This Is A Fire Fresh Document

FIRESAFETY

FIREFIGHTER ORIENTATIONS

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1. GENERAL

1.01 The "Firefighters Guide to Telephone Central Office Equipment Buildings" and "Firesafety Preplanning Survey/Checklist for Telephone Equipment Buildings" have been prepared for review with local fire departments during annual orientation sessions.

1.02 This practice is being reissued to include the "Firesafety Preplanning Survey/Checklist for Telephone Equipment Buildings" and to update the "Firefighters Guide to Telephone Central Office Equipment Buildings".

2. PURPOSE

2.01 The "Firefighters Guide to Telephone Central Office Equipment Buildings" (Exhibit 1) has been prepared for firefighters as an introduction to telephone equipment buildings. The use of this guide, in conjunction with visitations by and cooperation with the local fire departments, should result in timely and effective firefighting in telephone facilities. These are intended to acquaint the professional firefighter with general conditions which are unique to Southwestern Bell telephone equipment buildings.

2.02 Telephone equipment buildings are unique and can be extremely confusing particularly in an emergency situation. This confusion clearly shows the need for familiarization of local firefighters with Southwestern Bell Telephone buildings and equipment. An open house-type program, or at least a tour of equipment buildings by representatives of the local fire department, will do much to improve the understanding of the problems associated with fighting fires in equipment areas. The open house or tour should be conducted at least annually with the responding firefighters in order to keep the program current and new personnel informed. This open house should be arranged and conducted by the building operations force accompanied by the deputy firesafety director and network operations manager responsible for the Central Office switching equipment.

2.03 The Firesafety Preplanning survey/checklist form (Exhibit 2) should also be covered during the orientation session. This will assist Company representatives in reviewing various aspects of the Firefighter's Guide and Firesafety Plan with the local firefighters at each Central Office building. In addition, it reviews certain Fire Department characteristics that need to be considered to provide for effective response during a fire situation.

2.04 Immediately after the annual firefighter's orientation session, it is recommended to complete Environmental Inspection Package 18 of Joint Practice 28.

2.05 The Firefighters Guide should be retained by the local fire department. The Firesafety Preplanning Survey/Checklist should be forwarded to the State Firesafety Coordinator and a copy retained by building operations and deputy firesafety director (in building firesafety binder).

3. GUIDE

3.01 The guide depicts features unique to telephone central office equipment buildings and is intended for distribution to professional firefighters. It addresses specific equipment areas such as the cable entrance facility, distributing frame, telephone switching equipment, and power equipment. It also discusses telephone equipment fire spread considerations.

3.02 An overview of the Southwestern Bell approach to fire protection is provided which categorizes general standards for:

(1) Building Construction
  (a) Building fire-resistive structure
  (b) Finishes and furnishings

(2) Detection

(3) Containment
  (a) Compartmentation
  (b) Smoke control
  (c) Firestopping of penetrations

(4) Suppression
  (a) Portable fire extinguishers
  (b) Sprinkler and halon flooding systems
  (c) Standpipe and hose systems

3.03 The Firefighting Considerations section offers guidelines regarding the types of emergency equipment which should be utilized and what should be avoided.

3.04 Prior knowledge of access and building orientation should minimize the special problems telephone equipment buildings present to firefighters. The guide reviews general security aspects and informs firefighters that copies of fire protection floor plans unique to individual locations are available for fire department use.

4. SURVEY/CHECKLIST

4.01 The Survey/Checklist should be used as a guide to planning your building for emergency reactions in order to prevent and/or limit damage during a fire. Its important to understand that fires do occur in telephone buildings and that an effective planned reaction is necessary. This will ensure that fire fighters have adequate knowledge of the telephone equipment building and that the appropriate firesafety prevention and protection measures have been taken by SWBT personnel.

4.02 This information should be jointly reviewed and handled by the building fire safety organization and the local fire fighting department. The following organizations should be represented when completing the survey/checklist:

- Depty Firesafety Director
- Firesafety Organization Members
- Building Operations
- Local Fire Department
- Network Operations
- Other groups as requested

When a building is being scheduled for firesafety preplanning the following individuals should be notified:

- State Firesafety Coordinator
- Building Firesafety Director
- SCC/TASC Manager
- District Office - Building Operations

4.03 The survey/checklist items are supported by the technical information contained in the 760 and 770 series practices. An overview of the material covered is as follows:

SECTION I - Fire Department Precautions

This section covers the different fire suppression agents the Fire Department should and should not use in a central office. It also identifies items of precautionary consideration.

SECTION II - Utility Shutoffs and Plans

This section covers the procedures to use to ensure that utility controls are prominently labeled at both the physical location and on the building plans.

SECTION III - Fire Department Coordination

This section covers the preplanning tour with the Fire Department to ensure all parties have an understanding of the emergency access and location of critical components in each central office.

SECTION IV - Bell System Employee Procedures

This section covers occupational safety items that the phone company should make arrangements for prior to the preplanning tour to ensure the Fire Departments approval.

SECTION V - Operational Characteristics of the Fire Department

This section covers information the phone company should have to properly evaluate the adequacy of fire fighting capabilities available to the telephone equipment building in the case of fire. This information should then be analyzed by the state firesafety coordinator in terms of alternative protection and prevention measures to better protect the central office. If necessary, the State Firesafety Coordinator should forward specific recommendations to the local Fire Department and/or Company/Organization.

SECTION VI - Emergency Telephone Numbers

This section provides emergency Contact Information.

4.04 The firesafety organization for the building should follow-up and respond to any recommendations made by the local firefighters during the annual walk-thru tours.

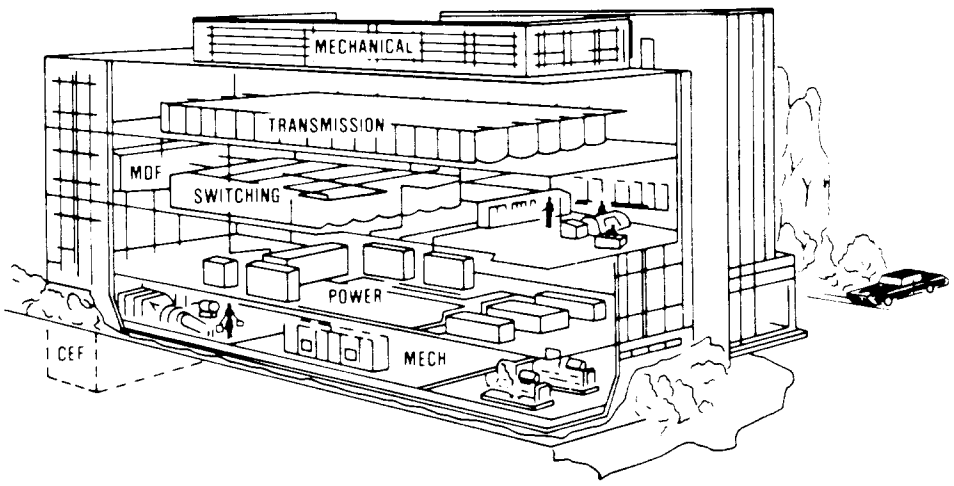
4.05 Any items found not to be in compliance with company policy, practice or procedure should be corrected as soon as possible.

5. ORDERING INFORMATION

5.01 The booklet "Firefighters Guide to Telephone Central Office Equipment Buildings" and "Firesafety Preplanning Survey/Checklist" may be ordered from SWBT forms catalog. A copy of these documents are provided in Exhibits 1 and 2.

EXHIBIT 1

Firefighters Guide To Telephone Central Office Equipment Buildings



Southwestern Bell Telephone

EXHIBIT 1

Firefighters Guide To Telephone Central Office Equipment Building

This booklet (Form SW3076) has been prepared for review with local fire departments during annual firefighter orientations sessions at each telephone central office equipment building. A copy should be given to the fire department for their records.

The firesafety preplanning survey check list (Form SW3077) for telephone central office equipment buildings should also be covered during the firefighter orientation session. This has been prepared as a check list of items and activities that are to be accomplished by representatives from Southwestern Bell Telephone and the local fire department.

The booklet and survey form are referred to in 770-340-200 SW and may be ordered through SWBT forms catalog.

