भारतीय मानक ब्यूरो
(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)
BUREAU OF INDIAN STANDARDS
(Ministry of Consumer Affairs, Food & Public Distribution, Govt. of India)

मानक भवन, 9, बहादुर शाह ज़फर मार्ग, नई दिल्ली – 110002
Manak Bhawan, 9, Bahadur Shah Zafar Marg, New Delhi – 110002
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कार्यवृत्त

हमारा संदर्भ : सीईडी 36/ए-2.30 **13 जनवरी 2023**

विषय : अग्नि सुरक्षा विषय समिति, सीईडी 36 की तीसवीं बैठक की कार्यवृत्त

सीईडी 36 के सभी सदस्य

प्रिय महोदय/ महोदया,

अग्नि सुरक्षा विषय समिति, सीईडी 36 की तीसवीं बैठक जो शुक्रवार, 23 दिसंबर 2022 एवं गुरुवार, 29 दिसंबर 2022 को संपन्न हुई, के कार्यवृत्त भेजते हुए प्रसन्नता हो रही है। कार्यवृत्त की पुष्टि श्री एस. के. ढेरी, अध्यक्ष, सीईडी 36 द्वारा की जा चुकी है।

सम्मतियाँ भेजने की अंतिम तिथि: 27 जनवरी 2023

आपसे अनुरोध है की कृपया कार्यवृत्त का अवलोकन करें और हमें बताये की इसकी यथार्थता पर आप सहमत है। अगर उपरोक्त तिथि तक कोई सम्मति प्राप्त नहीं होती है तो आपकी सुविधा के लिए समझा जायेगा की आपने कार्यवृत्त का अनुमोदन कर दिया है।

धन्यवाद।

भवदीय,

ह०
(राजेश चौधरी)
सहायक निदेशक/ वैज्ञानिक 'बी'
(सिविल अभियांत्रिकी विभाग)
ईमेल: ced36@bis.gov.in
दूरभाष: 011-23608590, extn 8590

संलग्न: उपरलिखित

भारतीय मानक ब्यूरो
(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)
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MINUTES

Our Ref : CED 36/A-2.30 **13 January 2023**

Subject : Minutes of the 30th meeting of Fire Safety Sectional Committee, CED 36

ALL MEMBERS OF CED 36

Dear Members,

Please find enclosed the Minutes of the 30th meeting of Fire Safety Sectional Committee, CED 36, held on Friday, 23 December 2022 & Thursday, 29 December 2022. The Minutes have been duly approved by Shri S K Dheri, Chairperson, CED 36.

Last date for comments: 27 January 2023

Comments if any, confined to the accuracy of recording, may please be mailed to the undersigned preferably by the last date for comments. If no reply received by this date, kindly allow us to presume your approval of the minutes as recorded.

Thanking you,

Yours faithfully,

Sd/-
(Rajesh Choudhary)
Assistant Director/ Scientist 'B'
Civil Engineering Department
Email: ced36@bis.gov.in
Ph: 011–23608590, extn 8590

Encl: As Above

BUREAU OF INDIAN STANDARDS

MINUTES

Our Ref: CED 36/A-2.30 **13 January 2023**

Fire Safety Sectional Committee, CED 36 : 30th Meeting

Friday, 23 December 2022 : 1430 h to 1800 h

&

Thursday, 29 December 2022 : 1430h to 1630 h

Held in hybrid mode (physically at BIS HQ and virtually through WebEx)

Chairperson: Shri Satish K Dheri **Member Secretary:** Shri Rajesh Choudhary

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MEMBERS PRESENT ON 23 DECEMBER 2022

Shri Santosh Warick (In Chair)

