

**PART IV**  
**Appendix A**  
**Guidelines For Fire Drill and Evacuation Procedure**

**A.1 Introduction**

The following provisions shall be applicable for emergency reporting, fire safety and evacuation plan of the occupants of different occupancies.

**A.2 Fire Reporting**

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Any occupant within the occupancy discovering a fire or smoke shall immediately report the incident to the fire brigade directly or through the ground command station, if there is any. Reporting of this situation shall not be delayed by any person by way of making, issuing, posting or maintaining any regulation or order written or verbal to that effect.

**A.3 Supervision of Fire Safety and Emergency Action and Plans**

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The owner shall designate competent persons to act as fire safety and evacuation plan staff, train the staff and conduct fire drill. Such persons shall possess such qualifications and/or hold such certificate of fitness as are required by the provisions of this Chapter. The owner shall ensure that adequate fire safety and evacuation plan staff is present on the premises during regular business hours and other time when the building is occupied, to perform the duties and responsibilities set forth in the fire safety and evacuation plan.

**A.4 Fire Safety Staff**

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**A.4.1** The fire safety and evacuation plan shall designate a fire safety director, a number of deputy fire safety directors and fire safety brigade members having following duties, authority and qualifications.

**A.4.2 Fire Safety Director**

- (a) The fire safety plan shall contain the name of fire safety director, whether employed by a fire security firm or directly employed by the management.
- (b) Depending on the size and complexity of the building, the Fire Safety director shall be a person of proven capability, having good training and schooling with adequate experience in dealing with fire.

- (c) The fire safety director shall be present in the building during regular business hours. Duties of Fire Safety director shall primarily include but not be limited to the following :
- (i) Shall be well conversant with the written fire safety plan for the fire drill and evacuation procedures.
  - (ii) Shall be in charge of selecting qualified building service employees for the fire command and engage in organizing, training and supervising the works of command crew.
  - (iii) Shall be responsible to conduct fire and evacuation drill.
  - (iv) Shall be responsible for the availability and state of preparedness of fire command crew during emergencies.
  - (v) Shall be responsible for the assignment and training of Fire fighters on floor supported by adequate number of deputies as detailed out in the fire safety plan.
  - (vi) Shall be responsible for the day to day supervision of the fire fighters and his deputies and the state of alertness of the fire fighters. When the number of fire fighters and deputies become such that it becomes impractical for the chief fire safety officer to check them directly during the working hours, he may provide substitute. Nonetheless the fire safety director shall spot check any number of floors as he wishes or time permits. An up to date organization chart shall be displayed at appropriate locations.
  - (vii) Cases of negligence to duties on the part of members of his crew shall be taken up by him and he shall rectify the situation by appropriate measures as far as he has been empowered under the fire safety plan, failing which he shall notify the matter to the owner or the management of the building. The owner or the management on their part shall take up the matter with the fire security firm or if employed directly shall deal with the matter directly. If the person/persons is/are employed by a firm, and the firm fails to correct the situation, the owner/management shall notify the matter to the Department of Fire Service and Civil Defence to take disciplinary action against the firm.

- (viii) In the event of fire/emergency he/she shall be in charge of fire command station and shall supervise, guide and coordinate activities such as ensuring that the Department of Fire Service and Civil Defence has been notified of fire or fire alarm, direct the evacuation procedure as detailed in the fire safety plan, manning the fire command station, appraise the Department of Fire Service and Civil Defence about the spot of fire on their arrival, advise the Department of Fire Service and Civil Defence officer in charge of the operation.

#### **A.4.3 Fire Safety Deputy Director**

The fire safety plan shall contain the details of Deputy Fire Safety Director similar to the details mentioned under the fire safety director. Qualification and experience of Deputy Fire Safety Director shall also be similar to those of the Fire Safety director excepting that he shall be less experience than the Director.

Tenant or tenants of each floor upon request by the owner or in-charge of the building shall assign and make available dependable and trustworthy person/persons under their employee at the disposal of the Director to act as fire safety coordinator and fire fighter. They shall undergo basic firefighting and evacuation training by the Director or his deputy.