GENERAL INFORMATION

SWBT State Firesafety Coordinator:

Name _____ Phone # _____

ANNUAL FIREFIGHTER ORIENTATION SESSION CONDUCTED AT:

Building Name _____

Address _____ City _____

Building Supv. _____ Phone # _____

Network Supv. _____ Phone # _____

Deputy Fire Dir. _____ Phone # _____

NETWORK CONTROL CENTER MONITORING REMOTE BUILDING FIRE ALARM DETECTION SYSTEM:

Location Name _____ Phone # _____

Address _____ City _____

FIRE DEPARTMENT REPRESENTATIVE:

Name _____ Date _____

EXHIBIT 1

1.0 GENERAL

Telephone central office equipment buildings are unique and could be extremely confusing in an emergency situation. this confusion clearly indicates the need for familiarization of local firefighters with Southwestern Bell Telephone central office equipment buildings.

This guide has been prepared for firefighters as an introduction to central office equipment buildings. The use of this document, in conjunction with visits by the local responding fire unit, should result in timely and effective firefighting in telephone facilities. It is intended that this guide acquaint the professional firefighter with the general conditions which are unique to central office equipment buildings.

The objective of Southwestern Bell Telephone Company is to provide service to the community. Fundamental to the provision of this service, is the operation of our central office switching equipment in a controlled environment. Among the threats to the proper functioning of this equipment are fire and water. With regard to equipment building fire protection in the event of fire, the goals of Southwestern Bell Telephone Company are:

1. To provide protection for our personnel, and
2. for the prudent use of extinguishing agents to control and extinguish the fire, minimize equipment damage and to maintain the communications service which the communities rely so heavily upon.

The proven damage and malfunctioning of telephone equipment exposed to water in the amounts sprinkler systems would deliver, leads us to a position opposing codes and standards which would require us to install sprinklers over telephone equipment.

It has been a long-standing policy of Southwestern Bell Telephone to design fire protection into the building structure as well as into the communications equipment. In small central offices, most of the equipment could be located in a single room. In larger central offices, generally there are separate rooms or areas for equipment associated with a single function, such as the Cable Entrance Facility, Switching Equipment, and Power Equipment Fig. 1 .

EXHIBIT 1

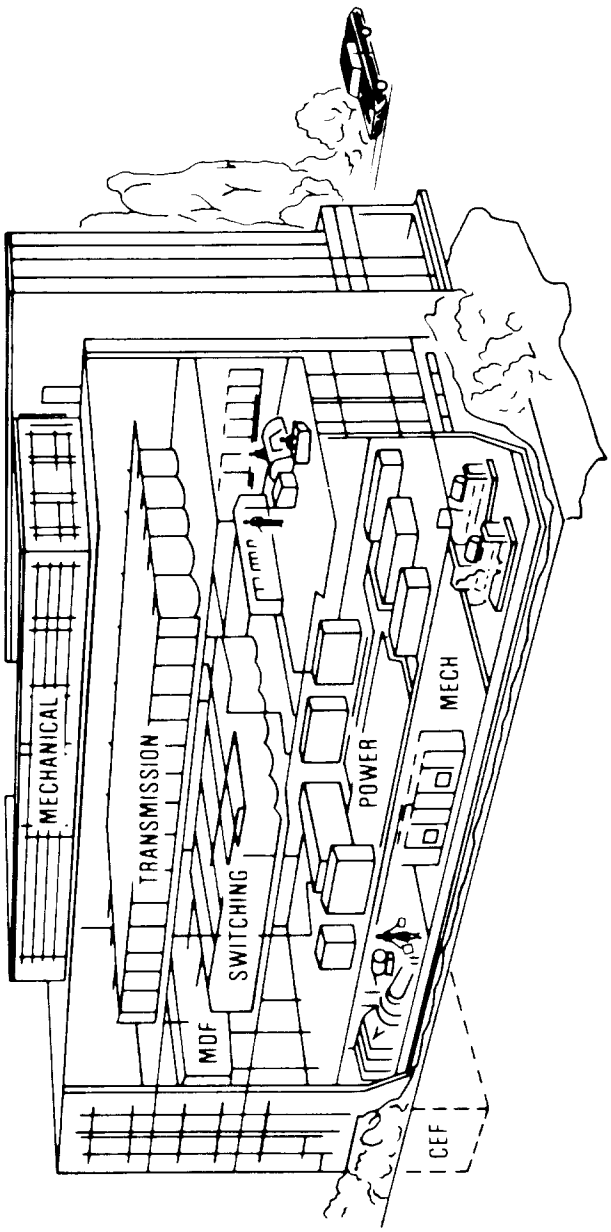


Fig. 1—Central Office Equipment Building

EXHIBIT 1

2.0 ESSENTIALITY OF SERVICE

The importance of the service continuity in a telecommunications operation as a vital link between the community and various life safety services and their integrated units is obvious (Fig. 2). Communications between Fire and Police Departments, plus interdepartmental communications from one section of the fire and police service and another hinges in large part on the availability of telephone communications. This is also true with other related community emergency units and for communications within the departments themselves. Prominent among these essential services are hospitals, physicians, civil defense, and the military. Without the continuity of telephone service, the public safety would be endangered.

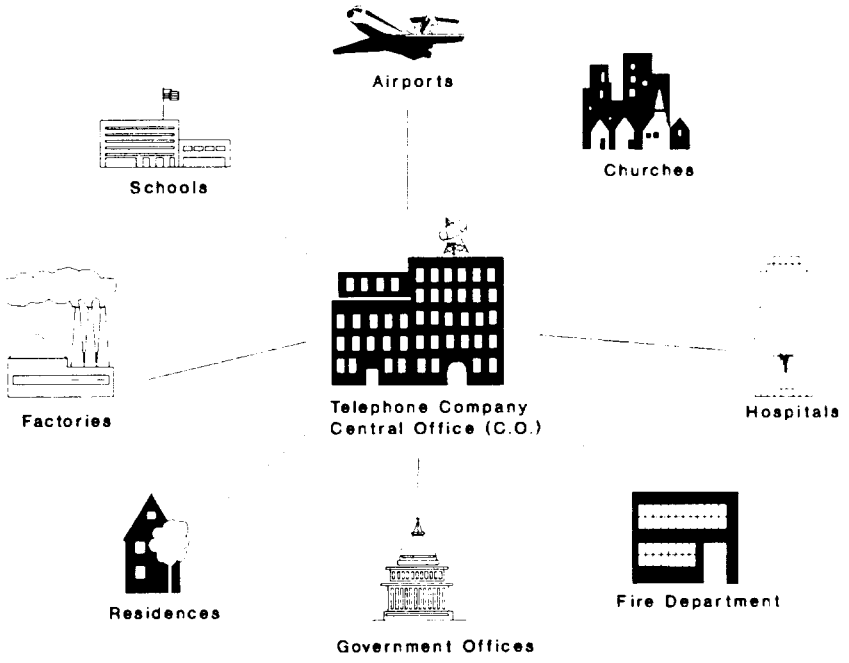


Fig. 2—Community Service Diagram

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3.0 SPECIFIC EQUIPMENT AREAS

3.1 Cable Entrance Facility

Large telephone cables enter the building, usually at the basement level, through a Cable Entrance Facility (Fig. 3). Here the cables are arranged and supported on metal cable racks. The cables are sheathed in lead, PVC, or polyethylene and each contains hundreds of pairs of small insulated wires. Cable Entrance Facilities are normally separated from other areas by at least a 1-hour fire-rated partition with a listed fire door at the entrance. Gravity ventilation is generally provided for this area; however, some special conditions may warrant the provision of mechanical venting. Some below grade CEF's are protected with automatic water fire suppression systems.

