

No.VI-14022/1/2015-DGCD(F)
Government of India
Ministry of Home Affairs
Directorate General FS,CD & HG
(Fire Cell)

अग्निशामन सल्लागार खात्री कार्यालय, ****
आवक क्र. MS
दिनांक 22 JAN 2016
फाईल क्र.
To आवक त्रिजिका वी सही

East Block – VII, Level – VII,
R.K. Puram,
New Delhi – 110 066

the 5th January, 2016

The Chief Secretary of all the States/UTs

Subject:- Minutes of the 37th Meeting of Standing Fire Advisory Council held at Infosys Campus, Bangalore, Karnataka.

Sir,

I am directed to enclose herewith a copy of the Minutes of the 37th Meeting of the Standing Fire Advisory Council (SFAC) held on 15th December, 2015 at Infosys Campus, Electronic City, Bangalore, Karnataka for information and necessary action.

Yours faithfully,


(D. K. Shami)
Fire Advisor
Tei : 011-26712951

Copy to :-

1. All the Members of the Standing Fire Advisory Council
2. JS (DM), Director(DM-III), US Ad(CD), MHA for information.

**MINUTES OF THE 37TH MEETING OF STANDING FIRE ADVISORY COUNCIL
HELD AT BENGALURU ON 15TH DECEMBER, 2015.**

The 37th Meeting of the Standing Fire Advisory Council (SFAC) was held on December 15, 2015 at Bengaluru, Karnataka. Sh. M.N. Reddy, DGP, DG Karnataka Fire & Emergency Service, Civil Defence and Home Guards welcomed all the Members and the Chief Guest. The meeting was inaugurated by Sh. G. Parameswara, Hon'ble Home Minister, Government of Karnataka, Shri B.D. Sharma, DG, FS, CD & HG and SSB delivered the key note address. He explained the background of the meeting and briefly mentioned the agenda of discussion while welcoming the Home Minister and others. Sh. D.K. Shami, Fire Adviser, then thanked the State Government for extending all possible help in hosting the council meeting.

Chairman : Shri B.D. Sharma, IPS, DG FS, CD & HG and SSB, Ministry of Home Affairs, New Delhi.

Member Secretary : Shri D.K. Shami, Fire Adviser, Directorate Fire Service, Civil Defence and Home Guards Ministry of Home Affairs.

Member/Delegates: List of Members/Delegates of 37th meeting of SFAC is at Annexure-I

PROCEEDINGS OF THE MEETING

Items on the Agenda and the decisions taken are mentioned below:-

Sl. No.	Agenda	Remarks
1	Confirmation of Minutes of 36th SFAC meeting. DGCD The minutes of the meeting was circulated to the Members on 17 th November, 2014 vide letter No.VI/14022/08/2014-DGCD(F). The Directorate has prepared an updated action taken report and placed in the background material for the perusal and approval of the committee.	Members confirmed the Minutes of the 36 th Meeting.

2	<p>NBC Part-IV "Fire and Life Safety"</p> <p>DG FS,CD &HG, MHA</p> <p>On 24th November, 2015 Bureau of Indian Standard has circulated the revised draft of National Building Code of India Part –IV "Fire and Life Safety" with the request to send the comments by 24th December, 2015. Since the Fire Services in the states are implementing the recommendations of NBC, it felt necessary to have their considered views on the same before publication.</p>	<p>Sh. Sandeep Goel a member of NBC, Part – IV, CED-46 Panel-2 presented the highlights of the revised draft. A copy of his presentation is placed at Annexure -"II". Members discussed clause wise provisions of old NBC Part –IV and the revised draft. Members expressed their concern about the time constraints and limitations to examine the whole revised document in the meeting. It is informed to the Members that the revised document is available on the website of BIS and they can forward their comments directly to BIS on the revised document and on new annexures. The detail of discussion and recommendations is given at Annexure – "III". The recommendation of SFAC on the revised document will be forwarded to BIS before 24th December, 2015 to enable them to finalize the NBC Part - IV.</p> <p>Action : DG,FS, CD& HG (Fire Cell)/States</p>
3	<p>Manpower Requirement of Fire & Emergency Services Assam</p> <p>Although there is a strong recommendation of 35th Meeting of Standing Fire Advisory Council to maintain the man-power for three shift duty system as per scale recommended by RMSI. Directions should be circulated by the Standing Fire Advisory Council to all the States/UTs to follow the above recommendations.</p>	<p>Members discussed and resolved that DG FS,CD&HG, Ministry of Home Affairs, Government of India will write to all the States.</p> <p>Action : DG,FS, CD& HG (Fire Cell)</p>

4	<p>Land Allotment for set up of New Fire & Emergency Services Station</p> <p>Assam</p> <p>As per "Modernization of Fire & Emergency Services in the country", it has been planned to open new Fire & Emergency Services Stations in the States during the course of the scheme i.e. 2013-2017. There is also provision of Central Grants-in-Aid for set up of new fire station.</p> <p>(a) But to open a new fire station land and accommodation is one of the most important factors;</p> <p>(b) In Assam, 41 nos. of fire station out of 125 Fire & Emergency Services Station are running from rented accommodation;</p> <p>(c) The matter was moved to the State Government for allotment of land for setting up of Fire & Emergency Services Station. However, due to some procedure & formalities it was not sanctioned in due time. Similar, problems may face by the other states/UTs for opening of new fire station;</p> <p>SFAC may issue necessary recommendations for providing land and accommodation by the concerned State/UTs in respect of opening of new Fire & Emergency Services Station as per scheme of "Modernization of Fire & Emergency Services in the country".</p>	<p>Members discussed and resolved that DG FS,CD&HG, Ministry of Home Affairs, Government of India will write to all the States.</p> <p>Action : DG,FS, CD& HG (Fire Cell)</p>
5	<p>Establishment/Decentralization of CBRN training centre, Specially for North-East Region</p> <p>Assam</p> <p>Due to rapid rise of different types of industries like Chemical Industries, Oil Industries, Gas Industries and other Coal and Mine based Industries potentiality of CBRN hazards is also rising in parallel manner. To cope up with the CBRN hazards by rescue agencies of North East region, training on</p>	<p>It is inform to the Members that Ministry of Home Affairs is in the process of upgradation of National Fire Service College, Nagpur. The specialized courses will only be conducted after the completion of upgradation work and thereafter these specialized courses will be decentralized.</p>

