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भारत संचार निगम मर्यादित

BHARAT SANCHAR NIGAM LIMITED

(भारत सरकार का एक उपक्रम)

(A GOVT. OF INDIA ENTERPRISE)

अग्नि पर संक्षिप्त सार

COMPENDIUM ON FIRE

(DOT/BSNL Circulars upto July 2009 are incorporated)

निरीक्षण परिमंडल,

INSPECTION CIRCLE,

(ISO 9001:2000 Certified)

संचार विकास भवन

SANCHAR VIKAS BHAWAN

जबलपुर

JABALPUR.

COMPENDIUM ON FIRE

[Essential Handbook for every Telecom building in-charge]

This handbook contains essentials for fire protection, detection, extinguishing and utilization procedures. For new installation, fire protection manual issued by the Govt. of India Ministry of communication, New Delhi dated 22nd November,1997 and Bureau of Indian standard IS 2189-1988 shall be consulted.

[No. BSNL/INS/COMPENDIUM ON FIRE, Dated 11.09.2009]

INSPECTION CIRCLE,
BHARAT SANCHAR NIGAM LIMITED,
SANCHAR VIKAS BHAWAN,
JABALPUR.

Foreword

Message from CMD

Message from DIR(FA)

Message from DIR(CM)

Message from DIR (HRD)

Message from ED (CA)

Message from Shri. Shamim, Director National Fire Service College, Nagpur.

Acknowledgement

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CHAPTER I

INTRODUCTION

1.1 Scope:

Compendium on Fire covers the following aspects:

(i) Surveillance in general
(ii) Fire detection and alarm.
(iii) Fire Extinguishing apparatus.
(iv) Safe exit for occupants in the case of fire.
(v) Information of Fire and Fire fighting.
(vi) Role of Inspection Circle.
(vii) Reporting and recommendations.

1.2 Preamble:

The geographical and climatic condition of the country makes many different disciplines and attitudes in regard to design of buildings and selection of materials. Good housekeeping, general tidiness, control on combustible materials and awareness about surroundings may certainly minimize the fire risks. In case of fire incidence, provisioning of efficient fire detection and alarm system helps in initiating timely action to control the fire. Good quality and proper quantity of fire fighting apparatus provides strength against fight with fire. Fixed and portable fire extinguishing apparatus fully charged and in working condition should be available in sufficient number at convenient locations to check the fires in incipient stage. The norms for fire fighting apparatus should strictly be adhered to.

Fire never discriminates between living and non living. The living build future and it must be saved on first priority. The building design must have provision of adequate escape routes for safe and expeditious exit for the occupants. There should be a system to broadcast and communicate the information of fire to the agencies concerned immediately. Correct and proper information facilitate the fire fighters to take prompt and relevant action. In spite of many precautions,

fire damages properties and lives. Telecom sector is also a witness of such hazards. To prevent the future occurrences of fire incidences in telecom, especially in BSNL, the incident must be investigated thoroughly for root cause. The Inspection Circle of BSNL investigates and finds out the cause. An over view on recent fire cases are given in Appendix A. Inspection Circle is also reporting to head quarter along with recommendations to prevent fire in future.

(Reference BSNL DO No 19-2/2009-PHM/MSE dated 25/07/2009)

1.3 Different Types of Telecommunication Systems:

BSNL has got mainly the following types of Exchanges/Systems working at present:

(1) C-DOT- RAX/ SBM/ MBM/ RSU, E 10B, OCB, EWSD, FETEX-150**,** 5 ESS, AXE – 10 along with their remote units, WLL systems (MSC,BSC & BTS), GSM systems (MSC,BSC & BTS), NIB and Broad Band equipments – BNG, Tier one / DSLAM etc.
(2) Transmission Equipments- VMUX / 8Mbps / 34Mbps / PDH / SDH / STM-1 / STM-4 / STM-16 and many other OFC and Microwave systems
(3) CDR Data Centre / NIB Data Centre / Mobile Data centre and CSR routers etc.
This compendium is based on the need of the above systems for protection against fire hazards, considering the factors such as design of building, environmental requirements, and presence of persons at work place etc.

1.4 Reference:

The Standards/Codes/Reports etc which are referred in this compendium are listed in Annexure-I.

CHAPTER II

ELECTRICAL INSTALLATIONS, PRECAUTIONS AND CHECK POINTS

2.1 General:

In most of the cases it is observed that the fire had taken place due to low insulation of wirings, faulty installation or improper use of apparatus etc. Hence the electrical installations shall generally conform to Indian Electricity Rules 1956 as amended up to date. All Electrical equipments / accessories shall conform to the relevant BIS standards.

2.2 Wiring:

All wiring shall be in metallic conduits.

Joint boxes, Inspection bends, drawing in boxes shall be covered at all times with metal covers.

T-joints in power wiring shall not be permitted.

Temporary wiring or extension circuits shall not be ordinarily permitted.

Lightning/power and telephone system wiring should not run together, regarding necessary spacing relevant specification must be followed.

All the wirings above the false ceiling shall run in metal conduit. The wiring used for electrical circuits should be of rating 660 volts grade of insulation.

(Indian Electricity Rules 1956 as amended up to date)

2.3 Earthing:

All earthing leads and earth connections shall be tested for electrical resistance to ensure efficient earthing before electrical supply line or apparatus is energized. In addition, earth resistance shall be tested at least once in every year during dry season in addition to routine testing of earth. Resistance measured shall be recorded in log book. Earth continuity tests should be performed as per IS-3043 as amended up to date.

2.4 Insulation:

Electrical circuits shall be tested between each live conductor and earth with a 500v megger for a period of one minute and the result should be at least one Mega Ohm or as specified by BIS from time to time.

2.5 Essential circuits:

Separate circuits for water pumps, Lifts, Staircase & corridor lighting and blowers for pressurization systems shall be provided directly from main LT panel and these circuits shall be laid in separate conduits so that fire in one circuit will not affect the others. All switches controlling essential services shall be clearly labeled.

2.6 Fuses and Fuse Boxes:

Adequate protection/isolation should be available in the AC and DC distribution systems by provision of fuses / circuit breakers. The circuit breakers shall have manual tripping facility also. Only cartridge fuses or HRC fuses shall be used.

It is absolutely essential to ensure that fuse wire of correct rating only to be used in A.C. distribution system. The Officer in charge of electrical installations should carry out routine check for fuses once in a month. The SDE/Building Incharge should check the fuses once in a year. Senior Officers on routine inspections may also insist on test check of the fuses. Records of all such inspection by the officer-in-charge, SDE and remark of the Senior Officers should be noted in log book maintained in the sub-station.

(Reference BSNL DO No 19-2/2009-PHM/MSE dated 25/07/2009)

CHAPTER – III

FIRE EXTINGUISHING APPARATUS

3.0 Fire fighting apparatus:

Broadly there are two types of fire fighting apparatus namely:

1. Fixed fire apparatus
2. Portable fire apparatus

3.1 Fixed fire apparatus:

All buildings above 15m in height shall be protected by wet riser system conforming to relevant specifications/ NBC/BIS code/City fire Bye-Laws.

3.2 Portable fire Apparatus:

Sufficient number of portable fire extinguishers shall be provided at conspicuous locations in the building after considering the type of fire probability. The extinguishers shall be hung on brackets and shall have their bottoms 750 mm above the floor levels. Some of the extinguishers shall be mounted on wheels to facilitate movement. Extinguishers shall not to be kept too close to the equipment.

The extinguishers shall be so provided that a person does not have to travel more than 20m to reach the nearest extinguisher in case of office building and small Exchanges. However, for the main telecom buildings, the travel distance should not be more than 15 meters.

The operating instructions shall be legible and preferably bi-lingual clearly printed on the body of the extinguisher. The intended use of the extinguisher i.e. the type of fire for which it is suitable shall be marked on it. Extinguishers with ISI markings only shall be provided and the refills shall also be of ISI marking. (Fire Protection Manual GOI, MOC, DOT, ND Dated 22.11.1997)

(Reference BSNL DO No 19-2/2009-PHM/MSE dated 25/07/2009)

3.3 Fire Buckets:

Four round bottom buckets painted red and lettered "FIRE" on it having two filled with water and two filled with sand shall be hung on stand outside the equipment rooms, sub-stations and in lift lobbies/staircase lobbies of office building at each floor.

(Reference BSNL letter No 19-30/2008-PHM/MSE dated 18/12/2008)

3.4 Medical Equipment:

Generally in telecom buildings following medical equipments shall be provided and kept in glass covered metal cabinets at conspicuous locations for emergency use in case of fire.

Gas Mask Respirators-1 Nos. on each floor

Resuscitators – 2 Nos. on each floor

Breathing apparatus – 2 Nos. in each multi storied building

The above medical equipment shall be placed in glass front metal cabinets at conspicuous locations. In addition, first aid box shall also be provided at conspicuous locations at each floor and in fire control room. The expiry date of medicines in the first aid box be checked and replaced periodically if required.

3.5 Latest developments and research:

Constant research is throwing new smoke sensing technology and new smoke suppression technologies and end products which are adding to earlier detection of fire incidences as well as ensuring faster suppression of fire hazards.

(Fire Protection Manual GOI, MOC, DOT, ND Dated 22.11.1997)

CHAPTER- IV

MAINTENANCE OF FIRE FIGHTING APPLIANCES

The firefighting equipment shall be kept in good working order at all times.

4.1 Fire alarm & Detectors:

Maintenance schedule of the fire alarm and detection system should be drawn up in consultation with the manufacturers.

A log-book to record the inspection notes, details of replacement, modifications, abnormal behavior observed, corrective measures etc. should be maintained.

Following points should be checked during inspection to be carried out once a month by the Fire Safety Officer –

(i) Check the working of the fire alarm points
(ii) Control panels clean and free from dust
(iii) All relay contacts to be cleaned by CTC or similar cleaning agent
(iv) Detectors heads to be free from spider webs, birds' nests and other insects.
(v) Back up batteries in charged condition

(Reference BSNL DO No 19-2/2009-PHM/MSE dated 25/07/2009),

4.2 Fire Telephone:

The non-exchange line fire telephone for communicating with the fire brigade shall be checked daily by the respective floor warden.

(Reference BSNL DO No 19-2/2009-PHM/MSE dated 25/07/2009),

4.3 Monthly Inspection of fire extinguishers:

Following procedure should be followed for monthly inspection, testing and maintenance.

Sr. No.	ITEM TO BE CHECKED	OBSERVATION/ REMARK
1	Check the exterior of the	

	extinguisher; polish the painted portion with wax polish, brass parts with metal polish, and chromium plated parts with silver polish.	
2	Check the nozzle outlets and vent holes and the threaded portion of the cap for clogging and check that the plunger is in fully extended position.	
3	Check the cap washer, grease the threads of the cap plunger rod and wipe clean.	
4	Check all mechanical and moving parts thoroughly.	
5	Make sure that the extinguisher is in proper working condition and is not accidentally discharged.	
6	In case of CO_2 type fire extinguisher, check the weight of the extinguisher as per periodicity mentioned. If there is a loss of more than 10% in weight, send the cylinder for refilling.	

4.4 Annual Inspection

(i) A more thorough inspection of the extinguishers should be carried out annually. Any extinguisher showing corrosion of the body internally and externally should be replaced. Faulty, damaged or corroded parts should be replaced. Illegible label should be replaced.

(ii) Pressure and leakage test of each extinguisher should be carried out.

CHAPTER – V

FIRE DETECTION AND ALARM

5.0 General:

Prompt detection of an out-break of fire in its incipient stage and simultaneous operation of fire alarm for quick and correct application of fire fighting media, minimizes the loss from fire up to a great extent. Primary purpose of fire detection system is to respond to a fire and to transform this information into a visible and audible alarm which should alert the building occupants. Auto SMS alerts to concerned senior officers, if available, should be extended.

5.1 Manual Fire Alarm:

Small and medium capacity exchanges not exceeding 2k lines shall have manual fire alarm system. For the purpose of desired alarm system, the building shall be divided in to a no. of zones. Where ever manual fire alarm system is provided, the building shall be divided into number of zones. In multi-storied buildings, each floor shall constitute one or more zone depending on the area of the floor.