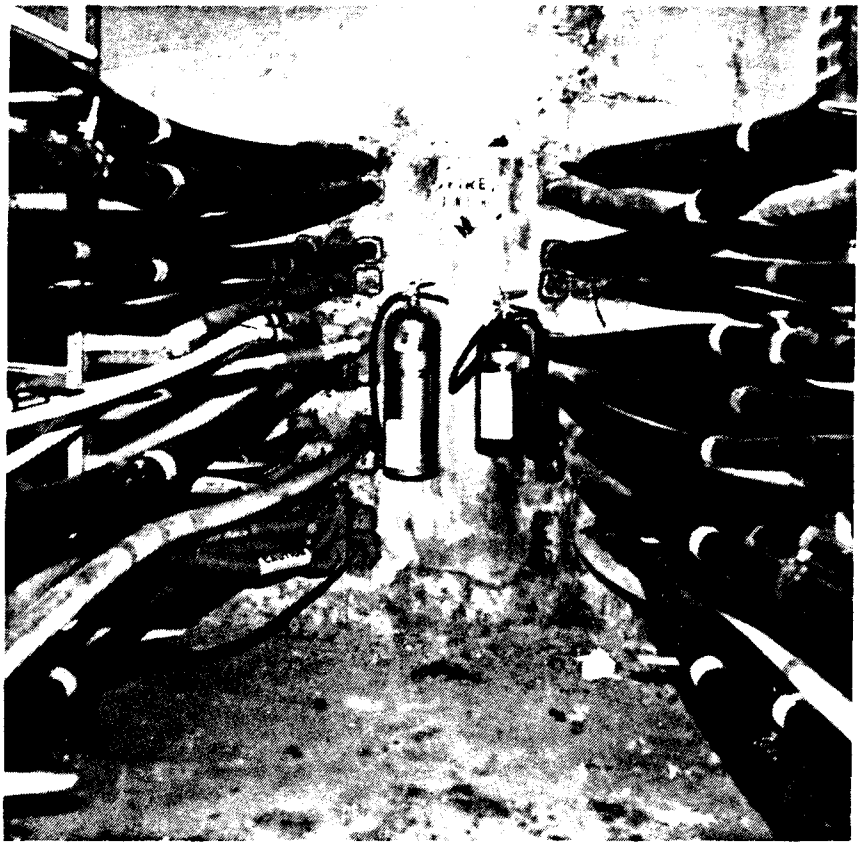

Fig. 3—A Cable Entrance Facility with special building design for cable penetration through basement walls, ceiling, and the outer wall to the floors above.

EXHIBIT 1

3.2 Distributing Frame

The Distributing Frame (Fig. 4) is normally located directly above the Cable Entrance Facility along one of the outer walls of the building. The Distributing Frame is the terminal point for the thousands of pairs of insulated wires brought into the building through the Cable Entrance Facility. In some buildings, the Distributing Frames may have a catwalk mezzanine provided for 2-level access to wire terminators.

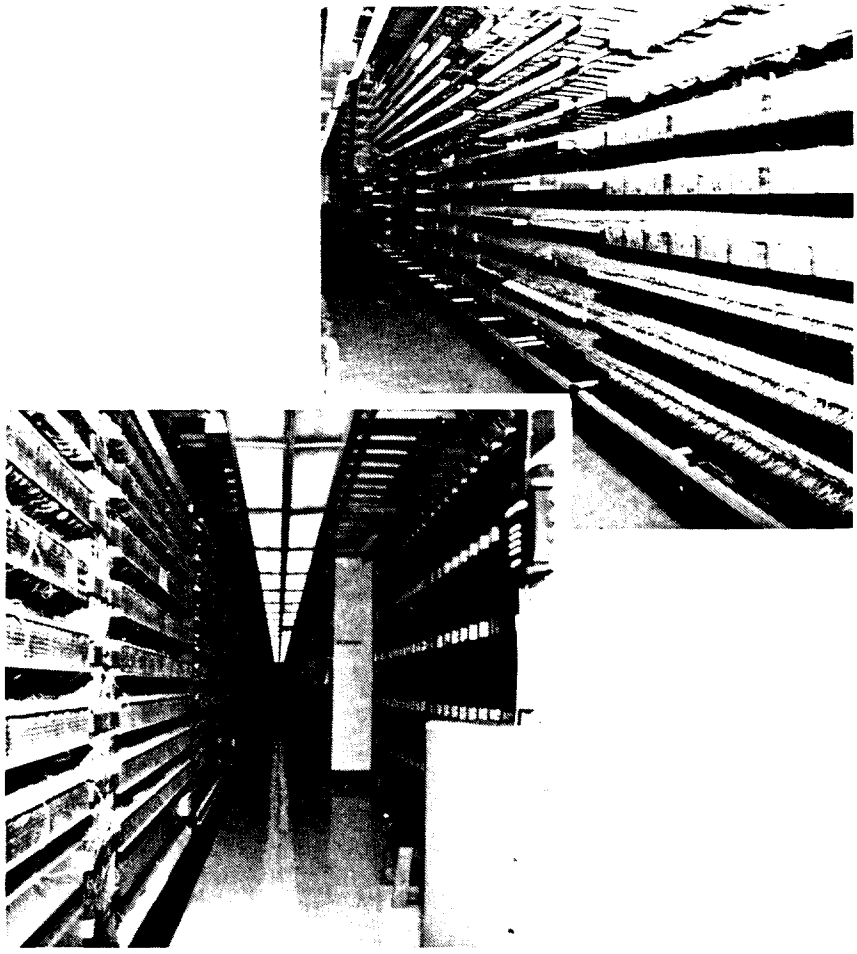

Fig. 4—The Main Distributing Frame, the Wiring Interface Between Outside Plant Cables Entering Cable Entrance Facility, and the Telephone Switching Equipment

EXHIBIT 1

3.3 Switching Equipment

Telephone switching equipment (Fig. 5) is located in areas adjacent to the Distributing Frame and on other floors of the buildings. This type of equipment occupies the major portion of the space in a central office equipment building. Switching equipment processes communications for local connection or for interconnection to local or national networks. The arrangement of the individual pieces of switching equipment is sometimes confusing and could appear to be like a maze. However, the pieces are set in lines, side by side, with 30-inch-wide work areas between each line-up. The maximum length of a line-up is 50 feet, and may have cross aisles depending upon room size and exit requirements. Switching Equipment is interconnected by cable run on overhead racks oriented parallel to and/or at right angles to the equipment frames.

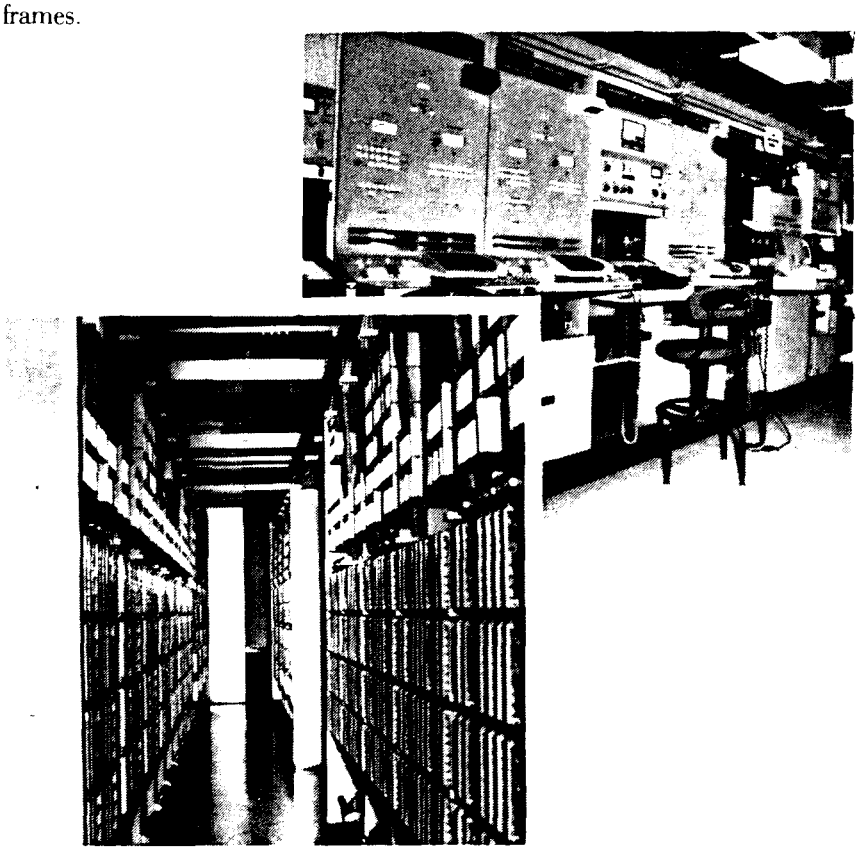

Fig. 5—Switching Equipment (above and next page)

EXHIBIT 1

EXHIBIT 1

3.4 Power Equipment

Telephone Switching Equipment uses DC power. The DC Power Equipment consists of closed wet cell batteries (Fig. 6), AC-DC generators, and associated control panels. Power areas may be located adjacent to the Telephone Switching Equipment, in separate compartments, or on different floors.

