as necessary.
- Insure proper collection and disposal procedures, in accordance with federal and state guidelines, are followed.

3-2.2 LIFE SAFETY AND SECURITY

Fire Safety Director
(Life Safety and Security Supervisor during off-hours)

- Respond and oversee event from a fire/life safety standpoint.
- Direct evacuation if required.
- Direct use of public address announcements if required.
- Coordinate all activities with New York City Fire Department and New York City Fire Department Hazardous Materials Units.
- Deploy necessary security personnel to maintain secure perimeter.
- Deploy necessary security personnel to secure evacuated areas, floors, zones, etc. to prevent unauthorized access or reoccupancy.
- Monitor crowd control activities.
- Dispatch "key-runs" as necessary.

Operations Control Center

- Upon receipt of the initial report of a chemical and/or gas leak, immediately make all appropriate notifications listed in Exhibit 3A.
- Direct the appropriate elevator operators to have certain elevators on "standby" for emergency use by various response units.
- If requested by the Life Safety & Security Supervisor or the Environmental Coordinator, direct elevator operators not to stop on the affected floor(s).

3-2.3 POLICE

Desk Officer

Initiate notification process using the information provided by the Environmental Coordinator concerning the specifics of the chemical and/or leak.

Supervisor

- Respond to the affected area with personal protective equipment and ensure that all Police personnel utilize proper personal protective equipment.
- Depending on the degree of danger, coordinate evacuation of the affected area with Fire Safety Director and Environment al Coordinator.
- Assign Police personnel to ensure the affected area is isolated and to prevent unauthorized entry.
- Attempt to identify the chemical and/or fuel involved.
- Consult with the Environmental Coordinator and Fire Safety Director to determine the need to notify New York City Fire Department.

3-2.4 OPERATIONS and MAINTENANCE MANAGEMENT

- As requested, assign personnel to assist in containing the chemical and/or gas leak utilizing proper protective clothing and equipment, if such a response can be performed safely.
- At the request of the Environmental Coordinator or Fire Safety Director, the Mechanical Section will remotely operate ventilation and exhaust systems as directed to prevent accumulation of vapors.

3-2.5 PROPERTY MANAGEMENT

- The General Property Manager responsible for the property involved in the incident will assume full responsibility as the WTC Liaison Officer and will be stationed in the lobby at the Fire Command Station/Elevator Console area.
- The General Property Managers from the other buildings along with the Senior Property Manager and staff of the affected property will assist the Liaison Officer in the lobby.

- The Senior Property Managers and their staff from the unaffected properties will report to the Situation Room and Property Management Office at the Operations Control Center and activate all telephones, computers and the Emergency Tenant Notification System.
- The Senior Property Managers will assume all responsibility for disseminating all pre-cleared information to staff and tenants. One staff member will act as the official scribe, maintaining a constant record of events as they occur.
- The Liaison Officer will be responsible for notifying the Chief Operating Officer and Media Relations, if applicable, and will work closely with Senior World Trade and Port Authority Staff as well as all World Trade Center Units – Life Safety & Security, Police, Vertical Transportation, Engineers Office, Central Systems, General Maintenance, Locksmith Shop, Construction, Project Management and Operations Management.
- If necessary, a representative from Media Relations will also be in the lobby to field questions from the media/press.

EXHIBIT 3B
HAZARDOUS MATERIALS AWARENESS

1.0 General Response Precautions
2.0 Identification of Hazardous Materials
2.1 General Procedures
2.2 Hazardous Material Classifications
2.3 Combustible Liquids
2.4 Compressed Gas
2.5 Corrosive Materials
2.6 Explosives
2.7 Flammable Liquids
2.8 Flammable Solids
2.9 Oxidizing Materials
2.10 Poisons
2.11 Radioactive Materials
2.12 Other Related Materials
3.0 Handling and Disposal Procedures For Selected Hazardous Materials
3.1 Potential Hazards of Gasoline ID #1203
3.1-1 Emergency Action
3.2 Potential Hazards of Fuel Oil/Diesel Fuel ID #1993
3.2-1 Emergency Action
3.3 Potential Hazards of Battery Fluid, Acid ID #2796
3.3-1 Emergency Action
3.4 Potential Hazards of Anti-Freeze ID #1142
3.4-1 Emergency Action
3.5 Potential Hazards Liquefied Petroleum Gas (LPG) ID #1075 And Propane ID #1978
3.6 Potential Hazards of Freon R-22
3.6-1 Emergency Action
3.7 Potential Hazards of Sodium Hypochlorite
3.7-1 Emergency Action
4.0 Handling and Disposal Procedures For Alternate Fueled Vehicles
4.1 Compressed Natural Gas Fueled Vehicles
4.2 Methanol Fueled Vehicles
4.2-1 Potential Hazards of Methanol ID #1230
5.0 Hazardous Materials Locations at WTC

HAZARDOUS MATERIALS AWARENESS

The role of any World Trade Center responder to a hazardous materials incident will be limited to **preliminary identification, communications, possible evacuation and isolation of the affected area.**

It is essential that all responders be aware of the potential danger of dealing with hazardous materials. The information in this exhibit should be used merely as a guideline toward a chemical spill response.

GENERAL RESPONSE PRECAUTIONS

Water is frequently used to flush spills and to control vapors in spill situations. However, a number of hazardous materials can react violently or even explode when exposed to water. In these cases, a burning fire or a spill might be better left alone until expert advice can be obtained. Such advice is necessary since:

1. The use of water may cause a violent reaction or explosion depending on the materials involved.
2. Water may be needed to cool adjoining containers to prevent rupturing (exploding) or the further spread of the fire.
3. Water may be effective in mitigating an incident involving a water-reactive material only if it can be applied at a sufficient "flooding" rate.
4. Depending on the materials involved, the reaction with water may allow them to become more toxic, corrosive or undesirable than if water had not been applied.

When responding to incidents involving water-reactive chemicals, conditions such as wind, precipitation, location and accessibility to the incident as well as the availability of other agents to control the fire and spill must be considered. Because of the great number of variables, the decision to use water on fires or spills involving these water-reactive materials should only be made by an authoritative source, generally, the New York City Fire Department.

Ignition sources are particularly dangerous near flammable vapors that are heavier than air because they tend to flow along the ground, following ground depressions and pooling in low areas. Therefore, they may be ignited a distance from the source causing a "flashback". For example, this may occur if vapors remain in plumbing connections following improper chemical disposal in sewers or drains.

The recommendation to secure the leak when no risk is involved will be determined by the authority in charge. The precaution to "keep upwind" is used for those chemicals whose vapors are toxic or highly irritating. If a flammable liquid is substantially soluble in water and is not highly toxic, the area may be flushed with water spray.

CHAPTER 4

COOLING SYSTEM FAILURES

CHAPTER 4

COOLING SYSTEM FAILURES

GENERAL INFORMATION	4-1
Scope	4-1.1
Major Responsibilities	4-1.2
Notifications	4-1.3
RESPONSE	4-2
Operations and Maintenance Management	4-2.1
Property Management	4-2.2
Life Safety and Security	4-2.3

COOLING SYSTEM FAILURES

4-1 GENERAL INFORMATION

4-1.1 SCOPE

This procedure covers procedures for one, or more, cooling system failures caused by pump failure, high water temperatures, ruptured pipes, etc. for the following cooling systems:

- River Water
- Chilled Water
- Condenser Water

4-1.2 MAJOR RESPONSIBILITIES

Operations and Maintenance Management

- Make all response notifications.
- Mechanical Section: Verify that a cooling system failure has in fact occurred and initiate restoration of all affected cooling systems. For "System One" condenser water outages, provide emergency condenser water service.
- Electrical Section: Restore all affected electrical systems. For "System One" condenser water outages, operate Emergency Generator Plant.

Property Management

- Act as WTC Liaison Officer.
- Coordinate with Operations & Maintenance Management on issues directly impacting tenants.
- Disseminate information to appropriate tenants.

Life Safety and Security

- Notify appropriate staff via paging systems as requested.
- Notify New York City Fire Department, if necessary.
- Post security officers, if necessary.

4-1.3 NOTIFICATIONS

The initial report of a cooling system failure will be made to the Operations Control Center, identifying the affected system and any unusual conditions.

All notifications are to be made by the Operations Control Center and are listed in Exhibit 4A.

EXHIBIT 4A
NOTIFICATIONS

Refer to Appendix A for names and telephone numbers.

Individuals or their alternates must be paged and/or contacted at home if the incident occurs off-hours.

FROM	TO
OCC	Supervisor, Mechanical Contractor Supervisor, Electrical Contractor Port Authority Mechanical Supervisor(s) Manager, Operations & Maintenance Management Supervising Engineer Appropriate Property Manager Appropriate Senior Property Manager Appropriate General Property Manager Fire Safety Director Life Safety & Security Supervisor Affected Condenser Water Tenants (off-hours only) All individuals listed in "Cooling Systems Failure" paging chapter
Property Management	**Affected Tenants**

4-2 RESPONSE

4-2.1 OPERATIONS and MAINTENANCE MANAGEMENT

- Receive report of possible cooling system failure.
- Request Mechanical Contractor Supervisor to determine whether a cooling system failure has actually occurred.
- In case of a verified cooling system failure, request that the Operations Control Center makes all notifications listed in Exhibit 4A.

Mechanical Section

- Respond to the affected cooling system room to determine whether an actual failure has occurred, based on the following standards:

Condenser Water

- Any condenser water system flow interruption.
- Any condenser water supply temperature in excess of 10 degrees above designed limits, namely:
* 90 degrees F on primary.
* 95 degrees F on secondary.
* 100 degrees F on tertiary.

Chilled Water

- Any chilled water flow interruption.
- Any chilled water supply temperature in excess of 50 degrees F.

River Water

- Any river water flow interruption

Mechanical will thereafter:

- Notify the Operations Control Center if an actual cooling system failure has occurred.
- Identify which cooling system is affected by the outage.
- Restore service as soon as possible.
- For failures due to river water strainer failure on Systems 1, 3 & 7, activate chilled water heat exchangers immediately (when chilled water is available). System #1 is to be activated first.
- For Condenser Water System 1 outages, immediately restore one Condenser Water Pump to operation (these pumps should automatically switch to

emergency power). Then, perform the following within the next one half hour period:

- Swing river water heat exchanger to domestic water cooling.
- Reposition valves as indicated via the Emergency River Water Control Panel in the Central Refrigeration Plant Control Booth.
- Activate one or both Emergency River Water Pumps on emergency power.

During the next hour:

- Physically verify that all valves, strainers, heat exchangers, and pumps are functioning properly and swing over Condenser Water System 1 from domestic water to river water.
- Keep the Operations Control Center and the Manager, Operations and Maintenance Management informed of the probable and actual restoration times.
- Coordinate service restoration with Property Management staff.

Electrical Section

1. Respond to the affected condenser water room to evaluate to assist the Mechanical Section in the restoration of service.
2. For System 1 outages only, ensure that ATS (Automatic Transfer Switch), which serves Condenser Water System 1, loads served by the Emergency River Water Control Panel in the Central Refrigeration Plant Control Booth and the River Water Pump Station, have switched to emergency power.
3. Operate Emergency Generator Plant.

4-2.2 PROPERTY MANAGEMENT

- The General Property Manager responsible for the property involved in the incident will assume full responsibility as the WTC Liaison Officer and will be stationed in the lobby at the Fire Command Station/Elevator Console area.
- The General Property Managers from the other buildings along with the Senior Property Manager and staff of the affected property will assist the Liaison Officer in the lobby.
- The Senior Property Managers and their staff from the unaffected properties will report to the Situation Room and Property Management Office at the Operations Control Center and activate all telephones, computers and the Emergency Tenant Notification System.
- The Senior Property Managers will assume all responsibility for disseminating all pre-cleared information to staff and tenants. One staff member will act as the official scribe, maintaining a constant record of events as they occur.
- The Liaison Officer will be responsible for notifying the Chief Operating Officer and Media Relations, if applicable, and will work closely with Senior World Trade and Port Authority Staff as well as all World Trade Center Units – Life Safety & Security, Police, Vertical Transportation, Engineers Office, Central Systems, General

Maintenance, Locksmith Shop, Construction, Project Management and Operations Management.

- If necessary, a representative from Media Relations will also be in the lobby to field questions from the media/press.

4-2.3 LIFE SAFETY and SECURITY

- The Operations Control Center will receive reports of possible cooling system failures and notifiy appropriate staff via paging system.
- Request the Mechanical Contractor Supervisor determine whether a cooling system failure has actually occurred.
- In case of a verified cooling system failure, make all notifications listed in Exhibit 4A.
- Notify New York City Fire Department if directed to do so.
- Post security officers if necessary.

CHAPTER 5

DOMESTIC WATER OUTAGES

CHAPTER 5

DOMESTIC WATER OUTAGES

GENERAL INFORMATION	5-1
Scope	5-1.1
Major Responsibilities	5-1.2
Notifications	5-1.3
RESPONSE	5-2
Operations and Maintenance Management	5-2.1
Property Management	5-2.2
Life Safety and Security	5-2.3

DOMESTIC WATER OUTAGES

5-1 GENERAL INFORMATION

5-1.1 SCOPE

This procedure covers unscheduled domestic water outages (generally IKOR pump station failures) affecting all domestic water service in one or more buildings or zones.

5-1.2 RESPONSIBILITIES

Operations and Maintenance Management

- Make all response notifications.
- Mechanical Section: Respond to pumping stations in affected tower to verify that an actual outage has occurred, notify the Operations Control Center and restore normal water service.
- Electrical Section: Respond to pumping stations in affected tower and restore all affected electrical systems.

Property Management

- Act as WTC Liaison Officer
- Disseminate information to affected tenants.

Life Safety and Security

- Notify appropriate staff via paging systems as required.
- Notify New York City Fire Department, if necessary.
- Post security officers, if necessary.

5-1.3 NOTIFICATIONS

The initial report of a domestic water outage will be made to the Operations Control Center, identifying the affected pump station and any unusual conditions.

All notifications are to be made by the Operations Control Center Supervisor and are listed in Exhibit 5A.

EXHIBIT 5A
NOTIFICATIONS

Refer to Appendix A for names and telephone numbers.

Individuals or their alternates must be paged and/or contacted at home if the incident occurs during off-hours.

FROM	TO
OCC	Supervisor, Electrical Contractor Supervisor, Mechanical Contractor Port Authority Mechanical Supervisor(s) Manager, Operations & Maintenance Management OM&M Duty Supervisor Life Safety & Security Supervisor *Appropriate Property Manager *Appropriate Senior Property Manager *Appropriate General Property Manager *Fire Safety Director All individuals listed in "Domestic Water Outage" paging group
Property Management	**Affected Tenants**

* During "off hours", make these notifications only when outages exceed, or may exceed, one hour.

5-2 RESPONSE

5-2.1 OPERATIONS and MAINTENANCE MANAGEMENT

Duty Supervisor

- If requested, direct staff to secure and clean any areas where water or other damage has occurred.
- Assist Mechanical and/or Electrical Sections when necessary.

Mechanical Section

- Dispatch one mechanic to each pump station in the affected tower. Mechanical Contract Supervisor and Port Authority Maintenance Supervisor(s) should respond to lowest pump station affected.
- Notify appropriate Property Management staff and Manager, Operations & Maintenance Management of affected floors and probable length of outage.
- Monitor pump performance and water flow at each affected pump station.
- Vent air from system and pumps as needed.
- Determine the cause of the shutdown to prevent recurrence.
- Perform necessary repairs.
- Dispatch contract staff to each zone affected by the shutdown to secure and/or repair running flushometers (all restrooms).
- Continuously update Property Management staff and the Manager, Operations & Maintenance Management of probable restoration time of the outage, if it is a mechanical failure.

Electrical Section

- Dispatch one electrician to each pump station in the affected tower. Electrical Contract Supervisor and PA Maintenance Supervisor(s) should respond to the lowest pump station affected.
- The electrician restarts the pumps in the "manual" mode, maintaining a minimum of 20 psi pressure and a maximum of 50 psi pressure.
- Once the Mechanical Section has determined the normal flow rates have resumed, the pumps are set to "automatic" mode of operation.
- These procedures are coordinated with the Mechanical Section to ensure that the pumps do not run dry and the chance of flooding is minimized while restoring service.
- Continuously update Property Management staff and the Manager, Operations & Maintenance Management of probable restoration time of the outage, if it is an electrical failure.

5-2.3 PROPERTY MANAGEMENT

- The General Property Manager responsible for the property involved in the incident will assume full responsibility as the WTC Liaison Officer and will be stationed in the lobby at the Fire Command Station/Elevator Console area.
- The General Property Managers from the other buildings along with the Senior Property Manager and staff of the affected property will assist the Liaison Officer in the lobby.
- The Senior Property Managers and their staff from the unaffected properties will report to the Situation Room and Property Management Office at the Operations Control Center and activate all telephones, computers and the Emergency Tenant Notification System.
- The Senior Property Managers will assume all responsibility for disseminating all pre-cleared information to staff and tenants. One staff member will act as the official scribe, maintaining a constant record of events as they occur.
- The Liaison Officer will be responsible for notifying the Chief Operating Officer and Media Relations, if applicable, and will work closely with Senior World Trade and Port Authority Staff as well as all World Trade Center Units – Life Safety & Security, Police, Vertical Transportation, Engineers Office, Central Systems, General Maintenance, Locksmith Shop, Construction, Project Management and Operations Management.
- If necessary, a representative from Media Relations will also be in the lobby to field questions from the media/press.

5-2.4 LIFE SAFETY and SECURITY

- Operations Control Center will receive reports of possible cooling system failures and thereafter initiate appropriate staff notification via paging system.
- Request the Mechanical Contractor Supervisor to determine whether a cooling system failure has actually occurred.
- In case of a verified cooling system failure, make all notifications listed in Exhibit 4A.
- Notify New York City Fire Department, if necessary
- Post security officers, if necessary.

CHAPTER 6

ELEVATOR EMERGENCIES

CHAPTER 6

ELEVATOR EMERGENCIES

GENERAL INFORMATION	6-1
Scope	6-1.1
Major Responsibilities	6-1.2
Notifications	6-1.3
RESPONSE	
PASSENGER ENTRAPMENT (Code 1)	6-2
Life Safety and Security	6-2.1
Police	6-2.2
Vertical Transportation	6-2.3
Operations and Maintenance Management	6-2.4
SERVICE INTERRUPTIONS (Code 2)	6-3
Life Safety and Security	6-3.1
Operations and Maintenance Management	6-3.2
Vertical Transportation	6-3.3
Property Management	6-3.4
FIREPROOFING FALLOUT (Code 3)	6-4
Life Safety and Security	6-4.1
Vertical Transportation	6-4.2
Operations and Maintenance Management	6-4.3
Property Management	6-4.4
PHASE I & PHASE II TOWER SWAY	6-5
Life Safety and Security	6-5.1
Vertical Transportation	6-5.2

Operations and Maintenance Management 6-5.3
Property Management 6-5.4

USE OF ELEVATORS DURING EMERGENCIES 6-6

Life Safety & Security - Operations Control Center 6-6.1

EXHIBITS

Diagram of Elevator Locations and Floors Served (1 WTC)
Diagram of Elevator Locations and Floors Served (2 WTC)
Diagram of Elevator Locations and Floors Served (4 WTC)
Diagram of Elevator Locations and Floors Served (5 WTC)

ELEVATOR EMERGENCIES

6-1 GENERAL INFORMATION

6-1.1 SCOPE

This procedure covers elevator emergencies caused by:

- Passenger Entrapments ("Code 1's" or "Slow Speed Runs")
- Service Interruptions (Code 2's)
- Fireproofing Fallout (Code 3's)
- Tower Sway Emergencies - Phase I & II
- Use of Elevators During Emergencies

6-1.2 MAJOR RESPONSIBILITIES

Vertical Transportation

- Upon receipt of a passenger entrapment or other elevator condition, respond, rectify condition and restore the elevator to service as quickly as possible.

Operations and Maintenance Management

- Electrical Section: Assist in securing and/or restoring power to stalled elevator(s) when requested.
- Operations Management Section: Perform listed duties and assist as requested or required.

Police

- With input from elevator contractor, determine the need for evacuation.
- Perform removal of passengers from a stalled elevator.

Life Safety and Security

- Maintain communications with elevator passengers.
- Transmit appropriate notifications.
- Provide security officers for crowd control or other services.
- Secure areas as requested.

Property Management

- Act as WTC Liaison Officer.
- Coordinate with appropriate WTC Units on issues impacting tenants.
- Disseminate information to tenants.

6-1.3 NOTIFICATIONS

Initial report of an elevator emergency will be made to the Operations Control Center Supervisor, identifying the affected elevator or elevator zone and associated conditions.

All notifications thereafter are to be made by the Operations Control Center Supervisor as indicated in Exhibit 6A.

EXHIBIT 6A
NOTIFICATIONS

Refer to Appendix A for names and telephone numbers.

Individuals or their alternates must be paged and/or contacted at home if the incident occurs off-hours.

FROM OCC FOR:	TO ALL LISTED BELOW
CODE 1 Passenger Entrapment	Elevator Maintenance Contractor O&MM Supervisor Life Safety & Security Supervisor Police Desk Vertical Transportation Electrical Contract Supervisor
CODE 2 Service Interruptions (See EXHIBIT 6B)	Elevator Maintenance Contractor Vertical Transportation Appropriate Property Manager Appropriate Senior Property Manager Appropriate General Property Manager Manager, Operations & Maintenance Mgmt. O&MM Supervisor Life Safety & Security Supervisor
CODE 3 Fireproofing Fallout	Manager, Operations & Maintenance Mgmt. Vertical Transportation Elevator Maintenance Contractor Environmental Coordinator Asbestos Management Division Life Safety & Security Supervisor O&MM Supervisor Appropriate Property Manager Appropriate Senior Property Manager Appropriate General Property Manager

Exhibit 6A Continued…

FROM OCC FOR:	TO ALL LISTED BELOW
Phase 1 Sway	Manager, Operations & Maintenance Mgmt. Vertical Transportation Elevator Maintenance Contractor Life Safety & Security Supervisor O&MM Supervisor Appropriate Property Manager Appropriate Senior Property Manager Appropriate General Property Manager Manager, Windows on the World (Operating Hours) Manager, Top of the World (Operating Hours)
Phase 2 Sway	Manager, Operations & Maintenance Mgmt. Vertical Transportation Elevator Maintenance Contractor Life Safety & Security Supervisor O&MM Supervisor Appropriate Property Manager Appropriate Senior Property Manager Appropriate General Property Manager Manager, Windows on the World (Operating Hours) Manager, Top of the World (Operating Hours)

FROM	TO
Property Management	All affected tenants

6-2 PASSENGER ENTRAPMENT (Code 1 or Slow Speed Run)

6-2.1 LIFE SAFETY and SECURITY

Operations Control Center Supervisor

- Upon receipt of an emergency call, or notification of an emergency call, obtain the following information from the trapped passenger(s) and confirm elevator information from the appropriate elevator starter:

➢ Is elevator moving slowly (slow speed run) or at a complete stop (code 1)?
➢ If stopped, what floor?
➢ If stopped, how many people aboard elevator?
➢ Are trapped passengers comfortable?
➢ Is the cab interior illuminated?
➢ Is the ventilation fan operating?

- Contact elevator maintenance contractor via radio advising of either a slow speed run or a Code 1.
- Verify elevator maintenance contractor response.
- Notify appropriate Life Safety & Security and O&MM supervisors.
- If the Maintenance Contractor is not on site, make appropriate telephone notifications.
- If the car is determined to be on a slow speed run, advise the passengers of the following:

"Due to a temporary problem, the safety features of your elevator are causing it to move at slow speed. Your elevator is perfectly safe and is continuing on its way to its destination. If anyone should need assistance, please use the emergency call button to contact us. We apologize for this inconvenience, and we thank you for your patience and cooperation. Once again, your elevator is perfectly safe and is on its way to its destination".

- If the car is determined to be a Code 1, advise the passengers of the following:

"We have experienced a problem which has caused your elevator to temporarily stop. Your elevator is perfectly safe. We are in contact with the elevator mechanics that are responding. If anyone should need assistance, please use the emergency call button to contact us. We apologize for the inconvenience and we thank you for your patience and cooperation. Once again, your elevator is perfectly safe and should be moving again shortly."

- Transmit a Code 1 page, stating the affected elevator and other appropriate information. Confirm with supervisors from Life Safety & Security, Vertical Transportation, OM&M and Police that they are responding to the scene.
- Update passengers of any progress during the entrapment. Depending on the duration of the incident, make any requested telephone calls for the trapped passengers.

- If stalled elevator cannot be moved in a reasonable time (customarily two hours), notify the Police accordingly. If the Police call for an evacuation, advise the trapped passengers of the following:

"Due to the safety features of your elevator, it cannot be moved. Therefore, Port Authority Safety Personnel will be bringing another elevator alongside yours. At that time, you will receive further instructions. If anyone should need assistance, please use the emergency call button to contact us. Your patience and cooperation is appreciated. Once again, your elevator is perfectly safe, and Safety Personnel are on their way."

- Direct appropriate elevator starter to have the rescue car (elevator adjacent to stalled one) at the designated location for the Police.
- Assist as necessary.
- Complete Code 1 Elevator Outage Report and files.

6-2.2 POLICE

Generally, elevator passenger evacuations are conducted by the Police with the assistance of the elevator maintenance contractor, if available. If elevator maintenance contract staff are not available, the Police may request the Electrical Section to assist by securing power to stalled elevator.

Passenger evacuations should only be called for if elevator service cannot be restored in a reasonable amount of time (customarily two hours) or if extenuating circumstances, i.e. medical emergencies deem it necessary.