Shri R C Sharma, In Personal Capacity
Shri TRA Krishnan, In Personal Capacity
Shri Charudatta S. Mukhedkar, Automotive Research Association of India, Pune
Prof. Vishal Kumar, Indian Institute of Technology Roorkee, Roorkee
Smt. Ashavaree Sahoo, 3M India Limited, Bengaluru
Smt. Indu Sharma, Advance Firetec and Research Lab Private Limited, New Delhi
Shri Purushotam Singh, Bennett Coleman and Company Limited, New Delhi
Shri Hemanta Panrui, *Rep.* Central Public Works Department, New Delhi
Shri Prashant, *Rep.* CFEES, Defence Institute of Fire Research, Delhi
Shri Atul Garg, Department of Delhi Fire Services, Delhi
Col Ravi Loganathan, *Rep.* Directorate General Quality Assurance, New Delhi
Shri Dinesh Debbarma, Engineers India Limited, New Delhi
Shri Milindkumar Deshmukh, Fire Safe India Foundation, Mumbai
Shri Gulshan Khurana, Fyrprotek (Fire Engineers and Consultants), New Delhi
Shri Aravind Chakravarthy, Hilti India Private Limited, New Delhi
Shri Sitaram Aggarwal, Indian Association of Structural Engineers, New Delhi
Dr. U S Chhillar, Institute of Fire Engineers India, New Delhi
Dr. Gopal Chandra Misra, *Rep.* Institute of Fire Engineers India, New Delhi
Shri Rajesh R, Johnson Controls, Bengaluru
Shri Moreshwar Kudkilwar, Ministry of Home Affairs, New Delhi
Shri Anil Parab, *Rep.* Mumbai Fire Brigade, Mumbai
Shri Doondeshwar V, NTPC Limited, New Delhi
Shri Harendra Yadav, Oil Industry Safety Directorate, Noida
Shri Rakesh Arora, Pacific Fire Controls, New Delhi
Shri Sandeep Goel, Proion Consultants, New Delhi

Shri Umesh Dunedar, *Rep.* Reliance Refineries Limited, Jamnagar
Shri Umesh Khandalkar, Reliance Refineries Limited, Jamnagar
Shri G. V. Narayana Rao, State Disaster Response and Fire Services Department, Hyderabad, Telangana
Shri Lakshmi Prasad C, State Disaster Response and Fire Services Department, Hyderabad, Telangana
Shri Manjunath V, UL India Private Limited, Bengaluru
Shri Aman Sharma, Uttar Pradesh Fire Service, Lucknow

INVITEE

Shri Nitin Vaze, Sleek Boards Marketing Services LLP, Pune

FROM BIS

Shri Arun Kumar, Director & Head, Civil Engineering Department

MEMBERS PRESENT ON 29 DECEMBER 2022

Shri Satish K Dheri, In Personal Capacity, New Delhi
Ms. Rashmi Bhardwaj, Delhi Metro Rail Corporation Limited, Delhi
Shri Atul Garg, Department of Delhi Fire Services, Delhi
Col Ravi Loganathan, *Rep.* Directorate General Quality Assurance, New Delhi
Dr. Bhaskar Dixit, Fire and Combustion Research Center, Jain University, Bangalore
Shri Milindkumar Deshmukh, Fire Safe India Foundation, Mumbai
Shri Gulshan Khurana, Fyrprotek (Fire Engineers and Consultants), New Delhi
Shri Ajit Kamat, *Rep.* Goa Fire Services, Goa
Shri Nitin V Raiker, Goa Fire Services, Goa
Shri Aravind Chakravarthy, Hilti India Private Limited, New Delhi
Shri Sitaram Aggarwal, Indian Association of Structural Engineers, New Delhi
Shri Manoj Mittal, Indian Association of Structural Engineers, New Delhi
Dr. U S Chhillar, Institute of Fire Engineers India, New Delhi
Dr. Gopal Chandra Misra, *Rep.* Institute of Fire Engineers India, New Delhi
Shri Santosh Warick, Maharashtra Fire Services, Mumbai
Shri Moreshwar Kudkilwar, Ministry of Home Affairs, New Delhi
Shri Rakesh Arora, Pacific Fire Controls, New Delhi
Shri Sandeep Goel, Proion Consultants, New Delhi
Shri G. V. Narayana Rao, State Disaster Response and Fire Services Department, Hyderabad, Telangana
Shri Lakshmi Prasad C, State Disaster Response and Fire Services Department, Hyderabad, Telangana
Shri Manjunath V, UL India Private Limited, Bengaluru
Shri Nitin Joshi, Vighnaharta Technologies Private Limited, Pune

Item 0 OPENING REMARKS

The Chairperson, Shri S. K. Dheri, extended his kind welcome to all the members of the Fire Safety Sectional Committee, CED 36. The Chairperson sought active participation of the members to deliberate the important Agenda items and finalize the same. With that, he requested to take up the Agenda item wise.