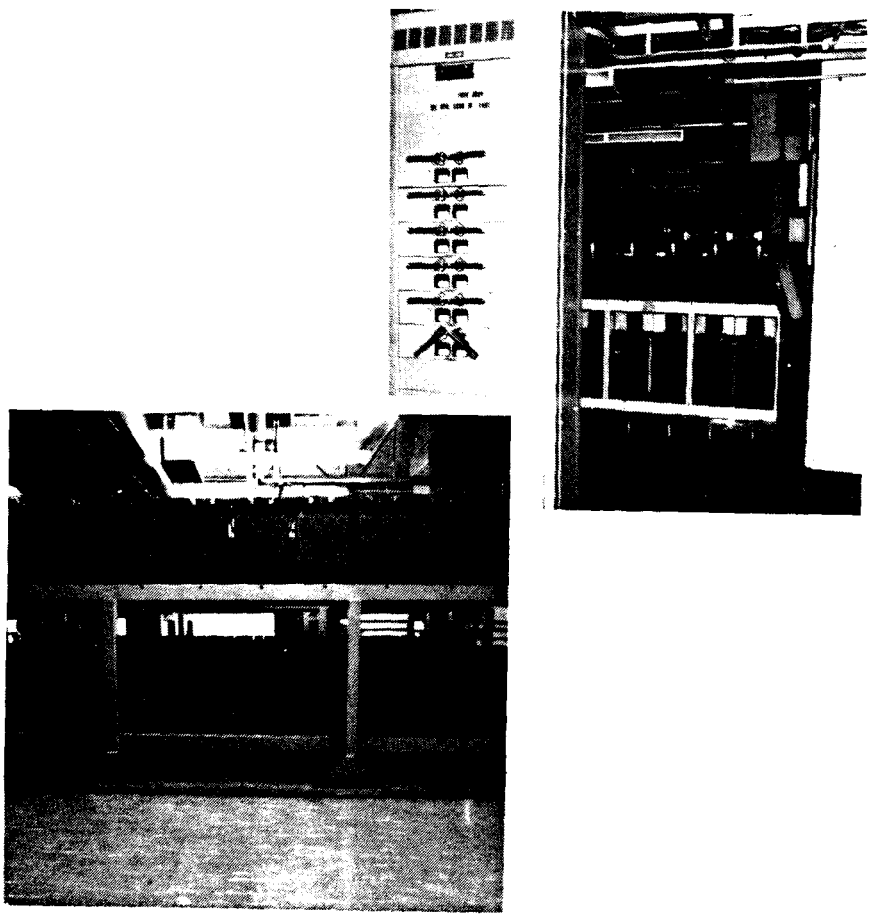

Fig. 6—Battery Plant With DC Control and Distribution Cabinets

EXHIBIT 1

Alternating current (AC) equipment is also found in most telephone central office buildings, and it may be separated from DC power equipment by a rated partition. The AC Power Board is usually located adjacent to the transformer vault and clearly marked to indicate voltages. Generally, central office equipment buildings will also have diesel or turbine standby AC power units (Fig. 7) which may be provided with remote shutdowns. In many installations, the standby generator starts automatically and the others require manual start. Standby power equipment is normally housed in a separate room having fire-rated walls and a listed fire door at the entrance.

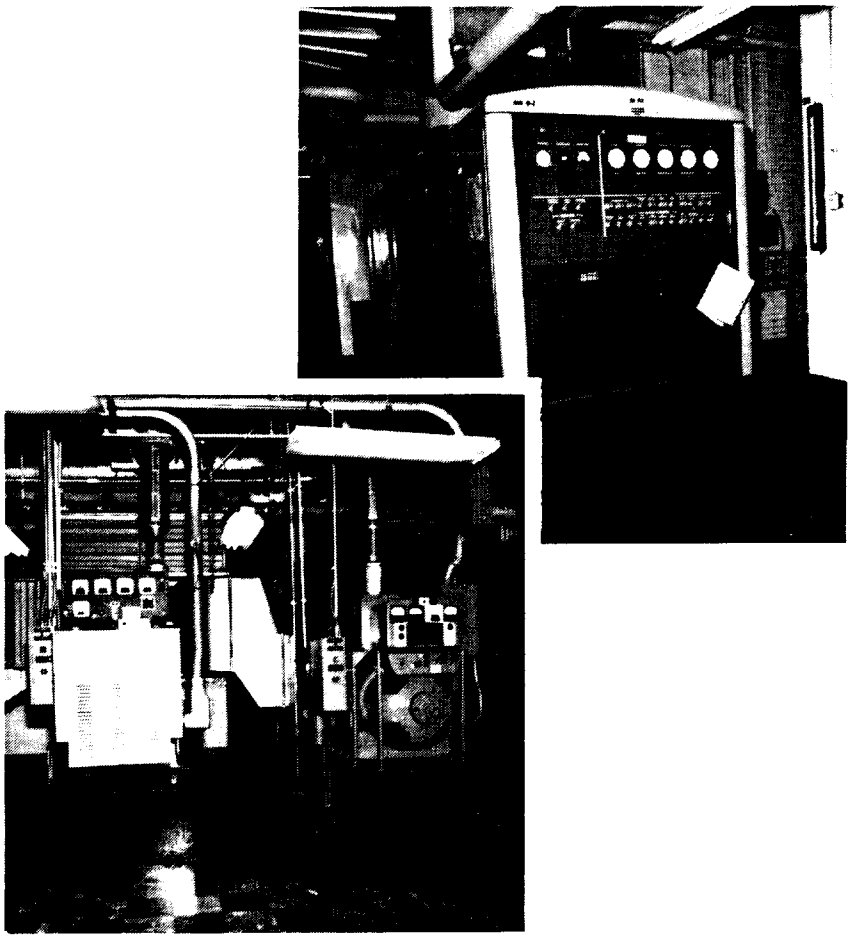

Fig. 7—Standby Engine Alternators

EXHIBIT 1

3.5 Controlled Environment Vaults

The Controlled Environment Vault (CEV) is a small underground equipment housing between 6 to 10 feet wide and 16 to 24 feet long (Fig. 8). The typical CEV houses electronic telephone equipment for serving the customer and is fed by both copper and fiber cables. There is only one place of entry/exit on a CEV.

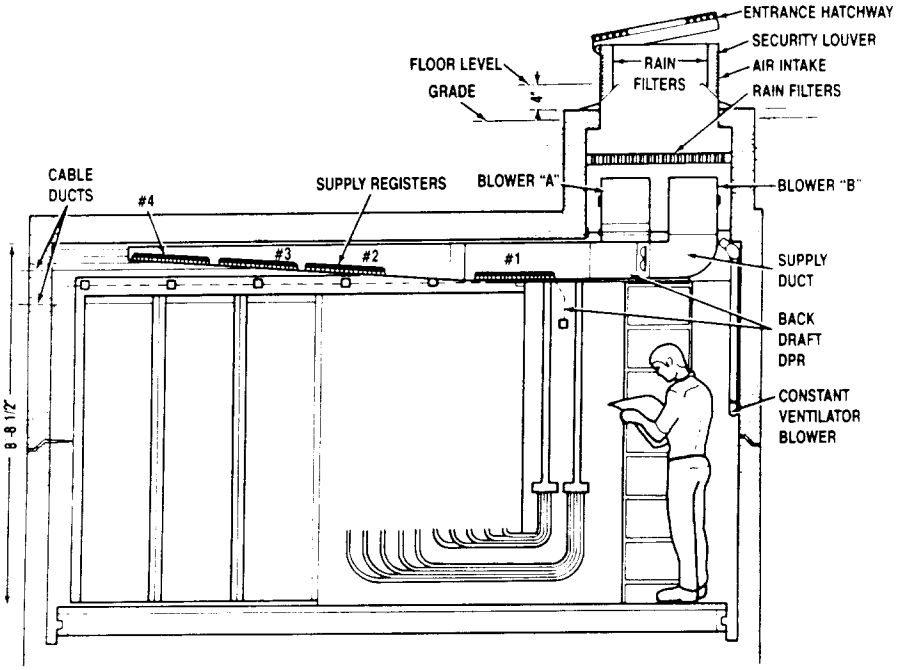

Fig. 8—Controlled Environment Vault (CEV)

4.0 FIRE SPREAD CONSIDERATIONS

4.1 Network Equipment

The polymeric constituents that comprise the insulating and structural materials within a central office represent the major sources of potentially combustible fuel that might feed a fire spread. The range of possible flammabilities of materials will depend on the age of the building and the variety of differing equipment frames and cabling that have been installed and maintained under current operating conditions. Other sources of fuel are furniture and furnishings, building materials, computer paper and tape, ladders, etc.