Fire alarm switches/call boxes shall be mounted at convenient locations in the zones. The call boxes shall be accessible to all occupants without having to travel more than 22.5 m. The call boxes shall be so installed that their location is easily noticed from either direction. The base of call boxes shall be at a height of 1.2 1 m. above the floor level. The manual call boxes shall be colored RED.

5.2 Automatic Fire Detection System:

All buildings above 15 m. in height and all Digital Electronic Exchanges shall be provided with an automatic fire detection system. The zoning shall be as per latest guidelines over the subject. In case of Electronic Exchanges,

false floor plenum and false ceiling (attic spaces) if provided, shall constitute separate zones.

The layout of the detection system shall generally be in accordance to guidelines contained in IS 2189-1976 as amended up to date.

The detectors should be of rate of rise heat type and smoke type. Wherever smoke detectors are provided, a mixture of photo-electric & Ionization type, will be used. The heat detectors shall satisfy the tests laid down in IS 2175 as amended up to date (Specification for heat sensitive fire detectors). The smoke detectors shall conform to relevant NFPA/UL Standards.

The detector density of smoke detectors in the switch rooms and OMC room of Electronic Exchanges shall not exceed 25 Sq m. per detector. In ventilated floor voids, the detector density shall not exceed 20 Sq m. per detector. In other areas where heat detectors are used the detector coverage shall be as per IS 2189-1976 as amended up to date. Rooms divided into sections by walls or partitions reaching within 300mm of the ceiling shall have a detector for each section.

Hoists, Elevators or similar openings and supply & return air ducts of air conditioning system shall also be covered by detectors. In return ducts, the detectors should be located directly after the last air extract aperture before the air enters a common duct. In supply air ducts the detectors should be located sufficiently away from points of turbulence such as bends, junctions and air inlets. Detectors in supply & return air ducts shall be connected to separate zones.

Whenever automatic fire extinction system is adopted suitable cross zoning shall be done in the detection system in order to avoid unnecessary action in case of accidental triggering of any of the detectors.

Photo –electric detectors sense the light emitted by the flames and trigger the fire alarm where as the ionization detectors sense the smoke and trigger the fire alarm. The

Heat detectors sense due to heat and trigger the fire alarm system. Heat detectors should be installed in the E/A rooms.

The supply air duct of centralized A/C system should be provided with fire damper and the same should be inter linked electrically with the fire alarm panel. Whenever there is a fire alarm the fire damper should close and the entire air conditioning system should shut down.

In the multi-storied building each floor should have a control panel and along with the diagram indicating the differed zones and the detectors. Any alarm in the control panel of any of the floor will be repeated in the Main control panel provided in the fire control panel or in the entrance lobby of the building.

There are mainly following three functional entities in fire detection systems

a) Manual call point: (MCP)By breaking the manual call points the attention of the other people are drawn. This is connected to the Main control panel. This should be tested periodically.
b) Response Indicators: (RI). Response indicators are to be provided outside the locked rooms, for detectors in the false floor & false ceiling areas and they are to be properly sign written.
c) Hooters: Function of all the hooters are to be tested periodically

(Reference BSNL DO No 19-2/2009-PHM/MSE dated 25/07/2009),

5.3 Control Panel :

Each floor of the building shall be provided with a control panel and indicating panel. A central indication panels (Main panel) to which detectors, circuits in all the zones are connected shall be installed in the fire control room or in the main entrance lobby on the ground floor of the building. Light indications on the panels shall enable the fire crew to identify the fire site/ location..

The alarm system shall provide both alert alarm and evacuation alarm with different Distinctive tones and should be extended to all floors and switch room locations.

The alarm system shall have a battery back up so that in case of mains failure, the battery can take over and feed the power to the system.

The alarm system shall also incorporate following faults signals:

(i) A.C. failure – To indicate mains and take over by back up batteries.

(ii) Battery condition to indicate low battery voltage

(iii) Circuits fault – To indicate fault in a particular circuit.

The central indication panel shall be connected to a Public Address system.

5.4 Public Address system:

For the whole Fire detection system there should be single Public Address system having amplifier, Mike, Sounder at different places, No. of sounders should be decided so that every occupant sitting at any place in the building should be capable of listening the sound easily. PA system is controlled through main control panel. Periodic checking of the PA system is to be conducted to ensure its correct operation.

5.5 Fire Telephones:

A non-exchange line of telephone, connected directly to fire emergency manage system should be provided in the equipment rooms in all Telecom buildings for direct communication with the Fire Brigade. One of the extensions of this non-exchange line shall also be provided at the ground floor, in the Security Cabin or at the Reception. The fire telephone shall be tested once a week. In recent, mobile technology like GSM and CDMA WLL, the Fire Brigade number 101 can directly be dialed.

(Reference BSNL DO No 19-30/2008-PHM/MSE dated 30/04/2009)(Reference BSNL letter No 19-30/2008-PHM/MSE dated 18/12/2008)

CHAPTER – VI

AWARENESS AND RESPONSE TO FIRE

6.1 Fire safety instructions including the instructions for response to fire by the occupants of the building should be displayed prominently in all buildings. A brief of Fire safety measures/instructions should be supplied to all the staff members for their guidance. Important fire instruction should be displayed inside each room. This will ensure reading of instructions by the occupants of the building. Periodic fire safety drill exercise should be conducted at all Telecom Exchange premises involving selected staff.

6.2 A fire safety plan for the building should be drawn up which should specify the method of systematic and safe evacuation of the building in case of fire or emergency in the least possible time.

6.3 All technical staff in the Telephone Exchanges shall be trained to use the fire extinguishers and other appliances. In office building a group of staff in each floor shall be selected and trained to use fire extinguisher and other appliances. Only those who are familiar with the operation of fire fighting appliances shall operate them.

6.4 Identification of Fire Warden for each building along with a deputy should be done. He has to ensure that Fire Prevention, Detection and Fighting systems are kept in proper shape. As far as possible the Fire warden shall be provided accommodation in the building complex

6.5 The decision to evacuate the affected floor or floors or the whole building shall be taken by the Fire safety Officer/Floor Warden/Dy. Floor Warden according to the following guidelines:

(a) The most critical area for evacuation are- the fire floor and floors immediately above.

(b) Evacuation should be through uncontaminated exists and stairs.

(c) If the stairways became unserviceable due to contamination, Elevators may be used if they are unaffected by fire.

6.6 An up-to-date list of physically disabled occupants on each floor shall be kept by the Floor Warden. Arrangements shall be made by the fire warden to assist in moving the disabled persons to the lower floors.

6.7 In the event of fire the overall command of the fire fighting operations and evacuation of personnel etc. shall be taken by the fire safety officer or in his absence by deputy fire safety officer. He shall take position at the control room to supervise and direct all operations during fire.

6.8 In the event of fire the power supply to the equipment from mains as well as from battery shall be immediately cut off. This decision shall be taken by the senior most officers/officials available in the Exchange.

6.9 Automatic arrangements of cutting off-blowers on receipt of first fire alarm shall be incorporated in the controls. In case the floor warden notices that the automatic cutting off system has not operated, he shall himself manually switch off the blower.

6.10 Till the arrival of the Fire Brigade, the fire fighters should attempt to extinguish the fire with available means.

(Reference BSNL DO No 19-30/2008-PHM/MSE dated 30/04/2009)(Reference BSNL letter No 19-30/2008-PHM/MSE dated 18/12/2008)

CHAPTER-VII

ADMINISTRATIVE INSTRUCTIONS

7.1 Acceptance testing of fire protection installations:

The fire alarm and fire extinction installations shall be completed in all respects and shall be offered for acceptance testing to Inspection Circle, erstwhile T&D Circle before commissioning of equipment.

7.2 Display:

(a)Emergency telephone numbers: In every Telecom building a board containing the following details should be displayed.

Sr. No.	Name& Designation of Officers	Telephone (O)	Telephone (R)	Mobile
1	Fire Brigade Station			
2	Ambulance Service			
3	Fire safety officer			
4	Deputy Fire safety officer			
5	Floor warden			
6	Deputy Floor warden			
7	Head of SSA			
8	Head of Circle			
9	CGM Inspection Circle			
10	GM (NW-OPS) New Delhi			

(b) A display board which should tell the next due date for Fire drill should be provided at least at two places in the room of G.M/Dy.G.M/DET/Senior most officers. The due date should be painted (i.e. recorded on a permanent basis and not to be written with chalk). When on the due date exercise is conducted the next due date can be painted.

(c)Display of Instructions: The instructions which are to be displayed in the telecom buildings – are given at Annexure I

7.3 Role of SSA/ Territorial Circle:

In all events of outbreak of Fire in Telecom Buildings the DGM in charge of concerned telecom building/ exchange will inform in writing to the CGM Inspection Circle Jabalpur immediately. The DGM should also inform to the GM (NW-OPS) MSE Section BSNL C.O. Bharat Sanchar Bhawan, Janpath, New Delhi (Fax No. 011-23766033) on telephone in case of serious interruption to communications or extensive damage to equipments.

7.4 Role of Inspection Circle

One of the important function assigned to Inspection circle is to carryout independent investigation in case of fire in Telecom installations. On receipt of information of fire incident from DGM or appropriate authority of the respective circle, the Chief General Manager, Inspection Circle will register a case and appoint a fire investigator to know the probable cause of fire and loss to the property.

Investigation of fire is carried out in parallel without disturbing the restoration process of services. The answers of all the questions of questionnaire (given at Annexure-I) are carefully obtained and recorded. Written statements and photographs of the affected and suspected locations are also being taken in support of the evidences. The General part of the questionnaire deals with the action to be taken by the officer on duty. The Engineering part of questionnaire is dealt with the senior most Engineering Officer in charge at the time of occurrence of the fire. Clear photographs of fire incident are invariably being taken prior to any replacement or repairs.

After receipt of report and after being satisfied on its examination, the CGM Inspection Circle, Jabalpur forwards the report to the GM (NW-OPS) MSE Section BSNL C.O. Bharat Sanchar Bhawan, Janpath, New Delhi (Fax No. 011-23766033) and also sends a copy of report to the CGM telecom circle concerned.

(Reference BSNL DO No 19-2/2009-PHM/MSE dated 27/07/2009),

CHAPTER –VIII

GENERAL PRECAUTIONS / SAFETY MEASURES FOR PREVENTION OF FIRE

Guide line and instructions received vide various circulars issued from time to time with reference to fire are summarized below:

8.1 General:

- Ensure proper storage, utilization and quantity of store items.
- All broken furniture, Empty drums, Wooden packing cases and all other un-usable items which are liable to induce fire may be disposed off after observing due formalities.
- Provision of Building Monitoring system (B.M.S) through surveillance system and round the clock monitoring at security loopholes.
- To create awareness, fire safety day and periodic fire safety drill should be observed.
- The Fire audit of major Telecom installation may be got conducted through the Fire Department
- Equipment/ Materials used in the Telecom building should be of I.S.I specifications.
- Ensure the availability of basic and up-to-date fire fighting arrangements at the site.
- The maintenance staff should be well educated about the fire alarm panel and how to locate the fire zone even if it is a false alarm.
- Sand buckets should be available in every exchange near the switch room at a reasonable accessible place.
- A non-exchange line to the nearest fire station should be provided and check for its function on daily basis.
- The key of the locked rooms where technical installation are provided should be kept in a very easy

accessible place. The keys of all the equipment rooms which are kept locked at night should be available in security room.

- Protective devices in MDF (IPM etc.) must be used.
- Providing automatic small independent fire quenching systems at important fire prone locations in addition to fire extinguishers as per norms.
- Promptness of staff in reporting the incidence to the fire department/ higher authorities of BSNL
- Way to the Emergency exit on each floor should be properly displayed and free from any obstruction.
- Partitions for office space should be restricted to 4 ft height in order to have clear visibility. Partitions for office area should not be extended up to false ceiling height
- Concentration of large number of important telecom installation should be avoided in one particular building
- Major traffic routes carrying Inter Circle traffic (especially meant for IN, Billing, and SMSC etc.) should be directly fed from NTR transmission room to respective locations instead of bringing it to SSA transmission Room and distributing it to other locations.
- The concept of Auxiliary transmission room/ Centre needs to be evolved to enable restoration of important systems with minimum down time.
- The switch room and the transmission room should not be made with have any fire hazardous materials like wood. In case of rented buildings the doors and windows should be painted with fire retardant paint.