Police Supervisor

- Determine the need for evacuation.
- Request that the "elevator evacuation cart" be transported from the B1 emergency room to the chase car.
- Direct two officers and one elevator contractor mechanic (if available) to perform the rescue in the elevator adjacent to the stalled car.
- Ensure that the "main line disconnect switch" of the stalled elevator is off and locked out/tagged out during the rescue.

Note: Responding personnel should be cautioned that elevator machine rooms contain high voltage equipment.

Rescue Car

- Place evacuation equipment aboard chase elevator.
- Don rescue harness and other appropriate safety items.
- Open side panel by unlocking the lock located at floor level.
- Open the operator's panel in the elevator and place the car in "Independent and Inspection" mode.

- Hold side door interlock switch closed using the pole provided on rescue cart.
- Move the car up or down using the appropriate buttons until the chase car is level with the disabled car.
- Exercise edge safety and control.
- Verify that hoist ropes of the stalled car are taut and not slack. If slack, do not perform rescue - wait for elevator contractor.
- Request the main line disconnect switch for the rescue car be secured at the EMR.
- Open the side panel to the stalled elevator and place the rescue bridge and safety rail between the cars.
- Secure safety lines from the rescue harness to a secure point (only after power is secured for both cars).
- One Officer will cross to disabled car with victim harness/safety lines.
- Cross victims to chase car one at a time.
- After last victim and Officer are aboard chase car, secure side door.
- Request the mainline disconnect switch of the rescue car be placed in the "on" position.
- Deliver victims to appropriate landing.
- Obtain information for reports.

6-2.3 Vertical Transportation

Elevator Maintenance Contractor

- Upon receipt of a passenger entrapment, respond to the appropriate elevator machine room.
- Attempt to move the elevator to a safe floor where the doors can be opened to discharge the passengers.
- Repair/restore the elevator to service.
- Assist the Police in evacuation, if necessary.

6-2.4 OPERATIONS and MAINTENANCE MANAGEMENT

- When Elevator Maintenance Contractor staff is not available, the Electrical Section will assist Police in securing power to stalled elevator when requested.
- Operations Management supervisor on duty will meet passengers involved, obtaining all appropriate information for reports.

6-3 SERVICE INTERRUPTIONS (Code 2)

6-3.1 LIFE SAFETY and SECURITY

Operations Control Center Supervisor

- Upon occurrence of a Code 2 (Critical elevator or critical service interruption), transmit an "all-page" and identify the affected elevator or service interruption (Refer to Exhibit 6B for the critical elevators or service interruption information).
- Immediately notify the elevator maintenance contractor and Vertical Transportation unit.

6-3.2 OPERATIONS and MAINTENANCE MANAGEMENT

- Arrange for alternate means of transportation and advise the Vertical Transportation unit of the probable effect the interruption(s) will have on tenants.
- insure immediate elevator maintenance contractor response and restoration.
- Advise the Manager, Operations and Maintenance Management, the Manager, Life Safety and Security and the General Property Manager of probable restoration time.

6-3.3 VERTICAL TRANSPORTATION

- Notify elevator maintenance contractor of Code 2 conditions. Monitor response and anticipated duration of interruption.

Elevator Maintenance Contractor

- Immediately respond and expedite repairs, working continuously, 24 hours/day, to restore service.

6-3.4 PROPERTY MANAGEMENT

- The General Property Manager responsible for the property involved in the incident will assume full responsibility as the WTC Liaison Officer and will be stationed in the lobby at the Fire Command Station/Elevator Console area.
- The General Property Managers from the other buildings along with the Senior Property Manager and staff of the affected property will assist the Liaison Officer in the lobby.
- The Senior Property Managers and their staff from the unaffected properties will report to the Situation Room and Property Management Office at the Operations Control Center and activate all telephones, computers and the Emergency Tenant Notification System.
- The Senior Property Managers will assume all responsibility for disseminating all pre-cleared information to staff and tenants. One staff member will act as the official scribe, maintaining a constant record of events as they occur.
- The Liaison Officer will be responsible for notifying the Chief Operating Officer and Media Relations, if applicable, and will work closely with Senior World Trade and Port Authority Staff as well as all World Trade Center Units – Life Safety & Security, Police, Vertical Transportation, Engineers Office, Central Systems, General

Maintenance, Locksmith Shop, Construction, Project Management and Operations Management.

- If necessary, a representative from Media Relations will also be in the lobby to field questions from the media/press.

EXHIBIT 6B
CRITICAL ELEVATORS AND CRITICAL SERVICE INTERRUPTIONS

Critical Elevators

1 World Trade Center - 5, 6, 7, 17, 48, 49, 50 and 99
2 World Trade Center - 5, 6, 7, 17, 48, 49, 50 and 99

Critical Service Interruptions - 1 World Trade Center

Elevators

- Removal of three or more elevators in any six car group
- Removal of one or more elevators serving the subgrades
- Removal of one or more Zone III, D Bank elevators when either 6A or 7A shuttle elevators are out of service
- Removal of any of the following shuttle elevators at any time - 50A, 6A, 7A, 17A
- Removal of any of the following freights elevators at any time - 48A, 49A, 50A, 99A.
- Removal of two or more low rise shuttle elevators - 1A to 4A, 8A to 11A
- Removal of two or more high rise shuttle elevators- 12A to 16A, 18A to 23A

Critical Service Interruptions - 2 World Trade Center

- Removal of three or more elevators in any six car group
- Removal of one or more elevators serving the subgrades
- Removal of one or more Zone III, D Bank elevators, A93 to A98, when either 6B or 7B shuttle elevators are out of service.
- Removal of any of the following shuttle elevators at any time - 5B, 6B, 7B, 17B.
- Removal of any of the following freight elevators at any time - 48B, 49B, 50B, 99B.
- Removal of two or more low rise shuttle elevators - 1B to 4B, 8B to 11B.
- Removal of two or more high rise shuttle elevators - 12B to 16B, 18B to 23B.

Critical Service Interruptions - 4 World Trade Center

- Removal of any of the following elevators at any time - PE 7, PE 12, CE 2, CE 5, FE 3 and FE 4.
- Removal of two or more elevators in a three or six car group.
- Removal of either E 14 or E 15 escalators.

Critical Service Interruptions - 5 World Trade Center

- Removal of any of the following elevators at any time-FE 10, FE 11.

- Removal of two or more elevators in a three or six car group.
- Removal of any two escalators from E 3 to E 10, or E 11 to E 13.

Critical Service Interruptions – Morgan Stanley/Dean Witter

- One or more elevators in low zone shuttle elevator bank in 2 WTC, (1-4, 8-11)
- One or more elevators in A Bank, B Bank, C Bank or D Bank in Zone 2 in 2 WTC.
- One or more elevators in A Bank or B Bank in 5 WTC.
- One or more elevators in B Bank, Zone 1 in 1 WTC.
- Freight elevator FE 10 or FE 11 in 5 WTC.
- One or more escalators E3 through E10 in 5 WTC.

6-4 FIREPROOFING FALLOUT (Code 3)

6-4.1 LIFE SAFETY and SECURITY

Operations Control Center

- Upon occurrence of a Code 3, transmit an "all-page" and identify the affected elevator(s)
- Immediately notify the Vertical Transportation unit and elevator maintenance contractor.
- Review asbestos data survey to determine if shaftway is "negative" or "positive" (If positive, refer to ACM chapter).

6-4.2 VERTICAL TRANSPORTATION

Elevator Maintenance Contractor

Immediately respond and expedite repairs, working continuously 24 hours/day to restore service.

6-4.3 OPERATIONS and MAINTENANCE MANAGEMENT

- Monitor activities - keep all appropriate WTC units advised.

6-4.4 PROPERTY MANAGEMENT

- The General Property Manager responsible for the property involved in the incident will assume full responsibility as the WTC Liaison Officer and will be stationed in the lobby at the Fire Command Station/Elevator Console area.
- The General Property Managers from the other buildings along with the Senior Property Manager and staff of the affected property will assist the Liaison Officer in the lobby.

- The Senior Property Managers and their staff from the unaffected properties will report to the Situation Room and Property Management Office at the Operations Control Center and activate all telephones, computers and the Emergency Tenant Notification System.
- The Senior Property Managers will assume all responsibility for disseminating all pre-cleared information to staff and tenants. One staff member will act as the official scribe, maintaining a constant record of events as they occur.
- The Liaison Officer will be responsible for notifying the Chief Operating Officer and Media Relations, if applicable, and will work closely with Senior World Trade and Port Authority Staff as well as all World Trade Center Units – Life Safety & Security, Police, Vertical Transportation, Engineers Office, Central Systems, General Maintenance, Locksmith Shop, Construction, Project Management and Operations Management.
- If necessary, a representative from Media Relations will also be in the lobby to field questions from the media/press.

6-5 TOWER SWAY EMERGENCIES RESPONSE (PHASE 1 & PHASE 2)

6-5.1 LIFE SAFETY and SECURITY

Operations Control Center Supervisor

Initial High Wind Forecast

- The Operations Control Center Supervisor will routinely monitor wind forecasts from the National Weather Service, as required.
- Upon notification of a forecasted high wind condition, dispatch information to appropriate World Trade Center staff.

Phase 1

- Initiate notifications as per Exhibit 6A.
- Obtain and record from National Weather Service the forecasted wind speed and keep appropriate World Trade Center staff informed.
- Record all Phase 1 notifications, activities, and problems in the daily Elevator Malfunction Outage Report and Operations Control Center log book.
- Closely monitor the Stentofon panel and report any elevators which have a call registered. This may indicate a broken traveling cable and/or potential passenger entrapment.
- Transmit a page advising all units of the Phase 1 condition. Repeat appropriate message whenever conditions change.
- During off-hours, request the elevator maintenance contractor duty mechanic to monitor cable sway in the high-rise elevator pits and to report any problems.

- When Phase 1 conditions are terminated, notify all units to resume normal operations.
- Notify the Windows on the World Manager and the Top of the World Supervisor that Elevators 6 and 7 are operating at slow speed and service man be terminated if winds intensify.

Phase 2

- Make notifications as per Exhibit 6A.
- Obtain and record from National Weather Service the forecasted wind speeds.
- Record all Phase 2 notifications, activities, and problems in the Elevator Malfunction Outage Report and Operations Control Center log book.
- Closely monitor the Stentofon panel and report any elevators which have a call registered. This may indicate a broken traveling cable and/or potential passenger entrapment.
- Request the elevator maintenance contractor duty mechanic to monitor cable sway in the high-rise elevator pits.
- Transmit a page advising all units of the Phase 2. Update as necessary.
- Notify the elevator maintenance contractor office at 7:30 AM on business days of a recorded Phase 2 during the previous midnight tour.
- Notify the operators of freight elevators 50 A&B, 48 A&B and 5 A&B that they must stop every 10 floors to dampen rope sway.
- Advise the need for "out of service" signs for any freight elevator taken out of service.
- Notify the Windows on the World Restaurant Manager and the Observation Deck Supervisor if Elevators 6 and 7 will be taken out of service.
- When appropriate, notify the elevator maintenance contractor and both of the 107th floor managers that the Phase 2 has ended, indicating also if a Phase 1 remains in effect or completely normal operations have resumed.

6-5.2 VERTICAL TRANSPORTATION

Elevator Starter (Towers One & Two)

Phase 1

- When directed, position speed control toggle switches to "slow speed" for elevators 12-16 and 18-23. Notify Operations Control Center Supervisor when switches are positioned to slow speed.
- When directed, reposition switch to "normal speed".
- Monitor starter's console for stalled elevators and wind speed indications.

Phase 2

Lobby Starter (Towers One & Two)

- When directed, position toggle switch to "slow speed", or when directed, key elevators to "off" position, following standard procedures for removing high rise passenger elevators from service.
- When directed, places elevator 16, 18 or 19 A&B on interzone service (44th to 78th Floor Skylobbies only).

Skylobby Starters (Tower One & Two)

- Secure center cars in Banks C & D of Zones 2 & 3.

Elevator Maintenance Contractor

Phase 1

- Verify high-rise elevators are operating at slow speed. Report any malfunctions to the Operations Control Center Supervisor and elevator maintenance contractor management.
- Monitor conditions in the critical elevator pits and recommend the shutdown of some or all of the high-rise shuttle elevators and local cars based on conditions. Report any malfunctions to the Operations Control Center Supervisor and elevator maintenance contractor management.
- Request the Operations Control Center Supervisor call elevator maintenance contractor if additional mechanics are required.
- Resume normal operations upon notification from Operations Control Center Supervisor.

Phase 2

- Verify that high-rise elevators are operating at slow speed (all high rise passenger elevators are equipped with rope dampeners).
- Monitor conditions in the critical elevator pits and recommend the shutdown of some or all of the high-rise shuttle elevators and local cars as necessary. Report any malfunctions to the Operations Control Center Supervisor and elevator maintenance contractor management.
- Request the Operations Control Center Supervisor call elevator maintenance contractor if additional mechanics are required.
- Resume normal operations upon notification from Operations Control Center Supervisor.

Note: Normally, Elevator Maintenance Contractor staff are not present between midnight and 7:00AM. Upon notification by the Operations Control Center Supervisor, elevator maintenance contractor staff shall respond and perform all required duties.

Contract Supervisor

Phase 1

Establish communications with elevator maintenance contractor and the Operations Control Center Supervisor to verify that:

- Elevator Maintenance Contractor is monitoring critical elevator pits.
- Existing elevator outages are identified, and repair procedures are in place.
- Technical assistance to appropriate WTC staff is ongoing.
- Accelerometer readings are monitored on a "real time" basis.
- Appropriate WTC staff are informed and advised of changing conditions.

Phase 2

Establish communications with Elevator Maintenance Contractor and the Operations Control Center Supervisor to verify that:

- High-rise shuttle elevators are running on slow speed.
- Appropriate local elevators are shutdown.
- Freight elevators 50 A/B are secured on the B1 level. If elevators 5 A/B or 48 A/B are operated for emergency reasons, they must stop every 10 floors. Elevators 17 A/B, 49 A/B, 6A/B and 7 A/B are equipped with rope dampeners.
- Cars 18 or 19 A&B are on interzone mode as required.
- Elevator maintenance contractor is monitoring critical elevator pits.
- Existing elevator outages are identified, and repairs initiated.
- Accelerometer readings are monitored on a "real time" basis.
- Keep appropriate WTC staff informed of changing conditions.

Note: ***Based on expected passenger traffic, the severity of wind and existing elevator outages, during non-business hours, the Vertical Transportation Manager or Contract Supervision staff will determine if their presence is required at the World Trade Center to assist with the emergency.***

6-5.3 Operations and Maintenance Management

Duty Operations Management Supervisor

Phase 1

- Notify Life Safety and Security Supervisor of the emergency and request the posting of two security officers at each of the main lobby elevator control panels.
- Direct Elevator Starters to position toggle switches to "slow speed" at the appropriate starters control panels.
- Monitor Starters panel and investigate stalled elevators.

- Based on weather forecast, determine if it is necessary to activate a Phase 2 alert, in advance of the high winds.
- Determine when to resume normal operations (request the Operations Control Center to make appropriate notifications).
- Request Life Safety and Security Supervisor to advise security officers to monitor all shuttle elevators and to report any out of service cars.

Phase 2

- Notify Life Safety and Security Supervisor of the emergency and request the posting of security officers as needed.
- Direct Elevator Starters to monitor all shuttle elevators and to report any out-of-service cars.
- Verify that elevator operators on Cars 5 A&B, 48 A&B and 50 A&B are stopping the cars every ten floors.
- Notify the Elevator Starters to immediately slow down or, if necessary, shut down, all high-rise shuttle elevators and/or high rise freight elevators based on weather information and recommendations from the elevator maintenance contractor.
- Notify the Elevator Starter to place elevators 16, 18 or 19 A/B on interzone, or full service, as required.
- Direct skylobby Starters to shut down the center cars in banks C & D of Zone 2 & 3 in both Towers.
- Monitor Starters console and investigate stalled elevators.
- Post signs in skylobbies to direct tenants and patrons to proper access or exit routes.
- Determine when to resume normal operations or downgrade to Phase 1 and request the Operations Control Center Supervisor to make appropriate notifications.
- During business hours, may obtain verbal approval of the Manager, Vertical Transportation to waive specified procedures.

6-5.4 PROPERTY MANAGEMENT

- The General Property Manager responsible for the property involved in the incident will assume full responsibility as the WTC Liaison Officer and will be stationed in the lobby at the Fire Command Station/Elevator Console area.
- The General Property Managers from the other buildings along with the Senior Property Manager and staff of the affected property will assist the Liaison Officer in the lobby.
- The Senior Property Managers and their staff from the unaffected properties will report to the Situation Room and Property Management Office at the Operations Control Center and activate all telephones, computers and the Emergency Tenant Notification System.

- The Senior Property Managers will assume all responsibility for disseminating all pre-cleared information to staff and tenants. One staff member will act as the official scribe, maintaining a constant record of events as they occur.
- The Liaison Officer will be responsible for notifying the Chief Operating Officer and Media Relations, if applicable, and will work closely with Senior World Trade and Port Authority Staff as well as all World Trade Center Units – Life Safety & Security, Police, Vertical Transportation, Engineers Office, Central Systems, General Maintenance, Locksmith Shop, Construction, Project Management and Operations Management.
- If necessary, a representative from Media Relations will also be in the lobby to field questions from the media/press.

6-6 USE OF ELEVATORS DURING AN EMERGENCY

6-6.1 LIFE SAFETY and SECURITY

Operations Control Center

Coordinate the use of elevators in an emergency situation through the use of the Stentofon Intercom System addressing appropriate elevator starters or operators. The OCC Supervisor will contact elevator operators via the Stentofon intercom and/or radio based on the needs of field staff.

During emergency operations, elevator use is determined by the priority of each situation. Generally, priority elevator response is required by police, fire and EMS personnel, although, depending on the emergency, other units such as Vertical Transportation, Electrical, Mechanical and others may need quick service.

CHAPTER 7

FIRE EMERGENCIES

CHAPTER 7

FIRE EMERGENCIES

GENERAL INFORMATION	7-1
Scope	7-1.1
Major Responsibilities	7-1.2
Notifications	7-1.3
EMERGENCY RESPONSE	7-2
Life Safety and Security	7-2.1
Police	7-2.2
Operations and Maintenance Management	7-2.3
New York City Fire Department	7-2.4
Vertical Transportation	7-2.5
Property Management	7-2.6
Tenant Fire Safety Teams	7-2.7
PATH FIRE EMERGENCIES	7-3
Life Safety and Security	7-3.1
Police	7-3.2
Operations and Maintenance Management	7-3.3
PATH	7-3.4

FIRE EMERGENCIES

7-1 GENERAL INFORMATION

7-1.1 SCOPE

This procedure covers the response to fire or smoke conditions and is divided into two sections:

- World Trade Center emergency response
- PATH emergency response (incidents occurring in the PATH area only)

7-1.2 MAJOR RESPONSIBILITIES

7-2.1 Life Safety and Security

Fire Safety Director

Under certain circumstances, duties may be delegated to Life Safety & Security Supervisor during business hours. During "off-hours", LS&S Supervisor will assume role.

- Respond to the appropriate Fire Command Station, or scene, and assume the Fire Safety Director responsibilities.
- Direct overall activities as related to emergency.
- Coordinate all activities with the New York City Fire Department and other emergency response personnel.
- Direct public address announcements as required.
- Initiate evacuation of floor(s) / area(s) as necessary.
- Investigate and report on all fire alarms and actual fires.
- Deploy security officers as necessary.
- Dispatch "key runs" as appropriate.
- Insure appropriate notifications are initiated.
- Maintain a chronological record of events.
- Direct OCC to arrange for emergency elevator service.
- Investigate cause of fire, coordinate activities with FDNY Bureau of Fire Investigation.
- Prepare appropriate reports.

7-2.2 Police

- Respond as members of the building Fire Brigade. Initiate suppression activities until arrival of New York City Fire Department.
- Update Fire Safety Director/Fire Command Station of ongoing activities/conditions.

7-2.3 New York City Fire Department

- Traditional Fire/Rescue Role - Respond to scene, investigate alarm, extinguish fire, perform rescue/EMS functions and other associated duties.

7-2.4 Operations and Maintenance Management

Operations Management Section

- Assist with evacuation if requested.
- Provide other assistance as requested

Mechanical Section

- When requested, operate fire pumps and activate smoke purge.
- Secure sprinkler water shutoff valves at the request of the Fire Safety Director or New York City Fire Department Chief Officer.
- Provide other assistance as requested.

Electrical Section

- When fire incident is secured, reset smoke detectors or alarm panels at the request of the Fire Safety Director or Fire Command Station.
- Respond to electrical incidents.
- Remotely secure equipment upon request.
- Provide other assistance as requested.

7-2.5 Property Management

- Act as WTC Liaison Officer.
- Coordinate with Life Safety & Security on issues directly impacting tenants.
- Disseminate information to tenants as appropriate.

7-2.6 Tenant Fire Safety Team

- Report fire or smoke conditions.
- Perform an organized evacuation at the sound of the appropriate alarm or when instructed to do so by World Trade Center Emergency Personnel.

7-1.3 NOTIFICATIONS

The initial report of a fire or smoke condition is generally received in one of three ways:

1. A smoke detector or sprinkler is activated, automatically transmitting an alarm to the appropriate Fire Command Station.
2. A manual "pull station" device is activated by an occupant.

3. A telephone call reporting a condition is made to the Police Desk and/or the Fire Command Station.

Notifications required for conditions in the World Trade Center are listed in Exhibit 7A. If the incident occurs in the PATH area, refer to the PATH Fire Emergency Response section for appropriate notifications.

EXHIBIT 7A
NOTIFICATIONS

NOTE: In order to avoid unnecessary concern to tenants/occupants, all radio transmissions should refer to a fire alarm or fire emergency as a "Possible 8-8" or "Actual 8-8" as appropriate.

Refer to Appendix A for names and telephone numbers.

For all serious incidents, actual fires, etc., individuals or their alternates must be paged and/or contacted at home if the incident occurs off-hours.

FROM	PRIORITY	TO
Police	1st (Radio)	General radio alert to all units
	2nd	Fire Safety Director Security & Life Safety Director Life Safety & Security Supervisor Police Supervisor Central Police Desk
OCC	1st	General radio alert to all units Fire Safety Director (LS&S Supervisor during off-hours)
	2nd	*Verify Fire Safety Director & LS&S Supervisor have received notification* All individuals listed in "Fire Emergency" paging group
	3rd	PA Maintenance Supervisor (Mechanical) PA Maintenance Supervisor (Electrical) Manager, Operations and Maintenance Management Supervising Engineer

7-2 WORLD TRADE CENTER FIRE EMERGENCY RESPONSE

There is no Port Authority responsibility for fires or fire alarms at the Mariott Hotel (3 WTC), US Customs House (6 WTC) and Seven World Trade Center. However, World Trade Center emergency personnel may respond to assist with evacuation, crowd control, etc. Fire alarms from the above locations are transmitted directly to individual proprietary central stations, which notify the New York City Fire Department. The Fire Department responds directly to the Fire Command Station in the above buildings.

At no time are unauthorized individuals to respond to a fire scene without the approval of the WTC Fire Safety Director (or designated representative) or the Fire Department Chief Officer on the scene.

7-2.1 LIFE SAFETY AND SECURITY

Fire Safety Director

- Respond to the Fire Command Station, or scene, as appropriate, and assume all duties and responsibilities of the Fire Safety Director.
- Verify that the New York City Fire Department has been notified of the alarm.
- Insure that the World Trade Center Fire Brigade/Emergency Response Team are notified and respond.
- Direct overall activities and response.
- Coordinate all activities with New York City Fire Department and other Emergency Response Personnel.
- If necessary, confer with Police supervisors and the Floor Warden of the affected floor(s) to determine conditions on the floor(s) and identify, if necessary, areas to be evacuated, route of evacuation, stairwells available and potential refuge floors.
- Initiate evacuation procedures.
- Determine if the general public should be restricted from the affected area(s) and if so, utilize appropriate security staff to restrict access.
- If emergency occurs while the Visitors Desks are in operation, notify staff to discontinue issuing visitors passes to the affected area(s).
- Deploy security officers to secure area(s) and deny access to unauthorized individuals.
- Dispatch "key runs" as appropriate.
- When emergency is secured, ensure that all alarm and public address systems are reset.
- Prepare Port Authority Fire Report (Form 1624).
- Prepare appropriate memorandums/reports.
- Investigate cause and origin of fire.
- In the event of an actual fire, prepare a chronological report noting the all pertinent details.

In a fire of a suspicious nature, the FDNY Chief Officer may order a formal investigation to determine the origin and cause of the fire. Such activities are under the jurisdiction of the New York City Fire Department Bureau of Fire Investigation (Fire Marshals). Upon their arrival at the facility, the WTC Fire Safety Director shall be immediately notified.

Operations Control Center Supervisor

- If an alarm, telephone call or notification by any other means is received at the Operations Control Center, the Operations Control Center Supervisor will immediately notify the appropriate Fire Command Station, the Fire Safety Director (Life Safety & Security Supervisor off-hours) and the police desk.
- The Police Desk and OCC will transmit a general broadcast of all information on all WTC radio frequencies.
- An alpha-numeric message noting all pertinent details will be transmitted via the OCC Page Net system to all members of the Fire Emergency chapter.
- If a fire, smoke or other unusual condition is confirmed, a secondary Alpha-Numeric page will be transmitted, with periodic updates as directed.
- The OCC Supervisor will monitor all facility radio frequencies and insure that "radio silence" is maintained by individuals not directly involved with the emergency.
- Arrange for emergency elevator service as requested.
- Continue to transmit information and/or messages as needed to units responding to the emergency (Fire/Life Safety, Security, Fire Command Stations, Electrical Base, Mechanical Base, Elevator Contractor Base, etc.)
- Notify the Windows on the World and Top of the World Observation Deck Managers/Supervisors, as appropriate, so they are aware of the facility emergency. This is necessary in order to reduce anxiety to tenants, visitors, guests, etc. when numerous emergency vehicles respond to the building entrances.