Item 1 CONFIRMATION OF THE MINUTES OF THE LAST MEETING

1.1 The committee considered the minutes of the last meeting (29th) meeting of the Fire Safety Sectional Committee, CED 36. As there were no comments on the minutes, the Committee confirmed the same.

Item 2 COMPOSITION OF THE COMMITTEE

2.1 Composition of the Sectional Committee

The Committee considered the current composition of the Committee given at Annex 1 of the Agenda and confirmed the same.

2.2 Co-option Requests

The Committee considered the co-option requests as given at Annex 2 of the Agenda and decided as follows:

Sl No.	Member	Details	Decision
1.	**Principal Member**	**Name :** Shri Akhil Chacko **Contact Number :** +91 7510886977 **Email ID:** akhilchacko@afitiglobal.com **Organization Name**: Afiti Global Fire Testing Private Limited **Designation:** General Manager	The Committee has requested Afiti Global Fire Testing Private Limited to give a presentation regarding their testing facilities before taking a decision thereon.
	Alternate Member	**Name :** Shri Jothi Ramalingam **Contact Number :** +91 9841020620 **Email ID:** jothi@afitiglobal.com **Organization Name:** Afiti Global Fire Testing Private Limited **Designation:** Director	
2.	**Principal Member**	**Name:** Shri Arvind Mandke **Contact Number:** +91 9969201541 **Email ID:** mandkea@yahoo.co.in **Organization:** In Personal Capacity (CFO, CIDCO, Thane Ret.)	The Committee has **DECIDED** to co-opt Shri Arvind Mandke In his Personal Capacity.
3.	**Principal Member**	**Name:** Shri Nitin Vaze **Contact:** +91 9822034435 **e-Mail:** sleekboards@gmail.com	The Committee noted that leek Boards Marketing Services LLP,

		Designation: Managing Director **Organization:** Sleek Boards Marketing Services LLP, Pune	Pune is already a member of Working Group and the Committee decided for no change.

The Committee also desired to have a presentation from Centre for Safety Engineering (CSE) of IIT Gandhinagar in view of their interest and abilities on testing and research relating to passive fires and fires in electric vehicles.

Item 3 DRAFT STANDARDS FOR FINALIZATION

3.1 Draft Indian Standard on Fire Safety in Commercial Kitchen — Guidelines, Doc No. CED36(15755)WC

3.1.1 The Committee has considered the updated draft as given at Annex 3 of the Agenda and **DECIDED** for the following changes:

- In clause **7.4** the term 'Fire Segregated' is to be used instead of 'Fire Separation' because Fire Separation is a distance.
- In clause **7.4.2** the fire rating of elements is given as at least one hour while the fire rating of fire door is given as 120 min, but both the fire ratings should be same. Thus, the Committee **DECIDED** for the fire resistance rating of 120 min.
- The NOTE below clause **7.4.2** be updated as follows:

  'NOTE — If the kitchen area is protected by an approved fire suppression system, fire door as stated above can be reduced to half an hour.'

With the above changes the Committee **FINALIZED** the draft. The Committee authorised BIS to process the draft for publication/ printing.

3.2 Draft Indian Standard on Perimeter Fire Barrier Joint System — Method of Test, Doc No. CED36(15775)WC

3.2.1 The Wide Circulation Draft of the new standard titled as above was wide circulated vide BIS letter no CED 36/T-55 dated 14 December 2021 to elicit public comments until 15 February 2022. The Comments were considered in the last meeting of the Committee and the Committee had Finalized the draft for publication. But the following comments have also been received on the draft from Shri Uday V Shetty, Director, Siderise India Pvt. Ltd and the Committee has decided as given in the following table:

Clause/ Para/ Table/ Figure No. Commented	Name of Commentator	Comments/ Modified Wordings	Justification of the Proposed Change	Decisions (of 29th meeting)	Siderise comments (08/08/2022)	Decision
7.3.9.1	Siderise	The exterior wall assembly shall include two layers of nominal 16 mm thick fire-resistant rated gypsum wallboard covering an area extending downward from a horizontal line at the elevation of the window lintel to the bottom of the exterior wall assembly minus the window opening and the transoms and mullions around and within the window opening	Unclear from the initial statement if the transoms and mullions which are weak points of the curtain wall can be covered or not.	The Group mentioned that it will be decided by the manufacturer and the laboratory where it is being tested so, there is no need to mention it here.	The test standard should be prescriptive on the testing arrangement and should not leave variables up to the judgement of the test laboratory or the manufacturer to ensure uniformity in testing arrangement and results. This would add clarity to all manufacturers to adapt to the standard. The test standard should indicate the worst possible scenario to ensure it encapsulates all possible situations.	The Committee deliberated that the testing should ideally recreate the actual site condition. If transom and mullions are protected at actual site, then the same thing can be replicated in the testing that's why it was decided to leave it to laboratory because the test conditions may differ case to case. Therefore, the Committee **DID NOT AGREE** for suggested change.
Fig. 12	Siderise	This is the ASTM E119 time temperature curve referenced within ASTM E2307 and not the ISO 834-1. Replace with ISO 834 time temperature curve.	The ISO 834 curve is more stringent or onerous compared to the ASTM E119 curve past the 45-minute mark	The significant assistance was taken from ASTM 2307 while the formulation of the draft thus, the Group decided to align it with ASTM 2307	Over the course of the test duration the IS/ISO 834-1 is more stringent when compared to the ASTM E119 time temperature curve. Also within the test standard there is multiple references to IS/ISO 834-1 and this time temperature curve should not be modified to the ASTM E2307 curve in order for these references to be present to the parent standard of IS/ISO 834-1. Incorporating the IS/ISO 834-1 time temperature curve for test laboratories is not difficult.	As BIS has already adopted the ISO 834-1 standard therefore, the Committee decided to include the time-temperature curve of ISO 834-1.
12.11.2	Siderise	As this is an open chamber test how can pressure be established?	As this is an open chamber test how can pressure be established?	Shri Aravind Chakravarthy mentioned that the opening is small, so the pressure of 2.5 Pa is attainable. He also mentioned that there are certificates also that support this.	Test laboratories need to be instructed on how the pressure can be controlled and limited. Leaving this up to the judgement of the laboratories will not have uniformity in the testing procedures of laboratories and will affect the end result. Siderise have certificates to support the difficulty in attaining the mentioned pressure owing to the open chamber arrangement of the test.	As the reference was taken from ASTM E2307 and this standard mentions about the pressure of 2.5 Pa. Shri Aravind Chakravarthy has also shown some test certificates for ASTM E2307. Therefore, the Committee **DID NOT AGREE** for suggested change.

Clause/ Para/ Table/ Figure No. Commented	Name of Commentator	Comments/ Modified Wordings	Justification of the Proposed Change	Decisions (of 29th meeting)	Siderise comments (08/08/2022)	Decision
14.5	Siderise	Remove section	This is from UL 2079 and is a system test for linear joints and is out of place within the test standard. Not applicable for perimeter barrier. Additionally, UL 2079 is not referenced within the test standard	Shri Aravind Chakravarthy mentioned that smoke rating of the perimeter fire barrier joint system is also important. So, for the evaluation of the performance of the system Air Leakage Test is important. So, the Group did not agree. The Group also decided to delete 'Optional' Word from the heading.	UL 2079 air leakage test is not tested in a perimeter barrier scenario. The L rating stands for air leakage (not smoke) test is conducted at 400 °F only and is not conducted along with the fire test. It is a separate test. Clarify the suitability and acceptability of the test. There is no test standard present globally which analyses smoke leakage during the course of the fire resistance test.	Shri Aravind Chakravarthy has shown the test certificates which also give the L-rating as per Air Leakage Test as per UL 2307. He also mentioned that this is the only test which indirectly evaluates the smoke movement through the joints. Therefore, the Committee **DID NOT AGREE**.

The Committee also considered the inputs provided by Siderise India Pvt. Ltd. The Committee reiterated that the draft standard is comprehensive, and the Committee **FINALIZED** the draft. The Committee authorised BIS to process the draft for publication/ printing.

3.3 Draft Amendment to IS 3614: 2021 'Fire Doors and Doorsets — Specification' DOC: CED36(20245)WC

3.3.1 The Committee considered the comments received on the Wide Circulation draft of Amendment to IS 3614: 2021 and recommendations of the Working Group on the comments. The Committee **AGREED** to all the recommendations of the Working Group as given in Annex 4 of the Agenda and **FINALIZED** the same. BIS was authorised to process the same for publication/ printing.