Duties of the Deputy Fire safety Director shall be similar to those mentioned under Sec A.4.2 except that he shall receive command from the Fire Safety director for execution and shall assume the role of Fire Safety director in his absence.

Each floor of a building shall be under the command of a deputy fire director for the safe evacuation of inmates in the case of fire. When the floor area of a tenant exceeds 700 m<sup>2</sup>, a deputy fire director shall be assigned for each 700 m<sup>2</sup> or part thereof.

The deputy fire safety director shall be present in the building at all times. Duties of deputy Fire Safety director shall primarily include but not be limited to the following :

- (a) Each Deputy Fire Safety director shall be conversant with the fire safety plan. They must be well acquainted with fire exits and location and operation of fire alarms.
- (b) In case of fire or fire alarm, the deputy Fire Safety director shall ascertain location of fire and unfold evacuation procedure as directed from the command station and to the following general guides.
  - (i) The most critical area for immediate evacuation would be the fire floor and the floors above. Evacuation from other floors shall be initiated if so commanded by the ground command station or the situation indicates to be so. Evacuation should be carried out via stairs not influenced by fire and fire fighter shall try to carry out the operation

using stair other than the ones used by the Department of Fire Service and Civil Defence personnel. If it becomes impossible, the fighters before opening door to the fire floor shall sought advice from the Department of Fire Service and Civil Defence personnel.

- (ii) Evacuation from two or more floors below the fire floor should be adequate. He shall continuously keep the ground command station informed of his location.
- (iii) Ensure that fire alarm has been transmitted.
- (iv) Fire fighters shall ensure that all the inmates are intimated of the emergency and shall immediately proceed with the evacuation exercise detailed under Fire Safety Plan.
- (v) Fire fighter shall keep the ground station informed of the step being taken by him/her.
- (vi) Similarly fire fighter above fire floor shall notify the command station of the means being taken by him/her or any other special feature after unfolding Fire Safety Plan.
- (vii) If and when stairways serving fire floor/floors above become useless by the presence of fire, smoke, fumes, in several floors above and when fire engulfs a considerable number of inmates then use of elevators shall be considered in accordance with the followings:
  - If the elevator serving the floor to be evacuated also serves the fire floor, the lifts shall not be used if it is not fire lift. If there are more than one lift bank, however, the lift/lifts in the other bank may be used if notified by the ground command station that one may use such lift/lifts.
  - If the lifts do not serve the fire floor or lift shaft has no opening on the fire floor, they may be used if not otherwise instructed by the command station.
  - Elevators taken over by trained in-house person or Department of Fire Service and Civil Defence personnel may be used.
  - In absence of unaffected available lift/lifts, Fire fighter shall decide to use the fire stair for evacuation based on considerations/ information available on the floor and any other instruction received from ground command. Before entering the fire stairway with the evacuees, the Fire fighter shall be sure about the

environment within the fire stairway by personal inspection and in case of adverse environment consider using an alternate stairway and shall notify the ground command accordingly.

- The Fire fighter shall keep the ground command informed of the means adopted by him during the evacuation process.

A fire safety coordinator and fire fighter shall be available at all times other than normal working hours when the Fire Safety Director or his Deputy is not available within the building.

Fire safety coordinator shall be a person capable of directing the evacuation procedure of occupants within the buildings as detailed in the Fire Safety Plan.

During fire/emergencies, primary function of fire safety coordinator shall be to take over command of the ground station and to direct and execute the evacuation process as laid down in the plan.

Fire safety coordinator shall be trained by the Director and shall be under his command for all evacuation purposes. His activities shall be controlled and governed by the clauses in Fire Safety Plan and shall be subject to scrutiny of the Department of Fire Service and Civil Defence.

Fire Party: If, in the opinion of the Fire Safety Director and endorsed by the Department of Fire Service and Civil Defence that the number of fighter, coordinator and Deputy are inadequate, a Fire Party shall be raised from among the employees of the tenants and the management who shall be acting as help to regular in-house fire fighting force in the event of fire and follow the same work schedule and function in the same manner as fighter, coordinator and Deputy fire safety director do.