Security Officers

Vertical Patrols

- Upon notification of a fire emergency, the Vertical Patrol Security Officers will report to the Fire Command Station in the main lobby where they will await instructions from the Fire Safety Director or Duty Life Safety & Security Supervisor.

Sector Supervisors

- Upon notification of a fire alarm, the appropriate Sector Supervisor will report to the Fire Command Station in the affected building's lobby where they will await instructions from the Fire Safety Director or Duty Life Safety & Security Supervisor.

Security Officer "Key Run"

- Upon notification of a fire alarm the Security "Key Run" will respond to the Operations Control Center where they will obtain the appropriate master key rings and Fire Department portable radios. The Key Run will then proceed with the above equipment, to the appropriate Fire Command Station.
- As directed by the Fire Safety Director, the Life Safety and Security Supervisor or the Fire Department Chief Officer, distribute radios and master keys.
- As directed, escort Fire Department personnel to the elevator(s) that will transport them to the scene of the alarm. Thereafter, the Key Run will return to the Fire Command Station to await additional assignments.
- Retrieve all appropriate keys and radios when emergency is over.

Resident Manager - Security Contractor

- During business hours, respond to the appropriate Fire Command Station and await instructions.

Deputy Fire Safety Director / Fire Command Station

- Upon receiving notification of a possible fire or smoke condition by automatic alarm or telephone/radio notification, the Deputy Fire Safety Director will immediately notify the Fire Safety Director (or Life Safety & Security Supervisor), the Operations Control Center and the Police Desk.
- Verify that the Fire Safety Director and/or the Life Safety and Security Supervisor have received the alarm notification and are responding to the Fire Command Station.
- Complete all necessary fire alarm notification forms indicating the time and type of alarm received (smoke detector, sprinkler, pull station, telephone, etc.), areas affected, contact made with the Floor Warden or other members of the Fire Safety Team, responding personnel, and other associated information.
- Request that the elevator starter or Operations Control Center contact the appropriate elevator(s) to respond to the lobby and await the Fire Department personnel.
- Make available the appropriate floor plans, elevator service information, supply air fan data, details on the type of area affected, radios and "1620" fire service keys to the arriving personnel.
- Maintain communications with the appropriate Fire Safety Team members.
- Assist with crowd control and evacuation if necessary.

Skylobby Communications Post
(when activated)

- Contact main lobby Fire Command Station.

- Contact the Vertical Security Patrol, via radio, to assist with crowd control or evacuation, if necessary.
- Distribute information to Floor Wardens, Fire Safety Teams and tenants, via telephone, when tenant inquires are received.
- Assist Security Officers with restricting access to elevators, which service the affected area(s).
- Direct occupants to stairways and, when authorized, elevators being used for evacuation
- Assist with crowd control.

7-2.2 POLICE

NOTE: There is no Port Authority responsibility for fire emergencies at the Marriott Hotel (3 WTC) and US Customs House (6 WTC). As for Seven World Trade Center, the Police will only be notified only of an actual fire. Police personnel will not be involved in firefighting activities, but will assist in evacuation, if requested.

Police Supervisor

- Supervise police members of the Fire Brigade.
- Direct officers to rendezvous at a specific location with fire response carts.
- Based on conditions at the scene, make recommendations regarding evacuation to the Fire Command Station.
- Ensure that police members of the Fire Brigade utilize all appropriate equipment and personal protective gear provided in the fire carts (helmets, coats, boots, gloves and Self Contained Breathing Apparatus).
- Direct police personnel to initiate suppression activities to control the fire.
- Upon the arrival of the New York City Fire Department at the scene, relinquish fire control duties to the ranking Fire Officer.

Desk Officer

- Upon receiving notification of a possible fire or smoke condition or report of an actual fire or smoke condition, transmit notifications on all facility radio frequencies.
- Maintain communications with the Fire Command Station and Operations Control Center informing each of condition status reports.

Police Tour Commander

- Supervise all Police procedures.

Police Officers

NOTE: ***Elevators used in the response are to be operated in "Fire Service" mode.***

- Officers will respond to at least one floor below the fire floor with a fire response cart from that particular zone and:
- Rendezvous with the supervisor at a designated location.
- Don appropriate personal protective equipment including Self Contained Breathing Apparatus.
- Proceed up stairwell to the fire floor.
- At the direction of the supervisor, officers may be directed to attempt to control, and if possible, extinguish incipient stage fires.
- Perform cursory search for victims using 150 foot safety line.

Subgrade Post

Officers respond to a fire in the subgrade area with a fire response cart from the B1 Emergency Equipment Room. If the fire alarm is not in the Subgrade, Post 9 responds to the Police Desk to "stand by" with the Subgrade Fire Cart to respond to the fire scene at the request of the supervisor.

7-2.3 OPERATIONS and MAINTENANCE MANAGEMENT

Duty Supervisor

In the event of an actual emergency:

- Establish communications with the Fire Safety Director, Fire Safety Coordinator or Life Safety and Security Supervisor.
- Respond to the appropriate Fire Command Station.
- Assist as required or requested.

Operations Group Supervisor

In the event of an actual emergency:

- Respond to at least one floor below the affected floor and await further instructions.
- Upon notification to proceed to the affected floor, respond via stairway and establish communications with the Fire Command Station using the Floor Warden telephone.
- Should an evacuation become necessary, assist with control of the evacuees and assist in removing them from the floor.
- Once evacuation is completed, leave the floor to assist with control of the evacuees on the safe refuge floor. Report all activities and information to the Fire Command Station.

STAFF NOT TRAINED IN THE USE OF SELF CONTAINED BREATHING APPARATUS AND ASSOCIATED SAFETY PROCEDURES SHOULD NOT ATTEMPT TO USE SUCH EQUIPMENT AS IMPROPER USE OF BREATHING APPARATUS IN CONTAMINATED ATMOSPHERES COULD RESULT IN SERIOUS INJURY OR DEATH

Mechanical Section

Supervisor, Mechanical Contractor

- Upon receipt of a fire alarm notification, dispatch staff to operate the fire pumps in the affected building and thereafter "stand by" for additional instructions.
- For alarm conditions in the PATH terminal, a mechanic must be dispatched to operate selected fans at the PATH Motor Control Center.
- As directed by the Fire Safety Director or Fire Department Chief Officer, direct personnel to activate the smoke purge fans.
- As directed by the Fire Safety Director or Fire Department Chief Officer, direct personnel to secure sprinkler water shutoff valves.

Port Authority Supervisor

- Upon notification of an actual fire emergency, or at the request of the Fire Safety Director, respond to the Fire Command Station in the lobby of the affected building to assist as necessary.
- In response to a Sprinkler Flow Alarm, ensure that one staff member is dispatched to one floor below the affected floor on all sprinkler alarms. This individual will "stand by" and when advised by the appropriate Fire Safety staff that the emergency is secured, will stop the flow of water from the activated heads by securing the valves subdividing the area.
- Ensure that contract personnel operate appropriate fire pumps and activate smoke purge fans as necessary.

Electrical Section

Supervisor, Electrical Contractor

- Upon receipt of a fire alarm notification, dispatch a staff member to respond to at least one floor below the affected floor to "stand by". This individual may be called upon to lend assistance should the emergency involve electrical closets or fixtures. For emergencies in subgrade areas, a staff electrician will be dispatched to the Fire Command Station in the building nearest the affected area.
- Upon notification of an actual fire emergency, dispatch one contract electrician to at least one floor below the affected floor, two electricians to the nearest sub-station below the affected floor and a supervisor to the Fire Command Station of the affected building to assist, if necessary. For emergencies in subgrade areas, a supervisor and five electricians will respond to the Fire Command Station in the building nearest the affected area.
- Ensure that smoke detectors and/or alarm panels are reset and cleared once the situation is established as a non-emergency or when the emergency is secured.
- Respond to electrical incidents and secure equipment (remotely) at the request of the Fire Safety Director or Fire Department Chief Officer.
- In the event of a major disaster (fire, explosion, power failure, etc.), all staff electricians (excluding the response team) will respond to the electrical shop/office. If the building in which the shop is located is the scene of the emergency, all electricians will respond to:

  - The corner of Church Street and Liberty Street.
  - If inaccessible, the corner of Church Street and Fulton Street, near 5 WTC.

- During an actual fire emergency, insure the use of appropriate radio call signs to properly identify electrical personnel responding to the emergency.
- Provide portable emergency power where needed or as requested.

Port Authority Supervisor

- Upon notification of an actual fire emergency, or at the request of the Fire Safety Director, respond to the Fire Command Station in the lobby of affected building to assist as necessary.
- In response to fire emergencies threatening normal electrical service, ensure that electrical contract staff are dispatched and are "standing by" to secure power as requested.

AT NO TIME ARE STAFF TO PROCEED DIRECTLY TO THE SCENE OF A FIRE EMERGENCY WITHOUT THE APPROVAL OF THE FIRE SAFETY DIRECTOR (OR DESIGNATED REPRESENTATIVE) OR THE ON-SCENE FIRE DEPARTMENT CHIEF OFFICER

7-2.4 NEW YORK CITY FIRE DEPARTMENT

- Respond to the scene of possible/actual fire emergencies.
- Command incident.
- Control/extinguish fire.
- Evacuate occupants, if necessary.
- Determine need for smoke purge.
- Advise when fire incident can be "secured".

7-2.5 VERTICAL TRANSPORTATION

Supervisor, Elevator Maintenance Contract

- Upon notification of an actual fire emergency, or at the request of the Fire Safety Director, dispatch elevator mechanics to their appropriate posts to assist, as needed.
- Dispatch one elevator maintenance supervisor to the Fire Command Station to assist as needed.

7-2.6 PROPERTY MANAGEMENT

- The General Property Manager responsible for the property involved in the incident will assume full responsibility as the WTC Liaison Officer and will be stationed in the lobby at the Fire Command Station/Elevator Console area.
- The General Property Managers from the other buildings along with the Senior Property Manager and staff of the affected property will assist the Liaison Officer in the lobby.
- The Senior Property Managers and their staff from the unaffected properties will report to the Situation Room and Property Management Office at the Operations Control Center and activate all telephones, computers and the Emergency Tenant Notification System.
- The Senior Property Managers will assume all responsibility for disseminating all pre-cleared information to staff and tenants. One staff member will act as the official scribe, maintaining a constant record of events as they occur.

- The Liaison Officer will be responsible for notifying the Chief Operating Officer and Media Relations, if applicable, and will work closely with Senior World Trade and Port Authority Staff as well as all World Trade Center Units – Life Safety & Security, Police, Vertical Transportation, Engineers Office, Central Systems, General Maintenance, Locksmith Shop, Construction, Project Management and Operations Management.
- If necessary, a representative from Media Relations will also be in the lobby to field questions from the media/press.

Tenant Assistants

- Report to the Situation Room to assist Property Managers in the handling of tenant inquiries.

7-2.7 TENANT FIRE SAFETY TEAM

Under New York City Code, each floor of a high rise building must be under the direction of a designated Floor Warden who will coordinate the initial evacuation of occupants in the event of fire. The Floor Warden is assisted by Deputy Floor Wardens and Searchers. Tenant Fire Safety Teams are instructed to immediately report any fire or smoke condition by telephoning the Police Desk or by activating one of the manual pull stations on their floor.

The main duties of the Floor Warden are:

- Insure that an alarm has been transmitted.
- Insure that all occupants are notified of the fire and that they proceed immediately to execute the Fire Safety Plan.

In the event of fire, ascertain location of the fire and coordinate the evacuation of the floor in accordance with directions received and the following guidelines:

- The most critical evacuations must occur on the fire floor and the floor directly above.
- Evacuation from the other floors shall be instituted when instructions from the Fire Command Station or conditions indicate such action.
- Evacuation should be via uncontaminated stairs being sure to avoid stairs being used by the Fire Department personnel. If this is not possible, Fire Department personnel should be made aware before a door to the fire floor is opened.
- Evacuation to two or more levels below the fire floor is generally adequate.
- In the event that the stairways serving the floor and/or floors above are unusable due to contamination or cut off by fire and/or smoke, or that several floors above involving large numbers of occupants must be evacuated, consideration may be given to using elevators in accordance with the following:

- If the elevator servicing a floor also services the fire floor, it shall not be used. However, elevators may be used if the Floor Warden receives specific instructions from the Fire Safety Director or Fire Department.
- If elevators do not service the fire floor and their shafts have no openings on the fire floor, they may be used at the direction of the Fire Safety Director or Fire Department.
- Elevators operated by Firefighters or trained building personnel may be used.
- The Floor Warden shall select the safest stairway to use for evacuation on the basis of the location of the fire and any information received from the Fire Command Station. The Floor Warden shall check the environment in the stair prior to entry for evacuation. If it is affected by smoke, an alternate stair shall be selected and the Fire Command Station notified.
- Ensure that the Fire Command Station is informed of the means being employed for evacuation by the occupants of the floor.
- Floor Wardens on floors above the fire shall, after executing the Fire Safety Plan, notify the Fire Command Station of the means of egress being used for evacuations.
- Inform the Fire Command Station of the location of evacuees.

7-3 FIRE RESPONSE FOR PATH EMERGENCIES

(in addition to general fire response procedures)

7-3.1 LIFE SAFETY & SECURITY

Fire Safety Director

- Respond to the appropriate Fire Command Station, or scene, as appropriate, and assume all duties and responsibilities of the Fire Safety Director.
- Verify that the New York City Fire Department has been notified of the alarm.
- Insure that the World Trade Center Fire Brigade and Emergency Response Team are notified and respond.
- Direct overall activities and response.
- Coordinate all activities with New York City Fire Department and other Emergency Response Personnel.
- If necessary, confer with World Trade Center and PATH Police supervisors to determine conditions and identify, if necessary, areas to be evacuated, route of evacuation, stairwells used and potential refuge areas.
- Initiate evacuation procedures.
- Determine if the general public should be restricted from the affected area(s) and if so, utilize appropriate security staff to restrict access.
- Deploy security officers to secure area(s) and deny access to unauthorized individuals.
- Dispatch "key runs" as appropriate.
- When emergency is secured, ensure that all alarm and public address systems are reset.
- Prepare Port Authority Fire Report (Form 1624).

- Prepare appropriate memorandums/reports.
- Investigate cause and origin of fire.
- In the event of an actual fire, prepares a chronological report noting the all pertinent details.

Operations Control Center Supervisor

- Upon notification of a PATH fire alarm or report of an actual fire, immediately make all notifications in Exhibit 7A.
- Advise the PATH Train Master of all alarms.

Security Officers

Vertical Patrols

- Upon notification of a PATH fire emergency, contact sector supervisor to determine if assistance is required in PATH area(s).

Sector Supervisors

- Upon notification of a PATH fire emergency, contact Life Safety & Security Supervisor via radio to receive assignment.

Security Officer "Key Run"

- Upon notification of a PATH fire emergency, respond to the Operations Control Center where the appropriate master keys and Fire Department radios will be obtained. Thereafter, the Key Run will contact the Life Safety & Security Supervisor via radio to ascertain where to respond.

Resident Manager - Security Contractor

- During business hours, respond to PATH Square and contact the Life Safety and Security Supervisor via radio.

7-3.2 POLICE

- Respond to all PATH fire alarms at the World Trade Center.

WTC Police Desk Officer

- Notify Fire Safety Director, Supervisor, Mechanical Contractor and Port Authority Chief Maintenance Supervisor (Mechanical).
- Advise PATH Police of the alarm and location if known.

7-3.3 OPERATIONS and MAINTENANCE MANAGEMENT

Mechanical Section

Supervisor, Mechanical Contractor

- Respond to the HVAC Fan Control Room and make contact with the PATH Power Director utilizing the direct telephone line.
- Direct contract personnel to sequence fans in conjunction with guidance from the Train Master.

7-3.4 PATH

Power Director's Office

- Instruct the Supervisor, World Trade Center Mechanical Contractor to activate a specific ventilation pattern based on the fire location indicated on the HVAC system chart. The fire location zone is the area identified by the PATH Train Master based on the notification of a fire and/or smoke condition.

Power Director's Office

- Notify PATH personnel and coordinate system power appropriately as directed by the PATH Train Master.
- Dispatch electrical personnel to reset the fans in Substation #3 upon completion of the incident.

Train Master

- Notify PATH personnel of fire and/or smoke conditions.
- Guide the Supervisor, World Trade Center Mechanical Contractor in sequencing fans.
- Inform the PATH Power Director of the specific fire location based on the fire and/or smoke conditions.
- In the event of a major incident, designate a PATH employee as the on-scene coordinator. This employee will be responsible for establishing a Communications Command Post to coordinate the response and to provide an open channel of communications between the Fire Department, Emergency Medical Services, WTC Police, WTC Fire & Life Safety, WTC Security personnel, PATH Police and the Train Master.
- Advise the Operations Control Center of alternate service strategies, if applicable.

EXHIBIT 7C
EMERGENCY FIRE RESPONSE CARTS

LOCATION	PURPOSE
Towers One & Two	
Lobby Level Emergency Room adjacent to freight elevator 48	For use on fires in Zone 1
44th floor Skylobby Emergency Room - at main corridor intersection	For use on fires in Zone 2
78th floor Skylobby Emergency Room - at main corridor intersection	For use on fires in Zone 3
Two World Trade Center, 110th floor	For use on fires on observation deck
4 WTC	
Lobby level Emergency Room adjacent to freight elevators FE3 - FE4	For use on fires in 4 WTC and Concourse stores
5 WTC	
Lobby Level Emergency Room - Vesey Street lobby	For use on fires in 5 WTC
Subgrade	
Police Emergency Room	For use on Subgrade fires parking garages and truck dock

CHAPTER 8

FLOODS

CHAPTER 8

FLOODS

GENERAL INFORMATION 8-1

Scope 8-1.1
Major Responsibilities 8-1.2
Notifications 8-1.3

RESPONSE 8-2

Operations and Maintenance Management 8-2.1
Vertical Transportation 8-2.2
Life Safety and Security 8-2.3
Property Management 8-2.4

FLOODS

8-1 GENERAL INFORMATION

8-1.1 SCOPE

This procedure covers floods which generally occur due to:

- Mechanical failures in the building and tenant water systems.
- Structural failures within the complex which may allow rain or ground water to penetrate and flood an area.

8-1.2 MAJOR RESPONSIBILITIES

Operations and Maintenance Management

- Operations Management - Insure that initial response by the cleaning contractor is prompt and effective.
- Mechanical Section - Secure mechanical systems.
- Electrical Section - Prevent electrical hazards.
- Structural Section - Repair or replace damaged ceiling tiles, walls, carpeting, etc.

Vertical Transportation

- Insure that elevator maintenance contractor inspects and repairs damaged equipment.

Life Safety and Security

- If necessary, respond to appropriate Fire Command Station to assume the duties of the Fire Safety Director if flood has affected fire/life safety systems.
- Deploy security officers as necessary based on the severity of the situation.

Property Management

- Act as WTC Liaison Officer.
- Coordinate with appropriate WTC Units on issues affecting tenants.
- Notify appropriate tenants/disseminate information.

8-1.3 NOTIFICATIONS

- The initial report of a flood will be made to the Operations Control Center Supervisor identifying the following items:

- In instances where fire protection services are compromised, notify the Fire Safety Director and respond to the appropriate Fire Command Station and assume appropriate duties.
- Coordinate all activities with the New York City Fire Department, if necessary.
- Direct public address announcements, if necessary.
- Deploy security staff to secure evacuated or vacated floors, zones and areas to prevent reoccupancy.
- Dispatch "key-runs" as necessary.

8-2.4 PROPERTY MANAGEMENT

- The General Property Manager responsible for the property involved in the incident will assume full responsibility as the WTC Liaison Officer and will be stationed in the lobby at the Fire Command Station/Elevator Console area.
- The General Property Managers from the other buildings along with the Senior Property Manager and staff of the affected property will assist the Liaison Officer in the lobby.
- The Senior Property Managers and their staff from the unaffected properties will report to the Situation Room and Property Management Office at the Operations Control Center and activate all telephones, computers and the Emergency Tenant Notification System.
- The Senior Property Managers will assume all responsibility for disseminating all pre-cleared information to staff and tenants. One staff member will act as the official scribe, maintaining a constant record of events as they occur.
- The Liaison Officer will be responsible for notifying the Chief Operating Officer and Media Relations, if applicable, and will work closely with Senior World Trade and Port Authority Staff as well as all World Trade Center Units – Life Safety & Security, Police, Vertical Transportation, Engineers Office, Central Systems, General Maintenance, Locksmith Shop, Construction, Project Management and Operations Management.
- If necessary, a representative from Media Relations will also be in the lobby to field questions from the media/press.

- Location
- Size of flood
- Cause (if known)

The Operations Control Center Supervisor will make all notifications listed in Exhibit 8A.

EXHIBIT 8A
NOTIFICATIONS

Refer to Appendix A for names and telephone numbers.

Individuals or their alternates must be paged and/or contacted at home if the incident occurs off-hours.

FROM	TYPE	TO
OCC	**Any Flood**	Manager, Operations & Maintenance Management Supervising Engineer Manager, Operations Management ABM Building Services Office (business hours only) Supervisor, Mechanical Contractor PA Maintenance Supervisors Supervisor, Electrical Contractor All individuals listed in "Flood" paging group
	Large Floods	Vertical Transportation Elevator Maintenance Contractor Life Safety/Security Supervisor Fire Safety Director Security & Life Safety Director Appropriate General Property Manager Appropriate Senior Property Manager Appropriate Property Manager(s) Manager, Operations & Maintenance Management Supervising Engineer PA Maintenance Supervisors Police Desk
O&MM Duty Supervisor	**Any Flood**	Necessary O&MM Supervisors Janitorial Contractor Management

8-2 RESPONSE

8-2.1 OPERATIONS and MAINTENANCE MANAGEMENT

Duty Supervisor

- Dispatch an Operations Group Supervisor to the area to determine the severity of the situation.
- Request Operations Control Center Supervisor to instruct freight elevator operators to position elevators above the flood floor(s), if necessary. If passenger elevators are affected, direct the elevator starter to reposition them also (if the elevator starter is not available, the Operations Group Supervisor will need to undertake this duty).
- If the flood is on an asbestos containing material (ACM) floor, refer to the Asbestos Contamination chapter for proper procedures.
- If any elevator cabs, shafts or pits show evidence of water, request elevator maintenance contractor to make repairs as soon as possible.
- If *absolutely necessary*, remove tenants or patrons utilizing non-affected local elevators. Otherwise, directs evacuees to use stairways to access an unaffected elevator bank (or use freight elevators).
- Continuously update Operations Control Center.

Operations Group Supervisor

Direct janitorial contractor to immediately:

- Respond with flood cart.
- Secure the affected area.
- Pick up and remove water using wet-vacs, pumps, mops, buckets, etc.
- Cover furniture and other tenant property with polysheeting/plastic.
- Direct elevator starters to move freight and passenger elevators at least one floor above the affected area to prevent water damage.
- Request the Life Safety & Security Supervisor to secure affected area, as needed.
- When flood has been secured, direct janitorial contract staff to begin clean up.
- Arrange for cleaning, shampooing and drying of carpeting.

Mechanical Section

Maintenance Supervisor or Mechanical Contract Supervisor on duty directs staff to:

- Respond immediately to flood location.
- Determine the origin of the leak and system(s) affected.
- Secure valves and quick drain at a suitable location if possible.

- Authorize the 24 hour operation of HVAC systems to speed the "drying out" of affected areas.
- Provide a verbal report to the Duty Supervisor concerning origin of flood and expected duration of any system outage caused by securing of the water leak (i.e. sprinklers, domestic water, etc.).

Electrical Section

Maintenance Supervisor or Electrical Contract Supervisor on duty directs staff to:

- Check electric closets and floor power cells to determine if flood waters have affected systems.
- Divert water and cover circuit breakers with plastic.
- Secure power if electrical shock hazards exist.
- Report to the Duty Supervisor the extent of related electrical outages caused by flood.
- Provide temporary power, if needed, to facilitate cleanup and repair.
- Clean and repairs damaged electrical systems.

Structural Section

Maintenance Supervisor or Structural Contract Supervisor on duty directs staff to:

- Replace damaged ceiling tiles.
- Replace damaged carpets.
- Repair any damage to sheetrock walls.
- Assist with other related activities.

8-2.2 VERTICAL TRANSPORTATION

Direct elevator maintenance contractor to:

- Inspect elevators and escalators for damage and perform any necessary repairs.

8-2.3 LIFE SAFETY AND SECURITY

Life Safety and Security Supervisor

- Upon report of a flood, immediately contact the Operations and Maintenance Management Duty Supervisor.
- Request OCC Supervisor to make all notifications listed in Exhibit 8A.
- Request OCC Supervisor to transmit an Alpha-numeric page.

CHAPTER 9

NATURAL GAS LEAKS

CHAPTER 9

NATURAL GAS LEAKS

GENERAL INFORMATION	9-1
Scope	9-1.1
Major Responsibilities	9-1.2
Notifications	9-1.3
RESPONSE	9-2
Life Safety and Security	9-2.1
New York City Fire Department	9-2.2
Police	9-2.3
Operations and Maintenance Management	9-2.4
Con Edison	9-2.5
Property Management	9-2.6

NATURAL GAS LEAKS

9-1 GENERAL INFORMATION

9-1.1 Scope

This procedure covers the response to natural gas leaks occurring within the World Trade Center complex.

9-1.2 MAJOR RESPONSIBILITIES

Life Safety and Security

- Staff respond to appropriate Fire Command Station to assume the responsibilities of Fire Safety Director.
- Coordinate all activities with the New York City Fire Department and other emergency response personnel.
- Initiate evacuation, if necessary.
- Direct use of public address announcements.
- Deploy security officers to secure area, deny access to unauthorized individuals and provide other related security functions.
- Dispatch "key runs" as required.

