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भारतीय मानक

अस्थाई संरचनाओं और पंडालों के निर्माण में अग्नि शमन के लिए एहतियाती उपायों के लिए सिफारिशें

(पहला पुनरीक्षण)

Indian Standard

RECOMMENDATIONS FOR FIRE PRECAUTIONARY MEASURES IN CONSTRUCTION OF TEMPORARY STRUCTURES AND PANDALS

(First Revision)

UDC 69·033 : 614 84

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

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Price Group 2

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Fire Safety Sectional Committee had been approved by the Civil Engineering Division Council.

Temporary structures including large pandals normally erected at fairs, festivals and such other outdoor assembly have not, in general, been subjected to adequate regulations from fire safety point of view though in certain regions certain minimum fire precautionary measures in the construction of such structures are ensured before giving a licence or permission for the erection of such structures. Therefore with a view to giving necessary guidance in regard to fire protection measures to be adopted in the erection of such structures, it has been felt necessary to formulate this standard.

This standard was first published in 1978, covering the safety aspects for temporary structures and pandals used by public excluding the temporary structures used for private functions. Since then the number of Indian standards in regard to details of construction, fire safety and equipment have been formulated. This revision has therefore, been prepared so as to keep details of construction and use of fire fighting equipment according to the latest standards. Having seen the more usage of temporary structures for private functions, the scope of this standard has now been enlarged to cover such type of structures also.

The committee responsible for the preparation of this standard is given at Annex A.

Indian Standard

RECOMMENDATIONS FOR FIRE PRECAUTIONARY MEASURES IN CONSTRUCTION OF TEMPORARY STRUCTURES AND PANDALS

(First Revision)

1 SCOPE

1.1 This standard covers the fire safety in respect of construction, location, maintenance and use of temporary structures including pandals used by public for outdoor assembly.

NOTE — Temporary structure shall apply to all structures with roof or walls made of straw, hay, ulu grass, golpatta, hogla, darma, mat, canvas cloth or other like material which is not adopted for permanent or continuous occupancy.

2 REFERENCE

2.1 The Indian standard listed below is necessary adjunct to this standard:

IS No.	*Title*
1646 : 1982	Code of practice for fire safety of buildings (General) : Electrical installations (*first revision*)

3 GENERAL REQUIREMENTS

3.1 The materials, design, construction, fabrication of structures or devices within the scope of this standard shall meet the requirements for resistance to fire of a minimum of 10 minutes or total evacuation time whichever is more.

3.1.1 Each temporary structure shall be licenced for a specific period only and the licence granted if the provisions of this standard are complied with (*see* also **1.1**).

3.2 The choice of materials for such construction shall preferably be of non-combustible or fire resistance type. Wherever materials of combustible nature are used these shall be treated with a fire retardant solution as mentioned below:

Ammonium sulphate	4 parts by mass
Ammonium carbonate	2 parts ,, ,,
Borax	1 part ,, ,,
Boric acid	1 part ,, ,,
Alum	2 parts ,, ,,
Water	35 parts ,, ,,

3.3 The main structure shall be erected with at least 100 mm diameter post of non combustible material or wooden post (preferably of sal, casurina or bamboo) and the rest of the structure may be of lighter poles and trusses tied/screwed properly with steel wire. The poles and trusses shall be nailed/screwed, wherever required. All supporting members shall be of sufficient size and strength to support the structure.

3.4 The height of the ceiling of the structure or pandal from the ground shall not, in any case, be less that 3 m.

3.5 No decorative paper/synthetic material shall be used anywhere in the pandal/ structure.

3.6 All fabrics, decorative clothings used in the construction and decoration of the structure shall before use, be dipped in a fire retardant solution as specified in **3.2** or pretreated with other suitable material to give a class I flame spread factor.

3.7 No nylon or synthetic ropes shall be used any where in the structure. Only ropes made of coir, manila or coconut fibres shall be treated with fire retardant solutions in accordance with **3.2** before use.