8.2 Building:

As per CPWD norms the following fire fighting arrangements should be made:

- Provision of wet raiser system with adequate water storage as per requirement.
- Provision of fire extinguisher of latest technology.

- Instead of fixed glass, panel window type glass panels may be provided so that the smoke can be evacuated immediately.
- Provisioning of adequate space should be there for the movement of Fire Brigade personnel's around the building. There should be free access inside the buildings also to enable the fire personnel to control the fire

8.3 Electrical Fitting:

As far as possible it is better to avoid taking the run way below or above the window AC units. Or sufficient gap of more than one meter space should be given.

- All Electrical fittings and wirings should follow the proper specification. Any wiring which is being overheated should be specifically got checked and remedial action be taken.
- Main distribution of A.C supply must be provided with suitable rating of fuses.
- DCDB panel must be provided in exchange as a part of installation.
- AC power supply to be provided through power distribution panel at incoming power feeder.

(Reference BSNL DO No 19-30/2008-PHM/MSE dated 02/03/2009)

8.4 Air Conditioners:

- Clean the filters of the window A/C units periodically. Choking the in the filter causes over load to the compressor and many A/C units get fire due to this problem.

- The window AC should be replaced with split type AC units.

- Where ever window AC is still in use, check that all the window air –conditioners are properly functional and are being maintained properly. Ensure that :
- They do not draw excessive current and the temperature is maintained in the switch room at an appropriate level. Such air-conditioners are not supposed to run continuously.
- The change over arrangement between AC units should be operational.
- The air-conditioners are to be serviced regularly as per schedule.
- As for as possible the inter-locking arrangement with Window /split AC should also be provided with fire alarm system.

(Reference BSNL DO No 19-30/2008-PHM/MSE dated 30/04/2009),

8.5 Telecom Equipments:

- Power cables for A.C and D.C both, inter-suit wiring and subscriber cables should be laid separately, so that short circuiting and fire does not spread to other cables also.. For laying of cables, relevant engineering instructions should be followed.
- Barriers should be created at suitable intervals in addition to the requirement of normal Fire Bye-laws while laying cables.
- Fixing a plate in the MDF room and also in a room of senior officer mentioning the next date for earth and surge lightening protector check

8.6 Mock Fire Drill

This will help in identifying any weakness in the evacuation strategy.

Necessary Fire drill should be conducted to ensure proper mobilization of resources and to educate the staff against unfortunate event of fire and that they understand the emergency action plan. Side by side, it will cross check the

adequacy of the building and precautions available for prevention of fire accidents.

Nomination of Fire safety officer for each building and conduction of fire drill exercise once in a quarter is to be monitored by a JAG level officer. During such drill, they will be able to assess the appropriateness of actions and identify problems

Where there is more than one escape route, the fire drills should assume conditions in which one or more than one escape route are obstructed by smoke.

(Reference BSNL DO No 19-30/2008-PHM/MSE dated 02/03/2009)

8.7 Furniture

All furniture in the equipment rooms shall be of steel.

Use of plastic or wooden furniture shall not be permitted in technical buildings.

CHAPTER IX

9.1 Lighting Protection

Lightning is a natural hazard, being the discharge of static electricity: generated in parts of storm clouds. Some of them damage buildings and a few are injuring people either directly or indirectly by causing fire and explosion.

An Earthing System is an essential part of any electric/electronic system. The objective of an Earthing System may be summarized as follows :

(i) To provide safety to personnel during normal and fault conditions by limiting step and touch potential.

(ii) To assure correct operation of electrical/electronic devices.

(iii) To prevent damage to electrical/electronic apparatus.

(iv) To dissipate lightning strokes.

(v) To stabilize voltage during transient conditions and therefore to minimize the probability of flashover during the transients.

(vi) To divert stray RF energy from sensitive audio, video, control and computer
equipment.

9.2 Requirement for effective Earting

An Earthing system must meet the following specifications :

(i) The resistance to earth must be within the allowable limits for the particular application.

(ii) The electrodes buried in the ground must be :

a) Having good electrical conductivity to carry highest specified load current.

b) Immune to the corrosive action of the soil all along the period.

c) Of sufficient mechanical strength to enable them to be installed without any damage, and

d) Inert, i.e. must not be a source of galvanic corrosion current, within the system to be protected.

(iii) The earth electrode must provide as much of the area of contact as possible with the soil to reduce the resistance of the current path to earth.
(iv) The resistance of the earth connection must remain within the allowable specified limit throughout the various seasons of the year.
All telecom buildings shall be protected against lightning in accordance with the provisions of IS 2309:1989 as amended and as per the departmental specifications in this regard.
For further reference please refer Engineering Instructions no. I-001 on Earthing issued by Inspection Circle.

CHAPTER X: INSPECTION SHEET SCHEDULE FOR FIRE

Name of Circle	Name of SSA	
Location		
NAME OF THE EXCHANGE:	DATE:	
Type& Make of Exchange		

Items	**Sub Items**	Points of observation	**Marks (M)** (a,b,c,d & x as specified at bottom)	**Total Marks of each sections (TM)**
General	Cleanliness	Management of garbage, waste, inflammable materials or store items		
	Building	Safe emergency exit way. Whether the way is properly marked by arrows.		
		Keys of locked rooms are kept at a easily accessible place		
	Awareness	Instructions, contact numbers of nodal officers are displayed in the premises and it is given to staff in the form of card etc.		
		Staff knows about handling of fire fighting equipments		
	Action	Mock fire drill is being conducted regularly		
Electrical	Earth and its distribution	Measured Earth value and date of measurement for AC & DC both. and		
		Proper distribution to Sub station Transformers & electrical equipments, And DC distribution to DC equipments and MDF etc		
	Protection	Lighnting spike, lightning arestors, Tower other open equipments connected to EGP		
		proper rating of fuses and MCBs		

	Fire Protection	General	Fire buckets filled with sand and water at suitable location.		
		Fire fighting apparatus	Availability of fire extinguishers, and type of extinguisher with suitability aspects.		
			Validity & working condition		
		Protection	Fire alarm system, hooter this may be verified at each floor in case of multi storied building		
			Non exchange line to fire station is provided, and working properly.		
Equipment Room 1		Air conditioner	AC units are working alright unit.		
			Action to replace window type AC with split type AC unit.		
		Protection	Inter locking arrangement with fire alarm is provided		
			Protective devices/IPM are used in MDF		
			Routine Inspection Schedule is followed by Territorial Circle		
Equipment Room 2		Air conditioner	AC units are working alright unit.		
			Action to replace window type AC with split type AC unit.		
		Protection	Inter locking arrangement with fire alarm is provided		
			Protective devices/IPM are used in MDF		
			Routine Inspection Schedule is followed by Territorial Circle		

Equipment Room 3	Air conditioner	AC units are working alright unit.		
		Action to replace window type AC with split type AC unit.		
	Protection	Inter locking arrangement with fire alarm is provided		
		Protective devices/IPM are used in MDF		
		Routine Inspection Schedule is followed by Territorial Circle		
		Total Marks obtained	**∑ M**	**∑ TM**
		Percentage of fire protection		**∑ M /∑ TM X 100**

		Code	weitage	Max marks
Guide lines for marking items/ sub Items (as code a,b,c,d & X)	Not Installed	a	0 (Zero)	10
	Installed but not working	b	3	10
	Working but not satisfactory	c	6	10
	satisfactory condition	d	10	10
	Not applicable	x	10	10

Signature
Inspection Officer
Inspection Circle

CHAPTER XI
SAFETY INSTRUCTIONS AND ACTION ON FIRE

A - FIRE SAFETY INSTRUCTIONS

11.1 For your own safety you should know:

(i) Operating instructions are given on the body of the fire extinguishers.
(ii) Push button fire alarm boxes are provided on each floor. These are coloured red and provided with glass on the front face.
(iii) Fire escape routes are marked with red arrows.
(iv) Your Floor Warden/Dy. Floor Warden are:---

(a) Floor Warden: Name:
Designation:
Normal working
Telephone /Mobile Number
Room No:

(b) Dy. Floor Warden: Name:
Designation:
Normal working
Telephone /Mobile Number
Room No:

11.2 For your own protection report to your Floor warden:

(i) If any exit door/escape route is obstructed by loose materials, goods, boxes, cupboards etc
(ii) If any staircase door or lift lobby door is damaged and does not close or open properly.
(iii) If any push button fire alarm point or fire extinguisher is damaged, obstructed or apparently out of order.
(iv) If any loose wiring, loosely fitted plug or socket or temporary extension point is noticed.
(v) If any sparking is observed in the electrical circuits.

11.3 For minimizing fire Risks:

(i) Dispose the waste properly. Use only waste baskets for disposal of waste paper.
(ii) Do not store packing cases/packing materials in operational areas or office spaces or terraces. Store the packing materials in the space earmarked in the open yard.
(iii) Do not smoke in NO SMOKING zones. In smoking zones, do not throw cigarette end or match stick indiscriminately. Use only Ash Trays / Spittoons.
(iv) Avoid using temporary extension circuits for electrical fittings.
(v) Keep power points switched off, plugs removed from sockets, when not in use.

11.4 If you discover Fire:

(i) Break the glass of the nearest call point.
(ii) Attack the Fire with the nearest accessible Fire extinguisher. Handle the extinguisher only if you know to operate it.
(iii) Inform your Floor Warden or Dy. Floor Warden.
(iv) Use Non Exchange line Fire telephone / Mobile set to inform to the Fire Brigade on 101.
(v) In case of fire in the main electrical riser inform sub-station on Telephone Number _____ to switch off power supply to the riser.

11.5 If you Hear Evacuation instructions :

(i) Leave the floor immediately, Follow the nearest fire escape route unless Otherwise instructed.
(ii) Do not create panic or shout; be calm.
(iii) Do not crowd in the staircase lobby. Do not create stampede.
(iv) Do not use lifts for escape unless otherwise instructed.
(v) Do not go to toilets.
(vi) Keep staircase and life lobby doors in closed positions but not bolted.

B -- INSTRUCTION IN CASE OF FIRE (GENERAL)

(i) Break the glass of the nearest call point
(ii) Attack the Fire with the nearest accessible Fire extinguisher. Handle the extinguisher only if you know to operate it.
(iii) Do not use water for extinguishing fire in electrical installations unless power supply is disconnected.
(iv) Inform your Floor Warden or Dy. Floor Warden.
(v) Use Non Exchange line Fire telephone / Mobile set to inform to the Fire Brigade on 101.
(vi) In case of fire in the main electrical riser inform sub-station on Telephone Number _____ to disconnect power supply to the riser.
(vii) If you hear evacuation alarm/instructions, leave the floor immediately. Follow the nearest escape route unless otherwise instructed. Do not create panic. Do not crowd in staircase lobby. Do not use lifts for escape unless instructed. Do not go to toilets.

C—TYPICAL ACTION PLAN IN CASE OF FIRE IN TELEPHONE EXCHANGES

1. Action By staff (General)

(i) On discovering fire, break the glass of the nearest call point.
(ii) Attack the fire with the nearest accessible extinguisher. Handle the extinguisher only if you know how to operate it.
(iii) Do not use water for extinguishing fire in electrical installations unless power supply is disconnected.
(iv) Inform your Floor Warden or Dy. Floor Warden.
(v) Report to the senior officers.
(vi) Use Non Exchange line Fire telephone / Mobile set to inform to the Fire Brigade on 101.
(vii) In case of fire in the main electrical installations inform sub-station Telephone to disconnect mains supply.

(viii) In case of fire in Telecom equipment/ power distribution system inform the on Officer on duty for action to cut off mains as well as battery supply.