New York City Fire Department

- Respond to incident, vent gas and secure leak if possible.
- Initiate precautionary suppression operations.
- Supply technical assistance as appropriate.
- Recommend when area(s) can be reoccuppied.

Police

- Respond as building Fire Brigade.
- As requested, secure area to prevent unauthorized entry.

Operations and Maintenance Management

- Mechanical Section: Recommend mechanical ventilation and implement same when requested by the Fire Safety Director or Fire Department personnel.
- Electrical Section: Reset gas detection equipment when requested by the Fire Safety Director or Fire Department personnel.

Con Edison

- Respond to incident. Secure leak "upstream" of main gas valve.
- Provide technical assistance.

Property Management

- Act as WTC Liaison Officer.
- Coordinate with appropriate WTC Units on issues directly impacting tenants.
- Disseminate information to tenants.

9-1.3 NOTIFICATIONS

The initial report of a natural gas leak will be made to the Operations Control Center, identifying the location of the leak or odor.

All notifications are to be made by the Operations Control Center Supervisor and are listed in Exhibit 9A.

EXHIBIT 9A
NOTIFICATIONS

Refer to Appendix A for names and telephone numbers.

Individuals or their alternates must be paged and/or contacted at home if the incident occurs off-hours.

FROM	TO
OCC	Fire safety Director Life Safety and Security Supervisor Police Desk Manager, Operations & Maintenance Management PA Maintenance Supervisors Security & Life Safety Director Office of Environmental Policy & Management Appropriate General Property Manager Appropriate Senior Property Manager Appropriate Property Manager All individuals listed in "Gas Leak" paging group

NOTE: If the incident occurs in the Marriott Hotel (3 WTC), the Hotel Chief Engineer shall be contacted immediately.

EXHIBIT 9B
MAIN GAS VALVE LOCATIONS

Marriott Hotel	6" shutoff valve located in closet on B1 level of hotel parking lot adjacent to entrance ramp from Liberty Street, labeled "GAS METER ROOM, SHUTOFF VALVES INSIDE". Serves - Laundry Services - Kitchens in Lobby, - Plaza & 1st floor levels
4 WTC	3" shutoff valve located in B1 level Mechanical Equipment Room between fans ACS #S2-3 and ASOA S2-1E. Serves - Coffee Exchange
5 WTC	6" shutoff valve located on the Concourse at Vesey Street inside closet marked "GAS METER ROOM, SHUTOFF VALVES INSIDE". Serves - Sbarro's - Menchaiko Tei - Fine & Shapiro

9-2 RESPONSE

9-2.1 LIFE SAFETY & SECURITY

Operations Control Center Supervisor

Upon notification of gas detection, make all notifications listed in Exhibit 9A. To reduce the anxiety of visitors at public facilities at the World Trade Center, including Widows on the World and the Top of the World Observation Deck, the Restaurant and Observation Deck Managers/Supervisors must be notified so they are aware of the facility emergency. This is necessary when numerous emergency response vehicles respond to building entrances.

Note: Detection of gas by detectors automatically shuts off gas and activates an alarm at the Fire Command Station for the Sbarro's and Menchaiko-Tei tenant spaces only.

Life Safety and Security Supervisor

- Respond to affected Fire Command Station, or scene of emergency, and assume the responsibilities of the Fire Safety Director.
- Verify notification to Fire Safety Director.
- Coordinate all activities with the New York City Fire Department and other emergency response personnel.
- Initiate evacuation procedures, if required.
- Direct public address announcements, if required.
- Determine if the general public should be restricted from the affected area(s). If so, utilized appropriate security staff to restrict access.
- Deploy security staff to secure evacuated areas, floors, zones, etc. and to prevent reoccupancy.
- Dispatch "key-runs".

9-2.2 NEW YORK CITY FIRE DEPARTMENT

- Respond to affected area.
- Clear area of gas and existing fire hazards.
- Secure Main Gas Valve(s).

9-2.3 POLICE

- Respond to scene.
- As requested, secure and evacuate area as necessary.
- Prevent unauthorized entry.

9-2.4 OPERATIONS and MAINTENANCE MANAGEMENT

Duty Supervisor

- Respond to the affected area to assist Life Safety & Security and Police in securing the area to prevent unauthorized entry

Note: based on the severity of the situation, Self Contained Breathing Apparatus may be required. Staff not trained in the use of SCBA should not attempt to use such equipment as improper use of breathing apparatus in atmospheres dangerous to life and health could result in serious injury or death.

Mechanical Section

- Provide ventilation to the affected area if requested by Life Safety and Security or Fire Department.
- Repair leak once area is deemed safe.
- Verify that no gas is leaking after gas service is restored.

Electrical Section

- At the request of Life Safety and Security or the Fire Department, reset gas detection devices.

9-2.5 CON EDISON

- Secure gas leak(s). Provide technical assistance.

9-2.6 PROPERTY MANAGEMENT

- The General Property Manager responsible for the property involved in the incident will assume full responsibility as the WTC Liaison Officer and will be stationed in the lobby at the Fire Command Station/Elevator Console area.
- The General Property Managers from the other buildings along with the Senior Property Manager and staff of the affected property will assist the Liaison Officer in the lobby.
- The Senior Property Managers and their staff from the unaffected properties will report to the Situation Room and Property Management Office at the Operations Control Center and activate all telephones, computers and the Emergency Tenant Notification System.
- The Senior Property Managers will assume all responsibility for disseminating all pre-cleared information to staff and tenants. One staff member will act as the official scribe, maintaining a constant record of events as they occur.
- The Liaison Officer will be responsible for notifying the Chief Operating Officer and Media Relations, if applicable, and will work closely with Senior World Trade and Port Authority Staff as well as all World Trade Center Units – Life Safety & Security, Police, Vertical Transportation, Engineers Office, Central Systems, General Maintenance, Locksmith Shop, Construction, Project Management and Operations Management.

- If necessary, a representative from Media Relations will also be in the lobby to field questions from the media/press.

CHAPTER 10

LABOR DISPUTES AND DEMONSTRATIONS

CHAPTER 10

LABOR DISPUTES AND DEMONSTRATIONS

GENERAL INFORMATION	10-1
Scope	10-1.1
Major Responsibilities	10-1.2
Notifications	10-1.3
RESPONSE	10-2
Affected Unit	10-2.1
Director's Office	10-2.2
Life Safety and Security	10-2.3
Police	10-2.4
Operations and Maintenance Management	10-2.5
Property Management	10-2.6

Exhibit 10A	Notifications
Exhibit 10B	Emergency Plaza Closing
Exhibit 10C	Emergency Mall Closing

LABOR DISPUTES AND DEMONSTRATIONS

10-1 GENERAL INFORMATION

10-1.1 SCOPE

This procedure covers the response to labor disputes which occur in the form of:

- Work stoppages
- Picket lines
- Sabotage

It also covers demonstrations and civil disorder which may require the full or partial closing of the Mall and Plaza.

NOTE: Demonstrations are not allowed on the Mall. However, "free speech" permits may be obtained by interested parties. The permit allows a select number of persons from the same organization to distribute material in designated areas.

Demonstrations are not allowed on the Plaza. However, lawful demonstrations may be allowed on certain portions of Church Street.

10-1.2 MAJOR RESPONSIBILITIES

Affected Unit

- The WTC unit nearest the affected parties, which has best access to information, determines, with the advice of staff, an approach to resolve or reduce the effect of the labor dispute and/or demonstration.

Life Safety and Security

- Along with Police management staff, meet with labor leaders in advance of activities.
- If necessary, respond to the appropriate Fire Command Station, or scene of disturbance, to assume fire safety responsibilities and coordinate response activities.
- Direct use of public address announcements.
- Deploy security officers to secure area(s) and deny access to unauthorized individuals as appropriate.
- Dispatch "key runs" as appropriate.

Police

EXHIBIT 1OC
EMERGENCY CLOSING OF MALL (except PATH)

Action and Location	Staffing Required
1 WTC: Barricade off revolving doors leading to Concourse	4 Porters to set up barricades 3 guards on Tower side of 1 WTC
2 WTC: Barricade off revolving doors leading to Concourse	4 Porters to set up barricades 3 guards on Tower side of 2 WTC
4 WTC: Secure all doors leading to 4 WTC from Liberty St. Install proper signage stating "concourse closed"	2 guards 2 porters
5 WTC: Secure Concourse with barricades but allow PATH entrance via Vesey St.	4 porters 4 guards
Subways: Close BMT Subways Close 8th Ave. Subway Close IRT Subway Put security gates in place from PATH square to 5 WTC	2 OGS securing doors to subways 6 guards (subways) 2 guards (PATH)

NOTE:
For PATH closing, follow above and also notify PATH to suspend service to WTC. Lock 5 WTC, Vesey St. doors and post at least one guard at doors.

- In conjunction with the Life Safety and Security Division and Property Management, meet with labor leaders in advance to communicate rules and regulations regarding such activities at the World Trade Center.
- Monitor picket lines and demonstrations.
- Insure lawful assemblance.
- Enforce protection of life and property.

Operations and Maintenance Management

- Increase frequency of door hardware inspections and repairs. Rekey cylinders as necessary or as directed.

Director's Office

- Insure all Units coordinate activities, including those with staff departments.

Property Management

- Act as WTC Liaison Officer.
- Notify tenants as appropriate or necessary.

10-1.3 NOTIFICATIONS

The initial report of a strike or picket activity will be made by the appropriate Unit Manager or Police supervisor who will make the notifications as listed in Exhibit 10A, identifying the union or other group involved and the degree of actual or potential disruption.

10-2 RESPONSE

10-2.1 AFFECTED UNIT

- Upon report of a labor dispute or possible demonstration, immediately discuss the situation with appropriate contract management, Police supervision or other entities to understand the nature and extent of the dispute or possible demonstration.
- Make notifications according to Exhibit 10A.
- Meet with the union representative(s) to identify:

1. The form of action: picket line, work stoppage, demonstration, etc.
2. The anticipated time of implementation and its duration.
3. The specific demands of the union or organization.

- Attempt to resolve issues with contract management or union representative(s).
- Prepare a strategy to effectively maintain the unit's daily responsibilities.
- Prepare to secure certain sensitive areas during the labor dispute or demonstration. If necessary:
- Request Life Safety and Security to deactivate magnetic access cards in the possession of the personnel involved in the potential demonstration.
- Request Life Safety and Security to extend or increase security presence in designated areas.
- Request the Police to prepare for possible emergency and provide available intelligence.
- Request the Port Authority Locksmiths to re-key certain doors, areas, etc. as necessary.
- Discuss issues with the Law Department to determine if legal remedies exist.
- Meet with the Director and other key management personnel to finalize the plan of action which will minimize the effect on World Trade Center tenants, patrons and visitors.

10-2.2 DIRECTOR'S OFFICE

- Monitor situation through daily reports from affected units.
- Insure proper actions are taken to minimize the effect on the facility.
- If necessary, personally intercede with union representatives or entities.
- Insure that all units, including the Law Department and Public Affairs, commit sufficient resources to manage the situation.

10-2.3 LIFE SAFETY and SECURITY

- Along with the Police meet with labor leaders in advance of planned activities.

- Depending on the circumstances and activities, and if necessary, respond to the appropriate Fire Command Station, or scene of disturbance to assume fire safety responsibilities.
- If necessary, coordinate activities with the New York City Fire Department and other emergency response personnel.
- Initiate evacuations, if necessary.
- Direct use of public address announcements, if necessary.
- Deploy security officers to secure area(s) and deny access to unauthorized individuals at the request of the Police supervisor.
- Direct cancellation of magnetic access cards in possession of personnel involved in potential demonstration.
- Depending on circumstances, restrict issuance of keys or use of "key runs" to sensitive areas, elevators, floors, etc.
- If necessary, authorize issuance of temporary or special identification cards and parking permits.
- Dispatch "key runs" as appropriate.

10-2.4 POLICE

- Obtain information from affected unit or other entities regarding nature and extent of possible demonstration.
- Establish contact with union or demonstration leaders and, along with WTC Management, explain guidelines for proposed activities.
- Contact appropriate PAPD, NYPD and other jurisdiction's intelligence units to obtain pertinent information on past strike or demonstration activities.
- Monitor activities to ensure all rules and regulations are followed and all activities are conducted lawfully.
- Insure all appropriate specialized units are on call or on scene (ESU, Crowd Control Teams, Arrest Teams, etc.).
- Insure that tenant and public access to the facility is unimpeded by picket lines or demonstrations.
- Insure access for mobility restricted individuals.
- Coordinate with Life Safety & Security and Operations & Maintenance Management for additional resources.
- Protect life and property.

10-2.5 OPERATIONS and MAINTENANCE MANAGEMENT

- Arrange for the placement of barricades in designated areas for picketing and/or demonstrations (coordinate with Life Safety & Security).
- With the advice and recommendation of Life Safety and Security, determine the need for re-keying sensitive areas/locations.
- Increase the frequency of inspecting and repairing door hardware.
- Review electronic card access roster to determine if certain cards should be revoked.

10-2.6 PROPERTY MANAGEMENT

- The General Property Manager responsible for the property involved in the incident will assume full responsibility as the WTC Liaison Officer and will be stationed in the lobby at the Fire Command Station/Elevator Console area.
- The General Property Managers from the other buildings along with the Senior Property Manager and staff of the affected property will assist the Liaison Officer in the lobby.
- The Senior Property Managers and their staff from the unaffected properties will report to the Situation Room and Property Management Office at the Operations Control Center and activate all telephones, computers and the Emergency Tenant Notification System.
- The Senior Property Managers will assume all responsibility for disseminating all pre-cleared information to staff and tenants. One staff member will act as the official scribe, maintaining a constant record of events as they occur.
- The Liaison Officer will be responsible for notifying the Chief Operating Officer and Media Relations, if applicable, and will work closely with Senior World Trade and Port Authority Staff as well as all World Trade Center Units – Life Safety & Security, Police, Vertical Transportation, Engineers Office, Central Systems, General Maintenance, Locksmith Shop, Construction, Project Management and Operations Management.
- If necessary, a representative from Media Relations will also be in the lobby to field questions from the media/press.

EXHIBIT 10A
NOTIFICATIONS

Refer to the Appendix A for names and telephone numbers.

Individuals or their alternates must be paged and/or contacted at home if the incident occurs off-hours.

FROM	TO
Affected Unit	Director's office OCC Police Desk General Property Manager(s) Life Safety & Security Director Fire Safety Director Manager, Operations & Maintenance Management
General Property Manager(s)	Affected tenants
Police	Central Police Desk
OCC	All individuals listed in "Labor Dispute" Paging Group

EXHIBIT 10B
EMERGENCY CLOSING OF PLAZA

Action and Location	Staffing Required
Church St. Plaza entrance: Close ceremonial fence or install barricades	4 porters 2 guards (1 on each ramp)
1 WTC: Secure revolving doors Secure escalators Secure gates (North & South of Tower) Proper signage at the bottom of escalator	1 guard for securing revolving doors & gates 1 porter for signage 1 guard at the bottom of escalator
2 WTC: If observation deck is open, follow procedures for 1 WTC If observation deck is closed: Proper signage at the bottom of escalator explaining plaza, Observation deck, closed;TKTS open Secure gates (east & west of Tower)	1 guard for securing doors and gates 1 porter for signage 1 guard at top of escalator 1 guard at each exit (east & west sides of Tower 2)
4 WTC: Secure revolving doors leading to Plaza	1 guard
5 WTC: Secure revolving doors	1 guard
Full Plaza Closing:	6 guards to insure that no one exits onto plaza except for emergency egress

CHAPTER 11

MEDICAL EMERGENCIES

CHAPTER 11

MEDICAL EMERGENCIES

GENERAL INFORMATION	11-1
Scope	11-1.1
Major Responsibilities	11-1.2
Notifications	11-1.3
RESPONSE	11-2
Police	11-2.1
Life Safety and Security	11-2.2
Port Authority Medical Department	11-2.3
FDNY - Emergency Medical Services	11-2.4
Property Management	11-2.5

Exhibit 11A Information To Be Provided
Exhibit 11B Notifications

MEDICAL EMERGENCIES

11-1 GENERAL INFORMATION

11-1.1 SCOPE

This procedure covers the response to medical emergencies occurring in the World Trade Center complex.

11-1.2 MAJOR RESPONSIBILITIES

Police

- Make notifications for Emergency Medical Service response.
- Determine the best arrival location for Emergency Medical Service units.
- Render appropriate assistance to victims.

Life Safety and Security

- Arrange for emergency elevator service via the Operations Control Center elevator communications system.
- In the event of a major event, respond to the appropriate Fire Command Station or scene of incident.
- Coordinate activities with the New York City Fire Department and other emergency response personnel.
- If a need exists to restrict the general public from the area, deploy security personnel as appropriate.

Port Authority Medical Department

- During business hours, respond to medical emergencies for Port Authority employees only.

New York City Fire Department

- When requested, respond to all medical emergencies.

FDNY Bureau of Emergency Medical Services

- When requested, respond to all medical emergencies.

Operations and Maintenance Management

- As requested, direct maintenance contractor to properly clean/disinfect areas where blood or other bodily fluids may be present due to incident.

Property Management

- Act as WTC Liaison Officer.

11-1.3 Notifications

- The initial report of a medical emergency will be made to the Police Desk identifying the information listed in Exhibit 11A.

- Notifications thereafter are to be made by the Police Desk Officer. Additional notifications are made by the Operations Control Center Supervisor in the event of a serious injury or fatality.

11-2 RESPONSE

11-2.1 POLICE

- Upon notification of a medical emergency, the Police Desk Officer will dispatch a Police Officer to the scene.
- The Police Desk will summon Emergency Medical Services.
- The responding officer will advise the Police Desk if additional police or medical personnel are required.
- If the Central Police Desk needs to be advised of any conditions, the WTC Police Desk will make appropriate notifications.
- The Police supervisor will determine if other resources are required (NYPD, multiple ambulances, etc.).
- The Police Desk will coordinate the response to the medical emergency.
- Police Officers on scene will complete appropriate paperwork.
- If deemed necessary by the Police supervisor, a chronological document of events will be established at the Police Desk.
- Until the arrival of Emergency Medical Services personnel, Police Officers will render first aid, comfort and support to victims.

Arrival Locations for Emergency Medical Services

• One World Trade Center	"VIP" Drive
• Two World Trade Center	Liberty Street (inner roadway)
• Three World Trade Center	West Street in front of Marriott Hotel
• Four World Trade Center	Liberty Street (inner roadway).
• Five World Trade Center	Vesey Street entrance
• Six World Trade Center	"VIP" Drive - enter through lobby
• Seven World Trade Center	Vesey Street truck dock
• Plaza	Church Street (inner roadway)
• Concourse	Building closest to call

11-2.2 LIFE SAFETY AND SECURITY

Life Safety and Security Supervisor

- Depending on the circumstances and activities and, if necessary, respond to the appropriate Fire Command Station to assume fire safety responsibilities.
- Coordinate activities with the New York City Fire Department and other emergency response personnel.
- If a need exists to restrict the general public from the area, deploy security personnel as appropriate.
- Dispatch "key runs" as necessary.

Operations Control Center Supervisor

- Make necessary notifications according to Exhibit 11B, where cases of serious injury or fatality caused by accident are involved.
- If the incident involves a Port Authority employee, dispatch a freight elevator to the 62nd floor (Tower One) and direct the operator to stand by to pick up the Port Authority Medical Department response staff.
- In cases of a construction accident, notify the Construction Division.
- Request elevator starters have appropriate elevators on "stand by" for emergency response to the incident.

11-2.3 PORT AUTHORITY MEDICAL DEPARTMENT (business hours only)

Note: The Port Authority Medical Department only responds to medical emergencies involving Port Authority employees.

- Respond to elevator(s) indicated by the Operations Control Center Supervisor for escort to the scene of the incident.
- If necessary, request ambulance service.

11-2.4 FDNY BUREAU OF EMERGENCY MEDICAL SERVICE

- Respond to the designated location as requested.

11-2.5 PROPERTY MANAGEMENT

- The General Property Manager responsible for the property involved in the incident will assume full responsibility as the WTC Liaison Officer and will be stationed in the lobby at the Fire Command Station/Elevator Console area.
- The General Property Managers from the other buildings along with the Senior Property Manager and staff of the affected property will assist the Liaison Officer in the lobby.
- The Senior Property Managers and their staff from the unaffected properties will report to the Situation Room and Property Management Office at the Operations

Control Center and activate all telephones, computers and the Emergency Tenant Notification System.

- The Senior Property Managers will assume all responsibility for disseminating all pre-cleared information to staff and tenants. One staff member will act as the official scribe, maintaining a constant record of events as they occur.
- The Liaison Officer will be responsible for notifying the Chief Operating Officer and Media Relations, if applicable, and will work closely with Senior World Trade and Port Authority Staff as well as all World Trade Center Units – Life Safety & Security, Police, Vertical Transportation, Engineers Office, Central Systems, General Maintenance, Locksmith Shop, Construction, Project Management and Operations Management.
- If necessary, a representative from Media Relations will also be in the lobby to field questions from the media/press.

EXHIBIT 11A
KEY INFORMATION TO BE PROVIDED FOR MEDICAL EMERGENCIES

Initial notification to World Trade Center Police Desk

- Name
- Title
- Exact location of incident
- Telephone number

Specifics of Incident

- Nature of illness or injury
- Age
- Male/Female
- If subject is conscious or unconscious
- PA Employee
- Previous history of illness or injury
- If area is asbestos contaminated
- Other known hazards

EXHIBIT 11B
NOTIFICATIONS

Refer to Appendix A for names and telephone numbers.

Individuals or their alternates must be paged and/or contacted at home if the incident occurs off-hours.

FROM		TO
Police		FDNY / EMS Appropriate Post Officer Port Authority Medical Dept. (if PA employee - business hours only) For serious injury caused by accident also notify: Police supervisor Life Safety & Security Operations Control Center Public Affairs Risk Management Division
Fatality		All of the above and NYPD
OCC	**For serious Injuries or Fatalities**	Life Safety & Security Supervisor Security & Life Safety Director Fire Safety Director General Property Manager(s) Manager, Operations & Maintenance Management Manager, Construction Division (if due to construction accident) All individuals listed in "Medical Emergencies" paging group

CHAPTER 12

NATURAL DISASTERS

CHAPTER 12

NATURAL DISASTERS

GENERAL INFORMATION	12-1
Scope	12-1.1
Major Responsibilities	12-1.2
Notifications	12-1.3
RESPONSE	
GENERAL	12-2
Life Safety and Security	12-2.1
Police	12-2.2
Operations and Maintenance Management	12-2.3
Vertical Transportation	12-2.4
Construction Division	12-2.5
Property Management	12-2.6
THUNDERSTORMS / HURRICANES	12-3
Life Safety and Security	12-3.1
Operations and Maintenance Management	12-3.2
Police	12-3.3
Vertical Transportation	12-3.4
Construction Division	12-3.5
Property Management	12-4.6
SUB-ZERO OUTDOOR TEMPERATURES	12-4
Life Safety and Security	12-4.1
Operations and Maintenance Management	12-4.2
Property Management	12-4.3

TIDAL SURGE / WATER PENETRATION	12-5
Life Safety and Security	12-5.1
Police	12-5.2
Operations and Maintenance Management	12-5.3
Vertical Transportation	12-5.4
Construction Division	12-5.5
Property Management	12-5.6
EARTHQUAKE	12-6
Life Safety and Security	12-6.1
Operations and Maintenance Management	12-6.2
Police	12-6.3
Vertical Transportation	12-6.4
Construction Division	12-6.5
Property Management	12-6.6

- Deploy staff to emergency generator plant.
- Inspect emergency generators for damaged machines, exhaust systems, cooling lines, distribution panels etc.
- Operate emergency generator plant if necessary.
- Verify that fire alarm/communication systems are operational.
- Remove or shores any light fixtures, signs or other electrical equipment which may be in danger of falling.
- Provide portable emergency power where needed.
- Inspect all electrical systems and initiate repairs.

General Maintenance Section

- Remove debris from evacuation routes as reported by Life Safety and Security or Operations and Maintenance Management.
- Use planks and plywood to make temporary repairs to broken plate glass windows as needed.
- Remove any hanging ceilings, equipment and other materials which may be in danger of falling.
- Inspect and initiate repairs.

Supervising Engineer

- Determine the extent of facility wide damage, directly and through observations/reports from other units.
- Contact Planning Division and/or Quality Assurance Division Structural Engineers for advice.
- Keep managerial staff informed on the extent of damage.

12-6.3 POLICE

- Determine the need to provide medical assistance.
- If necessary, close roadways and re-direct traffic.

12-6.4 VERTICAL TRANSPORTATION

- Direct elevator maintenance contractor to inspect equipment and, if damage is found, initiate repairs.

12-6.5 CONSTRUCTION DIVISION

- Provide assistance in barricading, repair and debris removal as requested.

12-6.6 PROPERTY MANAGEMENT

- The General Property Manager responsible for the property involved in the incident will assume full responsibility as the WTC Liaison Officer and will be stationed in the lobby at the Fire Command Station/Elevator Console area.
- The General Property Managers from the other buildings along with the Senior Property Manager and staff of the affected property will assist the Liaison Officer in the lobby.
- The Senior Property Managers and their staff from the unaffected properties will report to the Situation Room and Property Management Office at the Operations Control Center and activate all telephones, computers and the Emergency Tenant Notification System.
- The Senior Property Managers will assume all responsibility for disseminating all pre-cleared information to staff and tenants. One staff member will act as the official scribe, maintaining a constant record of events as they occur.
- The Liaison Officer will be responsible for notifying the Chief Operating Officer and Media Relations, if applicable, and will work closely with Senior World Trade and Port Authority Staff as well as all World Trade Center Units – Life Safety & Security, Police, Vertical Transportation, Engineers Office, Central Systems, General Maintenance, Locksmith Shop, Construction, Project Management and Operations Management.
- If necessary, a representative from Media Relations will also be in the lobby to field questions from the media/press.