While the members of the Committee suggested to change the minimum insulation rating to 20 min instead of 30 min, it is informed that the minimum insulation of 30 min was considered from the very first Working Draft of the revision of IS 3614. This was also discussed in the following meetings under CED 36:

- In the 23rd meeting of CED 36 held on 28th of December 2018, the requirement of Insulation was decided to be 30 minutes instead of 20 minutes.
- In the 24th meeting of CED 36 held on 18th of March 2019, various comments on WC draft were received to change the minimum insulation rating to 20 minutes from 30 minutes. The Committee had then deliberated in detail, and it was decided that the minimum period of insulation for all types of fire rated doors shall be 30 minutes (instead of 20 minutes) except for glass doors.
- In the 26th meeting of CED 36 held on 4th of December 2020, while discussing the comments on the draft revision of IS 8757, it was again reiterated that the minimum insulation rating for fire door shall be 30 minutes.

Few members raised query regarding any international publication which supports the minimum 30 minutes of insulation criteria. It is informed that NFPA 80 'Standard for Fire Doors and Other Opening Protectives' mentions about the minimum insulation rating of 30 minutes. The relevant clauses of NFPA 80 are as follows:

> **3.3.128 Temperature Rise.**
>
> The temperature increase above ambient that has developed on the unexposed face of the fire door assembly at the end of 30 minutes of exposure to the standard fire test.

Table 4.2.2 Marking Fire-Rated Glazing Assemblies

Fire Test Standard	Marking	Definition of Marking
ASTM E119 or UL 263	W	Meets wall assembly criteria
NFPA 257 or UL 9	OH	Meets fire window assembly criteria, including the hose stream test
NFPA 252, UL 10B, or UL 10C	D	Meets fire door assembly criteria
	H	Meets fire door assembly hose stream test
	T	Meets 450°F (232°C) temperature rise criteria for 30 minutes
	XXX	The time, in minutes, of fire resistance or fire protection rating of the glazing assembly

[***101***:Table 8.3.3.6.3]

16.2.2.3

Where the AHJ determines that a vertical access door is located in proximity to combustibles so that in a fire condition the door is likely to transmit heat to ignite the combustibles, the temperature rise on the unexposed face of the door shall not exceed 250°F (139°C) at the end of a 30-minute exposure to the standard fire test as described in NFPA 252, UL 10B, *Fire Tests of Door Assemblies*, or UL 10C, *Positive Pressure Fire Tests of Door Assemblies*.

D.6

Labels attached to each door provide evidence that the size of the door and the exposed glass area are permitted under this standard. In addition, where the temperature rise is shown, it indicates the temperature increase above ambient that has developed on the unexposed face of the door at the end of 30 minutes of exposure to the standard fire test. If the temperature rise is not indicated, the rise for the door is in excess of 650°F (343°C). The temperature rise through the glazing material used for glass lights is not measured.

D.7

Where fire doors are used in stairway enclosures, such doors should be constructed so that the maximum transmitted temperature end point should not exceed 450°F (232°C) above ambient at the end of 30 minutes of the standard fire exposure test.

As may be noted that the minimum 30 minutes of insulation rating was considered time and again by CED 36 from the very beginning of the revision of IS 3614; and BIS has also granted All India First Licence for IS 3614: 2021.

As regards the implementation of firedoors, particularly in NBC it was suggested to suitably incorporate in the revision of the Code, all three types of firedoors namely, Uninsulated, Partially Insulated, and Insulated firedoors along with suggestive areas/ applications in buildings.

Item 4 DRAFT STANDARDS CIRCULATED

4.1 Preliminary Draft Indian Standard on Fire Safety in Cable Runs — Code of Practice (first revision of 12459), CED 36(20349)P

4.1.1 The Committee considered the comments received from the following on the P-draft of IS 12459 which was issued as P-draft vide BIS DG Letter ref: CED 36/T-29 dated 23 August 2022 for eliciting comments until 22 September 2022:

Sl No.	Abbreviation	Commentator
1.	Hilti	Shri Aravind Chakraborty, Head (Codes & Standards), Hilti India Pvt Ltd, New Delhi
2.	OISD	Shri Harendra Kumar Yadav, Addl. Director (Process & Engg), Oil Industry Safety Directorate,
3.	EIL	Shri Samir Kumar Naskar, Chief General Manager, Head of Department, General Civil Department, Engineers India Limited, Gurugram
4.	CISF	Shri Odedra Rajendra R, Commandant/AIG Fire, Central Industrial Security Force, Ministry of Home Affairs, New Delhi