	<p>CBRN is most import. Therefore, for training on CBRN, establishment/decentralization of CBRN Training Centre in North East region is necessary.</p>	<p>Action : NFSC/States</p>
6	<p>DGS & D rate Contract</p> <p>Jharkhand</p> <p>It has been observed that a lot of time is consumed for the fabrication of fire vehicles in tendering process, which leads to the non utilization of allotted budget. Many type of problems are created by bidders sometimes leading to legal wrangles. Therefore, DGS &D rates should be finalized for fabrication of various types of fire tenders, so that Fire Services may fabricate their fire tenders and allotted fund may be fully utilized within time limits.</p>	<p>It is inform to the Members that the list of specialized equipment along with the specifications will be forwarded to DG S &D as and when received from the State of Andhra Pradesh and Tamil Nadu.</p> <p>Action : Andhra Pradesh/Tamil Nadu/Fire Cell</p>
7	<p>Inclusion of fire chutes in High Rise Buildings</p> <p>Karnataka</p> <p>There is no mention of providing fire chutes in High Rise Buildings. KSFES has taken a stand to insist provision of fire chutes in high rise buildings of 80 mts and above in height.</p> <p>Now some of the builder association have represented that</p> <ol style="list-style-type: none"> i) There is no provision of Fire Chutes in NBC. ii) There is no specific standard for construction of fire chutes available. iii) Maintenance of fire chutes standard not available. iv) Health condition of individual may not permit use of fire chutes in case of emergency. <p>SFAC may discuss and provide some relief as to pros & cons of fire chutes etc.</p>	<p>Members discussed about the inclusion of fire chutes in NBC for High Rise Buildings. Few members stated that fire chute has not been tested and proven for its efficacy and safety. After discussion it was resolved that fire chute is not a part of NBC and as such cannot be recommended for High Rise structures.</p> <p>Action : Nil</p>

Chairman thanked all the delegates who have attended 37th Meeting of Standing Fire Advisory Council and stressed the need to work together to help in the development of Fire & Emergency Services in the country.

Annexure – I

The following delegates attended 37th Standing Fire Advisory Council (SFAC) Meeting on 15th December, 2015 at Infosys Campus, Electronic City, Bengaluru.

Sl No.	Name	Designation	Contact No.
1	Sri B.D.Sharma	Director General CD & HG, MHA, New Delhi	8800636371
2	Sri M.N.Reddi,	Director General of Police, Director General Karnataka Fire Services	9480800919
3	Sri K.U.Ramesh	Dy. Director (Technical) Karnataka Fire Services	9742637468
4	Sri N.R.Markandeya	Dy. Director (Fire Prevention) Karnataka Fire Services	9902900111
5	Sri H.S.Varadarajan	Dy. Director (Admin) Karnataka Fire Services	9448370002
6	Sri D.K.Shami	Fire Adviser	9868233999
7	Sri J.K.Singh	Joint Director, Uttar Pradesh Fire Service	9415478966
8	Sri Rajkumar	IGP (CD & Fire Service, SDRF) Chattisgarh	9425257000
9	Sri V.Venugopal	FA NDRF & CD MHA	9868880247
10	Sri.H.S.Revanna	DIG, Karnataka Fire Services	22971505
11	Sri M.F.Dastoor	Chief Fire Officer,Ahmedabad	9327038754
12	Sri Ratnakar S Chomte	Chief Scientist, Central Building Research Institute, Roorkee	9758244438
13	Sri G.V.Narayan Rao	Regional Fire Officer Hyderabad, (AP)	8008266101
14	Sri U.S.Chillar	General Secretary, IFE, Delhi	9810568675
15	Sri M.V.Deshmukh	Fire Advisor, Govt. of Maharastra	9821107580
16	Sri Ashok Menon	Director, Directorate of Fire & Emergency Services, St. Inez, Panaji, Goa	9763717044
17	Sri Rajnath Singh	Asst. Inspector General (Fire) CISF HQ, New Delhi	9949121100
18	Sri Dr.K.C.Wadhwa	Associate Director, Centre for Fire Explosive & Environment Safety, Training & Fire Advisory Group, DRDO, Delhi	9810830150
19	Sri M.K.Jain	Associate Director, Centre for Fire Explosive & Environment Safety, Training & Fire Advisory Group, DRDO, Delhi	9868837174
20	Sri K.Ilango	Asst. Divisional Fire Officer, Puducherry	9894193855

21	Sri S.K.Sharma	Chief Fire Officer ,Dehradun	9456597981
22	Sri R.S.Sodhi	DG Jammu & Kashmir Fire & Emergency Services	9419145500
23	Sri B.S.Tongar	Fire Advisor, Govt. of Rajasthan	9425082620
24	Sri Nabachandra L Singh	Division Officer, Manipur Impal	9436274661
25	Sri Shamim	Director NFSC	9422118110
26	Sri D.M.Khan	Asst. Dy. Director NFSC	9423401288
27	Sri Dr.Vijay Kumar	Addl. Director General Of Police, Madhya Pradesh,Bhopal	9425378953
28	Sri A.K.Tandle	Chief Fire Officer Bhaba Atomic Research Centre, Fire Service Section	9869271995
29	Sri Sandeep Goel	NBC Committee New Delhi	9810015842
30	Sri A.K.Vala	ADFO, Daman & DIU and DNH Fire Services	9824194429
31	Sri B.G.Changappa	Retd. Director, Karnataka Fire & Emergency Services	9880040848
32	Sri E.B.Prasad	Director (Technical) Kerala Fire & Rescue Service	9447557277
33	Sri Ramkrishna Takur	Addl. State Fire Officer Jharkand, Ranchi	9430136101
34	Sri Gouranga Sahoo	Supporting Staff to Sri B.D.Sharma, DG FS, CD & HG	9013684262
35	Sri Soumin Khan	Supporting Staff to Sri B.D.Sharma, DG FS, CD & HG	9079175403
36	Sri.Chetan	Chief Warden Karnataka Civil Defense	9845034460

Annexure – "II"

NBC PART- 4, 2005 REVISION

HIGHLIGHTS OF MAJOR REVISIONS & CHANGES IN
DRAFT COPY RELEASED ON 24TH NOVEMBER, 2015

New Terms Added

DRAFT NBC-2015

Following terms have been added in Terminology Section.

Atrium	Metro Station
Authorities Concerned	Mixed Occupancy
Common Path of Travel	Multiple Occupancy
Exit	Occupant Load
Exit Access	Place of Comparative Safety
Exit Discharge	Public Way
Fire Barrier	Ramp
Fire Compartment	Refuge Area
Floor Area	Smoke Barrier
Hardware	Smoke Compartment
Lift Lobby	Water Based System
Means of Escape	

Commentary

Apart from new terms as mentioned above some of the existing terms have been modified for clarification and understanding. Term "Fire Tower" has been removed as fire tower provision has been removed from all type of occupancies.