NATURAL DISASTERS

12-1 GENERAL INFORMATION

12-1.1 SCOPE

This procedure covers the World Trade Center general response to natural disasters such as high winds, hurricanes, severe rain, winter storms, sub-zero temperatures, tidal surges and earthquakes.

It is subdivided into the following sections:

- General Response
- Thunderstorm / Hurricane / High Wind Response
- Sub-Zero Outdoor Temperature Response
- Tidal Surge Response
- Earthquake Response

12-1.2 MAJOR RESPONSIBILITIES

Life Safety and Security

- Depending on the circumstances and activities, respond to the scene of the incident or the appropriate Fire Command Station.
- If necessary, coordinate activities with the New York City Fire Department and other emergency response personnel.
- Initiate evacuations, if necessary.
- Direct use of public address announcements, if necessary.
- Deploy security officers to secure area(s) and deny access to unauthorized individuals.
- Dispatch "key runs" as appropriate.
- Make notifications as listed in Exhibit 12A (OCC).
- Arrange for emergency elevator service (OCC).
- Monitor and reports on status of weather to all units (OCC).

Police

- Coordinate activities with the New York City Police Department.
- Make notifications as appropriate.
- Assist in insuring public safety.

Operations and Maintenance Management

- Operations Management: Supervise janitorial contractor.
- Mechanical Section: Secure mechanical systems.

- Electrical Section: Secure electrical systems.
- General Maintenance Section: Secure damaged ceilings, walls or floors.
- Supervising Engineer: Perform survey(s) to determine equipment and systems to be secured.

Vertical Transportation

- Elevator Maintenance Contractors: Secure affected elevators.

Property Management

- Act as WTC Liaison Officer.
- Coordinate activities with appropriate WTC Units.
- Notify tenants and public; respond to inquiries.

Construction Division

- When requested, provide and direct construction/contract support.

12-1.3 NOTIFICATIONS

- All notifications will be made by the Operations Control Center Supervisor and the WTC Police Desk Officer and are listed in Exhibit 12A.

EXHIBIT 12A
NOTIFICATIONS

Refer to Appendix A for names and telephone numbers.

Individuals or their alternates must be paged and/or contacted at home if the incident occurs off-hours.

FROM	TO
OCC	Life Safety & Security Supervisor Security & Life Safety Director Fire Safety Director Police Desk Manager, Operations & Maintenance Management Supervising Engineer Mechanical Contract Supervisor Electrical Contract Supervisor Structural Contract Supervisor Elevator Contract Supervisor General Property Manager(s) Senior Property Manager(s) Property Manager(s) Public Affairs Manager, Construction Division All individuals listed in "Natural Disasters" paging group
Police	Supervisor Central Police Desk NYPD FDNY Bureau of EMS

12-2 RESPONSE

12-2.1 LIFE SAFETY & SECURITY

Life Safety and Security Supervisor

- Depending on the circumstances and activities, respond to the scene of the incident or the appropriate Fire Command Station to assume Fire Safety responsibilities.
- If necessary, coordinate activities with the New York City Fire Department and other emergency response personnel.
- Initiate evacuations, if necessary.
- Direct use of public address announcements, if necessary.
- Deploy security officers to secure area(s) and deny access to unauthorized individuals.
- Dispatch "key runs" as appropriate.
- Authorize use of temporary or special identification cards valid for duration of emergency.
- Authorize and issues temporary parking permits to emergency response personnel as necessary.
- Direct security contractor to have personnel "stand by" as needed.
- Call in additional Life Safety and Security staff as needed.

Operations Control Center Supervisor

- Make notifications shown in Exhibit 12A.
- Notify Six and Seven World Trade Center, Hotel and World Financial Center if Plaza is closed.
- If high winds exist, refer to the Elevator Chapter in this manual.
- Direct elevator operators to "stand by" for emergency response.
- Monitor weather status through use of NOAA radio, internet weather sites or televised weather reports.
- Call in staff from other divisions as requested.

12-2.2 POLICE

Desk Officer

- Make all appropriate notifications listed in Exhibit 12A.

Note: All notifications made by the Police Desk are to be logged by time, date, person spoken to, and type of condition.

Police Supervisor

- Confer with Life Safety & Security staff.
- Take necessary action to insure the safety of persons in the area.
- If necessary, advise New York City Transit Authority and PATH of the conditions and, if necessary, request to have trains bypass the facility.
- If necessary, close street(s) in the area. If this occurs, the following notifications are to be made:

- ◻ New York City Police Department - First Precinct
- ◻ FDNY Bureau of Emergency Medical Services
- ◻ Central Police Desk

12-2.3 OPERATIONS and MAINTENANCE MANAGEMENT

Operations Management

- Respond to the affected area as requested.

If the report is of flying debris:

- Secure all equipment and materials which can create a hazard.

If there is need for snow/ice removal:

- Notify janitorial contractor as to what procedures must be followed.
- Direct Contract personnel to remove snow/ice from area (salt ramps, shovel walkways/steps, remove drifted snow/ice from in front of all emergency egress doors, if snow is deep enough to impede pedestrian traffic, shovel pathways on plaza to allow emergency egress from buildings).

If there is dangerous icing on a building:

- Dispatch porters to barricade areas where ice may fall.
- Allow ice to melt naturally off buildings.
- Direct cleaning contractor to have personnel "stand by" as needed.
- Obtain additional support as needed from Construction Division.

Mechanical Section

- Operate the Fire Protection Systems as required.
- Secure water distribution systems and equipment as needed to minimize leaks and floods.
- Make repairs as needed.
- Assist other sections if requested.

Electrical Section

- Take necessary action to minimize electrical hazards.
- Maintain power and lighting during emergency procedures.
- Make repairs as needed.
- Assist other sections if requested.
- Verify emergency generator plant availability.

- Provide portable emergency power where needed.

General Maintenance Section

- Upon notification, respond to the affected area.
- If there are broken windows or doors:
- Notify the Police Desk.
- Survey damage and barricade area.
- Secure or "boards up" broken windows/doors if necessary
- Request clean up.
- If there are damaged carpet or ceiling tiles:
- Remove wet ceiling tiles.
- Roll back wet carpet.
- Cut away underpadding.
- Allow up to 24 hours for residual water to stop before reinstallation or replacement.

Supervising Engineer

- Perform a physical facility condition survey to determine problem areas and equipment to be secured.

12-2.4 VERTICAL TRANSPORTATION

- Direct elevator maintenance contractor to secure affected elevators, monitor conditions and make any necessary repairs if necessary.

12-2.5 CONSTRUCTION DIVISION

- When requested, provide construction services.

12-2.6 PROPERTY MANAGEMENT

- The General Property Manager responsible for the property involved in the incident will assume full responsibility as the WTC Liaison Officer and will be stationed in the lobby at the Fire Command Station/Elevator Console area.
- The General Property Managers from the other buildings along with the Senior Property Manager and staff of the affected property will assist the Liaison Officer in the lobby.
- The Senior Property Managers and their staff from the unaffected properties will report to the Situation Room and Property Management Office at the Operations Control Center and activate all telephones, computers and the Emergency Tenant Notification System.

- The Senior Property Managers will assume all responsibility for disseminating all pre-cleared information to staff and tenants. One staff member will act as the official scribe, maintaining a constant record of events as they occur.
- The Liaison Officer will be responsible for notifying the Chief Operating Officer and Media Relations, if applicable, and will work closely with Senior World Trade and Port Authority Staff as well as all World Trade Center Units – Life Safety & Security, Police, Vertical Transportation, Engineers Office, Central Systems, General Maintenance, Locksmith Shop, Construction, Project Management and Operations Management.
- If necessary, a representative from Media Relations will also be in the lobby to field questions from the media/press.

12-3 THUNDERSTORM / HURRICANE RESPONSE

A thunderstorm is a storm accompanied by gusty winds, heavy rain, possibly hail, lightning and thunder. A typical thunderstorm is 15 miles in diameter and lasts an average of 30 minutes. Approximately 1,800 thunderstorms are occurring worldwide at any given moment. A thunderstorm is considered severe if it produces hail at lease ¾ inch in diameter and 58 MPH wind speeds. (approximately 10% of thunderstorms that occur each year in the US are classified as severe). Thunderstorms are most likely to occur in the spring and summer months during the afternoon and evening hours.

Every thunderstorm produces lightning and is responsible for an average of 93 fatalities and over 300 injuries annually (chances of being struck by lightning are about 1 in 600,000). Lightning is formed by positive and negative charges produced within the clouds and the discharge of electrical energy between the positively and negatively charged areas. Most lightning occurs within the clouds or between the clouds and the ground. A cloud to ground lightning strike begins as an invisible channel of electrically charged air moving from the cloud toward the ground. When the channel nears an object on the ground, a powerful surge of electricity moves up from the ground producing the visible lightning. The rapid heating of the air near the lightning channel causes a shock wave that results in thunder.

A Severe Thunderstorm **Watch** is issued by the National Weather Service when conditions are favorable for severe weather to develop and thunderstorms are likely to occur. A Severe Thunderstorm **Warning** is issued by the National Weather Service when severe weather is imminent.

Hurricanes can strike coastal areas from Texas to Maine, Hawaii, Puerto Rico, the Pacific territories and the Virgin Islands. A hurricane begins as a tropical depression. If conditions are right, a tropical storm may develop and strengthen until it becomes a hurricane. The term hurricane is used when winds reach constant speeds of 74 miles per hour or more. These winds blow in a large spiral around a relatively calm center known as the "eye". Around the rim of the eye, winds may gust to over 200 miles per hour (see Exhibit B for explanation of hurricane categories).

On the average six Atlantic hurricanes occur each year. Most occur in August, September and October, but the six month period from June 1st to November 30th is considered the Atlantic hurricane season. The National Hurricane Center in Miami monitors weather data and issues forecasts for hurricanes in the Atlantic area. The National Weather Service also disseminates hurricane information.

Not only coastal areas are affected by hurricanes and not all destruction is caused by the immediate winds. For example, some years ago, Hurricane Diana

caused little or no damage as it moved inland, but long after the winds subsided, floods occurred in Pennsylvania and New York that caused 200 fatalities.

- A hurricane ***advisory*** indicates where the storm is located, wind intensity, wind speed and the direction of movement.
- A hurricane ***watch*** is issued for coastal areas when there is a threat of hurricane conditions within 24 to 36 hours.
- A hurricane ***warning*** is used when hurricane conditions are expected in a specified coastal area in 24 hours or less.

12-3.1 LIFE SAFETY AND SECURITY

- Depending on the circumstances and activities, respond to the scene of the incident or the appropriate Fire Command Station to assume Fire Safety responsibilities.
- If necessary, coordinate activities with the New York City Fire Department and other emergency response personnel.
- Initiate evacuations, if necessary.
- Direct use of public address announcements, if necessary.
- Deploy security officers to secure area(s) and deny access to unauthorized individuals.
- Dispatch "key runs" as appropriate.
- Authorize use of temporary or special identification cards valid for duration of emergency.
- Authorize and issues temporary parking permits to emergency response personnel as necessary.
- Direct security contractor to have personnel "stand by" as needed.
- Call in additional Life Safety and Security or other staff as needed.

12-3.2 OPERATIONS and MAINTENANCE MANAGEMENT

Operations Management

- Secure parking garages and install sandbags in appropriate areas including those indicated in exhibit 12D (flood penetration points).
- Remove flags.
- Review the availability of emergency equipment and vehicles:
  - ◊ Four-wheel drive vehicle
  - ◊ Tow truck
  - ◊ Aerial bucket
  - ◊ Auxiliary pumps
  - ◊ Plywood, planks and sandbags
- Garage and secure the automatic window washing equipment.
- Inventory barricades, cones, emergency signs and emergency lights to close off the peripheral roads and the Plaza.

- Assign porters to patrol vulnerable areas as directed.
- Assign Porters to assist mechanical staff to clear all drains on the Plaza, both Towers, subgrade areas and truck dock ramps.
- Check all areas (roofs, Plaza, outside areas, etc.) for loose debris that may become airborne.
- Secure all material from Plaza (chairs, tables, etc.)
- Insure that all vehicles are fueled.

Mechanical Section

- Clear drains on the Plaza, Plaza stairways and ramps.
- Clear West Street drains of dirt, sand, debris, etc.
- Test all sump pumps and make repairs as required.
- Install watertight covers over river water pump motors.
- Test operation of the River Pump Water Station sluice gates.
- Check and clean all roof drains.
- Close all outdoor air dampers in Mechanical Equipment Rooms.
- Follow pump station procedure for high tides.

Electrical Section

- Test subgrade ramp doors.
- "Top off" diesel fuel in emergency generator storage tanks.
- Test emergency generator operations.
- Clear roofs and observation deck of all light duty fixtures.
- Provide portable emergency power where needed.

General Maintenance Section

- Use planks and plywood to make temporary repairs to broken plate glass windows as needed.
- Barricade subgrade ramps with planks, sandbags, etc.

Supervising Engineer

- Perform physical facility condition survey to determine areas of concern and equipment to be secured.

12-3.3 POLICE

WTC Police Desk Officer

- Make all appropriate notifications listed in Exhibit 12A.
- Provide support as requested.

12-3.4 VERTICAL TRANSPORTATION

- Direct elevator maintenance contractor to secure affected elevators, monitor conditions and make any necessary repairs if necessary.

12-3.5 CONSTRUCTION DIVISION

- Provide assistance in barricading and repair as requested by O&MM.

12-3.6 PROPERTY MANAGEMENT

- The General Property Manager responsible for the property involved in the incident will assume full responsibility as the WTC Liaison Officer and will be stationed in the lobby at the Fire Command Station/Elevator Console area.
- The General Property Managers from the other buildings along with the Senior Property Manager and staff of the affected property will assist the Liaison Officer in the lobby.
- The Senior Property Managers and their staff from the unaffected properties will report to the Situation Room and Property Management Office at the Operations Control Center and activate all telephones, computers and the Emergency Tenant Notification System.
- The Senior Property Managers will assume all responsibility for disseminating all pre-cleared information to staff and tenants. One staff member will act as the official scribe, maintaining a constant record of events as they occur.
- The Liaison Officer will be responsible for notifying the Chief Operating Officer and Media Relations, if applicable, and will work closely with Senior World Trade and Port Authority Staff as well as all World Trade Center Units – Life Safety & Security, Police, Vertical Transportation, Engineers Office, Central Systems, General Maintenance, Locksmith Shop, Construction, Project Management and Operations Management.
- If necessary, a representative from Media Relations will also be in the lobby to field questions from the media/press.

EXHIBIT 12B
HURRICANE CATEGORIES

Hurricanes are rated on a scale of one to five, with one being the weakest. Category one, two and three hurricanes are most common in the New York/New Jersey metropolitan area. The Saffir/Simpson Hurricane Scale shown below is used to illustrate a hurricane's damage potential.

Saffir / Simpson Hurricane Scale

Category	Barometric Pressure at Eye (in Inches Mercury)	Wind Speed MPH	*KNOTS*	Damage Potential
1	less then 28.94	74 - 95	*64-82*	minimal
2	28.50-28.91	96 -110	*83-95*	moderate
3	27.91-28.47	111-130	*96-113*	extensive
4	27.17-27.88	131-155	*114-135*	extreme
5	greater then 27.17	greater then 155	*135*	catastrophic

12-4 SUB-ZERO OUTDOOR TEMPERATURES RESPONSE

12-4.1 LIFE SAFETY AND SECURITY

- Depending on the circumstances and activities, respond to the scene of the incident or the appropriate Fire Command Station to assume Fire Safety responsibilities.
- If necessary, coordinate activities with the New York City Fire Department and other emergency response personnel.
- Initiate evacuations, if necessary.
- Direct use of public address announcements, if necessary.
- Deploy security officers to secure area(s) and deny access to unauthorized individuals.
- Dispatch "key runs" as appropriate.
- Authorize use of temporary or special identification cards valid for duration of emergency.
- Authorize and issues temporary parking permits to emergency response personnel as necessary.
- Direct security contractor to have personnel "stand by" as needed.
- Call in additional Life Safety and Security staff as needed.

12-4.2 OPERATIONS and MAINTENANCE MANAGEMENT

Operations Management

- Check and secure all pedestrian and vehicle entrances to minimize cold air infiltration into the complex.
- Insure that the flood response carts and porters are readily available for flood response.

Mechanical Section

- Assign staff to continuously patrol areas vulnerable to freeze-up.
- Secure any piping or equipment suspected of being damaged to prevent a sudden release of water upon thaw.
- Operate HVAC according to guidelines in the "HVAC Operations Guide."
- Provide temporary heat in spaces where temperatures may fall below freezing.

Electrical Section

- Verify heat traced piping is energized.
- Verify operation of the standby electrical heaters for the antenna.
- Provide priority support to other sections.

12-4.3 PROPERTY MANAGEMENT

- The General Property Manager responsible for the property involved in the incident will assume full responsibility as the WTC Liaison Officer and will be stationed in the lobby at the Fire Command Station/Elevator Console area.
- The General Property Managers from the other buildings along with the Senior Property Manager and staff of the affected property will assist the Liaison Officer in the lobby.
- The Senior Property Managers and their staff from the unaffected properties will report to the Situation Room and Property Management Office at the Operations Control Center and activate all telephones, computers and the Emergency Tenant Notification System.
- The Senior Property Managers will assume all responsibility for disseminating all pre-cleared information to staff and tenants. One staff member will act as the official scribe, maintaining a constant record of events as they occur.
- The Liaison Officer will be responsible for notifying the Chief Operating Officer and Media Relations, if applicable, and will work closely with Senior World Trade and Port Authority Staff as well as all World Trade Center Units – Life Safety & Security, Police, Vertical Transportation, Engineers Office, Central Systems, General Maintenance, Locksmith Shop, Construction, Project Management and Operations Management.
- If necessary, a representative from Media Relations will also be in the lobby to field questions from the media/press.

12-5 TIDAL SURGE / WATER PENETRATION RESPONSE

A hurricane moving northerly along the east coast of the United States has a counter clockwise wind direction around its "eye". If such a hurricane turns inward onto land along the New Jersey coast, wind can push ocean water into New York Harbor and cause extremely high water levels in lower Manhattan. Such an event, though rare, can cause subways and basements to flood. If a tidal surge is expected in New York Harbor, the National Weather Service will issue advisories to the public and to government agencies. Naturally, flooding can also be caused by extreme precipitation.

Depending upon the expected peak water elevation, the range of precautions that may be taken begins with placing sand bags at certain entrances to the World Trade Center (see Exhibits 12D and 12E) to a complete evacuation of all buildings at the complex, including the PATH, the subways, the Mall and the River Water Pump Station. The timing of evacuation decisions is critical because a proper evacuation would include a search of all occupied spaces which would take several hours to conduct.

The accuracy of the forecasted water levels and the timing thereof from the National Weather Service would probably leave World Trade Center staff with only a few hours to evacuate and conduct a search. All building staff, including emergency response personnel and police, should also be evacuated.

The seriousness of the hazards during such an event are best understood by recognizing that it may not be safe to be:

- Indoors at the World Trade Center as a result of the potential for subgrade flooding and the potential loss of both normal and emergency power.
- Outdoors due to street flooding, high winds and flying debris, including broken glass. (additionally, mass transit will likely be suspended due to the potential for subway and PATH flooding).

The subways and PATH entrances will probably be secured to prevent people from entering as stations and tunnels can flood in a matter of minutes. People who have not evacuated lower Manhattan may attempt to seek refuge in the World Trade Center. It is critical to note that the rate of rise of the water level during the tidal surge can reach 8 to 24 feet per hour, during categories 1, 2 and 3 hurricanes. Ideally, with enough advance notice from the National Weather Service, a worst case assessment of a tidal surge will be made at least 12 to 16 hours in advance and a decision made to either not open the WTC or send people home while mass transit is still operating.

Clearly, coordination and cooperation among government, transportation and utilities, the media and the general public are critical.

12-5.1 LIFE SAFETY AND SECURITY

- Depending on the circumstances and activities, respond to the scene of the incident or the appropriate Fire Command Station to assume fire safety responsibilities.
- If necessary, coordinate activities with the New York City Fire Department and other emergency response personnel.
- Initiate evacuations, if necessary.
- Direct use of public address announcements, if necessary.
- Deploy security officers to secure area(s) and deny access to unauthorized individuals.
- Dispatch "key runs" as appropriate.
- Authorize use of temporary or special identification cards valid for duration of emergency.
- Authorize and issues temporary parking permits to emergency response personnel as necessary.
- Direct security contractor to have personnel "stand by" as needed.
- Call in additional Life Safety and Security staff as needed.

12-5.2 POLICE

- Make all appropriate notifications listed in Exhibit 12A.

Note: If requested, dispatch officers to close roadways and redirect traffic to facilitate the installation of sandbags.

12-5.3 OPERATIONS and MAINTENANCE MANAGEMENT

- Make all appropriate notifications listed in Exhibit 12A.
- Secure parking garages and install sandbags as indicated in Exhibit 12D.
- Request the assistance of Construction if necessary.
- Inventory barricades, cones, emergency signs and emergency lights to close off the peripheral roads and the Plaza.
- Direct Porters to clear all drains in Plaza, both Towers and truck dock ramps.

Mechanical Section

- Supervisor reports to River Water Pump Station with two craftpersons and initiates these procedures:

◊ Verify that all floor deck hatches in the "un-diked" areas to sluiceways and pump station chambers are secured and sealed.
◊ Verify that all watertight bulkhead doors are secured, namely to the switchgear room and to the traveling screen room.

- ◊ Verify that climax plugs are secured in place in the floor drains located in the fresh air intake plenum in areas 1 and 2.
- ◊ Notify Operations Control Center and Refrigeration Plant of high water conditions.
- ◊ Transmit north and south sluiceways high level alarm and diked area alarm to verify their performance.
- ◊ Place electrical disconnect switches in the off position for the two tubular chlorine pumps.
- ◊ If sodium hypochlorite solution tanks are empty, or near empty, partially fill with fresh water to prevent buoyancy.
- ◊ Provide an emergency water hookup from the hose bib at the water meter to the main flushing piping to the river water pump line.
- ◊ Place electrical disconnect switches in off position for the domestic water bearing lubricants and flush pumps.
- ◊ Prior to the tidal serge, place plastic sheets and sandbags over fresh air intake plenum and the exhaust fan discharge grills on top deck of Pump Station.
- ◊ Keep Pump Station chambers empty.
- ◊ If tide water rises to one foot above capacity level, contact Mechanical Contract Management, Port Authority Chief Maintenance Supervisor or Port Authority Maintenance Unit Supervisor.

- Activities During Actual Tidal Surge (To be performed under the direct supervision of the Mechanical Contract Supervisor)

- ◊ Select a pump suction chamber that will be dewatered.
- ◊ Notify Refrigeration Plant Engineer that all river water pump will be secured for a 10 to 15 minute period.
- ◊ Secure all operating river water pumps.
- ◊ Close sluicegate #3 or #5 depending on which pump suction chamber will be dewatered.
- ◊ Close sluicegate #4.
- ◊ Start necessary river water pumps in active pump suction chamber to support restoration of Refrigeration Plant.
- ◊ Notify Refrigeration Plant to start necessary refrigeration machines to the limit that one active pump suction chamber can handle.
- ◊ Start one river water pump in the pump suction chamber that will be dewatered.
- ◊ Intermittently operate one river water pump to lower the water level to a depth of 12 feet below the slab.
- ◊ The water level in the operating sluiceway should be below the operating floor deck but higher than the minimum level required to maintain adequate suction pressure.

In the Event of a Power Failure

- Start one or both of the emergency pumps and maintain operations even if the water rises above the operating floor level.
- Recheck the river water level in the sluiceway and throttle the associated sluice gate accordingly to prevent flooding.

Electrical Section

- Secure affected electrical systems.
- Operate Emergency Generator Plant as needed.
- Provide portable emergency power where needed.

General Maintenance Section

- Assist in installing sandbags as requested.

Supervising Engineer

- Based upon most current weather forecast, perform facility survey and identify equipment to be secured. Report findings to Life Safety & Security Division and Director's office.

12-5.4 VERTICAL TRANSPORTATION

- Direct elevator maintenance contractor to secure affected elevators, monitor conditions and make any necessary repairs if necessary.

12-5.5 CONSTRUCTION DIVISION

- Assist in installing sandbags as requested.

12-5.6 PROPERTY MANAGEMENT

- The General Property Manager responsible for the property involved in the incident will assume full responsibility as the WTC Liaison Officer and will be stationed in the lobby at the Fire Command Station/Elevator Console area.
- The General Property Managers from the other buildings along with the Senior Property Manager and staff of the affected property will assist the Liaison Officer in the lobby.
- The Senior Property Managers and their staff from the unaffected properties will report to the Situation Room and Property Management Office at the Operations Control Center and activate all telephones, computers and the Emergency Tenant Notification System.

- The Senior Property Managers will assume all responsibility for disseminating all pre-cleared information to staff and tenants. One staff member will act as the official scribe, maintaining a constant record of events as they occur.
- The Liaison Officer will be responsible for notifying the Chief Operating Officer and Media Relations, if applicable, and will work closely with Senior World Trade and Port Authority Staff as well as all World Trade Center Units – Life Safety & Security, Police, Vertical Transportation, Engineers Office, Central Systems, General Maintenance, Locksmith Shop, Construction, Project Management and Operations Management.
- If necessary, a representative from Media Relations will also be in the lobby to field questions from the media/press.