(ix) If you hear evacuation alarm/instructions, leave the floor immediately. Follow the nearest escape route unless otherwise instructed. Do not create panic. Do not crowd in staircase lobby. Do not use lifts for escape unless instructed. Do not go to toilets.

2. Action By Floor Warden / Dy. Floor Warden :

In addition to the above general instructions, follow the following action plan.

(i) If the fire is on your floor, take charge of the fire fighting operations.
(ii) Ensure that all staff members on the floor are alerted.
(iii) If the fire is on any other floor send one of the representatives to the warden of the affected floor and rush extra manual help / first aid equipment, if required.
(iv) Switch off air-conditioning blowers. In case automatic cutting off arrangements of A.C blowers, exit check whether blowers have stopped, if not, switch off manually.
(v) In case of fire in Telecom. Equipment/power distribution system inform power room to disconnect both mains as well as batteries.
(vi) On getting evacuation instructions/alarm examine the escape route on the floor and arrange to evacuate the staff in an orderly manner. Do not leave the staff till the staff members are evacuated.
(vii) If no evacuation instruction/alarm is received and in case fire is not extinguished and there is danger to the personnel, takes action to evacuate the floor.
(viii) After fire is extinguished inform all the other floor wardens/Fire safety Officer and Building in charge.
(ix) In absence of the Fire safety Officer/ Dy. Fire safety Officer, the senior most available Floor warden shall take over all command of the fire fighting /evacuation operation.

3. Action By Fire safety Officer/ Dy. Fire safety Officer

(i) On hearing fire alarm/information about fire takes over all command of the fire fighting /evacuation operations. If not available in the building, rush to the building on getting information about the fire.

(ii) Ensure that Fire Brigade is notified.

(iii) Ensure that all air-conditioning blowers are switched off.

(iv) Ensure that mains as well as battery supply is switched off in case of fire in the equipment/Power distribution system.

(v) Ensure that mains supply is cut off from the Sub-station in case fire in electrical installations.

(vi) Ensure that fire pump starts running.

(vii) Ensure that all vehicles parked inside the building are taken out in open.

(viii) On arrival of Fire Brigade, direct the fire personnel to the affected areas.

(ix) Be in touch with the Floor Warden of the affected floor, In case fire is not extinguished and there is danger to the personnel, order evacuation from the affected floor.

(Reference BSNL DO No 19-30/2008-PHM/MSE dated 30/04/2009)

CHAPTER-XII

QUESTIONNAIRE FOR INVESTIGATING FIRE CASES

12.1 General:

(i)	At what time, date and place was the fire noticed? (Accuracy of time is essential)	
(ii)	Who did notice the fire? When and where?	
(iii)	What is the exact location in the board, rack, runway or any other place where the fire was first detected?	
(iv)	Who were on the duty at the time of fire?	
(v)	Was action taken to remove the battery fuses and the mains supply?	
(vi)	What was the type of fire extinguisher used?	
(vii)	When was the fire brigade informed? When did they arrive?	
(viii)	How long did they take to extinguish out the fire?	
(ix)	When was the JTO, SDE or DE informed of the accident?	
(x)	What was the type of smell that was noticed when the fire was on? Give the type of smell as per following example: Smell of burning of paper, rubber, hair, kerosene or petrol, wax, candle or oil, sulpher etc. What was the colour of flame, smoke and also the sparks in the fire? Give the answer of following examples: Greenish or Yellowish flame, thick black cloud like smoke or grayish smoke, etc.	
(xi)	How did the fire spread? Was any other fire reported simultaneously in any other part of the exchange, e.g. in the battery & Power Plant room, mains distribution chamber, Inverter, Generator room GD Tubes, etc.,?	
(xii)	Whether AFD System in the exchange was in working condition and whether any periodical checking was conducted. If so, the details may be furnished.	

(xiii)	Was there any audible/visual alarm just prior to the outbreak of fire? Was there any audible alarm during or after the outbreak of fire?	
(xiv)	Who resetted the alarm bell and what action was taken by him?	
(xv)	What was the extent of damage caused to the equipment racks and equipment like rack, sub rack, plug in unit etc.,	
(xvi)	Were the air-conditioning blowers stopped?	
(xvii	Are there any fuses used in the neutral of mains switch? Was there any rewiring done for electrical appliances at the time prior to the incident?	
(xvii	Was the insulation of the mains wiring tested recently? If so, what were the results?	
(xix)	Whether photographs have been taken for the burnt equipments if so it must be numbered serial to mark events?	

Note:

1. Do not allow anybody to go out of the exchange or off duty immediately after the fire until and unless written statement signed by him or her is taken by the competent authority or the senior-most official present and also until the official is fully interrogated by the competent officer.
2. A crowd should not be allowed to collect around the place of accidents otherwise valuable evidence is liable to be destroyed.
3. Nothing should be disturbed before the enquiry is completed.

12.2 Technical:

Switch Room/ OMC Room/ Exploitation Room/Equipment Room:

(i)	Did the fuses/MCCB of the affected rack/ module/ frame/ card/ board etc. blow at all?	
(ii)	What were the fuses that were noticed to have blown out in room wise/ rack module/ frame/ PCB wise?	
(iii)	What were their ratings?	
(iv)	Did the fuse alarm lamp fuse blow before the	

	incident?	
(v)	What were the ratings of the fuses that were normally used for the circuits affected?	
(vi)	Was there any occasion to note the failure of the alarm fuse? If so, did the visible and audible alarms operate satisfactorily?	
(vii)	Was there any occasions to note any heavy arcing in board / rack/PDP/PCB/Module etc.	
(viii)	Are the correct functioning of all the alarms checked regularly? - Was there any logbook to note down the frequency of fuses blown and replaced? If so, who maintains the logbook and in whose custody does it usually remain? Automatic alarm energizes in case of any type of failure	
(ix)	Are the frames of racks/ Switch Board/ Power board/ charging board etc., earthed?	
(x)	Was there any frequent blowing out of fuses previously in any particulars circuits?	
(xi)	Was there any trouble experienced previously due to any external height voltage contact in any of subscriber line? If so, what action was taken to rectify it? Is a register of power guarding maintained, in the Exchange as per rules? Did the power supply authorities complaint previously at any of there sub distribution fuses blowing due to contact with phone wires? Whether the officer in-charge visited the locality where such falls were noticed? or mis-operation of relays, false clearing or calling signals in	
(xii)	Previously has anybody suffered from severe shock or electric burns while handling the power connections in the rack?	
(xiii)	Was the print out of the exchange message during the incident available? (Fault message report during the period to be examined and indicated)	

(xiv)	Whether temperature in SW-Room/ OMC/ Computer room is recorded regularly? The reading of temperature recorded before the incident to be indicated.	

12.3 Power Room:

(i)	Was the main battery discharge fuse intact prior to and after the fire?	
(ii)	What were their ratings?	
(iii)	What were the ratings of the fuses that were normally used for the circuit affected?	
(iv)	Are the blown out fuses MCCB repaired and re-used elsewhere?	
(v)	Was there any occasion to note the failure of the alarm fuse? ? If so, did the visible and audible alarms operate satisfactorily?	
(vi)	Are the inverters, power plant etc., earthed?	
(vii)	What are the ratings of the fuses used at the output of the battery and rectifier?	
(viii)	Are the correct functioning of all the alarms checked daily?	
(ix)	Previously, has anybody suffered from severe shock or electric burns while handling the power connections in the mains?	

12.4 MDF:

(i)	Are the MDF etc., earthed?	
(ii)	Where the fuses/GD tubes of the MDF blown/affected at all?	
(iii)	What are the GD tubes/ fuses that were noticed to have blown out?	
(iv)	What were their ratings?	
(v)	What are the ratings of the fuses/ GD tubes that are normally used for the circuit affected?	
(vi)	Are the blown out fuses repaired and reused them elsewhere?	

(vii)	Who issued the fuse wires to the technicians and was it ensured that the fuse wires issued of correct ratings?	
(viii)	Was there any logbook to note down the frequency of fuses blown and replaced? If so, who maintains the logbook and in whose custody does it usually remain?	
(ix)	Was there any occasion to notice that any of the components either getting unduly hot or getting burnt out altogether? If so, what were the reasons for this occurrence and what precautionary measures were taken to prevent this?	
(x)	Was there any blowing up of IPM GD tube in any particular strip?	
(xi)	In the damaged line was the (a)IPM /GD tube intact (b) fuses intact and	
(xii)	Was there any soldering to wiring work being carried out near the place of fire prior to or at the time of fire?	
(xiii)	What were the types of GD tubes (model and make) used	
(xiv)	Whether GD tubes were physically fitted in MDF at the time of incidence (to be supported by statement etc.,)	
(xv)	Whether earth resistance value and continuity to mother earth board were being checked at prescribed intervals and the value thereof. (To be verified from records)	

12.5 A/C Plant:

(i)	Previously has anybody suffered from severe shock or electric burns while handling the power connections in the window/ package/ central AC?	
(ii)	Which type of A.C. Plant was installed? E.g.,	

	Window AC, Package, Split A/C and whether it was running at the time of incident?	
(iii)	If the A/C plant is window type, whether proper distance is maintained between exchange run cables and window A/C unit cable	
(iv)	Whether automatic fire and smoke detectors were provided and working alright	
(v)	Whether the blower is switched off automatically on detection of fire?	
(vi)	In case of blowers switched off automatically, whether any alarm message has occurred ?If so proof of alarm message may be furnished?	
(vii)	If window A/C is available what action has been taken to replace the window type A/C by split type A/C unit. This information is required in view of latest BSNL guidelines	

12.6 External Plant:

(i)	Did the mains supply authorities carry out any re-wiring or changing the loads or changing of poles on the mains leads to the exchange prior to or at the time of fire?	
(ii)	Was there any trouble in the exchange experienced previously due to any external high voltage contact in any of the subscriber's lines? If so, what action was taken to rectify it? Is the register of power guarding maintained, in the exchange as per rules? Did the power supply authorities complain previously of any of their sub- distribution fuses blowing due to contact with phone wires? Was the locality visited where such faults were noticed and checked up?	

Signed by
Officer-in-charge of Mtce/Exchange
Dated:
Name:
Designation:

ANNEXURE – I

REFERENCES

1. Office Orders:

I. MSE Section, Corporate Office, ND. F.No. 19-30/98-PHM dt. 21/4/08
II. MSE Section, Corporate Office, ND. F.No. 19-30/98-PHM dt. 28/4/08
III. MSE Section, Corporate Office, ND. F.No. 19-30/2008-PHM/MSE dt. 2/5/08
IV. MSE Section, Corporate Office, ND. F.No. 19-30/2008-PHM/MSE dt. 25/8/08
V. MSE Section, Corporate Office, ND. F.No. 19-30/2008-PHM/MSE dt. 18/12/08
VI. MSE Section, Corporate Office, ND. F.No. 19-30/2008-PHM/MSE dt. 2/3/09
VII. MSE Section, Corporate Office, ND. F.No. 19-30/2008-PHM/MSE dt. 30/4/09
VIII. The Director Operation, Corporate Office, ND. 19-2/2009-PHM/MSE dt. 25/7/09
IX. The GM (NW-OPS), Corporate Office, ND. 19-2/2009-PHM/MSE dt. 27/7/09
X. The GM (NW-OPS), Corporate Office, ND. 19-2/2009-PHM/MSE dt. 29/9/09

1. **Fire Protection Manual**
2. **Fire Protection Manual dated 22.11.1997 issued by GOI, MOC, DOT ND.**
3. **Bureau of Indian standard IS 2189-1988**

REFERENCES (Office Orders)

O/o Sr. DDG (MS)
MSE Cell, Corporate Office,
Bharat Sanchar Bhawan
Janpath Road, New Delhi
Tel No 011-23710421,
Fax No 23766033
Email: mscell@bsnl.co.in

भारत संचार निगम लिमिटेड
(भारत सरकार का उपक्रम)
BHARAT SANCHAR NIGAM LIMITED
(A Govt. of India Enterprise)

India Broadband 2007
Linking India

No. 19-30/98-PHM Dated the 21st April, 2008

To,
All Chief General Manager,
Telecom Circles / Districts / Projects / Regions

Subject:- Precautions against fire incidence in telephone exchanges / buildings

Ref. : (1) No. 19-30/98-PHM dated 30.1.2004
(2) No. 19-30/98-PHM dated 11.9..2001
(3) No. 17-2/97-PHM dated 24.3.1998

Kindly refer to the letter cited at Sr. No. 3 above (copy enclosed) wherein detailed instructions have been issued on precautions against fire incidence in telephone exchanges / buildings followed by reminders at Sr. No. 1 & 2 above.