New Terms Added

DRAFT NBC-2015

Diagram on Exit Access, Exit and Exit Discharge is included

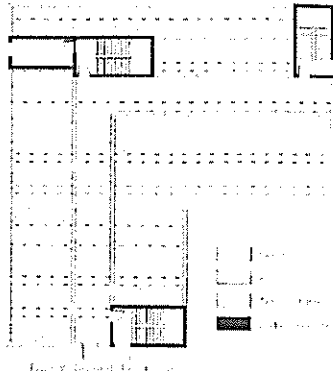


FIG. 1 EXIT, EXIT ACCESS AND EXIT DISCHARGE

Commentary

To clarify the intent and aspect of Egress terminology, Diagram as above is included to impart clarity and to explain the safety aspect of Exits.

Occupancy Classification

NBC 2005

3.1.2 Group A Residential Buildings

These shall include any building in which sleeping accommodation is provided for normal residential purposes with or without cooking or dining or both facilities, except any building classified under Group C.

Buildings and structures under Group A shall be further sub-divided as follows:

- Sub-division A-1 Lodging or rooming houses
- Sub-division A-2 One or two-family private dwellings
- Sub-division A-3 Dormitories
- Sub-division A-4 Apartment houses (flats)
- Sub-division A-5 Hotels
- Sub-division A-6 Hotels (Starred)

DRAFT NBC 2015

3.1.2 Group A Residential Buildings

These shall include any building in which sleeping accommodation is provided for normal residential purposes with or without cooking or dining or both facilities, except any building classified under Group C.

Buildings and structures under Group A shall be further subdivided as follows:

- Sub-division A-1 Lodging and rooming houses, and dormitories
- Sub-division A-2 One or two family private dwellings
- Sub-division A-3 Apartment houses
- Sub-division A-4 Hotels

Commentary

Occupancy classification has been modified for Residential Occupancy type. A3 occupancy of dormitories being sleeping occupancy is combined with A1 occupancy type. A5 and A6 Occupancy Type being hotel type, have been combined as A4 Occupancy type as Hotel, thus A5 and A6 Occupancy type has been combined as A5 in NBC-2015 Revision.

Not Major Changes in Occupancy Type and Classification

Clause 3.3 - Types of Construction: Structural Fire Resistance Rating

NBC 2005

3.3.2 It is required that an element/component shall have the requisite fire resistance rating when tested in accordance with the accepted standard [4(1)]. Tables 2 to 18 provide available data regarding fire resistance ratings of various building components such as walls, columns, beams and floors. Fire damage assessment, post fire structural safety assessment of various structural elements of the building and adequacy of the structural repairs can be done by the fire resistance ratings mentioned in Tables 2 to 18.

Commentary

Provision of testing of structure in accordance of table 2-18 has been provided as an option. Draft Code considers and is updated to have performance based fire rating as per Table 1 recommendations.

DRAFT NBC 2015

3.3.2 It is required that a structural and/or non-structural element/component shall have the requisite fire resistance rating as per Table 1. The fire resistance rating for the structural and non-structural elements shall be based on guidelines as per approved and acceptable standards. The fire rating shall be validated and certified with a view to meeting the requirements of Table 1. In the absence of any validated/certified rating, guidance may be obtained from the information available in Annex C.

Clause 3.3 (NBC 2005) - Types of Construction: Structural Fire Resistance Rating

DRAFT NBC 2015

Table 1 Fire Resistance Ratings of Structural and Non-structural Elements (Hours)
(Clause 3.3.1)

Sl. No.	Structural Element	Type of Construction	Type of Construction			
			Type 1	Type 2	Type 3	Type 4
1	Walls	1. Bracing 2. Non-bracing	2 2	2 1 1/2	2 1	2 1
2	Roof structure	1. Bracing 2. Non-bracing	2 1 1/2	2 1	2 1	2 1
3	Structural members like fire escape	1. Bracing 2. Non-bracing	2 1	2 1	2 1	2 1
4	Structural members like fire escape		2	2	2	2
5	Structural members like fire escape		2	2	2	2
6	Structural members like fire escape		2	2	2	2
7	Structural members like fire escape		2	2	2	2
8	Structural members like fire escape		2	2	2	2
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99	Structural members like fire escape		2	2	2	2
100	Structural members like fire escape		2	2	2	2

Commentary

Fire rating of structural and non-structural elements has been modified as following:

- Item No. 2 Fire check door to have 2 Hours fire rating in place of 4 Hours
- Item No. 9 to have 2 Hours fire rating in place of 3 Hours.

Sl. No.	Structural Element	Type of Construction	Type 1	Type 2	Type 3	Type 4
1	Structural members like fire escape		2	2	2	2
2	Structural members like fire escape		2	2	2	2
3	Structural members like fire escape		2	2	2	2
4	Structural members like fire escape		2	2	2	2
5	Structural members like fire escape		2	2	2	2
6	Structural members like fire escape		2	2	2	2
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82	Structural members like fire escape		2	2	2	2
83	Structural members like fire escape		2	2	2	2
84	Structural members like fire escape		2	2	2	2
85	Structural members like fire escape		2	2	2	2
86						

Clause 3.4 (NBC 2005) – General Requirements of All Individual Occupancies

Commentary

Clause on Maximum Height w.r.t FAR is retained.

Clause 3.4.4.3 on Open Spaces for Fire Tender Path is now referring to Part 3 – Development Control Rules and no details are included in Part 4 alike earlier on High Rise Building (earlier Clause 3.4.6.1 on Page 23). Please offer views for Clear Pathway and Weight of Fire Tender

Clause 3.4.11.2 in NBC 2005 (Page 24) is deleted.

NBC 2005

3.4.8.3 From fire safety point of view, separate air handling units for the various floors shall be provided so as to avoid the hazards arising from spread of fire and smoke through the air conditioning ducts. The requirements of air conditioning shall be in accordance with accepted standard [4(10)]

DRAFT NBC 2015

3.4.11.2 Air-conditioning and ventilating systems circulating air to more than one floor or fire area shall be provided with dampers designed to close automatically in case of fire and thereby preventing spread of fire or smoke and shall be in accordance with the accepted standard [4(10)]. Such a system shall also be provided with automatic controls to stop fans in case of fire, unless arranged to remove smoke from a fire, in which case these shall be designed to remain in operation.