EXHIBIT 12D
100 YEAR FLOOD PENETRATION POINTS

RAMP H TO HOTEL
OPENING 16'
FLOODWATER HEIGHT .85'
SANDBAG TO HEIGHT 1.25'
SANDBAGS REQUIRED - 92

RAMP A (SOUTHBOUND)
OPENING 16.5'
FLOODWATER HEIGHT 1.5'
SANDBAG TO HEIGHT 2.0
SANDBAGS REQUIRED 148

HOTEL PARKING LOTS-WEST ST.
OPENING 30'
FLOODWATER HEIGHT .25'
SANDBAG HEIGHT .50'
SANDBAGS REQUIRED - 86

SOUTH PROJECTION
OPENING 14'
FLOODWATER HEIGHT 1.5'
SANDBAG TO HEIGHT 2.0'
SANDBAGS REQUIRED 124

RAMP C (NORTHBOUND)
OPENING 15.5'
FLOODWATER HEIGHT 1.25'
SANDBAG TO HEIGHT 1.75'
SANDBAGS REQUIRED 120

RAMP B (NORTHBOUND)
OPENING 16'
FLOODWATER HEIGHT 1.85'
SANDBAG TO HEIGHT 2.40'
SANDBAGS REQUIRED 184

6 WTC - VESEY ST. GLASS DOORS
OPENING 24'
FLOODWATER HEIGHT 1.75
SANDBAG TO HEIGHT - 2.25'
SANDBAGS REQUIRED - 240

RAMP D (SOUTHBOUND)
OPENING 16'
FLOODWATER HEIGHT 1.93'
SANDBAG TO HEIGHT 2.50'
SANDBAGS REQUIRED -184

NORTH PROJECTION VENT
OPENING 11'
FLOODWATER HEIGHT 3.25'
SANDBAG TO HEIGHT 1.75'
SANDBAGS REQUIRED 80

NORTH PROJECTION DOOR
OPENING 5'
FLOODWATER HEIGHT 1.25'
SANDBAG TO HEIGHT 1.75'
SANDBAGS REQUIRED 38

6 WTC - WEST ST. GARAGE
OPENING 60'
FLOODWATER HEIGHT 1.05'
SANDBAG TO HEIGHT 1.55'
SANDBAGS REQUIRED 516

6 WTC VESEY ST. - DOOR A
OPENING 3.5'
FLOODWATER HEIGHT 2.45'
SANDBAG TO HEIGHT 3.0
SANDBAGS REQUIRED 38

6 WTC - VESEY ST. GARAGE
OPENING 31'
FLOODWATER HEIGHT 2.45'
SANDBAG TO HEIGHT 3.0'
SANDBAGS REQUIRED 412

12-6 EARTHQUAKE RESPONSE

An earthquake is a wave-like movement of the earth's surface. The earth's crust and upper part of the mantle are constantly pushing and moving along what are known as "fault lines". When rock masses slip along a fault, the energy of an earthquake is released in seismic waves. Earthquakes can be extremely violent, but often they are little more then a minor trembling of the ground.

The damage caused by an earthquake depends on its severity or intensity. The most widely known indicator of severity, the Richter scale, measures the energy released when rock masses suddenly slip. A change of one full point in the Richter scale represents a difference of a factor of approximately 30 in released energy. Therefore, an earthquake of magnitude 7 is roughly 30 times as powerful - in terms of energy released - as a magnitude 6 earthquake.

Earthquake monitoring is conducted by the US Geological Survey, the National Oceanic and Atmospheric Administration and various universities throughout the United States. However, earthquakes can not be precisely predicted and usually occur without warning.

Richter Magnitude	**Effects**
Less than 3.5	Generally not felt, but recorded by seismographs.
3.5 – 5.4	Often felt, but rarely cause damage.
Under 6.0	Slight damage.
6.1 – 6.9	Destructive
7.0 – 7.9	Major earthquake.
8 or greater	Very major earthquake, can cause severe damage.

Comparison of seismic wave energy to TNT

1.0 = 30 pounds	6.0 = 1 million tons
2.0 = 1 ton	7.0 = 32 million tons
3.0 = 29 tons	8.0 = 1 billion tons
4.0 = 1,000 tons	9.0 = 32 billion tons
5.0 = 32,000 tons	10.0 = 1 trillion tons

12-6.1 LIFE SAFETY AND SECURITY

- Depending on the circumstances and activities, respond to the scene of the incident or the appropriate Fire Command Station to assume fire safety responsibilities.
- If necessary, coordinate activities with the New York City Fire Department and other emergency response personnel.
- Initiate evacuations, if necessary.
- Direct use of public address announcements, if necessary.
- Deploy security officers to secure area(s) and deny access to unauthorized individuals.
- Dispatch "key runs" as appropriate.
- Authorizes use of temporary or special identification cards valid for duration of emergency.
- Authorize and issues temporary parking permits to emergency response personnel as necessary.
- Direct security contractor to have personnel "stand by" as needed.
- Call in additional Life Safety and Security staff as needed.

12-6.2 OPERATIONS and MAINTENANCE MANAGEMENT

- Determine if elevators have stalled and if passengers are trapped and refer to elevator chapter to effect rescue. Caution should be used in using adjacent elevators for rescue since they may also be damaged.
- Secure elevators found to be damaged.
- As a precaution, request Life Safety and Security to close the Liberty Street pedestrian bridge and the 7 World Trade Center bridge until they can be inspected.
- Inspect the Tower Lobbies and Mezzanines to verify that evacuation routes for Stairs A, B and C are clear.
- Inspect for inoperable or jammed egress doors and obvious cracks in plaster ceiling above these areas to determine whether any danger exists overhead.
- Dispatch staff to inspect PATH tunnels (with PATH personnel) via emergency exit stairs in north and south projections.

Mechanical Section

- Verify the integrity of fire protection systems.
- Secure central steam system, River Water Pump Station and gas services as appropriate.
- Inspect mechanical equipment and initiate any necessary repairs.

Electrical Section

- Check integrity of high-tension distribution system.

CHAPTER 13

POWER FAILURES

CHAPTER 13

POWER FAILURES

GENERAL INFORMATION	13-1
Scope	13-1.1
Major Responsibilities	13-1.2
Notifications	13-1.3
RESPONSE	13-2
Life Safety and Security	13-2.1
Police	13-2.2
Operations and Maintenance Management	13-2.3
Vertical Transportation	13-2.4
Property Management	13-2.5
New York City Fire Department Bureau of Emergency Medical Services	13-2.6
Directors Office and Managers	13-2.7

POWER FAILURES

13-1 SUMMARY

13-1.1 SCOPE

This procedure covers the response to power failures, including re-entry for essential tenant staff and their representatives. For purposes of this chapter, power failures are defined as a complete lost of lighting and power from one or more substations.

13-1.2 MAJOR RESPONSIBILITIES

General Managers, Managers, and all Supervisory Staff

- When alerted to a power failure, will respond to the Operations Control Center "Situation Room" to oversee emergency response procedures.

Life Safety and Security

- Depending on the circumstances and activities, staff will respond to the appropriate Fire Command Station, or scene.
- If necessary, coordinate activities with the New York City Fire Department and other emergency response personnel.
- Initiate evacuations, if necessary.
- Direct use of public address announcements, if necessary.
- Deploy security officers to secure area(s) and deny access to unauthorized individuals.
- Dispatch "key runs" as appropriate.
- Make all appropriate notifications (OCC).

Police

- Perform police duties related to the safe and orderly evacuation of the facility.

Operations and Maintenance Management

- **Mechanical Section** - Operate life safety support systems on emergency power; secure all other nonessential mechanical systems.
- **Electrical Section**: Operate emergency generator plant systems; determine scope of power failure; attempt to restore power.
- **Structural Section**: Supervise staff and carpenters; provide support services as requested.

13-2.7 DIRECTORS OFFICE, GENERAL MANAGERS AND MANAGERS

- Supervise the overall evacuation (refer to Exhibit 13B, Appendix C, Concourse Evacuation, Appendix D Observation Deck Evacuation and Appendix K Subgrade Evacuation).
- Based on the recommendations of Fire Safety, Mechanical, Electrical and Facility Engineering Sections regarding the performance of building life safety systems and other systems, the senior manager on duty determines when the building can safely be re-entered by essential tenant staff and their representatives and finally when the building can be restored to normal operation.

Vertical Transportation

- Direct elevator maintenance contractor to deploy staff for emergency elevator use and repair.

Property Management

- Act as WTC Liaison Officer.
- Coordinate with appropriate WTC Units on issues impacting tenants.
- Disseminate information to tenants.
- Assemble volunteer World Trade Department staff in anticipation of possible need by various units during business hours.

FDNY Bureau of Emergency Medical Services

- Establish EMS/medical treatment center in lobbies or other appropriate areas.

13-1.3 NOTIFICATIONS

The initial report of a power failure will be made to the Operations Control Center identifying the extent of the incident.

All notifications are to be made by the Operations Control Center Supervisor and the Police Desk Officer and are listed in Exhibit 13A.

EXHIBIT 13A
NOTIFICATIONS

Refer to Appendix A for names and telephone numbers.

Individuals or their alternates must be paged and/or contacted at home if the incident occurs off-hours.

FROM	TO
OCC	Life Safety & Security Supervisor Police Desk Electrical Contract Supervisor Elevator Maintenance Contract Supervisor Mechanical Contract Supervisor Fire Safety Director Security & Life Safety Director Manager, Operations & Maintenance Management PA Maintenance Supervisors Supervising Engineer Appropriate Property Manager(s) All individuals listed in "Power Failures" paging group
Police Desk	Supervisor Central Police Desk Public Affairs FDNY/EMS
All WTC Division Managers	All Division staff

EXHIBIT 13B
ELEVATOR & BUILDING EVACUATION PROCEDURES

PASSENGER/FREIGHT ELEVATOR EVACUATION PROCEDURE

Advance Notice Available

Whenever advance notice is given of an impending power failure, the senior Property Manager on duty determines if the building(s) should be evacuated before the power failure takes place. The emergency generator plant must be operated immediately and ready to take the extra electrical load when the power failure occurs. To avoid passenger entrapment in elevators, all non-critical elevators should be recalled on normal power using fire service, phase 1, prior to the impending power failure.

Power Failure

Nine elevator emergency power panels exist and are used to evacuate passengers from stalled elevators. They are located as follows:

1 WTC	Zone I	Lobby elevator starter's console
	Zone II	44th floor elevator starter's console
	Zone III	78th floor elevator starter's console
2 WTC	Zone I	Lobby elevator starter's console
	Zone II	44th floor elevator starter's console
	Zone III	78th floor elevator starter's console
4 WTC	(All elevators)	Lobby starter's panel (Concourse Level)
5 WTC	(Elevators 1-6)	Lobby starter's panel (street level)
	(Elevators 7-9) -	Lobby starter's panel (street level)

All panels are accessible with a "1620" (Fire Service) key. If no key is available at the panels, one can be located in the break-glass box at the lobby level elevator starter's consoles in Towers One and Two.

Upon loss of normal power, the World Trade Center emergency generators automatically start and supply emergency power to the elevator systems detailed in the section below. When emergency power is available, a red emergency power light will illuminate in each emergency power panel.

Evacuation Procedures

When emergency power is available, staff will evacuate passengers from elevators in this priority:

1. Critical elevators
2. Shuttle elevators
3. All other elevators

The goal is to obtain prompt use of critical elevators for emergency and mobility restricted evacuation followed by the use of shuttle elevators for skylobby evacuation and, finally, local elevators for evacuation of those occupants who chose not to use the stairways.

Critical Elevators 5, 17, 48, 49, 50, 6, 7, 99, J-1 (1 WTC), K-5 (2 WTC), FE10 (5 WTC) and CE-2 (4 WTC) should automatically switch over and operate on emergency power. If any of these elevators are out of service, Staff must select an alternate elevator by manually using the applicable emergency power panel to insure emergency elevator service is established and maintained to all floors for the duration of the emergency.

Due to the limited amount of emergency power available, power can only be supplied to the above critical elevators and, concurrently, all of the following <u>non-critical elevators</u>:

1 & 2 WTC,	Zone I	1 high rise shuttle elevator
		1 low rise shuttle elevator
		1 local elevator
		1 subgrade freight elevator
	Zone II	1 local elevator
	Zone III	1 local elevator
4 WTC		1 high rise passenger elevator
		1 low rise passenger elevator
		1 freight elevator

(note: The FE1 & FE2 elevators are not equipped to run on emergency power).

5 WTC	(elevators 1-6)	1 passenger elevator,
5 WTC	(elevators 7-9)	1 passenger elevator
		1 freight FE10 or FE11

The emergency power evacuation procedure is posted in each panel. Generally, the procedure is as follows:

1. Open the panel and verify that emergency power is available (red light is illuminated). Immediately notify the Operations Control Center if the light is not illuminated.
2. Press the reset button for each group of elevators in the panel.
3. Press one button at a time in each group of buttons in the panel, preferably in order. The buttons are mechanically interlocked so no more than one in each group may be pushed at one time. The actual sequence can vary based on

the specific nature of individual entrapment. However, it is desirable to clear one bank at a time to more efficiently utilize elevator maintenance staff and electrical staff.

4. Verify elevator motion by observing the car position indicators at the console to see that the selected elevators are returning to the lobby. The digital LED's of the selected car should flash alternately between car position and "EMP". Immediately notify the Operations Control Center of the elevators that do not return to the lobby. Elevators not returning to the lobby may be malfunctioning or may have been out of service prior to the power failure. This can be verified by the elevator maintenance contractor. Stentofon contact should be attempted. Each non-returning elevator must be inspected to verify that it is to be free of passengers.
5. When the elevators reach the lobby, its doors should open automatically, releasing any trapped passengers and thereafter shutting down.
6. A security officer must verify that each and every set of elevator doors have opened and that any passengers are free. The Operations Control Center must be immediately notified of elevators which have doors that remain closed. Any elevator that does not return to lobby should be assumed to be a Code 1 and contain trapped passengers.
7. Select the next elevator in the group.
8. When all elevators in each group have returned to the lobby, press the reset button for each group.
9. When normal power is restored, the elevators automatically revert to their normal power source and the normal power indicators in the emergency panel will light.
10. Close and lock the panels.

When normal and emergency power are not available:

Elevator Contractor

- Proceed to the elevator machine rooms to determine which elevators are not at a landing. Elevators at a landing must have their doors forced open to free trapped passengers.
- Attempt to determine if passengers are trapped using the Stentofon, if possible.
- Notify the OCC of the elevators affected and the entrapment status of passengers, if determined.
- When directed, mechanically drift elevators up or down to the nearest landing.
- Force open the doors, at the landing, to free trapped passengers.

Electrical Section

- Determine the length of power outage.
- Provide information to all units when power is expected to return and the reason for outage.

Police

- Request the expertise of the elevator contractor to determine if it is feasible to mechanically drift the elevators up or down to the nearest landing.

NOTE: Mechanical evacuation of elevators by drifting must be performed very carefully and only if absolutely necessary, (power will not be available extended periods, medical emergencies, etc.).

BUILDING EVACUATION PROCEDURES

General

The senior manager on duty will determine if building(s) should be evacuated.

Critical elevators shall be utilized for emergency response in this order of priority:

- Fire
- Police
- Medical
- Building staff
- Evacuation of mobility restricted occupants
- Evacuation of all other occupants

Should additional emergency elevators be needed, non-critical elevators can be reassigned as critical elevators.

While the evacuation of passengers from stalled elevators is underway, those occupants remaining in the affected building(s) must be evacuated, primarily using the stairways. Critical elevators should be utilized for emergency response and mobility restricted occupant evacuation and should be coordinated with the floor by floor evacuation of all occupants (Elevators 6, 48, 49). Once the evacuation of passengers from stalled elevators in a zone is complete, non-critical elevators can also be operated for mobility restricted occupant evacuations. Mobility restricted occupants are generally defined as any person who is unable to descend the stairways, is in some way disabled, medically restricted, pregnant women, elderly persons, etc.. Those occupants who experience such conditions shall be evacuated by the Police using a critical elevator.

Towers

In evacuating a tower, initially none of the local bank elevators can be used because passenger entrapments would most likely still be in the process of being cleared. Stairways are to be used to get to a skylobby to access limited shuttle elevator service, or the main lobby. Only after all passenger entrapments are

cleared in an elevator zone, can local elevators be placed in service for evacuation.

Critical elevators serve all floors and are used to transport building employees responding to the emergency and for evacuation of mobility restricted occupants. Staff shall prioritize the evacuation of shuttle elevators to facilitate the transportation of mobility restricted and others from skylobbies and lobbies. All elevators shall have operators assigned by the General Operations Supervisor.

Plaza Buildings

Stairways are used to evacuate the Plaza buildings. Elevators (No more than one per group) can be operated by manual selection of the elevator select button in the emergency power panel for fire, medical or police emergency, evacuation of the mobility restricted and to transport building employees responding to the emergency.

Mall

For Mall evacuation procedures, refer to Appendix C.

Building Evacuation Completion

When evacuation of the towers is complete, the non-critical elevators still in operation will be parked at their lowest terminal stops and secured. Certain critical elevators including elevator car 50 are to be in operation at all times. Once limited re-entry is authorized and tenants and their representatives reoccupy floors, required freight elevators will be operated.

STAFF DEPLOYMENT - GENERAL

The senior Port Authority staff member on the scene shall coordinate the emergency and deploy available Port Authority and contract staff to lobbies, skylobbies, Mall areas and stairways to conduct an orderly elevator and building evacuation. Building evacuations shall be coordinated with the Fire Safety Director/Fire Command Station. Available staff are temporarily assigned to special duty by their Section Chief or Division Manager. Whenever possible, a World Trade Center management staff member shall be assigned to each lobby and skylobby to direct operations and assess the elevator and building evacuation effort for each particular zone, keeping the Operations Control Center apprised of the status and any problems. Staff shall be assigned to critical and non-critical elevators for use in occupant evacuation.

Once limited re-entry is authorized, essential tenant representatives with World Trade Center photographic identification cards containing the appropriate "essential" code shall be allowed to re-enter. Life Safety and Security or staff

under their direction, shall be deployed to the street level lobby of One, Two, Four and Five World Trade Center, adjacent to the entry checkpoints to resolve re-entry problems with tenants and their representatives. Security staff will allow essential tenant staff with proper identification to re-enter, keeping a written log of all re-entries.

NOTE: NO ONE is allowed re-entry until it is determined that the building is safe for limited re-entry.

Property Management staff report to the Situation Room to initiate personal and recorded telephone message statements to tenants and to assemble volunteer staff in anticipation of need by Life Safety & Security and Operations & Maintenance Management.

Operations and Maintenance Management staff determine if emergency systems are functioning properly and report problems and their status to the Operations Control Center. Unassigned staff (including supervisors and carpenters) shall report to an announced location for temporary reassignment and deployment.

The Police Division ranking supervisor on the scene shall handle police related matters and deploy police staff to lobbies, skylobbies and concourse areas.

All General Managers and Managers will report to the Operations Control Center and/or Situation Room.

Refer to specific responsibilities contained in this chapter and other chapters of the Emergency Procedures Manual for further responsibilities.

EXHIBIT 13B
ELEVATOR & BUILDING EVACUATION PROCEDURES
PUBLIC AREA STAFF RESPONSIBILITIES

Staff Locations	Responsibilities
Operations Control Center	Coordinate emergency
Lobbies: 1, 2, 4, 5 WTC 1, 2, 4, 5 WTC Total: 8 locations	Evacuate stalled elevators Prevent overcrowding by directing people to Mall and outdoors Report lighting or other deficiencies to OCC Supervise re-entry, once authorized
Skylobbies: 1, 2 WTC - 44 Fl. 1, 2 WTC - 78 Fl. Total: 4 locations	Evacuate stalled elevators Prevent overcrowding by directing people to stairways Establish queuing lines to shuttle elevators Report lighting or other deficiencies to OCC
Elevators: 20 Critical Elevators 12 Non-critical Elevators Total: 32 locations	Verify that the elevator communication system is operational Transport emergency building staff Transport the disabled to nearest skylobby or lobby Transport all occupants to nearest skylobby or lobby Transport tenants with proper ID to floors once re-entry is authorized
Stairways 1, 2 WTC - 6 zones X 3 stairs 4, 5 WTC - 6 stairs Total: 24 locations	Report lighting deficiencies to OCC Direct people to walk in the "down" direction only Report stairway overcrowding to OCC

Floors being evacuated: 1, 2 WTC - 6 zones 4, 5 WTC - 2 zones Total: 8 locations	Inspect floors, one at a time, to verify disabled and others are evacuated and doors to tenant spaces are locked Note whether emergency lighting and public address systems are operational and report deficiencies to OCC
Concourse: See Appendix C Total: 8 locations	Direct people to subways and outdoors Report overcrowding to OCC

EXHIBIT 13C
RE-ENTRY CHECKLIST

The following is the guideline to be used by the senior manager on duty during a power failure to determine whether a limited re-entry procedure should be allowed to one or more floors or buildings. The request to allow Essential Persons re-entry to certain floors originates with the Property Management staff in the Emergency Tenant Communications Office.

1. Are standpipe, sprinkler and smoke detection systems operational in areas to be reoccupied? *(Check with Fire/Life Safety, Mechanical and Electrical).*

2. Has it been verified that the public address system is operational in areas to be reoccupied? *(Check with Fire/Life Safety and Electrical).*

3. Are emergency lighting systems operating in the areas to be reoccupied? *(Check with Fire/Life Safety and Electrical).*

4. Are emergency lighting systems operating in the adjacent corridors and stairways? *(Check with Fire/Life Safety and Electrical).*

5. Is elevator capacity available to transport occupants in and out of the space? *(Check with Vertical Transportation and O&MM).*

6. Are building staff fully deployed and ready to accept occupant re-entry? *(Check with Life Safety & Security and O&MM).*

7. Is the emergency generator plant operating normally with at least one standby generator? *(Check with Electrical)*

8. Is someone assigned to keep a log of who enters the building and what space they will occupy? *(Check with Life Safety & Security.)*

13-2 RESPONSE

13-2.1 LIFE SAFETY AND SECURITY

- Depending on the circumstances and activities, respond to the appropriate Fire Command Station, or scene, and assume fire safety responsibilities.
- If necessary, coordinate activities with the New York City Fire Department and other emergency response personnel.
- Initiate evacuations, if necessary.
- Direct use of public address announcements, if necessary.
- Deploy security officers to secure area(s) and deny access to unauthorized individuals.
- If necessary, authorize issuance of temporary or special identification cards.
- If necessary, authorize issuance of temporary parking permits for responding emergency personnel.
- If necessary, make contact with appropriate individual to obtain emergency cellular telephone service.
- Dispatch "key runs" as appropriate.
- If necessary, call in off duty staff to assist in emergency.

Operations Control Center Supervisor

- Make all notifications listed in Exhibit 13A.
- Acknowledge emergency calls from each stalled elevator using the Stentofon elevator intercom system.
- Monitor radio communications and broadcasts announcements as necessary.
- Report electrical and mechanical problems to the appropriate sections.
- To reduce the anxiety of visitors at public facilities at the World Trade Center, including Windows on the World and the Top of the World Observation Deck, notify the Restaurant and Observation Deck Managers/Supervisors as appropriate, so they are aware of facility emergency. This is necessary when numerous emergency vehicles respond to the building entrances.

13-2.2 POLICE

Supervisor

- Cancel all relief periods and evaluates personnel needs.
- Deploy personnel to areas of high priority in order to obtain the maximum effort in assistance.
- Direct the Desk Officer to make the proper notifications to the Central Police Desk and Public Affairs.
- Request additional Police support from the Central Police Desk, if necessary.
- As requested, assist in the evacuation. See Exhibit 13B.

Note: In assigning extra Police personnel who are not familiar with the complex, the Police Supervisor will insure that a responsible WTC staff member (Security Officer, Supervisor or other management staff) is assigned with these officers.

Posts

Each post reports to their designated location:

Post 1 - Concourse, 1 WTC
Post 2 - Concourse, 2 WTC
Post 4 - Main Lobby , 4 WTC
Post 5 - Main Lobby, 5 WTC
Post 10 - Concourse
Post 9 - 1 WTC lobby and First Aid area.
Post 10 - 44th floor Skylobby 1 WTC
Post 11 - 44th floor Skylobby 2 WTC

Note: Post 9, 10, 11 are available during business hours only.

Take related reports, supervise first aid rendered to injured persons and follow directions of Tour Commander unless stated otherwise.

Desk Officer

- Make all appropriate notifications listed in Exhibit 13A.
- Maintain a chronological log of events.
- Guided by the Tour Commander, deploy Police personnel to critical areas. Refer to Exhibit 13B - public area staff responsibilities.

13-2.3 OPERATIONS and MAINTENANCE MANAGEMENT

Duty Supervisor

- After receiving notification of a power failure, supervise the response to the emergency, keeping management staff apprised of the situation.
- Assign and supervise available building staff.
- If necessary, request Life Safety and Security to restrict the entry of passenger vehicles into the World Trade Center.
- insure all ramp doors are open to facilitate proper ventilation of the subgrade.
- Implement elevator and building evacuation (Exhibit 13B), Concourse evacuation (Appendix C) and building re-entry (Exhibit 13C).
- Secure ACM abatement floors and prevents re-entry.

Mechanical Section

First Priority:

- Check B6 Level "Joy" air compressors; place system in "domestic water cooling mode".
- Check B6 Level "Fire Alarm Communications and Emergency Public Address System" amplifier room air conditioner units; place units in "domestic water cooling mode".
- Respond to 1 & 2 WTC, B1 Level pump rooms; place sprinkler and fire pumps on emergency power and test operation.