It has come to the notice of BSNL HQ that the above said instructions are not being followed strictly resulting in fire incidents in various telephone exchanges / buildings consequently a huge loss / damage of the assets.

This has been viewed very seriously. It is required that at least activities mentioned in the above referred letters are performed and results are kept readily accessible to officer – in- charge of the exchange/building for effective monitoring of performance parameters.

In view of the just concluded Fire Safety Week (14-20th April, 2008), you are requested to complete all the activities mentioned in the above referred letter and send compliance by 30th April, 2008 for the appraisal of Director (O), BSNL.

(Piyush Chand Gupta)☐
Jt. DDG (MSE)☐

Copy for information to :

1. Sr. DDG (Elec.) / DDG (SW) / DDG (BW) / DDG (TX) / DDG (RN) / DDG (LTP) / DDG (NM)
2. CGM, T&D Circle, Jabalpur
3. CGM, NCES, New Delhi
4. CGM, ALTTC, Ghaziabad / CGM, BRBRAITT, Jabalpur.

MSE Cell, Corporate Office,
616 B, Sanchar Bhavan
20 Ashoka Road, New Delhi-110001
Tel No 23716688, Fax 23372530

भारत संचार निगम लिमिटेड
(भारत सरकार का उपक्रम)
BHARAT SANCHAR NIGAM LIMITED
(A Govt. of India Enterprise)

No 19-30/98 – PHM

Dated: 30.01.2004

To,

All CGM Telecom/ Districts
CGM Telecom Project Delhi/ Mumbai/ Kolkata/ Chennai
CGM Maintenance Regions Delhi/ Mumbai/ Kolkata/ Chennai

Sub: Precautions against fire incidents in telephone exchanges/ building.

Ref: 19-30/98-PHM dated 11.09.2001

Kindly refer to this office letter of even no. dated 11.09.2001 wherein detailed instructions have been issued on precautions against fire incidents in telephone exchanges/ building.

It has come to the notice of BSNL HQ that the aforesaid instructions are not strictly followed, fire alarms detection systems are not being tested regularly and its sirens are not located properly particularly in unmanned exchanges.

This has been viewed very seriously. It is required that the activities mentioned in the above referred letter are performed and results are kept readily accessible to officer in-charge of the exchange for effective monitoring of performance parameters.

It is therefore requested that all concerned may be instructed to follow the referred instructions and the compliance of the instructions may be sent to this office latest by 15.02.2004 for appraisal of Director (O), BSNL.

Shubha

(Shubha N. Bhambhani)
Jt. Dy. Director General (MSE)

Copy for information to:

1.Sr.DDG(SW)/Sr.DDG(BW)/Sr.DDG(TX)/Sr.DDG(RN)/DDG(LTP)/Sr.DDG(E)/DDG (NM)
2. CGM T&D Circle Jabalpur
3. CGM NCES New Delhi
4. CGM ALTTC,Ghaziabad/CGM BRBRAITT, Jabalpur.

(235)

No. 19-30/98-PHM
Bharat Sanchar Nigam Ltd.
(A Govt. of India Enterprise)
Sanchar Bhavan
New Delhi-110001

Dt. 11-9.2001

To

All CGMs Telecom/Telephones
CGM Chennai/ Calcutta Telephones
Chief Engineer Electrical Delhi/Bombay/Chennai/Calcutta
Chandigarh/ Ahmedabad/ Trivandrum/Lucknow

Subject. Precautions against fire incidents in telephone exchanges / buildings.

Kindly refer to this office letter No. 17-2/97-PHM dt. 19/24 3.98 (copy enclosed for ready reference) wherein detailed instructions have been issued on the above subject.

2. It has come to the notice of BSNL Hq. that the aforesaid instructions are not strictly followed resulting in fire incidents and consequently loss / damages of property.

2. It is once again emphasised and reiterated that the aforesaid instructions may please be strictly adhered to in order to avoid recurrence of fire incidents.

3. This may please be circulated to all concerned engaged in operation and m tce. of electronic exchanges.

4. Compliance and receipt of this letter may please be sent to this office on Fax No.3032508/3372530.

Jt. DDG(MSE)
Tel: 3716688/3032712

Enclosures: as above

Copy to:

1. CGM I&D Circle
2. CGM BRBRAITT
3. AE IC Ghaziabad
4. CGM Projects Bombay/Delhi/Calcutta/Madras
5. CGM Mtce.Bombay/Delhi/Calcutta/Madras
6. CGM NCES New Delhi
7. Sr. DDG(Switching)
8. Sr. DDG(TX)
9. Sr. DDG(NM)
10. [illegible] No. 36-5/99-PHM

Issued Vide No. [illegible]

Department of Te
PHM Section

No. 17-2/97-PHM-I (23) Dated : 19.3.98

To

1. All CGMs, Telecom Circles/
   Telephone Districts
2. CGM, MTNL, New Delhi/Mumbai
3. CGM, T&D Circle, Jabalpur
4. Chief Engineer(Electrical), Delhi/
   Bombay/Chennai/Calcutta/Chandigarh/
   Ahmedabad/ Trivandrum/ Lucknow

Subject: Precautions against Fire incidents in Telephone Exchanges/buildings.

* * * *

During the recent past a number of cases of fire in Telephone exchange buildings have taken place in different parts of the country. This has resulted into huge losses of material and disruption of communication services.

Time to time several instructions have been issued by DoT in this regard as a preventive measures and to avoid such incedences in future.

Recently a committee was constituted by Member(S) for thorough examination of the cases of fire in telecom buildings and to suggest steps to be taken for avoiding such incidences in future.

The findings and recommendations of the committe are as follows:-

A. Major causes of Fire :-

The major causes of fire in telephone exchanges were identified as below :

(i) Short circuit in switching racks.
(ii) High voltage reaching MDF on account of telephone lines coming in contact with high voltage lines and also on account of lightening.
(iii) Short circuit/loose connection/over loading in DC power cables/system.
(iv) Storage of hazardous materials.
(v) Indiscriminate additions to existing Electrical wiring without proper technical examination.
(vi) Improper maintenance of Electrical Safety Devices like Overload relays, Interlocking devices.

Contd.... 2

B. Preventive Measures:

As per norms the following preventive measures are being provided.

(1) Automatic fire detection system and alarm.
(2) Fire Extinguishers.
(3) Wet risers in buildings more than 15 meters high.
(4) Fire Manual which gives details regarding fire drills and other precautions to prevent fires.

It is felt that the above measures in themselves are quite comprehensive but what is generally missing is compliance of instructions given in mannual & maintenance of services on a continuous basis.

C. In addition to above, the committe identified one of the major causes of SPREAD OF FIRE was as the insulation of DC power and subscriber cables.

Following four actions to eliminate/minimise the spread of fire/smoke on account of cables were identified.

(i). Power cables, both A.C. & D.C., intersuit wiring and subscriber cables should be laid separately, so that short circuiting and fire prone set of cables does not spread to other cables also. While laying cables it should be ensured that cables are not laid on sharp edges which can with the passage of time damage the insulation and cause short circuit and also not subjected to any other mechanical strain. Engineering instructions should be strengthened if required.

(ii) In order to isolate MDF from higher voltages, Engineering instructions should be examined for further strengthening this area. Importance of regular check of earthing and lightening protection to be emphasised. Next check due on.... kind of notice can be mounted in MDF and exchange incharge's room to draw attention and enforce regular check.

(iii) Barriers should be created at suitable intervals in addition to the requirement of normal fire byelaws while laying cables so that fire in one section does not travel freely along the cables. As per fire byelaws barriers are already required at the floor crossings. It is felt that barriers should also be created along the horizontal runs of the cables. Details of barrier recommended are as per drawing-1.

(iv) The specifications of the insulating material of the cables should be reviewed and strengthened with an objective to ensure that the burning of the insulation is confined to barest minimum length of the cable and also it generates minimum smoke.

Contd... 3

incidences and also losses on this account.

1. Identification of a Fire Warden for each building along with a Deputy. He has to ensure that fire prevention, detection and fighting systems are kept in proper shape. This is specified in Departmental Fire Manual also. As far as possible the fire warden shall be provided accommodation in the building complex.

2. A Display Board which should tell the next due date for fire drill should be provided at least at two places in the rooms of GM/Dy.GM/DET/Senior Most Officer. The due date should be painted (i.e. recorded on a permanent basis and not to be written with chalk). When on the due date exercises is conducted, the next date can be painted. Ref. drawing-2.

3. Fixing a plate in the MDF room and also in room of senior officer mentioning the next date for earth and surge lightening protector check. (as per Ref. drawing-2(2/3).

4. Issuing a personal card to each occupant of the building having instructions regarding steps to be taken in case of fire. (as per Annex-A)

5. Fixing the important fire instructions inside each room. This will ensure reading of the instructions by the occupants of the building. Fixing these in common areas is not considered an effective solution.

6. Provision of Fire Barrier as per drawing enclosed at all floor/wall crossings of all cables laid in exchange.

7. Out of the staff available ensuring human presence round the clock in switch room for early detection and fire fighting during initial stages of fire.

8. Exploring the possibilities of improving/strengthening the specifications in regard to the quality of insulation of D.C. power and telephone cables so as to further retard the spread of fire and generation of smoke.

9. Providing automatic small independent fire quenching systems at important fire prone locations in addition to fire extinguishers as per norms.

10. Maintenance of fire detection and fire fighting systems in working through specialised agencies by entrusting the same to Electrical Wing and ensuring fire drill at regular intervals and certificate (As per annexure - B).

Contd.... 4

(16)

In addition to the above, already existing instructions on fire control particularly in the following areas need to be scrupulously followed.

(i) Observing Engineering instructions with regard to the cable laying particularly in regard to safety from mechanical damage, Earthing continuity at joints.

(ii) Making additions/alterations in the existing system and use of new gadgets only after clearance from electrical maintenance unit as well as building incharge.

(iii) Following the guidelines included in the Fire Manual particularly in regard to keeping building free from hazardous materials (dry grass, packing cases, thermocol etc.) and ensuring passages, emergency exits and area around the building clear of any obstructions.

12. Asking ALTTC to prepare:

(i) a film to highlight the losses on account of fire in Telecom. building and also importance of an individual towards its containment. This film should form part of fire drill.

(ii) effective slogans for display in building and instructions for personal card;

(iii) a course module on fire safety in Telecom. Buildings.

13. Making Fire Course compulsory in all the Entry Level Training Coursesin ALTTC, BRBRAITTC Jabalpur, Regional Training Centres, Circle Telecom Training Centres and District Telecom Training Centres of the Department.

Kindly acknowledge the receipt.

(Dev Kumar)
Director (MSE)

MS Section
806, Bharat Sanchar
Bhawan, Janpath
New Delhi-110001
Phone: 23714455
Fax : 23354549

भारत संचार निगम लिमिटेड
(भारत सरकार का उद्यम)
Bharat Sanchar Nigam Limited
(A Govt. of India Enterprise)

No.19-30/98-PHM

Date: 28.04.2008

To,

All CGMs of Telecom Circles/
Districts/Projects/Regions.

Subject : Fire incidence in telephone exchanges.

Kindly refer to letter from this office dated 21st April 2008 wherein the precautions to prevent fire incidences were reiterated. In addition the Switch Maintenance Handbook includes the copies of correspondence with reference to measures to be taken to prevent fire and actions to be taken in the unfortunate event of a fire taking place.