Clause 3.4.8.3 in NBC 2005 - Services Shafts Fire Rating

NBC 2005

3.4.8.3 Openings in walls or floors which are necessary to be provided to allow passages of all building services like cables, electrical wirings, telephone cables, plumbing pipes, etc, shall be protected by enclosure in the form of ducts/shafts having a fire resistance not less than 2 h. The inspection door for electrical shafts/ducts shall be not less than 2 h and for other services shafts/ducts, the same shall have fire resistance not less than 1 h. Medium and low voltage wiring running in shafts/ducts, shall either be armoured type or run through metal conduits. Further, the space between the conduits pipes and the walls/slabs shall be filled in by a filler material having fire resistance rating of not less than 1 h.

DRAFT NBC 2015

3.4.6.4 Openings in walls or floors which are necessary to be provided to allow passages of all building services like cables, electrical wirings, telephone cables, plumbing pipes, etc, shall be protected by enclosure in the form of shafts having a fire resistance not less than 2 h. The inspection door for electrical shafts shall be not less than 2 h. Medium and low voltage wiring running in shafts, shall either be armoured type or run through metal conduits. Further, the space between the conduits/ cables and the walls/slabs shall be filled in by a filler material having fire resistance rating of not less than one hour.

As for other than electrical services shafts, the same shall have space between the pipes and the walls/slabs filled in by a filler material having fire resistance rating of not less than one hour or alternatively may be provided with inspection door having fire resistance not less than 1 h.

Commentary

Alternative method to provide sealing and fire resistance to shafts other than electrical services has been made optional by providing filler material or by providing check door of one hour rating.

Clause 3.4.15.2 (NBC 2005) Flame Spread Index

NBC 2005

3.4.15.2 The susceptibility to fire of various types of wall surfaces is determined in terms of the rate of spread of flame. Based on the rate of spread of flame, surfacing material shall be considered as divided into four classes as follows (see also good practice [4(14)]).

- Class 1 Surfaces of very low flame spread.
- Class 2 Surfaces of low flame spread.
- Class 3 Surfaces of medium flame spread.
- Class 4 Surfaces of rapid flame spread.

DRAFT NBC 2015

3.4.12.2 The susceptibility of various types of wall surfaces of fire is determined in terms of the rate of spread of flame. The flame spread index is a number or classification derived from the observation based during the progress of the boundary of a zone of flame under defined test conditions. Test results are calculated related to red oak, which has arbitrary rating of 100, and fibre reinforced cement board, Grade II, which has rating of 0. Based on the rate of spread of flame, surfacing material shall be considered as divided into three classes as follows:

- Class A: 0 – 25 Flame Spread Index - Surfaces of low flame spread
- Class B: 26 – 75 Flame Spread Index - Surfaces of medium flame spread
- Class C: 76 – 200 Flame Spread Index - Surfaces of rapid flame spread

Commentary

Flame Index Classification for Surface Interior Finishes has been modified to Class A, B and C to be in line with international standards like NFPA 101. Class A, B, and C correspond to Type I, Type II and Type III relatively in other codes such as SBCCI, BOCA and ICBO.

Section 4 – Life Safety – Clause 4.2 (NBC 2005) General Exit Requirements

Commentary

Clause 4.2 is much detailed in Draft 2015.

Please refer to Page 42 and 43 in Draft 2015 for details of Changes.

4.2.12 Doors shall open in the direction of travel and not impede movement of people descending from a higher floor when fully opened.

4.2.13 At least half of the required exit stairs from upper floors (rounded to the next number) shall discharge directly to the exterior or through passageways with protected openings.

4.2.14 Means of egress shall be arranged so that from any room, exits will be accessible in at least two directions, except that a dead-end corridor where the travel distance shall stand reduced to half the value stated in Table 5.

4.2.15 Unless otherwise specified, all the exits and exit passageways to exit discharge shall have a clear ceiling height of at least 2.4 m.

4.2.16 Where changes in elevation of more than 300 mm are encountered in the egress route, ramps or sloped surfaces shall be used with handrails and floor finish materials that contrast with the adjacent finish materials.

4.2.17 The capacity of the means of egress required from any storey of the building shall not be reduced along the path of egress travel until arrival to the exit discharge.

4.2.18 Turnstiles or similar devices that restrict travel to one direction or are used to restrict unauthorized entry shall not be placed so as to obstruct any required means of egress. Alternate door openings shall be available within 3 m of such devices, if installed.

4.2.19 Suitable means shall be provided so that all access controlled exit doors, turnstiles, boom barriers and other such exits shall automatically operate to open mode during emergencies like fire, smoke, acts of terrorism, etc so that people can safely and quickly egress into safe areas outside. If required, a master controlling device may be installed at a strategic location to achieve this.

4.2.20 Penetrations into and openings through an exit are prohibited except those necessary like shafts for the passage of fire protection piping, ducts for pressurization and similar life safety services. Shaft openings as well as vertical passage of shaft through floors shall be protected by passive systems.

4.2.21 Walking surfaces in egress pathways shall comply with the following requirements for smooth exit:

- a) Walking surfaces shall be nominally level.
- b) The slope of walking surface in the direction of travel shall not exceed 1 in 20 unless the ramp requirements are met. (see 4.4.6.7)
- c) Slope perpendicular to the direction of travel shall not exceed 1 in 48.
- d) Walking surfaces shall be slip-resistant along the entire path of travel.
- e) No furnishings, decorations or other objects shall obstruct the path of egress travel.

Clause 4.3 (NBC 2005) Occupant Load

NBC 2005

Sl. No. (1)	Group of Occupancy (2)	Occupant Load, Floor Area in m ² /Person (3)
a)	Residential (A)	12.5
b)	Educational (B)	4
iii)	Industrial (C)	15 (see Note 1)
iv)	Assembly (D)	
a)	With fixed or loose seats and dance floors	0.6 (see Note 2)
b)	Without seating facilities including dining rooms	1.5 (see Note 2)
v)	Stores (E)	
a)	Street floor and sales basement	3
b)	Upper sale floors	6
vi)	Warehouses and industrial (F)(G)(H)	15
vii)	Storage (I)	30
viii)	Halls and Stairs (J)	10

DRAFT NBC 2015

24.1	Assemblies (A)		0.6
	a) With fixed or loose seats and dance floors	0.6	(see Note 1)
	b) Without seating facilities including dining rooms	1.5	(see Note 1)
	24.2	Stores (B)	
	a) Street floor and sales basement	3	
	b) Upper sale floors	6	
	24.3	Warehouses and industrial (C)(D)(E)(F)	15
	24.4	Storage (G)	30
	24.5	Halls and Stairs (H)	10
	24.6	Industrial (Occup. I)	15
	24.7	Storage (Occup. II)	30
	24.8	Industrial (Occup. II)	15
	24.9	Storage (Occup. III)	30
	24.10	Industrial (Occup. III)	15

Commentary

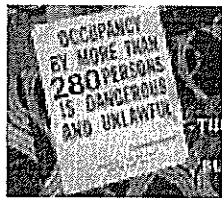
Occupant load in Table 3 erstwhile Table 23 has been modified as follows:

- Assembly Occupancy is classified in 4 types of occupancy as mentioned in Table 3 (erstwhile Table 20).
- Business Occupancy is separated from Industrial and further classified in 3 types.
- Rest of the Occupancies remain same with slight changes in area per occupant.