Second Priority:

- Assign staff to River Water Pump House to place equipment in "safe" position; lower sluice gates to minimum position, monitor water levels and set equipment in position for startup.
- Insure River Water Pump Station has emergency power.
- Assign staff to Refrigeration Plant to place in "safe" condition. Secure valves and associated equipment in preparation for startup.
- Monitor sump #5 operation to insure proper elimination of steam condensate and generator cooling water.
- Check operation of B6 level "J" and "K" area sumps and ejectors; Use gasoline driven pumps and hoses in event of overflowing.
- Check operation of 4 & 5 World Trade Center sumps and ejectors.
- Report to Operations Control Center when Mechanical 1st and 2nd priority check list is completed.

Electrical Section

NOTE: In the event of a facility-wide power failure, all electricians respond to the electrical shop (except for the Generator Plant Response Team who respond directly to the Generator Plant). If the building in which the shop is located is the scene of the emergency all electricians shall respond to:

Corner of Church & Liberty Streets (if inaccessible, report to Church & Fulton Streets, in front of 5 World Trade Center).

First Priority:

- One electrician responds to Emergency Generator Plant to insure the proper operation of the emergency power systems.
- A second electrician responds to affected substation(s) and Power Distribution Center to determine scope and nature of failure and keeps the Operations Control Center informed of situation.
- Check that two automatic transfer switches behind generator board are in emergency position.
- Check engine monitoring panel for proper operation of engines.
- Check loading of emergency system to insure system load does not exceed capacity of numbers of generators on line.

- Check city water pump operation.
- Check generator room air compressor operation.
- Check WTC and NYNEX generator exhaust fans S-13 & S-24.
- Place "joy" air compressors on emergency power.
- Check that all Sump #5 pumps have transferred to emergency power.
- Verify that all automatic transfer switches are properly positioned for emergency use. Manually transfer switches as needed.
- Inspect engines on line. Check for leaks excessive vibration and noise.
- Check fuel level in day tanks.
- Open sound proof booth and prepare to operate from booth.
- Check emergency power feed to the TV Broadcasters transformer.
- Contact Con Edison to learn when restoration of power will likely occur and advise Operations Control Center.

Second Priority:

- Check that the electrical systems in the Operations Control Center and Police Desk are functioning properly.
- Check that the maintenance shops and offices are completely on emergency power.
- Check that elevator maintenance contractors shops and offices are operating on emergency power.
- Place all subgrade MCC boards on emergency power; restart fans.
- Report to the Operations Control Center when both the 1st & 2nd priority check lists are completed.
- Compile a list of all reported public area lighting and public address system deficiencies for use by the manager to determine if limited occupant re-entry shall be authorized.

13-2.4 VERTICAL TRANSPORTATION

Elevator Maintenance Contractor

- During business hours, direct the maintenance mechanics to their assigned emergency posts.

Posts	Locations
1	1 WTC, Zone 1, Bank D
2	1 WTC, Zone 2, Bank D
3	1 WTC, Zone 3, Bank C
4	1 WTC, 47th F1, shuttle machine room
5	1 WTC, 81st F1, shuttle machine room
6	2 WTC, Zone 1, Bank D
7	2 WTC, Zone 2, Bank D

8	2 WTC, Zone 3, Bank C
9	2 WTC, 47th F1, shuttle machine room
10	2 WTC, 81st F1, shuttle machine room
11	Operations Control Center

Direct staff to:

- Immediately check to assure that the critical elevators are operating.
- Assist the Police in conducting rescues involving elevators which cannot be operated.
- Assure that all non-critical elevators have been secured in the lobby with the doors open.
- Assist in evacuation. (refer to Appendix C for Concourse evacuation procedures).

13-2.5 PROPERTY MANAGEMENT

- The General Property Manager responsible for the property involved in the incident will assume full responsibility as the WTC Liaison Officer and will be stationed in the lobby at the Fire Command Station/Elevator Console area.
- The General Property Managers from the other buildings along with the Senior Property Manager and staff of the affected property will assist the Liaison Officer in the lobby.
- The Senior Property Managers and their staff from the unaffected properties will report to the Situation Room and Property Management Office at the Operations Control Center and activate all telephones, computers and the Emergency Tenant Notification System.
- The Senior Property Managers will assume all responsibility for disseminating all pre-cleared information to staff and tenants. One staff member will act as the official scribe, maintaining a constant record of events as they occur.
- The Liaison Officer will be responsible for notifying the Chief Operating Officer and Media Relations, if applicable, and will work closely with Senior World Trade and Port Authority Staff as well as all World Trade Center Units – Life Safety & Security, Police, Vertical Transportation, Engineers Office, Central Systems, General Maintenance, Locksmith Shop, Construction, Project Management and Operations Management.
- If necessary, a representative from Media Relations will also be in the lobby to field questions from the media/press.

13-2.6 FDNY EMERGENCY MEDICAL SERVICES

- As requested, establish a medical/first aid center in lobby of the affected building, equipped with cots, blankets and medical supplies.
- Arrange for additional staff from nearby hospitals and/or 911 dispatcher.

CHAPTER 14

STRUCTURAL INTEGRITY

CHAPTER 14

STRUCTURAL INTEGRITY

GENERAL INFORMATION	14-1
Scope	14-1.1
Major Responsibilities	14-1.2
Notifications	14-1.3
RESPONSE	14-2
Operations and Maintenance Management	14-2.1
Quality Assurance Division	14-2.2
Construction Division	14-2.3
Life Safety and Security	14-2.4
Police	14-2.5
Property Management	14-2.6

STRUCTURAL INTEGRITY

14-1 GENERAL INFORMATION

14-1.1 SCOPE

This procedure covers the response to potential and actual structural integrity failures. Typical failures include sagging ceilings, cracked and displaced stone panels, spalled concrete or any other failure which could cause substantial risk of harm to the public or other users.

14-1.2 MAJOR RESPONSIBILITIES

Operations and Maintenance Management

- **Supervising Engineer**: Manage response to potential and actual structural integrity failures and determine if an evacuation is required. Arrange for and evaluate the design of repairs.
- **General Maintenance Section**: Arrange for repair work to be performed as requested. Assist in performing engineering inspections as requested.

Quality Assurance Division

- As requested, make the initial on-scene assessment as to whether the structural condition requires immediate response.

Construction Division

- As requested by the Supervising Engineer, perform remedial and permanent repairs such as demolition and other work.

Life Safety and Security

- At the request of the Supervising Engineer, deploy security staff to secure affected or evacuated areas, floors, zones, etc. to prevent access by unauthorized individuals and to prevent reoccupancy.

Police

- As requested, assist in evacuating and securing the affected area(s).

Property Management

- Act as WTC Liaison Officer.
- Disseminate information to tenants.

- If necessary, a representative from Media Relations will also be in the lobby to field questions from the media/press.

14-2 RESPONSE

14-2.1 OPERATIONS and MAINTENANCE MANAGEMENT

(Structural Integrity Coordinator/Structural Engineer)

1. Upon notification of a potential or actual structural integrity failure respond to the affected location and determine if the condition requires further specialized investigation.
2. If further investigation is required, contact the Quality Assurance Division to have the condition inspected.

A) If determined as an ***immediate*** structural integrity problem, coordinate emergency remedial measures.

- Request an immediate evacuation of the affected area (using Security Officers or Police Officers if necessary).
- Initiate a thorough investigation and evaluation.
- Make notifications (see Exhibit 14A).

B) If determined as a **priority** problem, coordinate remedial measures.

C) If determined as a **routine**, direct the Operations & Maintenance Management General Maintenance Section and/or the Construction Division to make the appropriate repairs.

Note: It is the responsibility of the Quality Assurance Division to determine if the problem is Immediate, Priority, or Routine; not the Supervising Engineer.

3. Make notifications as per Exhibit 14A.
4. If the problem does not require further investigation, direct the General Maintenance Section and/or the Construction Division to perform the necessary repairs.

General Maintenance Section

- Report all structural integrity concerns to the Supervising Engineer.
- Perform any requested remedial work.

Note: No section member has the authority to determine whether a structural integrity situation is immediate, priority or routine. This determination is made by the Quality Assurance Division.

Managers Office

1) With the advice of the Supervising Engineer and the Quality Assurance Division, determine if a space can be reoccupied.
2) If required, authorize further investigation of the condition by the structural consultant and ensure that remedial measures are implemented.

14-2.2 QUALITY ASSURANCE DIVISION

1) When requested by the Supervising Engineer, respond immediately to affected area.

2) Make an initial assessment determining if the condition is:
- Immediate (requiring evacuation & immediate response)
- Priority
- Routine

3) Provide technical advice to the Supervising Engineer.

14-2.3 CONSTRUCTION DIVISION

1) When requested by the Supervising Engineer, perform remedial work.

14-2.4 LIFE SAFETY AND SECURITY

1) At the request of the Supervising Engineer or Operations and Maintenance Management, assist in the evacuation and securing of area(s).
2) Deploy security staff to secure evacuated areas, floors, zones, etc. to prevent access to unauthorized individuals and to prevent reoccupancy.
3) If necessary, initiate evacuations.
4) Direct use of public address announcements.
5) If necessary, authorize the issuance of temporary or special identification cards.

14-2.5 POLICE

- As requested, assist in evacuating and securing the affected area(s).

14-2.6 PROPERTY MANAGEMENT

- The General Property Manager responsible for the property involved in the incident will assume full responsibility as the WTC Liaison Officer and will be stationed in the lobby at the Fire Command Station/Elevator Console area.
- The General Property Managers from the other buildings along with the Senior Property Manager and staff of the affected property will assist the Liaison Officer in the lobby.
- The Senior Property Managers and their staff from the unaffected properties will report to the Situation Room and Property Management Office at the Operations Control Center and activate all telephones, computers and the Emergency Tenant Notification System.
- The Senior Property Managers will assume all responsibility for disseminating all pre-cleared information to staff and tenants. One staff member will act as the official scribe, maintaining a constant record of events as they occur.
- The Liaison Officer will be responsible for notifying the Chief Operating Officer and Media Relations, if applicable, and will work closely with Senior World Trade and Port Authority Staff as well as all World Trade Center Units – Life Safety & Security, Police, Vertical Transportation, Engineers Office, Central Systems, General Maintenance, Locksmith Shop, Construction, Project Management and Operations Management.

14-1.3 NOTIFICATIONS

- All reports of potential and actual structural integrity failures are made to the Supervising Engineer pursuant to Exhibit 14A.

EXHIBIT 14A
NOTIFICATIONS

Refer to Appendix A for names and telephone numbers.

Individuals or their alternates must be paged and/or contacted at home if the incident occurs off-hours.

FROM		TO
OCC		Supervising Engineer Manager, Operations & Maintenance Management O&MM Duty Supervisor Life Safety and Security Supervisor Security & Life Safety Director Fire Safety Director Appropriate Property Management staff All individuals listed in "Structural Integrity" paging group
Supervising Engineer		
	Immediate response required also notify:	Project Manager, Quality Assurance Manager, O&MM Manager, Quality Assurance Division Life Safety & Security Supervisor Security & Life Safety Director Fire Safety Director Operations Control Center Director's office Manager, WTC Construction, Project Appropriate Property Management staff

APPENDIX A - O

The Incident Command System was developed as a result of major wildland fires in Southern California in the 1970's. As a result of these fires, a need was identified to develop a system whereby various agencies could work together towards a common goal in an effective and efficient manner. The initial organization was known as "Firefighting Resources of California Organized for Potential Emergencies" (FIRESCOPE). Organizational difficulties involving multi-agency responses were identified and addressed by developing the original Incident Command System for effective incident management.

The Incident Command System is a system designed to begin developing from the time an incident occurs until the requirement for management no longer exists. The title of "Incident Commander" is a title which can apply to various individuals depending on the situation and type of command structure used. The structure of the Incident Command System can be established and expanded depending upon the changing conditions of the incident. It is intended to be staffed and operated by qualified personnel from emergency services agencies and may involve personnel from a variety of organizations. To be effective, an incident management system must be suitable for use regardless of the type of jurisdiction or agency involved. The organizational structure must be adaptable to any incident and capable to expansion from the initial response to the complexities of a major event.

Emergency management is generally carried out in a constantly changing environment. Although the situation may get better or worse, it seldom stays the same. In addition to other emergency issues, the dynamics of a constantly changing environment present additional challenges to the Incident Commander and the effectiveness of the incident plan depend on factors which may be difficult to assess or confirm. A situation may require frequent shifts from an offensive to a defensive mode as changes in priorities occur during the assessment of life safety, incident stabilization and property conservation concerns.

APPENDIX O

INCIDENT COMMAND

INCIDENT COMMAND SYSTEM OVERVIEW

APPENDIX INDEX

A Telephone Numbers

B Local Area Maps

C Concourse Evacuation Procedures

D Observation Deck Evacuation Procedures

E Situation Room Activation

F Emergency Tenant Communications Office Activation

G Ice Falling from Towers

H Helicopter Protocol

I Support for Staff

J Emergency Public Address Announcements

K Subgrade Evacuation Procedures

L Snow Plan

M Notification Procedures for Employee Death or Serious Injury

N Media Relations and Public Release of Port Authority Information

O Incident Command

APPENDIX B

MAPS

Flammable liquids with limited solubility in water must be handled differently. It is recommended to dike large spills and remove the remaining liquids by pumping into salvage or recovery tanks.

Flammable chemicals must not be "flushed" down sewers. Such action may cause an explosion as previously described.

If the chemical spill is a liquid, the spillage should be contained with sand, absorbent clay, or "speedy dry". If it is a solid, it should be contained by covering with a heavy polyethylene sheet and weighting edges and corners with sand. If the incident involves a gas, tanks exposed to fire should be kept cool with water spray while allowing them to empty on their own.

While safety is the first priority in responding to any accident, thinking safely is even more important when hazardous materials are, or might be involved in the incident. It is essential to know the properties of the materials involved. The scene of an accident involving hazardous materials could represent such a high degree of hazard that the only safe course is to protect the perimeter and evacuate those who may become exposed. **DO NOT** enter the scene until proper identification of the hazardous material has been made. Even full "turn out gear" including Self Contained Breathing Apparatus may not be sufficient protection in some cases.

Handling of hazardous materials incidents cannot be compared to normal fire fighting operations. Unlike other emergency situations, a chemical release requires special talents and training, which are uncommon to, and beyond the capabilities of all but specially trained units.

All actions taken must be planned after properly identifying the substance(s) involved. The planning procedure is time consuming but essential to the preservation of life and protection of property. If the emergency involves hazardous materials, assistance from the chemical manufacturer, transporter and from local state and federal agencies is generally available 24 hours per day, 7 days per week.

"Rushing in" to a hazardous materials incident in an irresponsible manner without first obtaining the facts will only result in unnecessary risk, exposure, and possible injury or death to responding personnel.

IDENTIFICATION OF HAZARDOUS MATERIALS

GENERAL PROCEDURES

Upon discovery of any incident immediately make notification of:

- The type of event

- Specific location
- Vehicle(s) involved (if any)
- Apparent life hazards

Make an initial survey of the scene to determine:

- Location of threatened, or potentially threatened, people
- Presence of fire, smoke, fumes, or pools of liquid
- Overall condition of vehicles and/or containers
- Wind direction, if outdoors
- Proximity to drains, waterways, etc.
- Visible placards, labels chemical names, identification numbers, symbols, or other information on container, tank, drum, or vehicle
- Note of any leaks, odors, spillage's, vapors, etc.
- Speak to driver, if possible. Ask the name of the material involved
- Relay additional information to Hazardous Materials Unit.

Attempt to verify information by checking shipping papers for:

- Name of product
- Hazard class
- United Nations hazard identification number(s)
- Any other indication that the materials being transported are hazardous

Obtain as much information as possible to assist in identification. When relaying information, be exact. Spell the chemical name accurately. One letter can make a tremendous difference in properties and hazards. Recognizable signs such as vapor clouds, liquids, odors, fuming, etc., may or may not be present. The chemical involved could be odorless, colorless, or have invisible vapors. **DO NOT ASSUME THAT NO CLEARLY RECOGNIZABLE SIGN MEANS THERE IS NO HAZARD.** Unseen hazards can be the greatest in certain incidents (for example, there is often no detectable warning sign for the presence of a cancer causing agents).

Until the hazardous material has been properly identified and all pertinent information is available, isolate all persons exposed to the material. Isolation will avoid spreading contamination until proper medical treatment has been arranged.

There may be times when an immediate life hazard situation presents itself. Before attempting a rescue, consider the possible risk of making the rescue efforts worse by exposing improperly equipped members to serious injury or death. There may be some situations where rescue efforts cannot be made until proper equipment is available. While some risk may be justified, it must be weighed against the expected results.

DO NOT ATTEMPT TO HANDLE ANY HAZARDOUS MATERIALS INCIDENT UNTIL PROPER IDENTIFICATION HAS BEEN MADE.

Hazardous Material Classifications

Hazardous materials are classified according to hazard characteristics:

- Combustible Liquids
- Compressed Gases (Flammable or nonflammable)
- Corrosive Liquid (acids and alkalis)
- Explosives (Classes A, B & C)
- Flammable Liquids
- Flammable Solids
- Oxidizing Materials (Oxidizers, Oxygen & Organic Peroxides)
- Poisons (Classes A, B & Irritating Materials)
- Radioactive Materials
- Other Regulated Materials (Classes A, B, C, D & E)

COMBUSTIBLE LIQUIDS

Combustible liquids are liquids having a flash point above 100°F and below 200°F, which, when mixed with air, in the presence of a source of ignition, may burn. The primary problems created by combustible liquids are fires, spills, or leaks. Examples of combustible liquids are diesel fuel oil, kerosene, and home heating fuel.

Combustible liquids may present other hazards to health and environmental contamination, such as the ability to contaminate water, toxicity (harmful if absorbed, ingested or inhaled), corrosiveness (can cause burns), or reactivity (may react with other substances).
The principal hazards to personnel are the possibility of ignition of escaping vapors and the irritant characteristics of some liquids on contact with the skin. The most effective protection is the elimination of sources of ignition, which could ignite the vapors rising form the materials by shutting off engines, prohibiting smoking in hazard area, etc.

COMPRESSED GASES

A compressed gas is any material or mixture having in the container either an absolute pressure exceeding 40 pounds per square inch at 70°F, or an absolute pressure exceeding 100 pounds per square inch at 130°F, or any liquid flammable material having a vapor pressure exceeding 40 pounds per square inch (absolute) at 100°F. Simply stated, a compressed gas is a gas within a container that is under pressure at room temperature. Some examples are oxygen, nitrogen and liquefied petroleum gas.

- A flammable gas a gas under pressure which will form a flammable mixture when released in air. Some examples are hydrogen, carbon monoxide and acetylene.

- A nonflammable gas a gas under pressure which will not form a flammable mixture in air but may support combustion. These gases may be oxidizers, poisons, corrosives, etc. Some examples are carbon dioxide.

- A cryogenic gas is a liquefied gas at a temperature below -328°F. These gases present an extreme cold hazard to the point that they can freeze objects (including parts of the body) to a point of brittleness where impact can shatter the frozen object. Some examples are liquid oxygen and carbon dioxide.

The multiple hazards of compressed gases are a "BLEVE" (boiling liquid expanding vapor explosion), asphyxiation, toxicity, corrosiveness, frostbite, reactivity and the movement along the ground to an ignition source.
The more generally used liquefied petroleum gases (LPG's) - butane, propane and acetylene - account for over 90 percent of the flammable compressed gases that are transported by truck. Upon release as a liquid or gas, all are subject to ignition from many sources, including static electricity. Extreme caution is necessary where these gases are escaping into the atmosphere without burning to consume the gas. When LPG is released from pressure and not burning, it vaporizes, and may be visible as a white cloud. The vapor is heavier than air, and is likely to spread over the area, channel away with the wind, and settle to ground level. The vapor, when mixed with the proper proportion of air, is subject to ignition and vapor cloud explosion. The greatest hazard to personnel when LPG or other flammable compressed gases are released is that of fire or explosion.

If the gas is present in-high concentrations, inhalation may cause nausea or suffocation. For that reason, LPG, in most cases, is odorized so that its presence can be easily detected.

CORROSIVE MATERIALS

A Corrosive material is a liquid or solid that causes visible destruction or irreversible alterations in human skin tissue at the site of contact, or in the case of leakage form its packaging, a liquid that has a severe corrosion rate on steel.

Corrosive liquids in contact with the body may cause serious or fatal burns.

This commodity classification includes both acids and alkalis which have a harmful effect on personnel, or which react with other materials with which they come in contact. Examples are battery acid, sulfuric and nitric acids.

Corrosives present multiple hazards since they may be toxic, release heat and splatter when diluted with water, become unstable and decompose when heated.

EXPLOSIVES

An explosive is any chemical compound, mixture, or device which results in the instant release of gas and heat. High explosives are substances which detonate, releasing energy very rapidly and creating very high pressure. Low explosives burn at much lower rates, creating lower pressures. There are three classes of explosives:

- Class A explosives are the most hazardous of the three categories. While there are many types, they have one of two general characteristics in common. Action is initiated either by detonation (accompanied by a shock wave) or deflagration, which is instantaneous burning or vaporizing. Examples are black powder, bombs, TNT, dynamite and military ordinance.
- Class B explosives function by rapid combustion rather than by detonation, and include pyrotechnics, flash powders, signal devices, and smokeless powders.
- Class C explosives are manufactured articles which contain Class A or Class B explosives, or both, as components, but in restricted quantities. This class includes small arms, common fireworks, and fuses.

FLAMMABLE LIQUIDS

A flammable liquid is any liquid having a flashpoint below 100°F and which, when mixed with air in the presence of a source of ignition, may burn or explode. Examples are gasoline and lacquer thinners. The primary problems created by these liquids are spills and leaking containers. These liquids may also have characteristics of acidic, corrosive, poisonous or radioactive materials, depending on their composition. Such liquids are generally contained in five gallon or smaller containers; however, the fuel tanks of many trucks may contain more than fifty gallons of gasoline. In the event of an accident, the tank may be ruptured and sizable quantities of gasoline released.

An empty or partially empty container can be more hazardous than a full one because the vapor-air mixture is more susceptible to ignition.

Possible multiple hazards of flammable liquids are the ability to contaminate water, toxicity, corrosiveness, reactivity, BLEVE or BLEVE-like explosion, and open air combustion explosion.

FLAMMABLE SOLIDS

A flammable solid is a substance other than an explosive (which can cause fires through friction, retained heat from manufacturing or processing, or which can be ignited readily) and when ignited, burns so vigorously and persistently as to create a serious transportation hazard. This category includes: 1) dusts or fine powders (metals, cellulose, flour, etc.); 2) those that ignite spontaneously at low temperatures (white phosphorus) and 3) films, fibers and fabrics having a low ignition point.

These materials are not hazardous to personnel as long as there is no fire, or certain quantities of the materials are spilled. When a fire does occur, many of the materials in this category become extremely hazardous, and burn at an accelerated rate. Spontaneously combustible substances ignite due to retained heat, oxidize to generate heat and ignite, or absorb moisture to generate heat and ignite. Pyrophoric substances are flammable solids which ignite spontaneously in contact with air at normal temperatures and do not require any other ignition source (white phosphorus, titanium dichloride).
Water reactive solids will chemically react with water to become spontaneously flammable or to give off flammable or toxic vapors.

Air reactive materials will ignite at normal temperatures when exposed to air. White phosphorous, a flammable solid is an example. Four potential multiple hazards of flammable solids are:

- They ignite easily and burn with explosive violence.
- They react with air and water (should be labeled "Dangerous When Wet").
- They may produce toxic or corrosive compounds.
- They may initially be toxic or corrosive themselves.

OXIDIZING MATERIALS

An oxidizing material is a substance that yields oxygen readily and stimulates the combustion of organic matter. When combined with certain other materials, or when burned, this material releases oxygen which accelerates the burning process, and may result in explosions. Most oxidizers shipped as liquids will cause fire by contact with combustible materials.

Organic peroxides heated above their transportation temperatures are likely to explode. If an accident occurs involving a refrigerated truck carrying organic peroxides and refrigeration is lost, there is a strong possibility that an explosion will occur. Call for assistance and follow appropriate procedures.

In addition to supplying oxygen, oxidizers have other hazards: some are explosively sensitive to heat, shock or friction and some react with combustible organic materials rapidly enough to cause spontaneous combustion. Most oxidizers will form an easily ignited or explosive mixture when united with finely divided organic materials.

POISONS

Poisons are substances which in very small amounts are capable of causing injury to susceptible tissues by a chemical actions. Poison can enter the body by inhalation, absorption and ingestion, and are divided into three groups described as follows:

- Poison A materials are extremely dangerous poisons consisting of poisonous gases or liquids of such nature that a very small amount of the gas, or vapor of the liquid, mixed with air is dangerous to life.

- Poison B materials are less dangerous poisons consisting of substances, liquids or solids (including pastes and semisolids), other than Class A poisons or irritating materials, which are known to be so toxic to man as to afford a hazard to health during transportation; or which, in the absence of adequate data on human toxicity, are presumed to be toxic to man.

- Irritating Materials are liquid or solid substances which upon contact with fire or when exposed to air give off dangerous or intensely irritating fumes.

It is important to recognize that a poison may be a gas or liquid of which only a very small amount of gas or vapor form the liquid mixed with air will be dangerous to life. Empty poison containers are extremely dangerous due to remaining residue.

RADIOACTIVE MATERIALS

A radioactive material is any material or combination of materials, that spontaneously emits ionizing radiation, and having a specific activity greater than 0.002 microcuries per gram.

Government regulation require that nearly all radioactive materials packages be labeled. Packages with a RADIOACTIVE WHITE-I label have almost no radiation outside the package; packages with a RADIOACTIVE YELLOW-II label

have low radiation levels; and packages with a RADIOACTIVE YELLOW-III label have higher radiation. The radiation levels allowed outside packages are limited by Federal regulations. Radioactive material may look like any other material - that is, it is in the form of a solid, liquid, gas, powder, etc.

