

**नगर एवं ग्राम नियोजन विभाग, उत्तर प्रदेश**  
**7-बन्दरियाबाग, लखनऊ - 226001**

संख्या-2653/व.नि.(3)/तकनीकी सर्कुलर/2006-07  
सेवा में,

दिनांक : 27 फरवरी, 2007

1. **आवास आयुक्त**  
उ.प्र. आवास एवं विकास परिषद,  
लखनऊ।
2. **उपाध्यक्ष,**  
समस्त विकास प्राधिकरण,  
उत्तर प्रदेश।
3. **अध्यक्ष,**  
समस्त विशेष क्षेत्र विकास प्राधिकरण,  
उत्तर प्रदेश।
4. **नियत प्राधिकारी,**  
समस्त विनियमित क्षेत्र,  
उत्तर प्रदेश।
5. **नगर आयुक्त,**  
नगर निगम,  
कानपुर, इलाहाबाद, वाराणसी, आगरा, लखनऊ, गाजियाबाद, मेरठ, गोरखपुर, मुरादाबाद, बरेली,  
झाँसी तथा अलीगढ़।

**विषय :** अस्थायी संरचनाओं और पण्डालों के निर्माण में अग्नि सुरक्षा हेतु ब्यूरो आफ इण्डियन स्टैंडर्ड्स द्वारा निर्धारित मानकों के अनुपालन के सम्बन्ध में।

महोदय,

उपर्युक्त विषय के संदर्भ में सूचित करना है कि अस्थायी संरचनाओं जिनमें बड़े पण्डाल जो सामान्यतः मेले, प्रदर्शनी, त्योहारों एवं ऐसी प्रकृति के अन्य 'आउटडोर असेम्बली' के अवसरों पर लगाए जाते हैं, में समुचित अग्निशमन सुरक्षा व्यवस्था सुनिश्चित करने के उद्देश्य से 'ब्यूरो ऑफ इण्डियन स्टैंडर्ड्स' द्वारा मानक तैयार किए गए हैं।

2. इस सम्बन्ध में अस्थायी संरचनाओं और पण्डालों के निर्माण में अग्निशमन के लिए एहतियाती उपायों के लिए सिफारिशों के सम्बन्ध में उत्तर प्रदेश अग्निशमन सेवा मुख्यालय, लखनऊ द्वारा इस विभाग को उपलब्ध कराई गई भारतीय मानक आई.एस.- 8758 : 1993 की प्रति आपके सुलभ संदर्भ एवं आवश्यक कार्यवाही हेतु संलग्न है।

भवदीय

एन.आर. वर्मा  
मुख्य नगर एवं ग्राम नियोजक,

संलग्नक : उपरोक्तानुसार,

**संख्या एवं दिनांक : उपरोक्तानुसार,**

प्रतिलिपि निम्नलिखित को संलग्नक सहित सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित :-

1. सचिव, आवास एवं शहरी नियोजन, उत्तर प्रदेश शासन।
2. प्रमुख सचिव, नगर विकास विभाग, उत्तर प्रदेश शासन।
3. अध्यक्ष, समस्त विकास प्राधिकरण, उत्तर प्रदेश।

4. अध्यक्ष/नियन्त्रक प्राधिकारी, समस्त विनियमित क्षेत्र, उत्तर प्रदेश।
5. उपनिदेशक, तकनीकी, फायर सर्विस, उत्तर प्रदेश, लखनऊ।
6. चीफ कोऑर्डिनेटर प्लानर, एन.सी.आर.सेल, गाजियाबाद।
7. समस्त अनुभाग अधिकारी, मुख्यालय।
8. सहयुक्त नियोजक, समस्त सम्भागीय नियोजन खण्ड, उत्तर प्रदेश।

एन.आर. वर्मा  
मुख्य नगर एवं ग्राम नियोजक

IS 8758 : 1993

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 : 61484

BIS 1993  
BUREAU OF INDIAN STANDARDS  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

## Fire Safety Sectional Committee, CED 36

### 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 :

<b>IS No.</b>	<b>Title</b>
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 of 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 11.1)

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 by mass
Borax	1 part by mass
Boric acid	1 part by mass
Alum	2 parts by mass
Water	35 parts by mass

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 trussed/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 than 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 1 flame spread factor.
- 3.7 No nylon or synthetic ropes shall be used anywhere in the structure. Only ropes made of coir, manila or coconut fibers 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  $0.98 \text{ kN/m}^2$  ( $0.01 \text{ kgf/cm}^2$ ).
- 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 beneath and adjacent to any live 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  $0.50 \text{ m}^2$  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 15m.
- 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 1.8cm 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 out-wads 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 that 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 5 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 ARRANGMENTS**

- 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 of other combustible material.