4.2 Materials Flammability

A compilation of the flammability characteristics of the major combustible fuel sources in a given office is a critical indicator of the potential flame spread and rate of flame spread of a fire outbreak within a specific equipment room. The flammability of material within a central office may range, for example, from polyethylene to polycarbonates or fluoridated hydrocarbons.

4.3 Equipment Room Interaction

A major risk to assess is the potential threat to modern digital equipment frames from fires initiated and spread from other equipment and cabling within the same building.

Equipment frames, including main distribution frames, of the electromechanical type generally contain materials that are less fire resistant than modern digital telecommunication equipment cabinets. Where such vintage equipment coexists within a central office with modern equipment it enhances the risk of fire damage, either by flame, heat or corrosive smoke to the modern equipment. This risk enhancement is greater where the coexisting equipments are not isolated by fire compartmentation.

4.4 Cabling pathways

A significant factor in the potential for fire spread are the cable pathways running through central office space. Cable assemblies interconnecting equipment frames offer paths for flame spread between frame line-ups. Cable assemblies running through riser shafts, or between fire compartments by means of cable openings in floors and walls, could be the conduit for fire spread, either by flame or by smoke, throughout a building.

In general all cabling should satisfy as a minimum requirement the flame spread specifications of the IEEE 383 test method for power cabling. Types of cabling pathways in network offices are:

a. switchboard cabling
b. mainframe wiring
c. DC power cabling
d. riser cabling
e. plenum cabling
f. AC power wiring

4.5 Cabling Functions

It has been normal practice for many years to run power cabling, DC or AC, along separate cable racks from switchboard cabling to minimize any potential fire risk due to arcing between power cables and cable racks from involving switchboard cabling. In older buildings where cable pile-ups have accumulated over several decades it is possible that some power cables do run in cable racks admixed with vintage switchboard cabling. This adjacency of cabling is a high fire risk factor in cable pathways and should be carefully evaluated in any fire hazard assessment program.

4.6 Cable Mining

Where redundant cabling has been removed from cable pathways by mining, their fuel loads and flame spread characteristics are generally diminished. However, the dislocation of the remaining cables may lead to mechanical stressing of their insulating sheaths and a possibility of electrical arcing may ensue. This is particularly true of older rubber insulation where deterioration of the mechanical strength can occur with age.

4.7 Power Considerations

Special concern should be exercised in assessing the potential for fire initiation that might be caused by the appearance of non-standard excess voltages at equipment frames, including main distribution frames. Non-standard voltages that may prove troublesome are:

a) lightning surges
b) local power company problems
c) AC powered BX cables
d) Greenfield cables
e) fluorescent light fixtures
f) special service wires
g) high voltage DC test set applications

Identification of any vulnerable equipment to such sources of foreign voltage may prove valuable in lowering the fire risk.

In general, it is expected that minimal fire outbreaks will be initiated from power equipment and cabling when all installation and operating procedures are followed.

4.8 Electromechanical Equipment

Older vintage equipment, such as crossbar and step-by-step can pose the greatest possibility of fire spreading within an equipment room. Generally this equipment is being rapidly replaced by digital equipment. Where the older equipment is not physically removed but RETIRED-IN-PLACE this type of space should be regarded as a higher risk area and a candidate for enhanced protection. The equipment should be physically isolated from modern equipment as a minimum precaution.

4.9 Limitations on Smoke Spread

The concepts controlling the spread of smoke from fires are newer than flame spread requirements and are of increasing significance as digital equipment is introduced in mounting quantities to network facilities.

The density of smoke emissions from equipment and cabling fires generally increases with the use of plastic and rubber insulating materials. The visibility can rapidly diminish and create problems in fighting fires and in determining the location of the origin of the fire.

Although the smoke emanating from many plastic fires has acidic constituents, the presence of large amounts of polyvinylchloride plastic insulation provides the potential for the generation of large amounts of corrosive smoke. This corrosivity will exist independent of the temperature of the smoke. Actual corrosion effects in equipment assemblies will be functions of:

a) the humidity of the air in the central office during the fire exposure
b) the temperatures of the equipment exposed to the smoke
c) the chemical resistance of equipment metallic components to corrosive attack
d) the length of time assemblies are exposed to smoke
e) the actual chemical composition of the smoke generated
f) the transfer of acidic salts of heavy metals by means of the smoke patterns established in the fire

5.0 FIRE PROTECTION SYSTEMS

5.1 General

This addresses fire protection in telephone central office buildings. It supplies a rationale for integrating various aspects of fire protection technology into an approach that should minimize the potential for fire damage to telephone equipment and buildings.

Some of the information provided is based on the National Fire Codes ,NFC of the National Fire Protection Association (NFPA) and on the Model Building Codes. The remainder of the information is derived from Bellcore technical data developed in fire tests and from conclusions reached from investigations of equipment or cable fires in central offices.

5.2 Code and Standard Requirements

Where local, state or Occupational Safety and Health Act (OSHA) regulations require other protection the legislated criteria is followed.

a) Buildings—the model building code requirements specified by local and state authorities should be determined for individual buildings.
b) AC Power—the appropriate National Electrical Code requirements mandated by local and state authorities should be incorporated for individual buildings.
c) Health—the OSHA requirements in effect for fire-related issue should be determined for individual building locations.

5.3 Systems Design

5.3.1 Construction Requirements

Taking into consideration their importance to the community, the construction requirements of telephone equipment buildings are more stringent than most of the other occupancies located within a community. The construction requirements for telephone equipment buildings is of fire-resistive Class B-type construction with a minimum three-hour rating in compliance with NFPA No. 220. In smaller one-story structures, such as community dial offices and radio relay stations, the minimum requirement is protected non-combustible construction.

To further illustrate the fire protection features incorporated into the equipment buildings, strict emphasis is placed on control of the interior finishes and furnishings. The minimum criterion established concerning interior finishes is that all material must have a flame spread of 25 or less and a smoke developed rating of 50 or less as established by ASTM E84 test methods. Even with this strict criterion, generally non-combustible-type finishes are used wherever possible. The only type combustible materials allowed would be extremely minor such as bulletin boards, desk or chair sets, or other items necessary for our operations.

The minimum acceptable cutoff between telephone equipment rooms and non-equipment areas is a one-hour fire-rated non-combustible partition with openings properly protected in accordance with NFPA standards. The fire load is approximately four to six pounds per square foot, depending upon the equipment installed.

The rigid standards which have been cited contribute to the reduction of fire loading throughout the building, with specific emphasis placed on telephone equipment areas.

5.3.2 Containment

Compartmentation: As part of the construction practices, fire-related walls are provided to enclose separate areas to minimize the spread of fire. Traditionally, fire compartments in central offices have coincided with the functional use of the floor space, for example, power rooms, cable vaults, switch rooms, computer rooms, etc.