The Committee deliberated on the comments as given under Annex 6 of the Agenda and decided as per the following table:

Sl No.	Commentator	Clause/ Para/ Table/ Figure No. commented	Comments/ Modified Wordings	Justification of Proposed Change	Decision
1.	Hilti	**5.2**	'Tested' and 'Approved' Firestop system by a *trained installer*. The Firestop installations shall be documented clearly for future reference.	To provide clear emphasis on use of 'Tested' system by qualified installer for functioning of system for its intended use. Documentation helps in periodic inspections and maintenance activities. (Similar to documentation of Active fire protection systems)	The Committee deliberated that when we write 'trained installer' type word in the standard then proper qualification and certification criteria shall also be provided otherwise anyone can claim the 'trained installer' title and the improper installation of firestops can compromise the fire safety. So, such kind of vague terms should not be used in the standard. With the above discussion the Committee **DECIDED** that the manufacturer/ supplier itself should certify the 'trained installer'. The Committee also **DECIDED** that the installed firestops shall be properly documented for future reference.
2.	Hilti	**5.3**	'Tested' and 'Approved' Firestop system by a trained installer. The Firestop installations shall be documented clearly for future reference.	To provide clear emphasis on use of 'Tested' system by qualified installer for functioning of system for its intended use. Documentation helps in periodic inspections and maintenance activities. (Similar to documentation of Active fire protection systems)	As above.
3.	OISD	**6.3**	It is recommended that in all the high-rise buildings, all the	As these ducts are not properly ventilated.	Dr G C Misra explained that as the openings at the ceiling level are being

Sl No.	Commentator	Clause/ Para/ Table/ Figure No. commented	Comments/ Modified Wordings	Justification of Proposed Change	Decision
			electrical shafts shall be fitted with at least one smoke alarms and every 10 m to 30 m one smoke detector for early warning and evacuation.		sealed by firestops then the area between two ceilings will make one compartment for electrical shafts. So, the spacing of 10 m to 30 m cannot be provided due to ceiling height. He also explained that the smoke detector shall be provided for every electrical shaft compartment i.e., on every floor. Thus, the Committee **DID NOT AGREE** for spacing of 10 m to 30 m.
4.	OISD	**7.2**	The suppression system should be designed in such a way that the extinguishant is discharged to the column where fire is detected only selectively. The automatic fixed fire extinguishing installation employ any of the following extinguishing media, according to the operation requirements: b) Water mist c) Water mist additive d) Water mist sprinkler	Water to be removed, as water usage is not suitable for electric fire extinguishment	As in the Foreword of the draft it is mentioned that water mist is very effective for suppression of the plastic fires and CO_2 based system is not recommended because CO_2 is suffocating could hamper the firefighting operation during fire incident. The Committee discussed that if the electrical shaft is confined and sealed then the gaseous suppression systems may be used.
5.	OISD	**8.7**	Once in a year, an infrared thermography test shall be done on the electrical cable connections of the facility to identify hot/improper junctions which can lead to short circuit. Preventive actions shall be	Once in a year	As the thermography test provides data for any small damage to cables which is very critical for fire safety thus, the Committee **AGREED** to conduct the test once in a year.

Sl No.	Commentator	Clause/ Para/ Table/ Figure No. commented	Comments/ Modified Wordings	Justification of Proposed Change	Decision
			initiated as per the test report findings.		
6.	**EIL**	**3 Terminology**	The following terminology used in the code also needs to be defined • Heavy Industry	—	As the Ministry of Heavy Industries regularly defines the heavy industries the Committee **DID NOT AGREE**. Shri Deshmukh mentioned about the hydro power project in Himachal Pradesh where a very large cable gallery being used which may not be considered as heavy industry, so the clause needs to be elaborated properly and comprehensively (in power plants, tunnels, metros, etc). **Shri Deshmukh** kindly agreed to provide the updated draft clause **7.1**.
7.	**EIL**	**7.1** In addition to the fire detection and alarm system, an automatic fixed fire extinguishing installation shall also be provided for long cable runs as in case of heavy industries, electricity generating stations, etc.	In addition to the fire detection and alarm system, an automatic fixed fire extinguishing installation should also be provided for long cable runs as in case of heavy industries, electricity generating stations, etc.	Providing automatic fire extinguishing in the cable run should be an option only available to the industry and shall not be made mandatory	As discussed above the requested Shri Deshmukh to provide inputs.
8.	**EIL**	**7.2** The suppression system should be designed in such a way that the extinguishant is	**7.2** The suppression system should be designed in such a way that the extinguishant is discharged to the column where fire is	The word “column” in the statement to be defined for clarity. Cable runs on the trays on the Pipe Rack. Independent	Dr Misra mentioned that in some tunnels long cable runs are provided which are not very easily accessible so the suppression system should be automatic. And selective operation of