8.4 In case incandescent gas portable lights instead of electricity are used in the structure of 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  $0.75 \text{ l/m}^2$  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 storing 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  $50 \text{ m}^2$  of floor space and one water type extinguisher, 9 litres capacity, per  $100 \text{ m}^2$  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 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 displayed 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 Safety Sectional Committee, CED 36

Chairman  
SHRI J.N. VAKIL

Representing  
Tariff Advisory Committee, Bombay

Members  
SHRI K. RAVI (Alternate to Shri J.N. Vakil)  
DR.R.K. BHANDARI  
SHRI R.P.BHATLA  
SHRI M.M.KAPOOR(Alternate)  
SHRI S.N. CHAKRABORTY  
SHRI P.K. MAJUMDAR(Alternate)  
SHRI P.K. CHATTERJEE  
SHRI V.K. SHARMA (Alternate)  
Chief Fire Officer  
SHRI D. PADMANABHA  
SHRI G.P. MONNAIAH(Alternate)

Institution of Engineers(India), Calcutta  
Engineers India Ltd. New Delhi

Tariff Advisory Committee, Madras

Ministry of Defence(DR & DO), New Delhi

Municipal Corporation of Bombay, Bombay  
Tata Consulting Engineers, Bombay

Deputy Chief Engineer (P & D)  
Executive Engineer (P & D)

Northern Railway,Ministry of Railway,New Delhi

(Alternate)  
SHRI S.K. DHERI  
SHRI R.C. SHARMA (Alternate)  
SHRI S.R. DORAISWAMY

Municipal Corporation of Delhi, Delhi

Ministry of Defence(Engineer-in-Chief's Branch),  
New Delhi.

SHRI S.N. LAKSHMANNA(Alternate)  
FIRE ADVISER  
SHEI P.N. GHOSH

Ministry of Home Affairs, New Delhi.

In personal capacity,  
(J-1916 Chittranjan Park, New Delhi)  
Central Public Works Department,New Delhi  
Lloyds Institution (India) Pvt., New Delhi

SHRI C.P. GOSAIN  
SHRI S.C. GUPTA  
SHRI SANJEEV ANGRA (Alternate)  
SHRI M.R.KAMATH  
SHRI K.R. EASWARAN (Alternate)  
SHRI V.M. MADGE  
SHRI A.B. PHADKE (Alternate)  
BIRG MALHOTRA  
SHRI G.B.MENON

Mather and Platt Ltd. Bombay

The Hindustan Contruction Co.Ltd. Bombay

State Bank of India, Bombay.  
In personal capacity, (C-231 Samachar  
Apartments,Mayur Vihar,Phase-1,Delhi)  
Central Electricity Authority,New Delhi

SHRI S.R. NARASIMHAN  
SHRI RAJENDRA SINGH(Alternate)  
PRESIDENT  
SHRI V.M. RANALKAR  
SHRI HARISH R.S. LOT  
SHRI RAJESH K. SALOT (Alternate)  
SHRI N.L.N. SHARMA  
SHRI M.L. KHURANA (Alternate)

Institution of Fire Engineers(India),New Delhi  
Ministry of Petroleum and Natural Gas,New Delhi  
Vijay Fire Protection Systems Pvt.Ltd. Bombay

Bharat Heavy Electricals Ltd. Hyderabad

Dr. T.P. SHARMA	Central Buildings Research Institute (CSIR), Roorkee
DR. GOPAL KRISHAN (Alternate) SHRI R. SUNDARARAJAN	National Thermal Power Corporation Ltd., New Delhi.
SHRI S.K. CHATTOPADHAYAY (Alternate) SHRI SUNIL DAS	Matallurgical Engineering Consultants(India) Ltd., Ranchi.
SHRI R.N. CHACHRA (Alternate) SHRI M.S. TYAGI SHRI P.K. SAKSENA (Alternate) SHRI D. VENUGOPAL	Ministry of Labour, Kanpur  Loss Prevention Association of India Ltd., Bombay.
SHRI T.V. MADHUMANI (Alternate) SHRI Y.R. TANEJA, Director-in-charge (Civil Engg.)	Director General, BIS (Ex-officio Member)

Member Secretary  
SHRI HEMANT KUMAR  
Joint Director (Civ. Engg.), BIS