3.8 Temporary structures shall be adequately guyed/braced and made secure to withstand a wind pressure of 0·98 kN/m² (0·01 kgf/cm²).

3.9 In no case, the height of corridor/passage way shall be less than 3 m.

4 LOCATION

4.1 There shall be a clear space of 4·5 m on all sides between the structure and the adjacent buildings or other structures. In cases where temporary structures are erected in the lawns which are part of residential premises, the entire frontage shall be kept open.

4.2 No temporary structure shall be erected beneath and adjacent to any live electrical line. The gap between the live wires and any part of the structure shall in no case be less than 2 m.

4.3 No temporary structure shall be erected near furnace, railway line, electrical sub-station, chimney or under high tension wire or like hazard unless a safety distance of 15 m is maintained.

5 MEANS OF ACCESS

5.1 All temporary structures shall be approachable and the gate provided shall have a clear opening of 5 m. Arch way shall not be at a height less than 5 m from the ground level.

5.2 The temporary structure shall be approachable to the fire engine. No part of temporary structure shall be more than 45 m away from the motorable road.

6 CAPACITY

6.1 The capacity of any temporary structure or pandal or enclosure for outdoor assembly shall be the number of fixed seats plus an allowance of one person for each 0·50 m^2 of floor area designated or used as standing space or for movable seats. A distance of 450 mm along any undivided bench or platform shall constitute one seat in computing capacity. The floor area or ramps, aisles, passageways or spaces within such structures or enclosures used for access or circulation shall not be considered in computing the capacity of a place of outdoor assembly, and shall not be used for access or circulation shall not be considered in computing the capacity of a place of outdoor assembly, and shall not be used for seats or for standing.

6.2 The number of persons admitted to any place of outdoor assembly shall not exceed the capacity as computed in accordance with the provisions of **6.1**.

7 ENCLOSURE AND EXITS

7.1 All sides of the temporary structure shall be left open. If this is not possible for certain reasons, the lower portions of this side walls shall not be fixed.

7.2 Where provisions laid down in **7.1** cannot be adhered to adequate and unrestricted exits shall be provided, depending on the capacity of the assembly, as given in **7.3** to **7.9**.

7.3 A minimum of two exits of not less than 2·5 m width separately, located and at extremities from each other, shall be provided for any type of temporary structures.

7.4 The clear width of exits shall be determined on the basis of not less than one unit of 50 cm for each 50 persons to be accommodated. The width of each exit shall not be less than 1·5 m.

7.5 The line of travel from any seat to the nearest exit on the seating area shall not be greater than 15 m.

7.6 All exit points shall be clearly indicated with sign 'EXIT' (including in local language) over each door way or opening in plain legible letters (not less than 5 cm high and with principal strokes of such letters not less than 1·8 cm in width) enabling everybody in the auditorium to visualize the exit points easily.

7.6.1 Exit light should be adequately illuminated with reliable light source when the structure is occupied by the public. Suitable directions signs shall be displayed in a conspicuous location to indicate the proper direction of egress. Exit and direction signs shall also be painted with fluorescent paint. Doors wherever fitted to exits shall open outwards and shall not be closed or bolted during the presence of persons in the structure.

7.7 Cross gangways shall be provided affording passage after every 10 row of seats, width of such passage being not less than 1·5 m.

7.8 Longitudinal gangways shall be formed at the sides and central portion. The width of side longitudinal gangway shall be not less than 1·2 m and central longitudinal gangway shall be not less than 1·5 m. Each row (between side and longitudinal gangway) shall comprise of not more than 12 seats. The seats shall be tied up together in a bank of not less than 4 seats and secured to the ground.

7.9 The seating arrangement shall be such that the clearance between rearmost point of the immediate front seat and the foremost point of the next rear seat in two successive rows is not less than 55 cm. Where self folding seats are provided, the clearance between the two rows may be reduced, in any case shall be not less than 30 cm.