If radioactive material leaked out of a package because of an accident, it would constitute radioactive contamination and it behaves like any other contamination, such as a chemical spill in that it can become airborne, be tracked and spread. It will contaminate objects or people that it comes in contact with.

OTHER REGULATED MATERIALS

Other Regulated Materials (ORM) are hazardous materials that are regulated because they pose an unreasonable risk to health and safety or property, but they do not meet the definitions of other hazard classes in the DOT hazardous material regulations. ORM's are subdivided into five categories as described below:

- ORM-A is a material which has an anesthetic, irritating, noxious, toxic, or other similar property and which can cause extreme annoyance or discomfort to passengers and crew in the event of leakage during transportation.

- ORM-B is material (including a solid when wet with water) capable of causing significant damage to a transport vehicle or vessel from leakage during transportation.

- ORM-C is material which has other inherent characteristics not described as an ORM-A or ORM-B but which make it unsuitable for shipment, unless properly identified and prepared for transportation. Each ORM-C material is specifically named by federal regulation in the CFR Title 49.

- ORM-D is a material such as a consumer commodity which, though otherwise subject to the regulations if this subchapter, presents a limited hazard during transportation due to its form, quantity and packaging.

- ORM-E is a material that is not included in any other hazard class but that is subject to the requirements of the DOT regulations. Materials in this class include "hazardous waste" and other hazardous substances.

Appendix K

UTILIZATION OF COMPANY HANDI TALKIE AUC 179

UTILIZATION OF COMPANY HANDIE TALKIE

Appendix K
Utilization of Company Handie Talkie AUC 179
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INDEX

SECTION

1. Description of Handie-Talkie.
2. Equipment Distribution and Assignments.
3. Instructions for Utilization of Handie-Talkie MX 330/6 VHF.
4. Security of Handie-Talkie Equipment.
5. Operations with Handie-Talkie Equipment.
6. Maintenance and use of Handie-Talkie Equipment.
7. Repairs to Handie-Talkie's.
8. Frequency Allocation and Use.
9. Battery Chargers.
10. Special Features.

1. DESCRIPTION OF HANDIE-TALKIE

The Handie-Talkie to be used is designated a "MOTOROLA HT 330/6 VHF". It comes equipped with a carrying case and an adjustable shoulder strap to allow for carrying the H.T. on ones person.

Power output is approximately 1 watt, supplied by a rechargeable nickel cadmium (Ni-Cad) battery.

A 5" rubber encased helical antenna makes adjustment of set to body easier and affords greater comfort to wearer.

A frequency selector switch permits the use of 7 channels.

A newly designed microphone clip permits the speaker/microphone to be attached to the shoulder strap by the use of either a snap-in button or to the "turnout" coat by means of a heavy spring loaded clip.

1.1 The H.T. will aid in achieving greater safety, effectiveness and efficiency at fire operations.

2. EQUIPMENT DISTRIBUTION AND ASSIGNMENTS

2.1 H.T. equipment will be distributed as follows:

a. 2 HT to each Division
b. 2 HT to each Battalion
c. 4 HT to Ladder Companies
d. 3 HT to Engine Company and Squad
e. 6 HT to each Rescue Company

2.2 The assignment of HT in Units shall be as follows:

a.	Squad and Engine Company:	Worn by Officer, Chauffeur (ECC) and member designated by company commander.
b.	Ladder Company:	Worn by officer, chauf., roof and ov. position.
c.	Rescue Company:	Worn by officer and all firefighters.

2.3 Each radio depot is issued a full complement of handie-talkies to outfit all units within their jurisdiction. Additionally, a 20% spare pool is issued over and above their regularly assigned sets. Any Division or Depot issuing additional sets over normal assignment levels are required to recall over-issued sets should their spare pool become low or depleted. Radio Repair Operations repair schedule is based on all units having adequate spares, based on official assignments to allow for the timely repair of all Radio Depot's Handie-Talkies. Radio depots with depleted spare pools effect the overall repair process and availability to other units. Extreme diligence and caution should be used when issuing radios over official assignments.

3. INSTRUCTIONS FOR UTILIZATION OF HANDIE TALKIES

3.1 When the turnout coat is worn, the HT will be protected from weather, hose streams, plaster, etc. Reception is slightly reduced by the closed coat. The speaker-microphone will be in a usable position on the shoulder strap if the top snap of the turnout coat is left open. Members must experiment at drill to find out how their coats effect HT usage. If reception or transmission is poor, the speaker-microphone can be removed from its microphone clip and placed higher on the harness by using the spring loaded clip. This should correct the problem.

3.2 To reduce damage to the HT unit and to protect it from adverse weather conditions, the unit must be worn under the turnout coat. This requires that the HT be donned before responding.

3.3 The HT shall also be turned on prior to donning the turnout coat. When control is set at maximum, the volume is too loud and sound quality is poor. Members shall start at the half volume point and adjust volume control if necessary.

3.4 HT's will not be used in any drill or training sessions where use will interfere with an operation in progress. When they are used at drills, any available channel may be utilized.

4. SECURITY OF HANDIE - TALKIE EQUIPMENT

4.1 In Quarters

4.1.1 If recharging is necessary, the HT will be kept in its charger. H.T. WILL BE REMOVED FROM CHARGER BY ASSIGNED H.T. MEMBER AND DONNED UPON RESPONSE OF UNIT TO AN ALARM OR LEAVING QUARTERS FOR ANY OUTSIDE ACTIVITIES. Otherwise, it shall be kept in a secure place on the apparatus. It is imperative that members on housewatch keep unauthorized persons from the vicinity of apparatus. Apparatus floor should never be unguarded while unit is in quarters.

4.1.2 At each change of tours in quarters, the incoming officer of each unit shall have the HT's checked to see that they are functioning, fully charged and properly assigned. An entry of HT equipment check and assignment shall be incorporated with the mask inspection entry in the company journal after roll calls.

4.2 On Fire Ground

4.2.1 During fire or emergency operations, the security problem is reduced since the HT's will be worn by Company Officers and selected firefighters. However, there may be times at operations when the HT will no longer be needed by members (i.e., overhauling, salvage, etc.) and they will perform more freely without them. In such cases, the HT's may be removed provided they can be locked in a safe place on the vehicle. A security guard shall be posted as prescribed in AUC 189.

4.2.2 When units are relieved at operations, the incoming officer of the unit shall assign the HT to designated member or members.

5. OPERATIONS WITH HT EQUIPMENT

5.1 Unit Identity

The H.T. worn by the officer of the unit will be identified by the unit number. A second H.T. used by the same unit will be identified by unit number and the word "Roof". A third H.T. used by the same unit will be identified by the unit number and the word "OVM", and "Chauf.", if fourth H.T. assigned.

Example: Company Officer: "Ladder 120 to Ladder 120 Roof. Have you opened the bulkhead yet? K."

Ladder 120 Roof: "Ladder 120 Roof to Ladder 120. Having difficulty with bulkhead door but skylight is off. K."

Officer: "Ladder 120, Ten-four."

5.2 Feedback Assistance Rescue (F.A.R.)

See Communications Manual chapter 9, section 5 for specific procedures for MX - 330.

6. MAINTENANCE AND USE OF HANDIE - TALKIE EQUIPMENT

6.1 The Officer on duty shall have each Handie - Talkie checked at the start of each tour to insure it is functioning. A momentary transmit sequence will provide a red light on top of the HT and a squelch noise burst when the transmit button is released. This is a basic rudimentary checkout of the HT.

6.2 Officers of units shall conduct company drills utilizing the information contained in appropriate training bulletins.

6.3 If the Handie - Talkie becomes wet at operations, it shall be stored in an upright position when drying, to permit maximum drainage from the power pack of the set. The Handie - Talkie should be turned "off" as soon as possible after becoming wet and shall remain off until H.T. is dry.

If the Handie - Talkie gets very wet or has been submerged in any liquid send it to the Radio Repair Operations to be cleaned in the ultrasonic bath to prevent damage to internal components. The Handie - Talkie should be turned "off" as soon as possible after becoming wet.

6.4 External battery charging contacts at base of Handie - Talkie may be cleaned with an eraser if a coating is observed on the contacts. Never use an abrasive.

Handie - Talkies should be wiped clean of plaster and dust before inserting into battery charger. Foreign matter accumulating in the base of the charger may prevent proper contact from being made.

6.5 The Field Communications Unit shall carry, in addition to its normal complement, 10 additional Handie - Talkie's with fully charged batteries for use at HI RISE building fires. FCU shall keep, in addition to their normal complement, a supply of spare Handie - Talkie's for emergency use in the event a Division is depleted of Handie - Talkie's especially on weekends and holidays. This shall be on a temporary exchange basis and shall be returned to the FCU as soon as they are no longer required

6.6 Every Handie - Talkie operator should check his set after turning it on, and periodically while standing by. A momentary transmit sequence will provide a red light on top of the HT and a squelch noise burst when the transmit button is released. This is a basic rudimentary check out of the HT.

7. REPAIRS TO HANDIE - TALKIE'S

7.1 Repairs to Handie - Talkie's shall be made only at Bureau of Fire Communications, Radio Repair Operations. Handie - Talkie's requiring repairs shall be delivered to the Radio Depot via Division messenger.

7.2 The Radio Repair Operations radio messenger will pick up defective HT's from the Radio Depots and will deliver them to Radio Repair Operations for repair.

7.3 The procedure for returning repaired Handie - Talkie's to units shall be the reverse of the above.

7.4 Each Division will be given a supply of spare Handie - Talkie's for issue to a unit when a unit's Handie-Talkie becomes defective. This Handie - Talkie now becomes a unit's regular Handie - Talkie. Divisions shall provide a secure storage area for these sets.

7.5 Each Division shall maintain the magnetic inventory control board in accordance with instructions received to maintain an accurate inventory for the line Division.

Each Division shall maintain a record of:

1. Each set delivered or received from Radio Repair Operations of Fire Communications.

2. Each set assigned to or received from a unit.

7.6 A tag system will be used to simplify administrative work involved in the repair procedure. Tags will be placed on sets by units when sending them for repairs, identifying the set and listing the repair problem, e.g. (L12O "Reception poor intermittently" or "mike button sticks" etc.). Divisions shall requisition and keep their units supplied with tags.

7.7 When a defective handie-talkie is sent to Radio Repair Operations for repair, the speaker-microphone, antenna and the battery that made up the handie-talkie unit when it became defective, must be included.

8. FREQUENCY ALLOCATION AND USE

8.1

	Channel	Frequency
1	Universal Handie - Talkie	153.83 MHZ
2	City Wide Base	154.43 MHZ
3	Queens Mobile	153.77 MHZ
4	Manhattan Mobile	154.01 MHZ
5	Brooklyn Mobile	153.95 MHZ
6	Staten Island Mobile	154.07 MHZ
7	Hi - Rise Repeater	TX 153.890 CSQ RX 154.430 CSQ

8.2 Channel - number indicated by the control knob at the top of the H.T.

Frequency - indicates the radio band assigned that channel.

Note: Channel 1 is on the same frequency assigned previously to H.T.'s in all Boroughs. Channels 2 through 6 will be operating on frequencies that are also used for communications from mobile field units to the Central Office. To insure that the H.T. system and the apparatus radio system do not interfere with each other, it is imperative that channels be used only as authorized. Channel 7 is a duplex repeater channel that requires a repeater to operate properly. Without a repeater communications on channel 7 is not possible. The order to use channel 7 will come from the officer - in - charge.

8.3 Of the seven (7) frequencies available for use, a maximum of only four may be used at one time in some sections of the city. In other areas, only three frequencies can be used. This is due to interference which would be caused by geographic location, topography, areas near open bodies of water, and the locations of pickup radio antenna. The allocation of available frequencies, as determined by the Bureau of Fire Communications, will be according to Battalion Administrative Districts. After this system has been operational, there may be modifications based on ensuing developments.

8.4 Method of Use for Each Channel

There are four situations which require defining. They are:

8.4.1 Primary Tactical

This is the basic channel. All units in all Boroughs shall operate on this channel until ordered to do otherwise by the Chief in Command of an operation.

8.4.2 Secondary Tactical

This channel is intended for use by units when Channel 1 is being heavily used at a nearby major incident.

The following guidelines will govern its use:

A. The first incident in a Borough that escalates to 7-5 status will have priority use of Channel 1. (Primary Tactical)

B. The Chief in Command of any ensuing incidents in the same area will determine if, and specify when, the Secondary Tactical Channel must be used. The decision will be based on experience with the distance and interference factors involved and the extent he expects the Handie-Talkie's to be used at this second incident. As an example, he would not order the use of this Secondary Tactical frequency if his operation is simple and very little Handie - Talkie traffic is anticipated. The same would apply if the first incident is remote and little or no interference is expected.

C. No set rule can be applied to determine when Handie - Talkie's used at one incident will interfere with a second incident in the same area. Some of the determining factors aside from fire traffic are weather, distance, and terrain. Chief Officers must have sets on while responding, consider all the factors involved, and make a decision based on experience.

D. When the Chief in initial command arrives at an incident and decides to use the Secondary Tactical frequency, he must inform all his subordinate units. The Chief will notify the dispatcher via Department radio of the alternate channel he will place in use. The dispatcher will then broadcast this information to responding units, and again to any units responding on additional alarms.

Examples - In Manhattan, "All Units Responding to Box 989, switch to Handie - Talkie Channel 5."

In Brooklyn "All Units Responding to Box 1607, switch to Handie - Talkie Channel 6."

In addition, the Chief's Aide will contact each unit that arrived prior to the Chief and inform them of the necessary channel change. He may accomplish this by brief messages using Channel 1, or by personal contact.

8.4.3 Primary Command

This channel is restricted to use by Chief Officers at an expanding operation. As an operation progresses from 7-5 to second alarm and greater, the large number of sets on the tactical channel cannot be effectively controlled by the Chief in Command of the fire. Use of this channel will permit coordinated supervision of operations and present the fire commander with an effective span of control.

Guidelines for use of this channel are:

A. It will generally be placed in use when a Staff Officer takes command of an operation, and he shall so advise all his subordinate Chiefs. Depending on the scope of an operation, a Deputy Chief in Command could find its use advantageous and could order its use.

B. Whenever this Command Channel is placed in use, all Chief Officers subordinate to the Chief in Charge must have their Aides with them.

Each subordinate Chief's duties shall entail:

1. Operation on the Command Channel.
2. Evaluate all messages received from units under his area of command.

3. Transmit progress reports to the Chief in Charge when requested, or when necessitated by a changing situation.

His Aide's duties shall entail:

4. Operate on the Tactical Channel in use, establishing contact with all units under his Chief's area of control.

5. Receipt of messages and transmittal of orders from his Chief with all units in this area of control.

C. The Chief in Charge of an operation utilizing the Command Channel shall also have his aide or other qualified member in close proximity. The aide will usually:

a) Monitor the Tactical Channel in use for possible emergency transmissions.

b) Provide a back up radio in case of malfunction of the H.T. in use by the Chief in Command.

D. It is to be noted that the Primary Command Channels listed are the same as those for Secondary Tactical in certain Battalions. These Battalions are marked by an asterisk (below), indicating that only three channels are available. In the event that the Secondary Tactical is already in use, Primary Command shall then resort to the channel indicated within parentheses. This situation would develop where there are two nearby incidents, one of which develops to the Command stage. In this regard, preference of channel selection must always be given to Secondary Tactical, since its transmissions are more numerous. For example: if a fire has developed to the Primary Command stage, and a subsequent nearby incident occurs, the latter must be given the Secondary Tactical channel. Primary Command would have to switch to the channel in parentheses. This naturally presupposes that the second incident was of a relatively major nature, requiring a separate channel, as outlined under "Secondary Tactical".

<u>Secondary Command</u>

This channel is intended for use by Chief Officers requiring a Command Channel when the Primary Command Channel is already in use. Use of the Secondary Command would be required when a second major incident develops in close proximity to a major incident already in progress. Directions for its use shall be the same as those itemized under the "Primary Command Channel". Situations where more than three channels will be needed will of course be infrequent. As can be seen, if Secondary Command is required in an area where only three channels are available, the two Command frequencies will be sharing the same channel. Since command situation transmissions are few (less handie - talkies are involved), the likelihood of interference is limited.

Administrative Battalion District	Primary Tactical	Secondary Tactical	Primary Command	Secondary Command
		MANHATTAN		
* 1 thru 9	F1	F6	F6(F2)	F2
10	F1	F6	F5	F2
11 thru 16	F1	F5	F5	F2
		BRONX		
* 3,14,	F1	F5	F5(F2)	F2
15,17,18,19,26,27	F1	F5	F3	F2
,				
20	F1	F5	F4	F2
		STATEN ISLAND		
All	F1	F4	F3	F2
		QUEENS		
* 45,49	F1	F6	F6(F2)	F2
46,47	F1	F6	F4	F2
50,51,54	F1	F4	F6	F2
* 52,53	F1	F4	F4(F2)	F2
		BROOKLYN		
28,37,39,40				
41,44,48,58	F1	F6	F4	F2
33,43	F1	F4	F6	F2
42	F1	F4	F3	F2
57	F1	F6	F3	F2
*31,32,35,38	F1	F6	F6(F2)	F2

* These Battalions have just three channels available for use.

9. BATTERY CHARGING INSTRUCTIONS:

9.1 Battery charging time is critically different from the old HT - 220 radios. Because the current drain of the MX is more than that of the HT - 220, they must be charged more frequently. The capacity of this new battery is about eight hours for the MX - 330 radio as compared to 14 hours of the HT - 220 for a 5-5-90 duty cycle (5% transmit, 5% receive, 90% standby with power on). Failure to keep the battery charged will result in poor transmissions. The battery should be charged approximately every eight hours, therefore, all assigned Handie - Talkies shall be charged at the beginning of each tour or as soon as practicable thereafter and immediately after being exchanged at a Division Depot.

9.2 The Motorola single unit charger is a rapid charge system (one hour) designed to function with the battery remaining in the radio, or the battery may be removed and charged separately in the same charger.

9.2.1 Operation: Connect Charger to AC 105-125 volt power supply.

9.2.1.A To charge battery when attached to the MX radio:
Remove radio from leather case and place entire radio in charger so that battery contacts mate with metal fingers in battery charger pocket. Make sure contacts on rear bottom of radio battery are clean and make good contact with metal fingers in charger. Make sure radio is firmly seated.

9.2.2.B To charge battery when not attached to the MX radio:
Turn radio off.
Hold the radio in the left hand and press battery release (on side just above battery) with left thumb.
While holding the release depressed, rotate battery counter clockwise. Rotate battery about 180 degrees until CAM lock is clear and remove battery from radio.
To replace battery, reverse the procedure , first engage the CAM lock, then rotate the battery clock-wise until it latches in the proper position.

9.2.5 Battery charging lamps:

a. Red light indicates when battery or HT with battery is being charged.

b. Green light indicates when rapid battery charge cycle is complete.

c. Battery may be removed from charger before green light goes on, although the battery may not be fully charged.

d. Remove set when charged to a point that it shows green.

9.3 Precautions:

9.3.1. Make sure the lamps are glowing, otherwise the battery is not being charged.

9.3.2 A fully discharged battery is rapid charged in one hour and then automatically reduced to a ten hour trickle rate.

9.3.3 No attempt shall be made to charge batteries other than those supplied by the Department for use on the HT assigned to your unit.

9.3.4 If a battery gets too hot to hold it indicates trouble. Send it to the Department's Radio Repair Operations Unit for testing. A fully charged battery showing green should be warm when removed from charger, but a battery too hot to hold is defective.

9.3.5 If a battery is removed from a charger indicating green and then replaced it will read red for a short time. This is not good practice.

9.3.6 Battery shall not be overcharged. They shall be removed from charger when the green light goes on.

9.4 Batteries

9.4.1 The batteries used in the HT MX 330 VHF are designed for approximately 8 hours use before requiring recharging. However, fully charged batteries at the start of operations at a fire or emergency are a must for effective 2 - way communications.

9.4.2 In the event the HT MX 330 VHF charge cycle requires more than 1 1/2 hours, that is, the red light on the battery charger remains on in excess of 1 1/2 hours, the following procedure shall be followed.

a. Try charging another HT MX 330 VHF. If the charge is completed within 1 1/2 hours the battery in the first set is to be replaced. If the charge is not complete after 1 1/2 hours, the charger is probably defective. In this event, the charger is to be replaced.

b. Replacements of chargers can be made on a one-for-one exchange basis with a unit's division radio depot. For this purpose, each division will be issued spare battery chargers. HT MX 330 VHF with defective batteries shall exchange the entire radio at the radio depot. The entire unit will then be picked up by Radio Repair Operation's Radio Messenger.

c. Divisions' Radio Depots are to return defective chargers and HT MX 330 VHF radios with defective batteries to Radio Repair Operations via the Radio messenger.

10. SPECIAL FEATURES

10.1 The stuck-button problem occurs when a transmitter is inadvertently on all the time completely disrupting Handie - Talkie radio communications. **The HT MX 330 VHF has a time-out-timer which cuts off the transmitter after 30 seconds of continuous operations.** This is followed by a tone burst indicating that the transmitter has been shut off. The operator can key up the transmitter again if a longer conversation is required. The time-out-timer is a definite improvement since it corrects a problem which in the past has caused a breakdown in Handie - Talkie radio communications at fire and /or emergency operations.

10.2 Better voice quality as compared to the old HT-220 model.

10.3 Modular construction enabling more rapid repair at Radio Repair Operations by replacing plug-in modules instead of having to de-solder defective components and then solder in new components.

10.4 An indication when the battery is weak. The radio has a red light on top of the set. This indicates that the transmitter is on. **When the battery charge is low this light will be dim or off. The battery should then be charged or replaced.**

10.5 This radio does not have an external squelch control. However, on releasing the microphone switch a squelch burst is heard similar to the squelch noise in the old HT-220 radio.

BY ORDER OF THE FIRE COMMISSIONER AND THE CHIEF OF DEPARTMENT

Appendix L

AUC 19 OFFICE OF EMERGENCY MANAGEMENT

DCN: 3.01.03 **A.U.C. 319**
April 17, 1996

OFFICE OF EMERGENCY MANAGEMENT

Appendix L
AUC #19 Office of Emergency Management
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MAYOR'S OFFICE OF EMERGENCY MANAGEMENT (OEM)

1. INTRODUCTION

The city of New York must be prepared for and be able to coordinate rapid and effective responses to a wide range of emergency situations. Emergency management requires inter-agency and inter-governmental coordination as well as communication with the public and the press. The performance of these functions by the City is best coordinated by the Office of the Mayor. The Mayor's Office of Emergency Management has been established for this purpose.

2 DIRECTOR OF OEM

2.1 OEM shall be headed by a Director who shall be appointed by and serve at the pleasure of the Mayor. The Director shall report to the Mayor. The Director also shall serve as the local Director of Civil Defense, with the powers of a local Director of Civil Defense under L. 1951, Ch 784, as amended.

3 FUNCTIONS

3.1 Commencing April 1, 1996, OEM shall perform the following functions:

3.1.1 Coordinate the City's response to all emergency conditions and potential incidents which require a multi-agency response, including. but not limited to severe weather, threats from natural hazards and natural disasters, power and other public service outages, labor unrest other than the keeping of the peace, water main breaks, transportation and transit incidents, hazardous substance discharges, building collapses, and acts of terrorism.

3.1.2 Monitor all potential emergency conditions and potential incidents which may require a multi- agency response.

3.1.3 Coordinate and implement training programs, including emergency response drills, to prepare for emergency conditions and potential incidents which may require a multi-agency response.

3.1.4 Prepare plans for responding to emergency conditions and potential incidents, including but not limited to plans for the implementation of such emergency orders as may be approved by the mayor to protect public safety and facilitate the rapid response of City agencies and resources.

3.1.5 Make recommendations to the mayor concerning the City's emergency response capabilities and concerning the City's capacity to address potential emergency conditions and potential incidents.

3.1.6 Increase public awareness as to the appropriate responses by members of the public to emergency conditions and potential incidents, and review the City's systems for disseminating information to the public.

3.1.7 Operate and emergency operations center to assist the City in managing emergency conditions and potential incidents which may require a multi-agency response.

3.1.8 Hold regular and frequent meetings of designated emergency response personnel of all City agencies that are determined by the OEM director to have a direct or support role in the City's management of emergency conditions and potential incidents which may require a multi-agency response.

3.1.9 Assist City agencies in obtaining federal and other funding for emergency management and civil defense.

3.1.10 Coordinate with the Police Department to ensure that the City agencies develop and implement emergency response plans in connection with planning for major City events.

3.11 Coordinate with state, federal and other governmental bodies to effectuate the purposes of OEM.

3.1.12 Coordinate the operation of the local emergency planning committee, established pursuant to the Superfund Amendments and Reauthorization Act, Title III.

3.13 Coordinate New York City's Civil Defense effort in accordance with the provisions of the Defense Emergency Act of New York State and the City's Civil Defense Emergency Operations Plan, as such plan may be amended from time to time.

3.1.14 Carry out or delegate to other City departments responsibility for all civil defense functions mandated by the Defense Emergency Act of New York State.

3.15 Perform all other functions previously performed by the former Office of Emergency Management and the Emergency Control Board.

3.16 Perform such other duties as may be directed by the Mayor.

4 AGENCY COOPERATION

4.1 All agencies shall cooperate with the OEM in all respects in the implementation of this Order and the transfer to OEM of emergency management functions by April 1, 1996, and further shall provide OEM promptly with all information relevant to the performance of the emergency management functions set forth in the Order, and to collect and make available any data or other information requested by OEM for use in emergency planning. All agencies further shall provide OEM with all appropriate material and equipment currently used for the emergency management functions that are being assumed by OEM pursuant to this AUC.

BY ORDER OF THE FIRE COMMISSIONER AND THE CHIEF OF DEPARTMENT