Smoke Control: A program has been initiated to incorporate smoke control systems in some new central office equipment buildings (depends upon size and height of building). With smoke control, all positive means of air supply (i.e., supply fans or dampers) are turned off in the smoke compartment and all means of exhausting to the outside (i.e., exhaust fan or relief damper) are fully opened. All other smoke compartments not involved in the fire should be provided with outside air supply and have normal exhaust paths (i.e., exhaust fan or relief damper) closed.

Smoke Venting: Building air supply is used to provide a means to evacuate smoke from fire zones to improve the ability to fight a fire or subsequently to restore service. In the incorporation of smoke-venting concepts into a multistoried building it is essential to ensure that corrosive smoke is not vented into space containing either sensitive equipment or personnel unequipped to cope with quantities of such smoke. Procedures for venting smoke outside the building should be planned in such a way as to meet local or state environmental pollution requirements and to avoid damage to neighboring facilities or health hazards to the public.

Smoke venting is to be manually activated by fire department personnel. Manual controls are placed at the point of normal fire department access into the building.

Fire stopping: Fire-rated floors and walls have many penetrations required for the passage of cabling to interconnect the Switching Equipment. These penetrations are sealed to keep a fire from spreading from one fire compartment to another. Building codes require that all penetrations of fire-rated walls and floors be restored to preserve their fire endurance integrity.

5.3.3 Fire Detection Systems

Automatic fire detection systems have been installed in equipment areas of central office telephone equipment buildings. If not, a program is under way to cover the remainder of the facilities. Some buildings with a high concentration of service will have detection system coverage throughout non-equipment areas of the building to further reduce the risk of fire damage.

Manual fire alarm systems, with pull boxes and coded alarms, are installed throughout equipment buildings to provide local on-site warning to building occupants. We have installed ionization products of combustion type detection in telephone equipment areas. In all cases, codes and standards of the NFPA are used as minimum design criteria. In most instances, these early warning fire detection systems are designed to exceed the minimum accepted requirements. As these products of combustion type detection systems are installed in telecommunications buildings, they are accomplishing the desired effect which is discovery of a fire in the incipient stage.

Irrespective of a fire's origin, Early Warning Fire Detection (EWFD) is aimed at detecting flaming conditions within a building within two minutes of outbreak and producing both local and remote alarm signaling. This concept allows either local personnel or professional firefighters to arrive shortly thereafter, that is, within a 5–15-minute time frame, and extinguish the fire. In certain applications individual or zoned detectors are used for specific tasks such as closing fire shutters or triggering automatic suppression. This approach protects personnel as well as the building and its equipment contents. This is the main thrust of our detection system design.

Supervision of fire detection systems is by means of coded alarms sounded throughout the building with the zone location identified on an annunciator panel in a constantly attended maintenance or security area. In buildings which do not have constant attendance by telephone company personnel, an alarm is transmitted to a telephone company control center for remote supervision.

Appropriate response actions are then taken by the responsible supervisory personnel.

Manual capability should also be available to shut down power to circuit packs or cabinets that are generating smoke so that the fire and smoke source may be eliminated. It should be noted that digital cabinets invariably use built-in cooling fans which can spread generated smoke considerable distances.

5.3.4 Fire Extinguishment

All standpipe and hose systems and fire pump installations are installed in compliance with applicable NFPA standards. All materials and equipment used in these installations are required to be listed by the Underwriters Laboratories Inc.

Damage caused to the telephone equipment and the resulting loss of service are the primary reasons for not installing automatic fire suppression systems to protect telephone equipment spaces. However, at some locations, automatic sprinklers have been installed to protect the Cable Entrance Facility (CEF), storage rooms, and other general use non-equipment spaces which are below grade. Sprinklers may also be installed in above grade storage rooms with large quantities of combustibles and halon in areas with irreplaceable data, such as computer centers, tape libraries, and certain unattended remote offices.

A combination of manual suppression means is also employed depending on the nature of the combustibles in the area, the type of communication equipment, and the nature of the occupancy. These means range from portable extinguishers to standpipe and hose systems.

Hand-portable fire extinguishers are installed throughout all telephone company buildings for use by occupants, according to classification of materials. For example, in storage rooms or office spaces where ordinary Class A materials are involved, pressurized water type extinguishers are installed. In other areas, such as kitchens, power rooms, boiler rooms, or other areas where involvement may be with flammable or combustible liquids, or energized electrical equipment, carbon dioxide type B/C units are installed. In telephone equipment rooms, one pressurized water type unit and one carbon dioxide or halon unit are mounted in tandem at frequent intervals to provide a Class A, B, and C type protection.

6.0 ADDITIONAL FIRE PREVENTION CONSIDERATIONS

6.1 Occupancy Levels

We place the greatest emphasis on the safety to life aspect of our personnel working within our central office buildings. Our low occupancy densities in telephone equipment space, together with early warning detection systems, reduced substantially the life safety hazard due to fire in these spaces.

6.2 Housekeeping

The gradual accumulation of non-functional materials assemblies in equipment space poses additional hazards to the network building. There are company requirements, that are enforced, for minimizing such accumulations.

EXHIBIT 1

6.3 Fire Safety Plan

Each telephone central office has a fire safety plan developed specifically for that location. The purpose is to provide fire drill and evacuation rules for telephone "people" buildings. The objective is to provide safety education as a part of continuing indoctrination for all employees in the areas of proper reporting of fires, response to fire alarms as designated, and immediate initiation of fire safety procedures to safeguard life and contain fire. A responsible management person in each building is placed in charge of fire safety and has the responsibility to post main and alternate evacuation plans for each area, supervise fire drills, and to coordinate the overall program as regards safety to life and property.

6.4 Telephone Equipment Standards

It has been a long-standing practice to build fire protection into building structural components as well as our communications equipment. In designing new equipment systems, the manufacturer is required to make fire protection an integral part of their design criteria.

6.5 Means of Egress

Where main distribution frames or cable vaults exceed 100 feet in length, consideration is given to providing a means of egress at the mid-point location to avoid the possibility of firefighting personnel being unable to reach other egress points. The need for additional egress will depend on the layout of individual MDF rooms and cable vaults.

6.6 Systems Maintenance

Since a well-designed fire protection system is dependent on good maintenance for continued effectiveness, all fire protection systems are rigorously serviced according to the company requirements and the manufacturer's instructions.

6.7 Systems Response

A quick response time to fire alarms is desired for central office buildings, particularly in the case of unmanned buildings. The awareness of responding personnel, whether operating company employees in a manned building or professional firefighters in an unmanned building scenario, is extremely important. The combination of response time and awareness is considered when determining whether a building, or parts thereof, should have special provisions made for full-time on-site personnel in case of fire.

Company policy requires that upon receipt of a local and/or remote fire or smoke detection alarm, the response is to immediately notify the fire department of jurisdiction and then to dispatch a company employee to investigate and assist the fire department.

6.8 Other Considerations

The building and network systems are to follow the appropriate municipal, state and federal fire regulations that are in effect and operational. It is of special concern that means of egress for personnel and firefighters are adequate, that fire doors and dampers are properly sized, that smoke-free stairwells are available and that all firefighting procedures and apparatus are appropriately designed for the building's needs.

7.0 FIREFIGHTING CONSIDERATIONS

7.1 Extinguishing Agents

Caution should be exercised as to the type of extinguishing agent used within telephone central office equipment buildings. The use of clean agents such as carbon dioxide or halon is preferred. If clean agents will not extinguish the fire completely, a water hose with fog nozzle should be employed. Water should only be used after clean agents have not extinguished the fire and the amount of water should be minimized. Due to the corrosive effect on telephone equipment, foam and dry chemical extinguishers or agents should not be used.

7.2 Equipment Voltages

The voltages encountered in telephone central office equipment are low, and the only areas which could present a hazard to the firefighter are in the Power Room. Here the voltage is not a hazard if a water hose with a fog nozzle is used.