Occupancy Certificate Display

NBC 2005

New Provision.



Commentary

As per clause 4.3, it has made mandatory to display occupancy certificate in all assembly occupancies on a engraved metal plate to avoid overcrowding and violation in occupancy designed for occupied area.

DRAFT NBC 2015 – Clause 4.3 on Page 45 of Draft 2015

All assembly occupancies shall be required to display, limiting occupancy load details positioned in a conspicuous place near the main entrance to avoid possible overcrowding and overloading. The display shall preferably be engraved on a metal plate with detail of occupancy, area and occupancy load.

Section 4 – Life Safety

Commentary

New Clause 4.4 on Egress Component is included. Refer Page 45 and 46 of Draft 2015

4.4 Egress Components

Egress components to be considered are the number of exits to which access is provided, capacity of exit access, travel distance to an exit, the clearness of the direction to an exit, and any hindrance including due to security issues involved.

4.4.1 Exit Access

- a) Exit access shall ensure (1) Provision of two independent directions to two separate exits, (2) Provision of sufficient width (people capacity) to prevent person travel to the exit and (3) Provision of protection from exposure to heat and contaminants during the time required to reach the exit.
- b) Capacity of exit access - The width of corridors, aisles or ramps required for exit access shall be sufficient to ensure a smooth flow of occupants to the exit. Where a corridor is the only way of access to an exit, the

corridor width shall not be less than the exit width. Handrails may project inside the measured width not more than 90 mm.

- c) Objects like tables, chairs or any other temporary/permanent structures in exit access corridors/paths shall be avoided as this may result in congestion and also impeding smooth flow of personnel during emergencies.
- d) In order to ensure that each element of the means of egress can be effectively utilized, they shall all be properly lit and marked. Lighting shall be provided for halls, stairwells, and other spaces which is part of this system, with emergency power back-up in case of power failures. Also, exit signs of adequate size, marking, location, and lighting shall be provided so that all those unfamiliar with the location of the exits may safely find their way.
- e) An exit access shall not pass through a room that can be locked to prevent egress.
- f) Exit access shall not pass through storage rooms, closets or spaces used for similar purpose.

Table 21 (NBC 20050 - Capacity Factors, Draft 2015 - Table 4 Page 47 NBC 2005

Table 21 Occupants per Unit Exit Width
(Clauses 4.4.2, 4.4.3 and C-1.6.2)

Sl. No.	Group of Occupancy	Number of Occupants		
		Stairways	Ramps	Doors
(1)	(2)	(3)	(4)	(5)
01	Residential (A)	25	30	75
02	Educational (B)	25	30	75
03	Institutional (C)	25	30	75
04	Assembly (D)	40	50	60
05	Business (E)	50	60	75
06	Merchants (F)	50	60	75
07	Industrial (G)	50	60	75
08	Storage (H)	50	60	75
09	Hazardous (I)	25	30	40

DRAFT NBC 2015

Table 4 Capacity Factors
(Clause 4.4.2 1.4.4.2.4(c))

Sl. No.	Occupancy Group	Width per Person (mm)	
		Stairways	Level Components and Ramps
01	Residential (Group A)	10	70
02	Educational (Group B)	15	10
03	Institutional (Group C)		
04	Assembly (Group D)		
05	Business (Group E)		
06	Merchants (Group F)	10	70
07	Industrial (Group G)		
08	Storage (Group H)		
09	Hazardous (Group I)	20	120

Commentary

To calculate the capacity of exits Table-21 has been replaced with Capacity Factors Table-4 mentioning width per person. Provision has been made to avoid ambiguity and to be in line with international standards. This is to be noted that values of width per person are more stringent than international standards and provide better capacity in terms of capacity of exits.

No Change in Table 22 (NBC 2005) w.r.t Travel Distance

Clause 4.6.1 (NBC 2005) - Staircase Provision

NBC 2005

4.6.2 All buildings, which are 15 m in height or above, and all buildings used as educational, assembly, institutional, industrial, storage, and hazardous occupancies and mixed occupancies with any of the aforesaid occupancies, having area more than 500 m² on each floor shall have a minimum of two staircases. They shall be of enclosed type; at least one of them shall be on external walls of buildings and shall open directly to the exterior, interior open space or to an open place of safety. Further, the provision or otherwise of alternative staircases shall be subject to the requirements of travel distance being complied with.

DRAFT NBC 2015

The general requirements of number of exits shall supplement the requirement of different occupancies in 6.1 to 6.9

All buildings, as follows, shall have a minimum of two staircases.

- a) Buildings 15 m in height or above, and
- b) Irrespective of height of the building(s), the buildings used as business, educational, assembly, mercantile, institutional, industrial, storage and hazardous occupancies and mixed occupancies having floor area more than 500 m² on any floor shall have a minimum of two staircases opening directly to the exterior, interior open space or to an open place of safety.

NOTES

1. Minimum number of staircases shall be planned as above or based on travel distance or based on occupant load requirements whichever is highest. Such staircases shall be considered as the exit staircase and shall meet all exit safety requirements.
2. At least 50 percent of staircases to be with external wall/facade.

Commentary

As per changes, requirement of staircase has been modified as follows:

- All residential buildings to have two staircase if height exceeds 15 m.
- It is required to have two staircases for all type of buildings excluding residential building even if building is less than 15 m in height.
- Restriction on provision of scissor type staircase as escape staircase has been made mandatory.