## **A.5 Signs And Floor Plans**

**A.5.1** The lettering, arrows and other symbols of exit signs shall be written with vernacular alphabets high contrast background as per NFPA 170. Words on the signs shall be at least 150 mm high with a stroke of not less than 20 mm. For vernacular alphabets and numerics at least 150 mm high with stroke of not less than 20 mm. The sign/signs may be posted directly above the call button of the lift or any other conspicuous location securely attached to the surface of the wall. The top of the sign shall not be more than 2 m above floor level.

Sign shall be posted and maintained in front of the landing area of lifts on all floors that occupants may not miss, which shall direct the occupants to use stairs and not lifts during emergencies/fires, if not directed otherwise and shall also contain a floor plan with exact location of the stair and the relative position between the sign and the stair. Such posting in front of the landing area of lifts shall be omitted only if such signs are posted on all floors and some other area conspicuously located with the same message inscribed on it.

**A.5.2 Sign Depicting Floor Number**

A sign shall be posted and maintained on each stair enclosure preferably on the wall of the intermediate landing which in actual fact shall be half storey more or less than the actual indicating the floor number. The number shall be at least 75 mm square and in vernacular alphabets with contrast background as per NFPA 170.

**A.5.3 Stairs and Elevators Identification**

Each stair and Elevator shall be identified by a vernacular alphabet and posted with a sign, securely placed preferably on the wall of the stair side of the lift door from which egress is to be made.

**A.5.4 Stair re-entry Provision**

A sign shall be posted and maintained on each floor within stairway and on the occupancy side of the stairway where required, indicating whether re-entry is provided into the building and the floor where such re-entry is provided.

**A.5.5 Command Station**

Command station on the ground floor shall be provided with a detailed floor plan of the entire building including detailed locations of all first aid, firefighting equipment and other pertinent information. Command stations shall be adequately illuminated.

**A.5.6 Two Way Communications and Fire Alarm**

A two way communication system between each floor and the command station on the lobby of the entrance floor shall be provided and maintained by the owner of the building. Similarly fire alarm on each floor and the command station shall be fitted and maintained.

**A.6 Fire Safety Plan**

**A.6.1** A fire safety plan shall be developed in line with the details elaborated as below and must have the approval of the local Department of Fire Service and Civil Defence regarding its adequacy.

**A.6.2** Fire safety plan elaborates the purpose and objective of the plan with details of personnel and their duties and fire drilling and evacuation plan. In developing fire safety plan, evaluation of all individual floor layout, total occupancy load on each floor, number and kinds of exits available, zoning of the floor by area and occupancy shall be taken into consideration, careful evaluation of occupant movements and the most expeditions routes to exit and alternate routes shall be identified and taken into consideration.

**A.6.3** Fire safety plan starts with the location, address of the building with telephone number and details of any other communication facilities available within the building.

**A.6.4** Purpose of the plan is to delineate details of systematic safe and orderly evacuation of a part or whole of the building by its occupants in case of fire/emergency in the shortest possible time to a safe area through the safe means of egress. It also details out the use of in-built facilities of fire warning and firefighting like fire alarm, first aid hose etc. to safeguard the lives of the inmates of the building.

**A.6.5** Objective of the plan is to provide continued education to the inmates and the fire command personnel and keep the people oriented to the in-built equipment in readiness to act in the event of fire. The plan shall be rehearsed through fire drill and the written plans containing instruction shall be updated if needed and use of the in-built equipment along with initiating fire safety procedure to safeguard life in case of fire until the fire brigade arrives.

**A.6.6** Once the plan is accorded after approval by the Department of Fire Service and Civil Defence, the plan shall be distributed to all the tenants of the building by the building management, including the employees of the tenants and employees of the management.

**A.6.7** If the building is owned by an individual or a single corporate body and the owner or right holding member/members of the corporate body are residing in the building shall be equally subject to fire safety plan applicable to other tenants.

**A.6.8** All major changes in the safety plan shall be promptly reported to Department of Fire Service and Civil Defence for their approval.

