FIRE PROTECTION DURING CONSTRUCTION

1. GENERAL

1.01 This section outlines certain precautionary measures intended to minimize the possibility of fire as well as the hazards due to fire in buildings under construction, and is offered as a guide in arranging for such protection.

1.02 The recommendations in this practice are based in general on the National Fire Codes of the National Fire Protection Association, Volume III - Building Construction and Equipment, and the National Building Code recommended by the National Board of Fire Underwriters. These recommendations cover a broad range of building operations, and it is therefore expected that each project will be considered individually to determine which measures are applicable thereto. In general, projects involving alterations or enlargements to buildings in service are considered to be of prime importance from the standpoint of providing thorough fire protection.

1.03 This issue includes a general revision and expansion of the practice to conform to present recommendations. Marginal arrows, indicating changes in the text, are omitted in this issue because of the extensive general revision of the text. For operation and maintenance application, this section is double numbered with this issue and the same issue number is assigned for uniformity.

1.04 Buildings in course of construction are inherently more hazardous, regardless of the type of construction employed, than when completed. Building alteration and demolition hazards are also more severe. Fires which are not discovered and extinguished in the incipient stage during construction operations are likely to spread more rapidly in the absence of provisions for the limitation or extinguishment of fire in the completed structure and can involve heavy losses in revenue from delayed completion of the project. Construction operations can be made reasonably safe from destructive fire by planning for fire protection in the project estimates in advance of the work, providing the necessary facilities and project responsibility when the work is started and throughout the construction period.

1.05 Where the following procedures conflict with or are exceeded by corresponding requirements of local or state legislation, the legislated requirements should, of course, apply.

2. SITE PREPARATION

2.01 Brush, trees, tall grass, debris and rubbish are removed from the site prior to the start of construction operations.

2.02 Site preparation includes the safe location of temporary buildings and storage areas in relation to their hazards and the probability of damage to the building under construction.

3. FIRE LINES

3.01 Where the provision of fire lines or standpipes is included in new buildings, additions, extensions or major alterations, it is important that they be completed promptly as the work progresses and made available for use, including the installation of fire hoses. Standpipes should be installed as the construction progresses, in such a manner that they are always ready for fire department use to the topmost floor that construction has been installed. For buildings four stories and higher, except as otherwise indicated in BSP Section H43.210 - Standpipe and Hose Systems, standpipes are provided with a siamese fire department connection on the outside of the building at the street level, are conspicuously marked and are equipped with at least one standard hose outlet at each floor. All standpipe connections are designed to fit the local fire department equipment. This procedure may, in some cases, require the temporary placement of certain piping and accessories.

4. ACCESS TO FIRE EXTINGUISHING EQUIPMENT AND EXITS

4.01 It is important that free access be provided and maintained at all times from the street to fire hydrants and to outside connections for standpipes or other fire extinguishing equipment, whether permanent or temporary. No material or construction equipment should be placed within ten feet of such hydrants or connections nor between them and the center line of the street.

4.02 Free access should also be maintained at all times to control valves and hose on fire lines within the building, and to all portable extinguishers.

4.03 Signs designating the location of fire extinguishing equipment and standpipe connections are conspicuously displayed.

4.04 For projects involving alterations or enlargements to existing buildings in service it is essential that all necessary measures be taken to maintain full exit facilities at all times. For example, the removal of a fire escape should not be undertaken until equivalent exit facilities are provided elsewhere. Also, present means of egress should be kept free from all materials, equipment or other obstructions.

5. PORTABLE FIRE EXTINGUISHERS

5.01 A liberal distribution of portable fire extinguishers throughout the areas under construction is desirable from the standpoint of controlling incipient fires promptly. It is important that at least one extinguisher be provided at each tool house, temporary office, storage room, dressing room or workshop on the premises.

5.02 The description, use, mounting, operation and maintenance of types of extinguishers approved for the protection of telephone buildings and equipment are covered in Sections H43.110 to H43.140, inclusive, of Bell System Practices. The general procedure to be followed in distributing fire protection apparatus throughout telephone buildings upon completion of construction is outlined in Section H43.010 of Bell System Practices. Where the location of certain types of extinguishers is subject to low temperatures suitable precautions should be taken to prevent their freezing.

5.03 The instruction of workmen in the proper use of fire extinguishing equipment is desirable.

6. WATCHMAN'S SERVICES

6.01 For major new building projects or for extensions, additions or important alterations to existing telephone buildings where the service could be seriously impaired by a fire, the services of a watchman to cover all periods when workmen are not on the premises is usually given favorable consideration. A thorough inspection of the entire project is suggested at the close of each day's work by a person instructed for that purpose, and he should report conditions to the watchman on duty. Periods when the construction operations are shut down, such as week ends, holidays and lunch periods require better coverage and at more frequent intervals than during working hours.