8 ELECTRICAL ARRANGEMENTS

8.1 The temporary lighting of the structure shall be installed by a competent licenced electrical engineer. The load per circuit, insulation test and the installation shall conform to IS 1646 : 1982.

8.2 All electrical wirings in the structure of pandal shall be in PVC sheathed conductors or vulcanized rubber cables of tough rubber and all joints shall be made with porcelain insulated connectors. Twisted and tapped joints shall not be permitted.

8.3 No part of the electrical circuit, bulbs, tubelights, etc in the structure of pandal shall be within 15 cm of any decorative or other combustible material.

8.4 In case incandescent gas portable lights instead of electricity are used in the structure or pandal, such lights shall not be hung from the ceilings of the main structure or pandal but shall be placed on separate stands securely fixed.

8.5 No halogen lamps shall be used anywhere inside the pandal/temporary structure.

9 FIRE PROTECTION MEASURES

9.1 The ground enclosed by any temporary structure, pandal tent or shamiana and a distance of not less than 4·5 m outside of such structure shall be cleared of all combustible materials or vegetation and any materials obstructing the movement.

9.2 Storage of combustible materials like shavings, straw, flammable and explosive chemicals and similar materials shall not be permitted to be stored inside any temporary structure.

9.3 No fire works or open flame of any kind shall be permitted in any temporary structure or in the immediate vicinity.

9.4 No motion pictures shall be displayed in any temporary structure unless safety film is used.

9.5 Open Fires

No open fires except small size controlled fires for religious purposes shall be permitted inside or near the pandals or other temporary structures.

9.6 Kitchen area for cooking of snacks/food shall be totally segregated from the main pandal/temporary structure and preferably made of GI sheets.

10 FIRE FIGHTING ARRANGEMENTS

10.1 Provision of Water for Fire Fighting

Supply of water shall not be less than 0·75 l/m² of floor area for each pandal or other temporary structure. The water shall be stored in buckets/drums and kept in readiness for use. Half quantity may be kept inside the temporary structure and the other half outside in its immediate vicinity. The buckets or receptacles stating water shall at all times be readily available for immediate use for dealing with the fires.

10.2 A minimum number of fire buckets at a rate of two buckets per 50 m² of floor space and one water type extinguisher, 9 litres capacity, per 100 m² of floor space shall be provided in all temporary structures. For protection of electric installation, one carbon dioxide or BCF extinguisher of adequate size shall be provided for each switch gear, main meter and stage area. The location of these equipments shall be such that these are easily accessible in the event of a fire. The number of fire buckets and other various type of extinguishers may be provided as stipulated by the local licencing authority/fire authority.

10.3 Advance intimation shall be given to fire service department of the proposed construction of any temporary structure or pandal for public functions, its location, size and type of temporary structure number of people expected to be accommodated, arrangement of exits, etc.

10.3.1 Local licencing authority may recommend the provision of stand by fire service at any temporary structure if such measure is deemed necessary. In such cases adequate water supply for the fire fighting service shall be ensured.

10.4 A responsible person shall always be made available at the site of the temporary structure to organize prompt evacuation, fire fighting to deal with emergencies at the incipient stage and informing the fire service. The emergency fire service telephone number shall be dislayed prominently.

11 MAINTENANCE

11.1 All temporary structures shall be maintained in a safe and sanitary condition. All devices or safeguards which are required by this standard shall be maintained in good working condition.

11.2 All temporary structures shall be periodically inspected and any deterioration and defect observed shall be brought to the notice of the authority for remedy.

11.3 Particular attention shall be paid to the means of escape and gangways, exits, etc are not obstructed in any way and all buckets and extinguishers are easily visible and accessible before public is admitted at any time.

ANNEX A

(Foreword)

COMMITTEE COMPOSITION

Fire Sefety Sectional Committee, CED 36

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