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## **A.7 Fire Drills**

**A.7.1** Fire drill shall be conducted as detailed under the fire safety plan. The frequency of fire drill shall be as per table shown below. All occupants of the buildings, building service employees including fire safety and evacuation plan staff shall participate in the fire drill. However, the very old, convalescent patients or otherwise incapacitated inmates are not obliged to actively take part in the exercise, except the fire man and his staff and family members of such person shall chalk out a clear plan as to how to evacuate in a real emergent situation with such incapacitated persons.

**A.7.2** A record of such drills shall be kept in writing for at least 3 years for the inspection Department of Fire Service and Civil Defence whenever called for. The frequency of such fire drill shall be as mentioned in Table 4.A.1.

**Table 4.A.1: Fire Drill Frequency**

| Occupancy                               | Frequency   |
|-----------------------------------------|-------------|
| Industry Having occupancy more than 150 | Monthly     |
| Industry Having occupancy less than 150 | Quarterly   |
| Mercantile occupancy more than 150      | Quarter     |
| Mercantile occupancy less than 150      | Half yearly |
| School, College, Universities           | Half yearly |
| High rise building                      | Half yearly |
| Tall building                           | Quarterly   |

**A.8 Organization Chart For Fire Drill And Evacuation Assignment**

- (a) An organization chart clearly delineating assignment attributed to designated employees shall be prepared as per fire safety plan and posted to all tenants and in very conspicuous location/locations on each floor. A copy of the chart shall be in possession of the fire safety director.
- (b) An updated list shall be continuously made available with the director, his deputy and coordinators and Fire fighter for all the disabled occupants unable to move without aid in the stairs. Arrangement shall be made in detail in the fire safety plan to have these inmates assigned in moving down the stairs two or more floors below fire floor. If it becomes necessary to move them still further down the stair, help may be sought of the elevator bank unaffected by fire and evacuated safely to ground floor. In case any extra assistance is needed, the director shall be notified.
- (c) During fire or fire drill exercise, fire fighter shall be using arm band or such other identification.
- (d) During fire on the fire floor it is to be ensured that all inmates are notified and are evacuated to safe area. A rush search shall be carried out including lavatories that all the inmates have been covered and the person in charge of this operation shall be trained in accomplishing this task fast and flawless.
- (e) Persons not available on duty as per organization chart shall be promptly replaced as per contingency plan detailed in the fire safety plan.

- (f) On completion of evacuation operation, a head count shall be carried out of all the regular occupants known to have occupied the floor evacuated.
- (g) Immediately on receipt of the alarm, the fire fighter shall take position near the two way communication station on the floor, so that he/she can maintain continuous contact with the ground command and receive instructions.

## **A.9 Instruction to Inmates of The Building**

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Once the fire safety plan has been approved by the Department of Fire Service and Civil Defence, the applicable portion of the plan shall be distributed to all the tenants and the management of the building who in turn shall pass it on to their respective employees. All the occupants shall actively participate and cooperate in carrying out the provisions of fire safety plan.

### **A.9.1 Fire Prevention and Protection Program**

A Plan for periodic formal inspection of each floor shall be developed in respect of exit facilities, fire extinguishers and good housekeeping. Reports of such inspection shall be carefully maintained for inspection of Department of Fire Service and Civil Defence. The Plan shall have provision for monthly testing of two way communication and fire alarm system.

### **A.9.2 Personal Fire Instruction Card**

All the occupants of the building shall be supplied with a personal Fire Instruction Card containing details of the floor plan and exit routes as well as instruction to be followed during fire. Instructions may contain the following either in Bangla or both in Bangla and English.

### **A.9.3 Detailed Building Information**

A form shall be maintained for the benefit of all concerned with fire hazard of the building and shall contain the following basic information :

- (a) Building address in adequate details about its location.
- (b) Name, Address and telephone number of the owner (corporate body or individual) and the person in charge of the building.
- (c) Name address and telephone number if any, of the Fire Safety Director and his Deputy.
- (d) Certificate of occupancy.