In a recent incident, huge fire has engulfed large quantities of stores. From an initial review, it appears that measures to prevent fire and due precautions for fighting fire like fire extinguishers, water buckets etc. were not taken.

CMD BSNL, during a review, has desired that immediate action should be taken by all the CGMs to ensure that: -

- All Broken furniture, empty drums, wooden packing cases and all such items which are liable to catch fire but at the same time are of no practical utility may be disposed off after observing due formalities.
- All electrical fittings and wiring should be checked. Any wiring which can be a cause of fire due to over-heating should be specifically got checked and remedial actions taken.
- In view of the ensuing summer season, all air conditioner units should be got checked for their serviceability and operationalized.
- Necessary fire drills should be conducted to ensure proper mobilization of resources in the unfortunate event of fire. Side by side, fire detection systems (as per instructions on the subject and fire prevention systems) be readily available to combat fire in case of unforeseen event.
- The fire audit of major telecom installations may be got conducted through the Fire department.
- Equipment/materials used in the telecom building should preferably be of ISI specifications of reputed makes.

- Equipment/materials used in the telecom building should preferably be of ISI specifications of reputed makes.
- For each and every exchange/telecom installation one unit Administrative officer should be designated who will ensure that the unattended instruments (i.e. wooden packing cases, cable drums etc.) are not available in the telecom equipment rooms.
- If such items are found in any of the telecom equipment room/(s) during inspections by the higher authority, stringent action must be taken against Administrative officer and his controlling officer.

- Periodic inspections to see that the possibility of fire is minimized should be taken.

CMD has desired that all CGMs should submit a certificate before the next HOCC, that due precautions have been taken in their units as per prevailing instructions on fire safety.

28.09.09

(R.K. Sharma)
DDG (MS)

Copy to: -

1. **PPS to CMD, BSNL C.O. New Delhi**
2. **Director (O) for information.**
3. **Sr.DDG(Electrical) BSNL C.O New Delhi for information and necessary action please.**

MSE Section, MS cell,
8th Fl., Corporate Office,
Bharat Sanchar Bhawan
Janpath Road, New Delhi
Tel No 011-23716688,
Fax No 23766033
Email: mscell@ bsnl.co.in

18/C

भारत संचार निगम लिमिटेड
(भारत सरकार का उपक्रम)
BHARAT SANCHAR NIGAM LIMITED
(A Govt. of India Enterprise)

IndiaBroadband 2007
Linking India >>

F.No.19-30/2008-PHM/MSE dated: 02.05.08

To

All Chief General Managers,
BSNL, Telecom Circles/Metro Districts,

Subject:- **Regarding fire incidents.**

Recently a fire incident has occurred in one SSA store in which assets worth crores of rupees have been damaged.

Preliminary investigations reveal :

(1) The non-availability of basic firefighting arrangements at the site.
(2) No proper storage of the store items.
(3) Non utilization of huge quantities of store items since long.
(4) Non disposal of unserviceable and obsolete material.

In this regard, instructions have been issued from this office which may be referred to, wherein detailed guidelines have been issued on the subject.

CMD BSNL has taken a serious view of the matter and has desired that all the CGMs should get all the stores /Tecom equipment rooms inspected in their Circles/ SSAs. to avoid any such incident, keeping in view the prevailing summer season.

Compliance to this may be reported urgently for onward submission to BSNL management.

346
5/5/C

02.05.08
O/C (R. K. Sharma)
DDG(MS)

DDG (MS)
MSE Cell, Corporate Office,
Ha h Chander Mathur Lane, New Delhi
Tel No 011-23710299, Fax No23766033
Email: mscell@bsnl.co.in

भारत संचार निगम लिमिटेड
BHARAT SANCHAR NIGAM LIMITED
IndiaBroadband

No. 19-30/2008-PHM-MSE Dated: 25.08.08

To,

All Chief General Managers,
Telecom Circles/Metro Districts/ Regions,
BSNL.

Subject:- Regarding safety from fire incidents.

A fire incident has occurred recently in one of the telephone exchanges. The investigation committee of T & D Circle, has recorded that the incident has occurred due to short circuit caused by a tree falling on HT line feeding AC supply to exchange. It has been suggested by the committee that the following measures be taken to avoid such fire incidents in Telecom buildings:-

i) Main Distribution of AC supply must be provided with suitable rating of fuses.

ii) DCDB panel must be provided in exchange as a part of installation.

iii) AC power supply to be provided through power distribution panel at incoming power feeder.

The above instructions may be followed strictly to avoid any such incident in future and compliance to this effect may be sent to this office.

25/8/08
(Rajesh Kumar)
Jt. DDG (MSE)

O/o GM (MS)
MSE Cell, Corporate Office,
Bharat Sanchar Bhawan
Janpath Road, New DelhiTel No
011-23716688,
Fax No 23766033
Email: mscell@bsnl.co.in

भारत संचार निगम लिमिटेड
(भारत सरकार का उपक्रम)
BHARAT SANCHAR NIGAM LIMITED
(A Govt. of India Enterprise)

IndiaBroadband >>

No. 19-30/2008-PHM-MSE Dated: 18-12-2008

To,

All Chief General Managers,
Telecom Circles/Metro Districts/ Regions,
BSNL.

Subject:- Regarding safety from fire incidents.

A fire incident had occurred recently in one of the telephone exchanges. The investigation committee of T & D Circle, has recorded that the incident has occurred due to spark or loose connection in electrical circuit of the exchange. It has been suggested by the committee that the following measures be taken to avoid such fire incidents in Telecom buildings:-

1. Whenever a run way is provided above or near to A/C units, some guarding arrangements are to be done for the run way with reasonable separating distance from the A/C units.

2. Instead of fixed glass panels window type glass panels may be provided so that the smoke can be evacuated immediately.

3. The maintenance staff should be well educated about the fire alarm panel and how to locate the fire zone etc..

4. The maintenance staff should be well educated about the fire alarm panel even it if is a false alarm.

5. Sand buckets should be available in every exchange near the switch room and at a reasonable access place.

6. Formation of fire safety officers for each building and conduction fire drill exercise once in a quarter are to be monitored by a JAG level officer.

7. A non exchange line to the nearest fire station should be provided as far as possible.

8. The key of the locked rooms where technical installations are provided should be kept in a very easy accessible place.

The above instructions may be followed strictly to avoid any such incident in future and compliance to this effect may be sent to this office.

R Kumar
12/12/09

(Rajesh Kumar)
DGM (MSE)

MSE Cell, Corporate Office,
Harish Chander Mathur Lane, New Delhi
Tel. No 011-23710299, Fax No23766033
Email: mscell@bsnl.co.in

BHARAT SANCHAR NIGAM LIMITED
(A Govt. of India Enterprise)
IndiaBroadband

No. 19-30/2008-PHM-MSE Dated: 02-03-2009

To,

All Chief General Managers,
Telecom Circles/Metro Districts/ Regions,
BSNL.

Subject:- Regarding safety from fire incidents.

A fire incident had occurred recently in one of the telecom buildings. The investigation committee of T & D Circle, has recorded that the incident had occurred due to short circuit in the electrical raiser (cable chamber) between third and first floor of B.S.N.L. building. It has been suggested by the committee that the following measures be taken to avoid such fire incidents in Telecom buildings in future :-

1) Implementation of AFD for fire detection .
2) As per CPW norms the fire fighting arrangement should be made.
   I) Provision of wet raiser system. (Minimum water storage as per requirement)
   II) Provision of fire extinguisher of latest technology.
3) Provision of storage shelves in the computer cell.
4) Fire drill to be conducted for equipping the staff to reach in such a situation.
5) Phase failure alarm to be fixed in each floor and one exclusively for computer cell in case of phase failure to UPS wiring and connections.
6) Provision of emergency exit in the building.
7) Flocr warden should be nominated (main and standby) for Electrical/ other maintenance associated with it.
8) Action to be taken for weeding out unusable item in each floor.

It is reiterated that the above instructions along with the other instructions issued from time to time by this office may be got adhered to strictly and compliance to this effect may be sent to this office.

(Rajesh Kumar)
DGM (MSE)

O/o G.M. (MS)
MSE Cell, Corporate Office,
Bharat Sanchar Bhawan
Janpath Road, New Delhi
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भारत संचार निगम लिमिटेड
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URGENT

No. 19-30/2008-PHM-MSE Dated: 30-04-2009

To,

All Chief General Managers,
Telecom Circles/Metro Districts/ Regions,
BSNL.

Subject:- Regarding safety from fire incidents.

This office has issued Guidelines for safety from fire incidents from time to time vide letters dated 11.09.2001 (available on intranet), 25.08.2008, 18.12.2008 and 02.03.2009. However it seems that these guidelines are not being followed as fire incidents are occurring quite frequently. The guidelines to be followed strictly are being reiterated as following:-

1. Implementation of AFD for fire detection.

2. As per CPW norms the fire fighting arrangement should be made as following.

   I. Provision of wet raiser system. (Minimum water storage as per requirement.

   II. Provision of fire extinguisher of latest technology.

3. Provision of storage shelves in the computer cell.

4. Fire drill to be conducted for equipping the staff to reach in such a situation.

5. Phase failure alarm to be fixed in each floor and one exclusively for computer cell in case of phase failure to UPS wiring and connections.

6. Provision of emergency exit in the building.

7. Floor warden should be nominated (main and standby) for Electrical/ other maintenance associated with it.

8. Action to be taken for weeding out unusable item in each floor.

9. Stores to be inspected regularly and should be on raised platforms. Stores should also be inspected by fire department of the building and fire fighting equipments should be provided.

10) The proper rating fuse should be used in the main distribution of AC supply.

11) DCDB panel should be used mandatory at the time of installation of Telephone Exchange.

12) AC power supply should be through power distribution panel of incoming power feeder.

13) Safe working of air-conditions should be ensured.

CMD has desired that all steps for prevention of fire incidents be completed within two weeks & a report be sent to the Corporate Office.

R Kumar

(Rajesh Kumar)
DGM (MSE)

Registered & Corp. office: Bharat Sanchar Bhawan, Janpath, New Delhi-1

Precautions/causes against Fire incidents in Telephone Exchanges/buildings.

Major causes of Fire:-

1. Short circuit in switching racks.
2. High voltage reaching MDF on account of telephone lines coming in contact with high voltage lines and also on account of lightening.
3. Short circuits /loose connection/over loading in DC power cables/system.
4. Storage of hazardous materials.
5. Indiscriminate additions to existing Electrical wiring without proper technical organization.
6. Improper maintenance of Electrical Safety Devices like Over load relays, Interlocking devices.

Preventive Measures:-

1. Automatic fire detection system and alarm
2. Fire Extinguishers.
3. Wet risers in buildings more than 15 meters high.
4. Fire Manual which given details regarding fire drills and other precautions to prevent fires.

Spread of Fire

1. Power cables, both A.C.&D.C., intersuit wiring and subscriber cables should be laid separately, so that short circuiting and fire prone set of cables does not spread to other cables also. While laying cables does not spread to other cables are not laid on sharp edges which can with the passage of time damage the insulation and cause short circuit and also not subject to any other mechanical strain. Engineering instructions should be strengthened if required.
2. In order to isolate MDF from higher voltages, Engineering instruction should be examined for further strengthening this area. Importance of regular check of earthing and tightening protection to be emphasized. Next check due on... kind of notice can be mounted in MDF and exchange incharge's room to draw attention and enforce regular check.
3. Barriers should be created at suitable intervals in addition to the requirement of normal fire byelaws while laying cables so that fire in one section does not travel freely along the cables. As per fire byelaws barriers are already required at the floor crossings. It is felt that barriers should also be created along the horizontal runs of the cables. Details of barrier recommended are as per drawing-1.
4. The specifications of the insulating material of the cables should be reviewed and strengthened with an objective to ensure that the burning of the insulation is confined to barest minimum length of the cable and also it generates minimum smoke.

Minimising fire incidences and also losses on this account.