7. FIRE WARDEN

7.01 A qualified person should be appointed as a fire warden and vested with authority to supervise the installation and maintenance of the recommended fire protection equipment and fire prevention measures, the removal of all unnecessary combustible material and waste, and the supervision of adequate watchman and supervisory service. The contractor's superintendent or assistant superintendent ordinarily is appointed and acts as the fire warden except in large building projects when the appointment of a full time fire warden or a combination safety engineer and fire warden is warranted.

7.02 During working hours operations of workmen should be checked frequently to determine whether appliances, soldering coppers, extension lights, flammable liquids, torches, welding and metal cutting apparatus, wax pots, etc., are being used safely and such corrective measures as are necessary from time to time are taken promptly.

7.03 Alterations carried forward during use of the structure warrant even greater supervision and care on the part of the Telephone Company, their architects and contractors, for safety of life and property, due to the inherently hazardous nature of construction operations.

8. HEATING DEVICES

8.01 The permanent heating equipment should be installed and put in operation as soon as practicable.

8.02 The use of stoves, salamanders, tar pots, etc., inside the building is generally prohibited.

8.03 If, through necessity, the use of such devices is required within the structure, special precautions are taken to minimize the additional hazard.

8.04 When salamanders or other temporary heating devices are used, if a temporary heating plant is impracticable and until a permanent plant is installed, they are substantially constructed, stable, not readily overturned, and restricted to the use of coal, coke or kerosene oil as fuel. They should be under the constant supervision of an attendant on every floor where they are in use, and for so long as they are in use.

8.05 Such devices are so located that there is a clearance of not less than 6 feet above, nor less than 2-1/2 feet on all sides between

such device and unprotected woodwork or combustible material, equipment or construction, nor are they placed within 10 feet of tarpaulins or canvas covers.

8.06 Salamanders or other temporary heating devices should not be set on combustible flooring or platforms unless thoroughly insulated therefrom by a bed of sand or cold ashes not less than 4 inches thick, or by other efficient protection, extending at least 2 feet horizontally beyond such devices on all sides. The legs of such devices, which should be at least 12 inches long, should rest on the insulation and should not extend through it.

8.07 Requirements for the construction and mounting of salamanders and heaters are outlined in National Fire Codes, Volume III, Building Construction and Equipment, of the National Fire Protection Association, Page 556, Paragraph 6.

8.08 Where practicable, gas or electric space heaters, steam heat, or Underwriters Laboratories labeled oil heaters are preferable to salamanders.

9. PROTECTION OF STRUCTURAL MEMBERS

9.01 It is important that all structural steel members of fire resistive buildings be encased in fireproofing material as rapidly as structural conditions will permit. No such structural members should be left exposed for unduly long periods.

9.02 No part of the building is used for the storage of combustible material until such fireproofing of that part has been installed.

9.03 In every building of reinforced concrete construction, as soon as practicable after the elapse of the required setting time of the concrete, forms of combustible material are stripped from the concrete and promptly removed from the building.

9.04 No part of a reinforced concrete building is used for the storage of combustible materials until combustible forms have been removed in that part of the building.

10. SCAFFOLDING AND FORM WORK

10.01 Wood scaffolding is a potential fire hazard which may cause extremely heavy fire damage if accidentally ignited. Consideration should be given on projects of appreciable size or of valuable construction and content, to the use of scaffolding constructed of fire-resistive materials, and any lumber used may be given a flameproof treatment.

10.02 The use of structural steel shapes or steel piping for scaffolding, and metal forms for concrete work has the advantage of eliminating fire hazards from these sources.

10.03 It is particularly desirable to use suspended scaffolding, made of noncombustible supports and flameproofed planking, wherever possible, in order to minimize the amount of scaffolding that may be exposed in case of fire.

10.04 Wood forms for concrete work are usually removed from the premises as soon as they are taken down, with the exception of such members as are suitable and intended for reuse. Rigid requirements and supervision for the processes of form installation and removal so as to avoid any accumulation of forms on the floors between shores when being moved from floor to floor and especially the prompt removal of all broken forms, etc., from floors occupied by shores and forms in place, are most important.

10.05 No part of a building where forms are in place should be used for the storage of flammable materials of any kind.

11. RUBBISH REMOVAL

11.01 It is important that any accumulations of rubbish, debris, waste lumber or other flammable materials be removed promptly from the premises. If such removal is unavoidably delayed, the hazard may be reduced by frequently and thoroughly wetting down. Disposal of materials by burning on or near the premises should not be permitted. Combustible waste and rubbish should be removed at least daily.

11.02 Rubbish chutes are considered undesirable because of their potent flue action in spreading fire. Rubbish is preferably removed via material hoist or elevator.

11.03 Particular attention is directed to the immediate disposal of flammable materials used in packing, such as excelsior, sawdust, wood shavings, straw, etc., and of empty paint containers.

12. WELDING AND CUTTING

12.01 Where electric or gas welding or cutting work is done above or within ten feet of combustible material or above space that may be occupied by persons, interposed shields of