EXHIBIT 1

7.3 Actual Firefighting Procedures

It should be noted that in the excitement of coping with an actual growing fire some of the elements covered in company policy may not be completely present. The following suggestions may prove of use:

a) Network managers responsible for a given office should be made responsible for the coordination of firefighting procedures at the fire scene in collaboration with professional firefighting command personnel.
b) Decisions should have been made in advance as to when water should be used on various fire outbreaks; this should be as early as possible since water is the most effective means of extinguishing fires.
c) AC and DC power should be disconnected within the fire zone to permit the early use of water. It is of greater importance to extinguish the fire than to attempt to continue full service.
d) Special care should be exercised in the use of water in battery rooms and other power rooms.
e) Application of water from spray nozzle hoses should be encouraged in fires involving vintage wiring in older MDFs or in cable vaults utilizing significant fuel loads of polyethylene jacketed cabling.
f) Small equipment fires should be extinguished using a portable Halon fire extinguisher.
g) Fires in CEV's should be extinguished using Halon portable fire extinguishers from outside the CEV directed through the hatch. Empty contents and close the hatch. This will be the most effective means of extinguishment because of the space confinement present in the CEV.
h) Always make sure power is disconnected to the source of any electrical fire. Otherwise, there is a possibility of re-ignition.

There are several ways to plan for effective fire extinguishment of fire outbreaks in equipment rooms in either manned or unmanned buildings. Because extinguishing methods are mutually complementary, a plan may use all of them or use one approach as the preferred system. This choice will be based on local considerations analyzed at each building.

7.4 Trained Firefighters

Whether such firefighting support is provided by professional firefighters or by company personnel, the planning of fire prevention measures should accommodate the use of both gaseous portable extinguishers and water streams from standpipe-hose systems or firewagons. A clear-cut plan for firefighters use in tackling fire outbreaks of differing magnitude in equipment of varying flammability is essential.

8.0 ACCESS AND ORIENTATION

8.1 General

It should be recognized that the difference between a quickly and successfully extinguished equipment fire and a fire outbreak that spreads to produce significant damage may lie in the training and information provided to firefighters.

8.2 Access

The major considerations in gaining access to telephone central office equipment buildings are the security aspects. Entrance doors to central office equipment buildings are kept locked but should not present a problem to fire department personnel using forcible entry tools. In certain buildings, windows are protected with special impact materials, screens, etc., so that preplanned means of entry will be required. This should be discussed with local telephone company representatives. Where windows are protected, there may be access openings for entrance by firefighters and/or for ventilation.

Access to the building should be carefully reviewed with the telephone company representative so that in an emergency the most direct route can be used with a minimum loss of time and disruption to building security.

8.3 NFPA Diamond Markings

NFPA diamond labels identifying health, flammability, reactivity and personal protection equipment requirements for specific hazardous materials are placed on the doors providing access into the immediate area/space where the hazard is located within a central office equipment building.

EXHIBIT 1

8.4 Fire Protection Floor Plans

To avoid confusion in firefighters' minds as to the physical difficulties that they are encountering in fighting fires where poor visibility conditions may exist, fire protection floor plan drawings have been prepared for each building. These should be reviewed during the on-site visit so that firefighters will be able to orient the drawings to the location. Copies of the drawings will be available for the fire department and should be updated as significant changes are made.

These plans, which are usually placed in the lobby for easy access by the firefighters, include the following information:

- Diagram of building
- Partitions
- Exits, stairwells, elevators, etc.
- Extinguisher locations
- Standpipe and hose locations
- Fire alarms
- Fire department access
- Directions of equipment/cabling layouts
- Main shutdowns for water, electric, steam, and gas
- Smoke control panels
- Elevators equipped with firemen's service
- Building equipment location/shutoffs
- Locations of cable hole firestops
- Locations of DC power plants, electrical switchgear, equipment power, and standby engine units and the associated shut-down controls
- Flammable, hazardous or toxic material locations

See Fig. 9 for typical plan

8.5 Other Information

The floors served by the various DC power plants should be identified along with the appropriate DC power disconnect procedures, fuse stenciling, and DC power flow charts.

Line diagrams for the building electrical switchboard circuit should be posted in the vicinity of the switchboard to facilitate operation during an emergency and should be noted.

The compatibility of threads for fire department connections should also be reviewed during the tour.

Firesafety plan binder should be reviewed during the orientation tour specifically covering:

- Evacuation procedures
- Arrangements for the physically handicapped
- Fire emergency organization members and responsibilities
- Self-inspection reviews and documentation on deviation corrections
- Form E-5689
- Copies of consultant inspections, M&MPC or Insurance company and inspection responses
- Record firefighter orientations
- Fire protection floor plans
- Records of evacuation drills
- List of physically handicapped individuals
- Records of training sessions
- Copies of fire reports

EXHIBIT 1

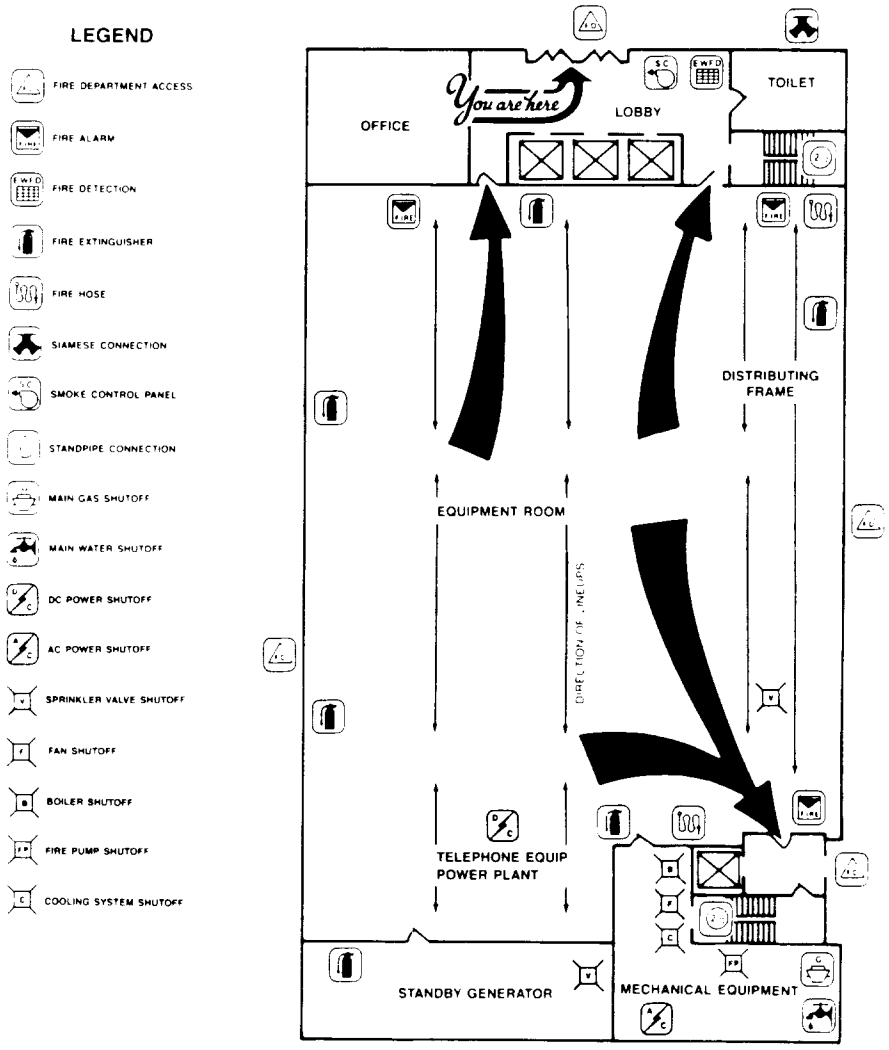

Fig. 9—Fire Protection Floor Plan

9.0 FIRE DEPARTMENT PLANNING

9.1 Fire Department Prefire Plan

Many fire departments have established a data file (Prefire Plan) on major buildings noting any unusual features, location of a fire command station or building operating controls, special hazard areas and any other information of concern to firefighters. The company will cooperate in the use of a Prefire Plan program.

An integral part of effective loss prevention is a comprehensive self-inspection program. This program should be designed to detect potential loss-causing situations and ensure that all building protection features are in proper working order. The inspections will be documented for review and corrective action. Follow-up programs will be adopted to ensure deficiencies have been corrected in a satisfactory manner. This documentation will be maintained on file at each location and should be made available to firefighters during their annual orientation sessions.