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- (e) Height, area, construction class (details of various load and non-load bearing elements).
  - (f) Number, type and location of fire stairs and/or fire towers.
  - (g) Number, type and location of horizontal exits or other refuge areas.
  - (h) Number, type location and operation of elevators and escalators (if any).
  - (i) Locations of fire alarm-floor wise and central.
  - (j) Communication System (telephone, mobile, walkie-talkie).
  - (k) Size and location of stand pipe system, gravity or pressure tank, fire pump and the name and qualifications of the person or persons in charge of the facilities.
  - (l) Automatic fire sprinkler system, primary and secondary water supply system and the area or areas being protected along with the name and qualification of the person or persons in charge.
  - (m) Any other fire extinguishing system, their location, efficacy and other pertinent details.
  - (n) Average number of employed persons by day and night.
  - (o) Average number of disabled persons visiting the building by day and night.
  - (p) Average number of outsiders visiting the building by day and night.
  - (q) Locations, types and capacities of other service facilities like primary and standby electric power, normal and emergency lighting arrangement, heating with fuel (if any), ventilation with fixed windows, other means of emergency exhaust facilities of smoke and heat, air-conditioning system including floor coverage and ducting, refuse disposal facilities, any other firefighting equipment, any other service facilities available.
  - (r) Measures taken or to be taken for addition, alteration and repair of any aspect within the buildings.
  - (s) Information on flammable solids, liquids and gases if used and stored within the building premises.
  - (t) In mixed occupancy, complete details of such occupancies and their special needs to be covered during fire or emergencies.

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**A.10 English Text of Instructions**

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- (a) Safety First
- Push button fire alarm boxes (number is mentioned here) are provided on your floor. Please read the operating instruction posted on them.
  - Please read the operating instructions on the body of the fire extinguisher provided in your floor.
  - Nearest exit from your flat is shown in this plan (plan to be provided here).
  - Assemble on the ground floor at the location indicated on the following plan. For clarification, contact the fire fighter or Deputy Safety Director. Plan of assembly point in ground floor to be provided here.
- (b) For personal and collective safety, notify the fire fighter/Deputy Safety Director in case.
- Exit route and/or door are obstructed by dumping of boxes or such other loose materials.
  - Staircase door, lift lobby doors do not close automatically or completely.
  - Push button fire alarm or fire extinguisher are obstructed or damaged or seem to be out of order.
- (c) If you discover a Fire
- Break the glass and push the button of the nearest fire alarm and call the fire service.
  - With assistance from the floor fire fighter if needed, fight fire with the in-built facilities on your floor.
  - Evacuate, if so instructed by the fire fighter
- (d) When you hear Evacuation Instructions
- Immediately leave the floor taking the nearest staircase.
  - Report to your fire fighter on reaching the predetermined assembly point outside the building.
  - Try not to use lifts.
  - Avoid going to cloak room.
  - Refrain from running or shouting, do not get panicked.
  - Do not waste a moment collecting personal belongings.
  - Keep the lift lobby and staircase doors shut.

**A.11 Bangla Text of Instructions (বাংলায় নির্দেশাবলী)****(ক) নিরাপত্তাই সর্বোচ্চে**

- ভবনের প্রতি তলায় চাপ বোতাম বিশিষ্ট অগ্নি বিপদ সংকেত যন্ত্র দেয়া আছে। ব্যবহারের পূর্বে যন্ত্রের গায়ে মুদ্রিত নির্দেশাবলী পড়ুন।
- অগ্নিনির্বাপণ যন্ত্র ব্যবহারের পূর্বে অনুগ্রহ করে যন্ত্রের গায়ে মুদ্রিত নির্দেশাবলী পড়ুন।
- ভবনের যে স্থানে আপনি অবস্থান করছেন সেখান থেকে নির্গমনের নিকটতম/সহজতম পথ খুঁজে পেতে নির্গমন নকশা অনুসরণ করুন।
- নির্গমনের সুবিধার্থে ভবনের নিচতলায় নির্গমন নকশা নির্দেশিত স্থানে সমবেত হউন ও অগ্নিনির্বাপণ কর্মীর নির্দেশনা অনুসরণ করুন।