Clause 4.9.6 (NBC 2005) on Exit Staircase:

Commentary

Changes to be noted:

NBC 2005

a) Residential buildings (dwellings)	1.0 m
b) Residential hotel buildings	1.5 m
c) Assembly buildings like auditorium, theatres and cinemas	2.0 m
d) Educational buildings up to 30 m in height	1.5 m
e) Institutional buildings like hospitals	2.0 m
f) All other buildings	1.5 m

DRAFT NBC 2015

Notwithstanding the detailed provision for exits in accordance with 4.2 and 4.3 the following minimum width shall be provided for staircases:

1. Residential buildings (A-2) <small>NOTE - For row housing with 2 storeys, the minimum width shall be 0.75 m.</small>	1.00 m
2. Residential buildings (others)	1.25 m
3. Residential hotel buildings (A-4)	1.50 m
4. Assembly buildings like auditorium, theatres and cinemas	2.00 m
5. Educational buildings	1.50 m
6. Institutional buildings like hospitals	2.00 m
7. All other buildings	1.50 m

Clause 4.12 (NBC 2005)- Refuge Area Provision

NBC 2005

4.12.1 For buildings more than 24 m in height, refuge area of 15 m² or an area equivalent to 0.3 m² per person to accommodate the occupants of two consecutive floors, whichever is higher, shall be provided as under:

The refuge area shall be provided on the periphery of the floor or preferably on a cantilever projection and open to air at least on one side protected with suitable railings.

a) For floors above 24 m and Up to 39 m – One refuge area on the floor immediately above 24 m.

b) For floors above 39 m – One refuge area on the floor immediately above 39 m and on on after every 15 m. Refuge area provided in excess of the requirements shall be counted towards FAR.

NOTE – Residential flats in multi-storied buildings with balconies need not be provided with refuge area, however flats without balconies shall provide refuge area as given above.

DRAFT NBC 2015

(a) For buildings more than 24 m in height, refuge area equivalent to 0.3 m² per person to accommodate the occupants of two consecutive floors (the shall consider occupants of the floor where refuge is provided and occupants of floor above) of a minimum of 15 m², whichever is higher, shall be provided as under:

(c) The refuge area shall be provided on the periphery of the floor or preferably on a cantilever projection and open to air at least on one side protected with suitable railings.

(v) For floors above 24 m and Up to 29 m – One refuge area on the floor immediately above 24 m.

(vi) For floors above 30 m – One refuge area on the floor immediately above 30 m and so after every 15-16 metres. Refuge area provided in excess of the requirements shall be counted towards FAR.

NOTE – Residential flats in multi-storied buildings with balconies need not be provided with refuge area. For residential flats without balconies shall provide refuge area as given above. For multi-storied buildings above 24 m height.

Commentary

Clause 4.4.2.5.2 in revision, Refuge Area recommendations remain same as earlier and It is only required if building exceeds height of 24 m. Slight changes in refuge area requirement has been made for building height above 39m.

Height for next refuge area has been modified from 15 m to 15-16 to provide small flexibility to match the floor height cut off. .

Clause 4.9.9 (NBC 2005) Handrail Provision

NBC 2005

4.9.9 Handrails shall be provided at a height of 1 000 mm to be measured from the base of the middle of the treads to the top of the handrails. Balusters/railing shall be provided such that the width of staircase does not reduce (see Fig. 1).

DRAFT NBC 2015

b) Handrails shall be provided at a height of 1 000 mm to be measured from the base of the middle of the treads to the top of the handrails. Balusters/railing shall be provided such that the width of staircase does not reduce (see Fig. 2). Where width of staircase exceeds 2 000 mm, handrails shall be provided on both sides.

Commentary

Provision of handrail on both side of staircase width more than 2 m has been made mandatory requirement.

New Clause 4.5.3.1 Essential Load (Draft 2015)

Commentary

New Clause incorporated on Essential Load. Use of Fire Survival Cable to be discussed.

DRAFT NBC 2015

4.5.3.1 Essential loads

- a) Exit access corridor emergency lighting
- b) Exit sign
- c) Exit stairwell lighting
- d) Exit stairwell pressurization
- e) Smoke exhaust/removal systems, where provided
- f) Emergency generator and main switchgear room lighting
- g) Computer room air conditioning unit, power to UPS, and UPS battery room lighting and ventilation
- h) Power for magnetic door hold open devices where provided
- i) Lighting and power in telephone operator's room, first aid centre and Fire Control Centre (FCC) and security office including CCTV cameras
- j) Complete fire detection, alarm system, including security alarms
- k) Complete emergency voice/tone communication system
- l) Fire pumps
- m) Fire Lifts
- n) All powered components of fire suppression systems
- o) Aircraft warning light(s)

Section 5 – Fire Protection - New Clause 5.8 on Page 66 of Draft 2015

Commentary

New Clause incorporated on Automatic Water Mist and Mist Sprinkler Systems

DRAFT NBC 2015

5.8 Automatic Water Mist / Mist Sprinkler systems

Certain occupancies may also be protected by automatic water mist systems with appropriate (pressure) applications as per relevant Indian standard(s). Installation and design of such systems, besides complying with various provisions of good

practice [4(21)], shall be as per manufacturers specifications, complying with test conditions and the same shall have acceptance of the authorities concerned. Extrapolation of test results shall not be allowed to provide protection to larger areas unless specifically permitted by the reputed testing agencies.

Section 6 – Additional Occupancy Wise Requirements

Commentary

New Clause incorporated under Clause 6.1 – Residential Building Occupancy on Page 67 to 70 of Draft 2015. Impractical Clauses as in NBC 2005 are removed.

NBC 2005

6.1.3.2 For occupancy sub-division A-2 of more than two rooms, every occupied room, excluding areas used solely for storage shall have at least two means of exits, at least one of which shall be a door or a stairway providing a means of un-obstructed travel to the outside of the building or street or grade level. No room or space shall be occupied which is accessible only by a ladder, folding stairs or through a trap door.

6.1.3.4 For occupancy sub-division A-4, the following provisions shall apply:

- b) Every living unit shall have access to at least two separate exits, which are remote from each other and are reached by travel in different directions, except that a common path of travel may be permitted for the first 6 m (that is a dead end corridor up to 6 m long may be permitted) provided that single exit may be permitted under any of the conditions given under (c).

Section 6 – Additional Occupancy Wise Requirements - Hospitals

DRAFT NBC 2015

Commentary

Hospital Height and Uses/ Areas w.r.t Height Defined. Refer Page 77 of Draft 2015

6.3.2.2 Hospitals [Occupancy class C(a)]

Compartmentation to meet the requirement as per D-8.