1. Identification of a fire Warden for each building along with a Deputy. He has to ensure that fire prevention, detection and fighting systems are kept in proper shape. As far as possible the fire warden shall be provided accommodation in the building complex.
2. A Display Board which should tell the next due date for fire drill should be provided at least at two places in the rooms of GM/Dy.GM/DET/Senior Most Officer. The due date should be painted (i.e. recorded on a permanent basis and not to be written with chalk). When on the due date exercises is conducted, the next date can be painted. Ref. drawing –e.
3. Fixing a plate in the MDF room and also in room of senior officer mentioning the next date for earth and surge lightening protector check.
4. Issuing a personal card to each occupant of the building having instructions regarding sets to be taken in case of fire.
5. Fixing the important fire instructions inside each room. This will ensure reading of the instructions by the occupants of the building. Fixing these in common areas is not considered an effective solution.
6. Provision of Fire Barrier as per drawing enclosed at all floor/wall crossings of all cables laid in exchange.
7. Out of the staff available ensuring human presence round the clock in switch room for early detection and fire fighting during initial stages of fire.
8. Exploring the [possibilities of improving/strengthening the specifications in regard to the quality of insulation of D.C. power and telephone cables so as to further retard the spread of fire and generation of smoke.
9. Providing automatic small independent fire quenching systems at important fire prone locations in addition to fire extinguishers as per norms.
10. Maintenance of fire detection and fire fighting systems in working through specialized agencies by entrusting the same to Electrical Wing and ensuring fire drill at regular intervals and certificate.

Fire control particularly in the following areas need to be scrupulously followed:

1. Observing Engineering instructions with regard to the cable laying particularly in regard to safety from mechanical damage. Earthing continuity at joints.
2. Making additions /alterations in the existing system and use of new gadgets only after clearance from electrical maintenance unit as well as building incharge.
3. Following the guidelines including in the Fire Manual particularly in regard to keeping building free from hazardous materials (dry grass. packing cases. thermocol etc.) and ensuring passages, emergency exits and area around the building clear of any obstructions.

Preliminary investigations reveal:

1. The non-availability of basic firefighting arrangements at the site.
2. No proper storage of the store items.
3. Non utilization of huge quantities of store items since long.
4. Non disposal of unserviceable and obsolete material.
5. Whenever a run is provided above or near to A/C units, some guarding arrangements are to be done for the run way with reasonable separating distance from the A/C units.
6. Instead of fixed glass panels window type glass panels may be provided so that the smoke can be evacuated immediately.
7. The maintenance staff should be well educated about the fire alarm panel and how to locate the fire zone etc..
8. The maintenance staff should be well educated about the fire alarm panel even it if is a false alarm.
9. Sand buckets should be available in every exchange near the switch room and at a reasonable access places.
10. Formation of fire safety officers for each building and conduction fire drill exercise once in a quarter are to be monitored by a JAG level officer.
11. A non exchange line to the nearest fire station should be provided as far as possible.
12. The key of the locked rooms where technical installations are provided should be kept in a very easy accessible place.

कक्ष नं. 308, भारत संचार भवन, हरीश चन्द्र माथुर लेन
जनपथ, नई दिल्ली-110 001
दूरभाष: कार्यालय 91-11-23738999
फैक्स 91-11-23734242 ई-मेल dirn@bsnl.co.in
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भारत संचार निगम लिमिटेड
(भारत सरकार का उद्यम)
BHARAT SANCHAR NIGAM LIMITED
(A Government of India Enterprise)

CONFIDENTIAL

राजेश वधवा
निदेशक (प्रचालन)
Rajesh Wadhwa
Director (Operations)

D.O. No. 19-2/2009-PHM/MSE
Dated 25th July2009

Dear Shri

It is observed that there has been a spurt in fire incidents in the recent past. Some of them have caused extensive damage to the telecom equipments and disrupted the telecommunication services. One such incident took place at Circus Telephone Exchange at Kolkata. The entire transmission room was burnt, most of the long distance modems reduced to ashes, service from the main exchange and associated RSUs and DLCs to around 64,000 telephone customers,12000 broadband customers and 3,000 leased line customers were interrupted. It caused a huge financial loss and also adversely affected the goodwill of BSNL.

2. An analysis of various fire incidents that took place in the past reveals that the following are found to be the main reasons for fire incidents:

i) Fire starting from window air conditioners;
ii) External surge of voltage passing through to exchange equipments;
iii) Overloading of electrical wires and short circuits in electrical installations;
iv) Inadequate protective devices in the electrical installations.

Many of these fires could have been prevented/ contained and the damages caused reduced if appropriate precautions had been taken as conveyed by this office from time to time and contained in the Fire Protection Manual issued by T&D Circle (copy already sent).

To prevent occurrence of fire and contain its spread, I would like you to take the following steps immediately:

Constitute special teams to carry out the inspection of all the vital buildings housing exchanges and transmission equipment to check whether the measures taken are appropriate The team should make special checks on the following immediately:

(i) Check that all the window air conditioners are properly functional and are being maintained properly, they do not draw excessive current and the temperature is maintained in the switch room at an appropriate level. Such air conditioners are not supposed to run continuously. The switchover arrangement should be operational. The air conditioners are to be serviced regularly as per schedule and AMC is properly maintained/ implemented.

(ii) Circuit breakers, HRC and other fuses wherever they exist are of specified/matching capacity, which would give proper protection to the equipments and the electrical wirings None of these protective devices is to be by-passed by copper wires etc. Electric wiring should

not be overloaded beyond its capacity. Insulation should be proper and earth wires should be properly provided and used.

(iii) Protective devices in MDF (IPM etc.) are fully provided.

(iv) Fire alarm system functions properly. All the fire detection points are tested to sense the fire within a prescribed time and give alarm.

(v) It has been noticed that in some of the fire cases, the keys of the transmission room are sometimes not available. Keys of all the equipment rooms which are kept locked at night should be available in the security room.

(vi) Inflammable material/store are not kept in the telephone exchange buildings.

(vii) Fire extinguishers are sufficiently provided and that they are refilled from time to time before their expiry date.

(viii) There should be free access in buildings to the fire personnel to control the fire, adequate passage should be made available for movement of Fire Brigade and their personnel. Availability of sufficient water (water tank) etc. for firefighting is to be ensured.

(ix) The local fire authorities should be contacted to ensure that they are properly equipped to reach the higher floors of our multistoried buildings.

(x) The instructions of MS Cell and those contained in T&D Circle's Fire Protection Manual are fully followed.

3. The inspection of all the electrical and other installations as mentioned above must be completed within one month and a confirmation be sent to me that all the corrective actions have been taken. A few exchange buildings may please be inspected personally at your level to ensure that appropriate actions have been taken and there is no slackness in this regard.

4. I would further like you to go through the reports for fire incidents which had occurred in your Circle during the last two years and see why they were not prevented/ contained. Also if there were any lapses on the part of the officer/staff, the responsibility must be fixed and suitable action taken against the erring officer/staff. Please send me a special report on it within a month.

With best wishes,

Yours sincerely,

[Rajesh Wadhwa]

Chief General Manager
All Telecom Circles/Districts
BSNL

Copy to: CMD-BSNL

NOW Cell
MSE Section, Corporate Office,
Bharat Sanchar Bhawan,
Janpath Road, New Delhi
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भारत संचार निगम लिमिटेड
(भारत सरकार का उपक्रम)
BHARAT SANCHAR NIGAM LIMITED
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D.O. No. 19-2/2009-PHM/MSE
Dated 27th July2009

Dear Sir,

It is observed that there has been an increase in number of fire incidents in BSNL buildings/exchanges. Some of them have caused extensive damage to the telecom equipments and disrupted the telecommunication services. T & D Circle is the nodal unit to carry out investigations for all fire incidents and also to suggest corrective actions in time. There has generally been a long delay in submission of the reports. Hence it is requested that the final inspection reports on fire incidents may be submitted within a month of occurrence of fire. (1)

The fire protection manual were issued by T& D Circle(presently Inspection Circle) in 1985 and the same needs to be revised/updated keeping in view the findings of various investigation reports of fire incidents that have occurred in current and previous years. Copy of the various instructions issued from this office to field units are attached for your reference. The updated fire protection manual may be recirculated in the field units. (2)

Also during Inspection Circles's inspection of the exchanges, special emphasis on fire detection, fire protection mechanism, fire protection devices as well as electrical/short circuit devices and protection at MDF may be given. The inspection report should contain specific observations/recommendations in this regard. (3)

I would like to bestow your personal attention on the matter and submit compliance.

With regards,

GM(HQ)
Most urgent: Action Pl.
5/8/09

Shri Yamuna Prasad
Chief General Manager
Inspection Circle
Jabalpur

Yours sincerely,

25/7/09
R.K. Sharma
GM(NW-Ops)

B.S.N.L.
भारत संचार निगम लिमिटेड
04 AUG 2009
CGM
T & D Circle Jabalpur-1
टी.एण्ड डी. सर्किल, जबलपुर-01

O/o G.M. (N.W.-Ops)
MSE Cell, Corporate Office,
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भारत संचार निगम लिमिटेड
(भारत सरकार का उपक्रम)
BHARAT SANCHAR NIGAM LIMITED
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IndiaBroadband 2007
Linking India

URGENT

No.19-2/2009-PHM-MSE Dated: 29/09/2009

To,

The all Chief General Managers
Telecom Circles/Metro districts / Regions,
BSNL.

Subject:- Regarding precautions to be taken for prevention of fire incident.

Recently a severe fire incident took place in one of the telephone exchange of Calcutta Telecom District and destroyed equipments. Committee constituted by the competent authority for investigating the cause of incident has suggested in its report the following precautions to be taken for preventing occurrence of such incidents in future which may be followed strictly :-

1. Keys of all the rooms in a building shall always be made available with the security personnel with distinct tag with each key for easy identification of the room/door, floor etc.

2. Fire detection and fire fighting systems must be maintained in fully functional condition and the same shall be as ascertained conducting periodical inspection/testing.

3. During holidays and after office hours, one person out of the staff available on duty shall take a round of the entire building at frequent interval, ensuring human presence for early detection and fire fighting at the initial stage of fire.

4. All existing guidelines regarding prevention and fire fighting, including Indian P & T Department Engineering instructions on prevention of fire in Telecommunication buildings should be strictly followed.

5. Provision of fire barrier with Bakelite sheet of suitable thickness/glass wool/pebbles etc. at all floor / wall crossings of all cables laid in exchanges to prevent spread of fire from one room to another.

6. Fixing the important instructions related to fire including telephone numbers of fire brigade, police and senior officers inside rooms/ common space. This will ensure reading of the instructions by all concerned.

7. The fire-drills must be conducted at regular intervals. The date of last fire-drill as well as the next due date shall be permanently displayed in common places.

8. Issuing a personal card to each staff containing instructions regarding steps to be taken in case of fire.

9. Exchange equipment earth measurement shall be conducted regularly and the same shall be maintained as per standard norms.

10. Equipment rack spacing standard shall be maintained even at the time of installing additional equipment to avoid congestion and excessive generation of head causing fire.

11. Fire-audits may be conducted for the buildings and suggestions of the audit be implemented without delay.

12. Providing automatic independent fire extinction systems at important fire prone locations in addition to fire extinguishers.

13. Suitable isolation of battery power supply to equipment in the event of fire should be provided through HRC fuses/knife switches.

14. The MCB feeding power to the equipment and DCDB should be checked with fixed periodicity.

15. Loose wiring and sub-standard wiring specially for pedestal fans, heaters and testing equipment should be avoided.

16. Pedestal fan should no be operated unattended.

16. Electrical inspection as per Indian Electricity Rules 1963, Section 44A, 46A and 47 are mandatory and to be conducted by designated electrical inspection of BSNL

18. Fire inspection to be conducted as per National Electricity code, Local Municipal fire byelaws and fire protection manual and instructions issued from time to time.

19. Energy Audit to be conducted by energy auditors/managers as per Energy Conservation Act 2001.

(RAJESH KUMAR)
DGM, (N.W.-Ops.-MSE)

ANNEXURE – II
SAFETY FOR OFFICE BUILDING

Building other than telephone exchange buildings shall be provided with automatic fire detection system as per local fire by-laws. In case there are no fire by-laws, buildings 15 mts in height shall be provided with automatic fire detection system.