**(খ) আপনার ব্যক্তিগত ও সামগ্রিক নিরাপত্তার স্বার্থে নিম্নে উল্লিখিত বিষয়ে অগ্নিনির্বাপক কর্মীকে অবহিত করুন**

- জরুরী নির্গমন পথে কোন প্রকার বাধা থাকলে।
- সিঁড়ি ঘরের দরজা, লিফ্ট লবির দরজা সম্পূর্ণভাবে বা স্বয়ংক্রিয়ভাবে বন্ধ না হলে।
- অগ্নিনির্বাপণ বিপদ সংকেত যন্ত্র ও অগ্নিনির্বাপণ যন্ত্র অকেজো বা ব্যবহার উপযোগী না থাকলে।

**(গ) আগুনের উৎস খুঁজে পেলে**

- বিপদ সংকেত যন্ত্রের কাঁচের আবরণ ভেঙ্গে ফেলুন, বোতামে চাপ দিন এবং ফায়ার সার্ভিসে খবর দিন।
- ভবনে রক্ষিত অগ্নি নির্বাপক যন্ত্রের সাহায্যে অগ্নি নির্বাপণে সহায়তা করুন।
- অগ্নিনির্বাপণ কর্মীর নির্দেশনা মেনে ভবন ত্যাগ করুন।

**(ঘ) ভবন ত্যাগের নির্দেশনা পেলে**

- নিকটতম সিঁড়ি দিয়ে দ্রুত ভবন ত্যাগ করুন।
- ভবনের বাইরে অবস্থিত নির্ধারিত সমাবেশস্থলে অগ্নিনির্বাপণ কর্মীকে আপনার উপস্থিতি অবহিত করুন।
- অগ্নিকাণ্ডের সময় লিফ্ট ব্যবহার করবেন না।
- অগ্নিকাণ্ডের সময় ভীতসন্ত্রস্ত হয়ে অহেতুক দৌড়াদৌড়ি বা চিৎকার করবেন না।
- ব্যক্তিগত জিনিস সংগ্রহের জন্য সময় নষ্ট করবেন না।
- সিঁড়ি ঘরের দরজা, লিফ্ট লবির দরজা বন্ধ রাখুন।
- প্রসাধন কক্ষ ব্যবহার করা থেকে বিরত থাকুন।
- গুজবে কান দেবেন না, গুজব ছড়াবেন না।

**PART IV**  
**Appendix B**  
**Fire Protection Considerations For Venting In**  
**Industrial And Storage Buildings**

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**B.1 Scope**

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**B.1.1** This Appendix covers venting requirements in industrial buildings. Provisions contained herein shall be applicable to factory and storage facilities requiring large floor areas without dividing walls and enclosures.

**B.1.2** This Appendix shall not apply to ventilation designed for personnel comfort, commercial cooking operation, regulating odor or humidity in toilet and bathing facilities, to regulate cooling equipment.

**B.1.3** This Appendix shall apply to fire and smoke of two criteria: (a) Fire or smoke layer that does not enhance the burning rate and (b) Deflagration.

**B.2 Venting of Fire And Smoke That Does Not Enhance the Burning Rate**

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**B.2.1** Determination of precise venting requirements is difficult, as variables like rate of combustion, composition of the combustion product, shape, size and packaging of the combustible materials as well the size, height and disposition of the stacks of materials are involved with it.

**B.2.2** Vent system designs shall be computed by calculating the vent area required to achieve a mass rate of flow through the vent that equals the mass rate of smoke production.

**B.2.3** Venting devices are to be so designed and installed that they operate automatically at the earliest sign of fire or smoke.

**B.2.4** The smoke and fire venting system shall be so designed and installed as to keep the temperature of the combustion product as low as possible, preferably below 150°C.

**B.2.5** To achieve full efficiency in vents total area of all vents must be more than the inlet area for cold air. Ideally the inlets should be as close to the ground as possible.

**B.2.6** The area of unit vent shall not exceed  $2d^2$ , where  $d$  is the design depth of the smoke layer. For vents with length to width ratio more than two, the width shall not exceed the design depth of the smoke layer.