Sl No.	Commentator	Clause/ Para/ Table/ Figure No. commented	Comments/ Modified Wordings	Justification of Proposed Change	Decision
		discharged to the column where fire is detected only selectively. The automatic fixed fire extinguishing installation employ any of the following extinguishing media, according to the operation requirements: a) Water b) Water mist c) Water mist additive d) Water mist sprinkler NOTE — Thus, water mist can be with or without additive	detected only selectively. The automatic fixed fire extinguishing installation employ any of the following extinguishing media, according to the operation requirements: a) Water b) Water mist c) Water mist additive d) Water mist sprinkler NOTE — Thus, water mist can be with or without additive	supports can be protected using Hydrant system also. The methodology for the cable runs in the tunnels/ galleries should be different than that of Trays on the Pipe Rack/ independent supports. Also, in the sand filled trenches, providing sprinkler, mist system is not feasible. The use of water for the extinguishment of cable fires to be reviewed.	suppression system on a column is not practical. He also mentioned that we should define the terms (cable runs, long cable runs, tunnels etc) properly in the document for better clarity. **Shri Deshmukh** kindly agreed to provide the inputs.
9.	**EIL**	**8.2** Cable tunnels floor should have a slope leading to a sump for collecting seepage and other water including that used for firefighting and should be provided with sump pump	**8.2** Cable tunnels floor should have a slope leading to a sump for collecting seepage and other water including that used for firefighting and should be provided with sump pump or connected with a nearby drain for discharge of collected water. Also, cable trench entering the building should be above the plinth level of the building which will avoid any ingress from the trench into the building.	The CAPEX/ OPEX of additional pump can be avoided by connecting with a nearby storm water drain.	The Committee **AGREED** to suitably consider this in the definitions itself.

Sl No.	Commentator	Clause/ Para/ Table/ Figure No. commented	Comments/ Modified Wordings	Justification of Proposed Change	Decision
10.	**CISF**	Para No. 3.4 Cable Trench Tunnel/ Gallery	Term cable cellars may also be added.	—	The Committee **AGREED**.
11.	**CISF**	Para No- 5.1 **COMPARTMENTATION**	Automatic closing insulated fire rated door assembly as per IS 3614: 2021 may be included For Complete compartmentation	—	The Committee **AGREED**.
12.	**CISF**	*Para No- 7.2* **FIRE EXTINGUISHING SYSTEM**	Entire cable tray should be covered with water spray system and tunnel may be divided into zone; each zone is controlled by one deluge valve assembly connected to detection network. When fire occurs in a particular zone detection unit in that zone will actuate and operate deluge valves to open the spray system to avoid total flooding	—	As per the discussion in Sl No. 3, the Committee **DID NOT AGREE**.
13.	**CISF**	*Para No- 8.0* **MISCELLANEOUS**	Provision of Breathing Apparatus set at entry point for rescue purpose	—	The Committee discussed that Maintenance of the Breathing Apparatus set can be an issue and it may not work at the time of crisis so the BA set should be brought by the fire brigade at the time of fire incident. Thus, the Committee **DID NOT AGREE**.
14.	**CISF**	*Para No- 8.1* **MISCELLANEOUS**	Escape route to be marked properly with florescent paints so that it can be visible in darkness	—	The Committee **DID NOT AGREE**.

After the above deliberations the Committee **DECIDED** to issue the draft in Wide Circulation for a period of **one month**.