The area to be protected by ionization and photoelectric detectors shall be generally in accordance with the standards laid down below. Additional detectors if any shall be provided as per user's requirement.

(a) Each detector shall cover an area not exceeding 25 sq. meter in case of air conditioned equipment room.

(b) Each detector shall cover an area not exceeding 40 sq. meter in case of non-air conditioned technical rooms.

(c) Each detector shall cover an area not exceeding 50 sq. meter in case of rooms having no equipment.

(d) Each detector shall cover an area not exceeding 10 sq. meter when provided above false ceiling or below false flooring or over fully covered cable network.

(e) Area separated by beams having depth of minimum 450 mm shall have separate detectors irrespective of area.

(f) Maximum horizontal distance between centre to centre of heat detector and smoke detector when provided in corridor shall not exceed 10 meters.

ANNEXURE-III

List of Major Fire cases reported to Inspection Circle, Jabalpur during last three years

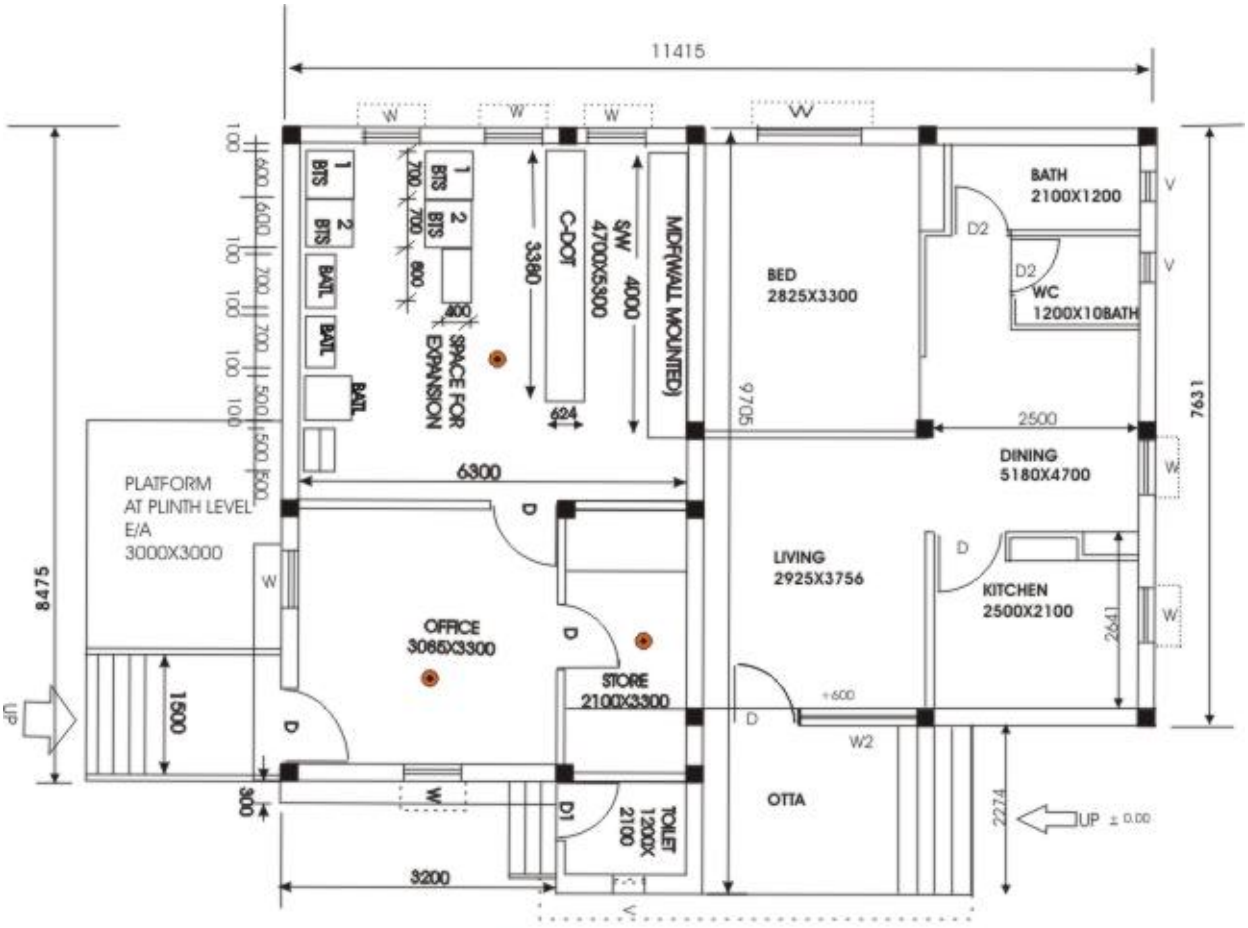
S.No.	Exchange Name	Date of incident/ Date of intimation received	Date of investigation report received	Probable cause of fire	Loss of property in terms of amount	Remarks
01.	Achnera Tele/Exch in Agra SSA.	01.04.06 03.04.06	29.06.06	Due to short circuit in the AC unit.	Rs. 51,55,056/-	1. Same from extra load. 2. Check proper functioning of Mains supply. 3. Water tank should be provided in exchange. 4. Fire drills must be conducted at regular intervals.
02.	Araria T/E in Katihar SSA,Patna.	19.04.06 23.12.06	23.12.06	Due to short cct. In DC power cable.	Rs.5,50,865 /-	1. All the cable entry holes should be properly sealed prevent entry of rodents. 2. Proper maintenance and routing inspection of AFD system should be ensure log book should be maintained for the same. 3. Separation should be maintained while laying power and telecom cables.
03.	Sector-17 T.E., Chandigarh	30.06.07 02.07.07	27.07.07	Due to short cct. In split AC	Rs.1,80,800 00	Suggestions are annexed at Ann-I

04.	Shankosal T.E., Jharkhand, Jumshedpur.	10.10.07 10.10.07	19.02.08	Due to induce in power cable.	Rs.1,52,0117/-	1. Provision of IPM & VDRs on subscriber lines at MDF must be made compulsory and independent verification at regular intervals may be verified.
05.	Kodiawada TE, Kodiawada.	26.04.08 28.04.08	30.06.08	Due to fall of 11kv high tension wire.	Rs. 1 Crore	1. Main Distribution for AC supply must be provided with suitable rating at fuses. 2.DCDB panel must be provided in exchange as a part of installation. 3. AC power supply to be provided through power distribution panel at incoming power feeder.
06.	Jambusar TE, Bharuch, Gujrat.	13.04.09 11,05.09	30.06.09	due to short cct in window AC.	Rs. 10 lacs	1. Window ACs should be replaced by Split A/Cs. 2. Proper distance should be maintained between split A.C. and equipment rack. 3. A.C. changeover/timer switch must be provided. 4. E/A log book and other registers may be kept outside the E/A room after making entries. 5. Electrical appliances and wiring may be checked periodically to avoid short circuit.

ANNEXURE-IV
MODEL FIRE EQUIPMENT PLAN FOR RURAL EXCHANGES

GROUND FLOOR PLAN

● Ionisation Detector
AC Area upto 25 Sq.meter per Detector
Non AC upto 40 Sq. Meter per Detector



GROUND FLOOR PLAN

● Ionisation Detector
AC Area upto 25 Sq.meter per Detector
Non AC upto 40 Sq. Meter per Detector

ANNEXURE-V
BMS SYSTEMS FOR DATA CETRES

FUNCTIONS AND ACTIVITIES OF INSPECTION CIRCLE

Important functions of INSPECTION Circle can widely be classified as follows:

1) Acceptance and Testing (A/T) of Switching Systems more than 2K capacity.

2) Acceptance and Testing (A/T) of Transmission Systems more than 8 mbps capacity.

3) Issue of Engineering Instructions

4) Power & Telecom Co-ordination Committee

5) Publishing TELECOMMUNICATIONS journal.

6) Investigation of fire cases.

7) Sample check of installations done & Acceptance and Testing(A/Ted) by Territorial Telecom Circles.

8) Providing Web based Acceptance Testing Offer Management System (ATOMS) for Territorial Circles and Corporate Offices.

This circle has been playing an important role in the introduction of new Telecom systems and technologies by participating in validation of equipments/ systems and participation in various working groups for preparation of technical specifications

A/T OF SWITCHING SYSTEMS:

Acceptance testing is carried out for all types of Electronic Exchanges like E10B, C--DOT MAX, EWSD, NEAX--61E, AXE--10, OCB- 283, FETEX-150 NIB, ISDN, WLL, IMPCS etc.

A/T OF TRANSMISSION SYSTEMS:

Long distance Transmission systems which form the back-bone of National Trunk Network consisting of Microwave, Satellite, Optical Fibre Cable are also subjected to rigorous Acceptance testing to ensure reliable and trouble free NSD & ISD facilities and Data transmission. All the transmission

systems installed by Telecom Projects at Mumbai, Chennai, Kolkata and New Delhi and also by Task Force at Guwahati are A/Ted by this unit.

ISSUE OF ENGINEERING INSTRUCTIONS:

INSPECTION Circle issues Engineering instructions on different topics for use by the field units of the Department. In the current year 2003-04, 14 new EIs were finalized covering latest switching and transmission systems for the benefit and use of the field staff of the Department.

POWER & TELECOM CO-ORDINATION COMMITTEE

In order to ensure safety of Telecom assets & personnel and interference free working of Telecom systems, Telecom Co-ordination Committee (PTCC) has been set-up in the year 1949. The main function of PTCC is to examine all new cases of power and telecom lines and cables and recommend protection measures in order to ensure safe and satisfactory working of Telecom systems. Major co-ordination problems in the field are settled in PTCC meeting being held regularly at Central, State and Divisional state levels. At central level, policy matters are decided and guidelines issued so also the unsettled cases at state level are discussed and settled.

During the year 2003-04 , 261 Power and 54 Telecom Central PTCC cases involving about 6930.38 and 643.527 respectively route kms and 113 Power State level cases were approved by PTCC.

PUBLISHING TELECOMMUNICATIONS JOURNAL:

INSPECTION Circle is publishing a technical journal titled TELECOMMUNICATIONS since 1951. The journal is being published on a bimonthly basis. The Journal has entered into 54th year of publication. The circulation of the journal is around 7000 copies and quite popular in the telecom sector.

INVESTIGATION OF FIRE CASES:

INSPECTION Circle is playing important role in investigation of fire incidences in Telecom installations.

Officers to be contacted in case of fire for investigations

Inspection Circle Fire Investigators (ICFI)

CIRCLE	1ST OFFICER		2ND OFFICER	
	NAME	MOBILE	NAME	MOBILE
AP				
A&N				
Assam				
Bihar				
CGRH				
CHTD				
CTD				
ETR				
GUJ				
HIM P				
HR				
JK				
JKHAND				
KERALA				
KTK				
MH				
MP				
NE-I				
NE-II				
ORISSA				
PB				
RJ				
TN				
UAL				
UP(E)				
UP(W)				
WBTC				

Circle office- Sanchar Vikas Bhawan, Residency Road,Jabalpur-482001

Name and Designation of Officer	Telephone Number Office/ Mobile no.	FAX Number	Residence
Shri Jamuna Prasad Chief General Manager,	09425001700	0761-2678592	
Shri G.C.Manna, GM(HQ)	0761-2622192/ 09425803500	0761-2678592	
Shri J.S.Tomar, DGM(A)	0761-2622500/ 09425001225	0761-2678592	
Shri I.K.Dutta, AGM(SW/TR)	0761-2626700/ 09425801073	0761-2626700	
Shri Prasanna, SDE(SW/TR)	0761-2626700/ 09425801173	0761-2626700	
Shri H.L.Badgainya, JTO(SW/PTCC)	0761-2629250/ 09425801083	0761-2678592	07612425876

Contact for further information/suggestions

Circle office	Telephone Number Office/ Mobile no.	FAX Number	Residence
Shri H.L.Badgainya, JTO(SW/PTCC	0761-2629250/ 09425801083	0761-2678592	07612425876

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