- a) Each compartment mentioned as under D-8 shall be able to accommodate, in addition to its own, adjoining compartment also on 7.5 m² per person basis.
- b) Not less than two exits of one or more of the following types shall be provided for every floor, including basement, of every building or section.
 - i) Doors leading directly outside the building,
 - ii) Stairways,
 - iii) Ramps, and
 - iv) Horizontal exits
- c) All critical patients and those incapable of self-preservation and having physical impairment shall be housed within 30 m height
- d) Other types of patients and occupancies incidental to the hospitals such as consultation rooms, nurse's stations, medical shops, canteens etc. may be housed at heights beyond 30 m but not more than 60 m.
- e) Beyond 24 m height, there shall be vacant refuge floor above for every 15 m, complying with the following:
 - i) Such floors shall be fire separated with four hours fire rating
 - ii) These floors shall be open sided with parapet walls on all four sides
 - iii) No other occupancy shall be allowed in such floors except utilities like water pumps, air compressors, etc. Area occupied by such utilities shall not exceed 30 percent of the floor area.

Section 6 – Additional Occupancy Wise Requirements - Metro Stations

Commentary

Updated NBC 2005 Clause 6.4.8 on Page 54 – Metro Station to New Clause 6.4.7 on Page 77 of Draft 2015 to include Underground Metros. All inputs from DMRC.

New “Annexures” Added/Modified

DRAFT NBC 2015

Following new “Annexures” have been added and modified in the end of this code.

- **ANNEX B BROAD CLASSIFICATION OF INDUSTRIAL AND NON-INDUSTRIAL OCCUPANCIES INTO DIFFERENT DEGREE OF HAZARD**

Commentary

Classification of buildings has been modified and in line with IS 13039 : 2014 Code.

- **ANNEX C AVAILABLE DATA REGARDING FIRE RESISTANCE RATING OF VARIOUS BUILDING COMPONENTS**

New "Annexures" Added/Modified

DRAFT NBC 2015

- ANNEX D - FIRE PROTECTION ARRANGEMENTS FOR HIGH RISE BUILDINGS – 15 M up to 100 M in HEIGHT – This is presently Annex C of NBC 2005 on Page 65.

Commentary

Fire Protection Requirements for Lift and Fire Lift Requirements detailed under Clause D3 and D4 on Page 110 of Draft NBC 2015

D-4.1 Lift landing doors shall have a minimum fire resistance rating of 1 h for integrity as per accepted standard [4(1)] for non-fire lifts in buildings less than 60 m height and such buildings wherein partition wall in hoist-way is provided.

DRAFT NBC 2015

D-4.2 Lift landing doors shall have a minimum fire resistance rating of 2 h for integrity as per accepted standard [4(1)] for all fire lifts and buildings greater than 60 m and in buildings in which partition wall in hoist way is not provided. However in case of fire lifts, partition wall shall be required for separating fire lift and non-fire lift.

- a) Suitable arrangements such as providing slope in the floor of lift lobby shall be made to prevent water used during firefighting, etc. at any landing from entering the lift shafts.
- b) A sign shall be posted and maintained on every floor at or near the lift indicating that in case of fire, occupants shall use the stairs unless instructed otherwise. The sign shall also contain a plan for each floor showing the locations of the stairways.
- c) Alternate source of power supply shall be provided for all the lifts through a manually operated changeover switch.
- d) Lift motor room shall be located on top of the shaft and separated from the shaft by the floor of the room.
- e) The electric supply shall be on a separate service from electric supply mains in a building and the cables run in a route safe from fire, that is, within the lift shaft. Lights and fans in the elevators having wooden paneling or steel sheet construction shall be operated on 24 volt supply.

- f) In case of failure of normal electric supply, it shall automatically trip over to alternate supply. For apartment houses, this changeover of supply could be done through manually operated changeover switch. Alternatively, the lift shall be so wired that in case of power failure, it comes down at the ground level and comes to stand-still with door open.
- g) The operation of a fire lift is by a simple toggle or two-button switch situated in a glass-fronted box adjacent to the lift at the entrance level. When the switch is on, landing call-points will become inoperative and the lift will be on car control only or on a priority control device. When the switch is off, the lift will return to normal working. This lift can be used by the occupants in normal times.
- h) The words "Fire Lift" shall be conspicuously displayed in fluorescent paint on the lift landing doors at each floor level.

New "Annexures" Added/Modified

DRAFT NBC 2015

- ANNEX D - FIRE PROTECTION ARRANGEMENTS FOR HIGH RISE BUILDINGS – 15 M up to 100 M in HEIGHT – This is presently Annex C of NBC 2005 on Page 65.

Commentary

Clause on Compartmentation Detailed under Clause D-21 on Page 120 of Draft NBC 2015. Further Passive Fire Protection System requirement and Fire Rating Requirement is detailed on Page 121 of Draft NBC 2015

DRAFT NBC 2015

Please read text for further details and discussions

D-21.3 To prevent fire and smoke traveling through various paths within a high rise building, following areas shall be considered for passive protection

- a) Horizontal exits - Fire walls
- b) Separation between occupancies having differential hazard - Fire walls
- c) Subdivision of floors of accessible areas - Fire partitions
- d) Fire partitions within a block
- e) Exit Access corridor walls - Fire wall
- f) Exit staircase enclosures - Fire walls
- g) Elevator enclosures - Fire walls
- h) Shafts for ventilation, electrical cables, mechanical equipment, chutes, plumbing, storm cables, communication cables, etc - Fire stops
- i) Concealed spaces in ceiling due to false ceilings - Fire walls
- j) Cable bundles from substations, Diesel generators etc. Fire stops or fire rated enclosures/pillows
- k) Cable race and gallery - Cable coating, fire rated pillows
- l) Exposed members - Fire proofing

D-21.4 Fire Rating Requirements

There will be certain areas of the building which, because of the uniqueness of the space and the degree of hazard contained within, will require additional consideration. The following areas shall be separated from other parts of the building, and each other, with walls and floors having fire resistance values as shown:

- a) Boiler Rooms - 4 hours
- b) Transformer Rooms - 2 hours
- c) Switchgear Rooms - 2 hours
- d) Combustible or Flammable Liquid Storage - 4 hours
- e) Engineering Workshops - 1 hour
- f) Fire Pump Rooms - 2 hours
- g) Transfer Switch Room - 2 hours
- h) Generator Room - 2 hours
- i) Emergency Switchgear Rooms - 2 hours
- j) PABX - 2 hours
- k) Emergency lighting battery and UPS rooms - 2 hours
- l) Kitchens - 2 hours

New "Annexures" Added/Modified

DRAFT NBC 2015

- ANNEX D - FIRE PROTECTION ARRANGEMENTS FOR HIGH RISE BUILDINGS – 15 M up to 100 M in HEIGHT – This is presently Annex C of NBC 2005 on Page 65.