4.2 Preliminary Draft Indian Standard Code of Practice for Fire Safety of Industrial Buildings: General Storage and Ware Housing including Cold Storages (Second Revision of IS 3594), CED 36(16089)

4.2.1 The Committee considered the discussions of Working Group regarding Compartmentalization, Travel Distance, Height of the warehouse buildings, and the hazard classification in the revision. The Committee authorized the following Working Group to deliberate, update the draft and issue it in wide circulation for a period of **45 days** to elicit public comments:

- Shri Santosh Warick (Convener)
- Dr K C Wadhwa
- Shri Srikanth Yajjala
- Shri T. R. A. Krishnan

Item 5 DRAFT STANDARDS FORMULATED

5.1 Working Draft of Fire Protection — Safety Signs (first revision of IS 12349) (Amalgamating IS 12407), CED 36(0238)WD

5.1.1 The Committee considered the updated draft provided by the Working Group and **DECIDED** to issue the same as Preliminary Draft (P-draft) for a period of **three weeks**.

Item 6 INTERNATIONAL STANDARDIZATION

6.1 The Committee noted that India is currently 'O' member in the following ISO Technical Committee ISO/TC 92 'Fire safety' and its subcommittees:

- ISO/TC 92/SC 1 'Fire initiation and growth'
- ISO/TC 92/SC 2 'Fire containment'
- ISO/TC 92/SC 3 'Fire threat to people and environment'

As Fire Safety is an important subject and with growing interest including the volunteers the Committee decided to opt for 'P' membership (Participation) for ISO/TC 92 and the following Subcommittees under ISO/TC 92:

- ISO/TC 92/SC 1 'Fire initiation and growth Subcommittee'
- ISO/TC 92/SC 2 'Fire containment Subcommittee'
- ISO/TC 92/SC 3 'Fire threat to people and environment Subcommittee'
- ISO/TC 92/SC 4 'Fire safety engineering Subcommittee'

6.2 Adoption of ISO 11925-2: 2020 'Reaction to fire tests — Ignitability of products subjected to direct impingement of flame — Part 2: Single-flame source test' & ISO 1716: 2018 'Reaction to fire tests for products — Determination of the gross heat of combustion (calorific value)'

6.2.1 The Committee considered the above ISO standards. The Committee had considered the ISO 1716 in the previous meeting and sought the information regarding the testing facilities in the country for above ISO standards. In the last meeting BIS had informed the availability of testing facilities in India for ISO 1716.

It was also informed that the currently the test method referred in IS 17682: 2021 'Aluminium Composite Panel — Specification' for calorific value uses *Crucible Method* while the industry uses *Cigarette Method* which is given in ISO 1716: 2018. After deliberations the Committee has **DECIDED** to adopt the above ISO standards for quick implementation of IS 17682: 2021. The Committee **DECIDED** to issue the same in Wide Circulation for a period of **one month** to elicit public comments.

6.3 Adoption of ISO 9239-1: 2010 'Reaction to fire tests for floorings — Part 1: Determination of the burning behaviour using a radiant heat source'

6.3.1 The above standard was circulated to the expert group for ISO related matters. In the last meeting the Committee had considered the suggestion of Prof Vishal Kumar for inclusion of based flooring as the same is considered in the CPWD manual. The Committee again requested the following expert Group to deliberate for suitable inclusion of the same:

- Prof Vishal Kumar, IIT Roorkee
- Dr G C Mishra, IFE
- Shri Aravind Chakravarthy V, Hilti India Pvt Ltd
- Shri Sandeep Goel, Proion Consultants
- Shri T. R. A. Krishnan, In Personal Capacity

6.4 Adoption of ISO 21927-2: 2018 'Smoke and heat control systems — Part 2: Specifications for natural smoke and heat exhaust ventilators' and ISO 21927-3:2021 'Smoke and heat control systems — Part 3: Specifications for powered smoke and heat exhaust ventilators'

6.4.1 The above ISO standards were shared with Shri TRA Krishnan vide email dated 14 July 2022. Shri Krishnan suggested that inputs from other expert members are also required to consider the standards for adoption therefore, the Committee requested the following expert Group to deliberate on the above ISO standards:

- Prof Vishal Kumar, IIT Roorkee
- Dr G C Mishra, IFE
- Shri Aravind Chakravarthy V, Hilti India Pvt Ltd
- Shri Sandeep Goel, Proion Consultants
- Shri T. R. A. Krishnan, In Personal Capacity

Item 7 ISSUES ARRISING OUT OF LAST MEETING

Item 8 NEW WORK ITEM PROPOSAL

Item 9 PROGRAMME OF WORK

The Committee has decided to discuss the Items 7 to 9 in next meeting.

10 ANY OTHER BUSINESS

10.1 There being no other business the meeting ended with heartly thanks to each other.

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