9.2 Firefighters Training

It is necessary for professional firefighters to familiarize themselves in the various fire scenarios that may develop in network equipment fires to obtain optimum effectiveness from such firefighters. Professional firefighters should be given orientation tours and the associated orientation information that is generally described in this book.

9.3 OSHA

Contingency planning for fire episodes should not only include the firefighter considerations outlined in this book, but also incorporate interactions with OSHA officials who impact on both firefighting and equipment restoration procedures. In particular, the disposal of contaminated, fire-damaged materials and equipment requires identification and special handling of possibly hazardous waste material whose requirements are generally under the control of local OSHA officials.

EXHIBIT 1

GHQ Real Estate Management and Architecture Publication

SW3076
6/89

PROPRIETARY

EXHIBIT 2

SW3077
6/89

FIRESAFETY PREPLANNING SURVEY/CHECKLIST for TELEPHONE EQUIPMENT BUILDINGS

The Firesafety Pre-Planning Survey/Checklist (Form SW3077) for telephone central office equipment buildings should be covered during the firefighter orientation session. This has been prepared as a check list of items and activities that are to be accomplished by representatives from Southwestern Bell Telephone and the local fire department.

The booklet titled Firefighters Guide (Form SW3076) has also been prepared for review with local fire departments during annual firefighter orientations sessions at each telephone central office equipment building. A copy should be given to the fire department for their records.

The booklet and survey form are covered in 770-340-200 SW and may be ordered through SWBT Forms Catalog.

GENERAL INFORMATION:

SWBT STATE FIRESAFETY COORDINATOR:

NAME _____ PHONE #_____

ANNUAL FIREFIGHTER ORIENTATION SESSION CONDUCTED AT:

BUILDING NAME _____

ADDRESS _____ CITY_____

BUILDING SUPV. _____ PHONE #_____

NETWORK SUPV. _____ PHONE #_____

DEPUTY FIRE DIR. _____ PHONE #_____

NETWORK CONTROL CENTER MONITORING REMOTE BUILDING FIRE ALARM DETECTION SYSTEM:

LOCATION NAME _____ PHONE #_____

ADDRESS _____ CITY_____

FIRE DEPARTMENT REPRESENTATIVE:

NAME _____ DATE_____

The following organizations should be represented when a building is preplanned:

_____ Deputy Firesafety Director
_____ Firesafety Organization Members
_____ Building Operations
_____ Local Fire Department
_____ Network Operations
_____ Other groups as requested

When a building is being scheduled for firesafety preplanning the following individuals should be notified:

_____ State Firesafety Coordinator
_____ Building Firesafety Director
_____ SCC/TASC Manager
_____ District Office—Building Operations

The survey/checklist items are supported by the technical information contained in the 760 and 770 series practices.

A copy of the survey/checklist should be kept on file with the state firesafety coordinator, building operations supervisor and deputy firesafety director (in building firesafety binder).

EXHIBIT 2

SECTION I—FIRE DEPARTMENT PRECAUTIONS

_____ What extinguishing agents may the Fire Departments use?
- _____ CO2
- _____ Halon 1211
- _____ If the Fire Department doesn't already carry Halon can arrangements be made for them to do so?
- _____ Water—All Fog (after equipment power has been de-energized)

_____ The Fire Department should not use the following agents:
- _____ Dry chemicals
- _____ Full stream water
- _____ Halon in cable vaults

_____ Discuss Electrostatic Discharge (ESD)
- _____ Identify high risk areas

_____ Location and use of fire retardant gloves and pry-bar

SECTION II—SERVICE SHUTOFFS AND BUILDING PLANS

_____ Building fire protection floor plans should be made available to the Fire Department at the Preplanning Tour by the Building Operations Organization.

_____ Have the physical locations for the following service controls been labeled and located on the building fire protection floor plans for quick reference?
- _____ Commercial (AC) power shutoff
- _____ DC electrical power shutoff
- _____ Building natural gas shutoff valve
- _____ Building water shutoff valve
- _____ Stand pipe hose locations
- _____ Fire Alarm locations
- _____ Fire pump
- _____ Building equipment shutoffs
- _____ Portable fire extinguishers
- _____ Fire doors and rated partitions
- _____ Smoke control panels
- _____ Suppression system shutoff valves
- _____ Fire department access

EXHIBIT 2

SECTION III—ITEMS TO BE COORDINATED WITH THE FIRE DEPARTMENT

_____ Provide procedures to the Fire Department to access the central office.
- _____ Will the SCC provide door codes of the central office to the Fire Department when the initial emergency call is made to the Fire Department?
- _____ Does the Fire Department have a Toll Free number to call the SCC?
- _____ Will certain doors be designated as forcible entry and will they be labeled as such?
- _____ Will the Fire Department use a door key?
- _____ Will the Fire Department gain access via a security control system?

_____ Items to be located and identified for the Fire Department.
- _____ Hazardous, flammable and toxic materials
- _____ DC Power Plant (disconnect procedures, fuse stenciling, and DC power flow charts)
- _____ Batteries
- _____ Emergency engine (auto/manual start)
- _____ Fuel storage facilities (day tanks)
- _____ Building Items
  - _____ Boilers
  - _____ Chillers/Air handlers
  - _____ Air handler shut down
- _____ Heavy areas of combustible materials
  - _____ Main Frames
  - _____ Cable racks/Cable vaults
  - _____ Storage
  - _____ Wood furniture located in equipment spaces
- _____ Critical equipment requiring special precautions extra effort to limit damage
  - _____ Processor
  - _____ Switches (telephone equip. line-ups)
  - _____ Radio Bays
  - _____ Digital or fiber optics
  - _____ Computers (mini & mainframe)
- _____ Building firesafety control valves for
  - _____ Fire Department connection (compatibility of threads)
  - _____ Sprinklers
  - _____ Standpipes
  - _____ Fire pumps
- _____ Administrative areas of building
- _____ Location and use of service shutoffs (see Section II)
- _____ Fire extinguishers (portable)
- _____ Fire walls and doors
- _____ Exits, Stairwells, Elevators (passenger and freight)
- _____ Location and use of smoke control system
- _____ Early Warning Fire Detection System
- _____ Halon system
- _____ Building construction (material make-up of building structure)
- _____ Occupancy of building
  - _____ Routine
  - _____ Holidays
  - _____ Evenings

EXHIBIT 2

SECTION IV—BELL SYSTEM EMPLOYEE PROCEDURES

_____ Do employees know evacuation procedures
_____ Are EXITS marked and working
_____ Are assembly areas identified
_____ Have handicapped employees been identified and assigned a "buddy" in case of an emergency
_____ Has an emergency call list been prepared
_____ Is in-house firefighting available and at what level
_____ Firesafety plan binder should be reviewed for written documentation of:
- _____ Evacuation procedures
- _____ Arrangements for the physically handicapped
- _____ Fire emergency organization members and responsibilities
- _____ Self-inspection reviews and documentation on deviation corrections
- _____ Form E-5689
- _____ Copies of consultant inspections (M&MPC or Insurance company) and *inspection responses*
- _____ Record of firefighter orientations
- _____ Fire protection floor plans
- _____ Records of evacuation drills
- _____ List of physically handicapped individuals
- _____ Records of training sessions
- _____ Copies of fire reports

SECTION V—CHARACTERISTICS OF THE FIRE DEPARTMENT

_____ ISO Rating (changes necessary to achieve rating of 6 or above)
_____ Paid/Volunteer (can company provide assistance)
_____ *Equipment/Service Capabilities*
- _____ Halon
- _____ Foam
- _____ Aerials
- _____ Air Cascade
- _____ Self-contained breathing apparatus (SCBA)
- _____ Other

_____ Distance from telephone equipment building
_____ Route Alternatives (min. 2)
_____ The Fire Department has the authority to initiate the Emergency Powers Act.
_____ Alarm dispatching methods
_____ Estimated response time from alarm initiation to building (less than 10 min.)

SECTION VI—EMERGENCY TELEPHONE NUMBERS

Fire Department Emergency Number_____
Information Number_____
SCC (Toll Free)_____
Doctor_____
Ambulance_____

Southwestern Bell Telephone

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