Commentary

Clause on Compartmentation Under Clause C-1.8 of NBC 2005 Page 67 Modified as D-22.8 on Page 123 of Draft NBC 2015

Please read text for further details and discussions

DRAFT NBC 2015

D-22.8 All floors shall be compartmented in an area of each compartment being not more than 750 m². The size of the compartment may be as follows, in case of sprinklered basement parking

Use	Compartment Area
(1)	(2)
Basement car parking	3000
Basement (other than car parking)	2000
Industrial Buildings sub-division C-1	1500
Industrial Buildings sub-division C-2 and C-3	1000
Merchandise and Assembly Building	1000
Business Buildings	2000
All other buildings (excluding low hazard and moderate hazard industrial buildings and storage buildings)	750

A floor plate subject to compartmentation shall have minimum two compartments irrespective of the areas mentioned above

Compartmentation shall be achieved by means of fire resisting wall of 2 h rating or fire curtain of 2 h rating or water curtain. In case of water curtain, existing water storage shall be supplemented by water demand for water curtain nozzles for full area considering the largest size of compartment. The water supply for the water curtain nozzles shall be through independent electric pump of adequate capacity (flow and head) with piping riser for the water supply to the nozzles.

New "Annexures" Added/Modified

DRAFT NBC 2015

Following new "Annexures" have been added and modified in the end of this code.

- ANNEX E FIRE PROTECTION ARRANGEMENTS FOR SUPER HIGH RISE BUILDINGS – 100 M IN HEIGHT OR ABOVE
- ANNEX F SHOPPING MALLS AND MULTIPLEX OCCUPANCIES
- ANNEX G ATRIUM REQUIREMENTS
- ANNEX H COMMERCIAL KITCHEN AND COOKING FACILITIES WITH OF WITHOUT RESTAURANTS, EATRIES, FOOD COURTS ETC.
- ANNEX J CAR PARKING FACILITIES

Commentary

Clause on New Annex from Pages 125 to 142 of Draft NBC 2015

Please read text for further details and discussions

NBC PART- 4 AMENDMENT-2

**HIGHLIGHTS OF MAJOR MODIFICATIONS IN
AMENDMENT-2 RELEASED ON 29TH SEPTEMBER, 2015**

Aspects Covered and Addressed:

- *Glass Façade – Sprinkler Coverage;*
- *AHU for Multiple Floor is not allowed;*
- *Compartmentation revised:*

D-22.6 All floors shall be compartmentalized with area of each compartment being not more than 750 m². The size of the compartment may be as follows, in case of sprinklered basement/ building:

Sl No.	Use	Compartmentation Area m ²
(1)	(2)	(3)
i)	Basement car parking	3 000
ii)	Basements (other than car parking)	2 000
iii)	Institutional Buildings sub-division C-1	1 800
iv)	Institutional Buildings sub-division C-2 and C-3	1 125
v)	Flammable and Assembly Building	3 000
vi)	Business Buildings	2 000
vii)	All other buildings [excluding low hazard and moderate hazard industrial buildings and storage buildings] ¹	750

¹Compartmentation for low hazard and moderate hazard industrial buildings and storage buildings shall be done in consultation with local fire department

A floor plate subject to compartmentation shall have minimum two compartments irrespective of the areas mentioned above.

Aspects Covered and Addressed:

- *Car Parking Air Changes revised;*
- *New provisions for Residential Occupancy in Table-7 erstwhile Table-23;*
- *Ventilation Fans operations defined;*
- *Helipad requirements to be beyond 200 Meters.*

Thank You:

Fire Tender Access included in Part 3

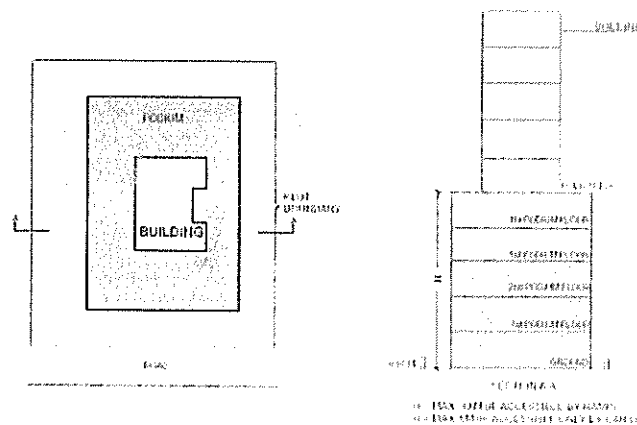


Fig. 8 Building on Podium

Fire Tender Access included in Part 3

4.6.1.4 Requirements for fire engine movement

- a) Buildings having height more than 15 m above ground level shall necessarily be accessible by fire engine, as follows (see Fig. 10A-1):
 - 1) For buildings having floor area less than 10 000 m², fire engine shall have access to at least 1/3 of the perimeter of building.
 - 2) For buildings having floor area more than 10 000 m², fire engine shall have an access to at least to 1/2 of the perimeter of building.
- g) Podium may be extended beyond the building line to the extent of maximum 11.0 m on the side where fire engine access is provided, if podium is not accessible by fire engine (see Fig. 10A-2 and 10A-3). Such restriction shall not apply in case podium is accessible by fire engine (Fig. 10B).
- b) Minimum 6.0 m driveway width and 9.0 m width at turning shall be available for fire engine movement.

Fire Tender Access included in Part 3

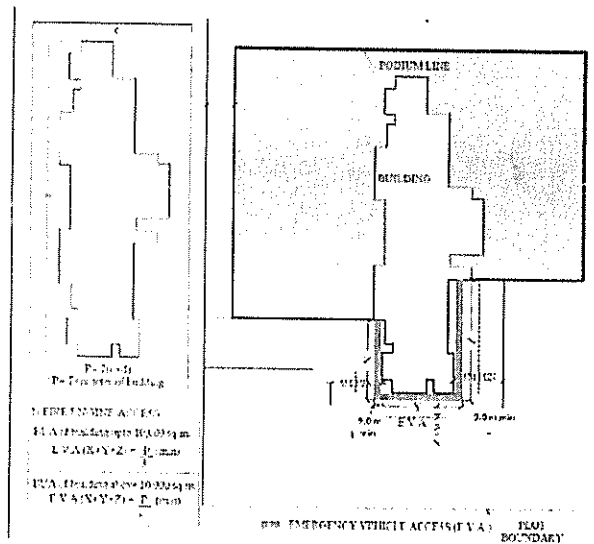


Fig 10A-1 Emergency Vehicle Access Requirement in case Podium is not Accessible by Fire Engine