

CED 39
Earthquake Engineering Sectional Committee

59th Meeting
MINUTES

25 October 2024
10:00 am to 01:00 pm
Hybrid



Bureau of Indian Standards
9 Bahadur Shah Zafar Marg
New Delhi

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CED 39 Earthquake Engineering Sectional Committee

59th Meeting

25 October 2024 during 10:00-01:00 in Hybrid Mode

Minutes

The following were present at the meeting:

S.No.	Affiliation	Person
Chairperson		
1	Indian Institute of Technology Madras, Chennai	C. V. R. Murty
Member-Secretary		
2	Bureau of Indian Standards, New Delhi	Jitendra Kumar Chaudhary
Members		
(a) Academia		
3	Indian Institute of Technology Bhubaneswar	Suresh Ranjan Dash
4	Indian Institute of Technology Bombay	Ravi Sinha, Manish Kumar (C, WG)
5	Indian Institute of Technology Delhi	Vasant Matsagar
6	Indian Institute of Technology Madras	Rupen Goswami
7	Indian Institute of Technology Roorkee	B. K. Maheswari
8	Malaviya National Institute of Technology, Jaipur	S. D. Bharti
9	National Institute of Technology Goa	Harikumar M.
10	IIIT, Hyderabad	Sunitha Palissery
(b) Practitioners		
11	<i>In Personal Capacity</i>	L. K. Jain
12	<i>In Personal Capacity</i>	A. K. Mittal
13	<i>In Personal Capacity</i>	Indrajit Chowdhury
14	<i>In Personal Capacity</i>	S. K. Thakkar
15	Atomic Energy Regulatory Board, Mumbai	Anis M. V.
16	B&S Engineering Consultants PL, New Delhi	Alok Bhowmick
17	Central Water Commission, New Delhi	S. K. Sharma
18	CSIR Central Building Research Institute, Roorkee	R. Pradeep Kumar, A.Chourasia (C,WG)
19	CSIR National Geophysical Research Institute, Hyd.	Prantik Mandal
20	CSIR Structural Engineering Research Institute, Chennai	R. Sreekala
21	DDF Consultants, New Delhi	Pratima Rani Bose
22	Engineers India Limited, Gurugram	G. G. Srinivas Achary
23	Geological Survey of India, Kolkata	Snehasis Bhattacharya
24	Indian Concrete Institute, Chennai	Debashish Bandopadhyay
25	Indian Association of Structural Engineers, New Delhi	Manoj Mittal
26	Military Engineer Services, New Delhi	Brigadier Harish Kumar
28	National Centre for Seismology, New Delhi	Himangshu S. Mondal
29	National Thermal Power Corporation Limited, Delhi	Praveen Khandelwal
30	National Disaster Management Authority, New Delhi	Ranu Chauhan, Vijay Lokesh
31	Nuclear Power Corporation of India Limited, Mumbai	Rajiv Ranjan
32	Research Design and Standards Organization, Lucknow	Sandeep Agarwal
33	R. S. Mandrekar Associates, Mumbai	Jaswant N. Arlekar
34	Tandon Consultants Private Limited, New Delhi	Mahesh Tandon
35	Tata Consulting Engineers Limited, Mumbai	C. R. Arjun
36	VMS Consultants Private Limited, Mumbai	Alpa R. Sheth
(c) Manufacturers		
	None	-
Invitees		
38	National Dam Safety Authority, New Delhi	Amitabh Meena
39	Bureau of Indian Standards, New Delhi	Dwaipayan Bhadra

59.0 OPENING REMARKS

59.01 Member-Secretary

On behalf of BIS, the *Member-Secretary* welcomed the *Chairperson* and *Members* to the 59th Meeting of CED 39. He informed about the background of agenda of the meeting and requested the members for their kind involvement and active participation in the discussions of the meeting. Also, he requested the *Conveners* of the various *Working Groups* under CED 39 to accord higher priority to the work of development of *earthquake safety standards*.

Shri Dwaipayan Bhadra, Head, Civil Engineering Department, Bureau of Indian Standards, who attended the meeting, welcomed the *Chairperson* and *Members* of the Committee. He acknowledged the active work done and actions taken by the CED 39 in the revision of earthquake design standards and requested to keep the same pace in the development of standards in future also. Further, he informed that holding the Sectional Committee meetings along with *Seminar* or *Workshop* at one of the *BIS MoU Partner Academic Institutes*. This will help in building good interaction with the professionals as well as in the wide dissemination of information on the *major modifications* made in the existing standards under revision and on the *key clauses* in the new standards under formulation.

59.02 Chairperson

The *Chairperson* welcomed *Members* and *Invitees* to the 59th Meeting of the CED 39. He welcomed specifically the *Head (Civil Engineering Department, Bureau of Indian Standards)* to the meeting and requested for his continued guidance on the development of standards under the Committee. Then, he gave an overview of the *Agenda Items* of the meeting, and requested *Members* to share their valuable inputs on the agenda items of the meeting. Also, he requested the members participate actively and contribute to the discussions during the meeting. Further, he requested all *working groups* to prepare commentaries and presenting the drafts of the same at the ensuing meetings of CED 39. He highlighted the status of development of IS 1893 series and requested the *Working Groups* to complete the outstanding parts of IS 1893, namely *Parts 4 on Bridges* and *Part 6 on Base Isolated Buildings*.

With these introductory remarks, he requested the *Member-Secretary* to take up the *Agenda Items* for discussion.

The *Earthquake Engineering Sectional Committee (CED 39)* discussed the *Agenda Items* and took the following decisions:

59.1 MINUTES OF PREVIOUS MEETING

59.11 Confirmation of Minutes of the 58th Meeting

Since no comment was received, the Committee confirmed the *Minutes* of the 58th Meeting as circulated on 19 September 2024.

59.2 NEW STANDARDS
<i>None</i>
59.3 REVISION
59.31 Working Draft of IS 1893 (Part 5) IS 1893 Design Earthquake Hazard and Criteria for Earthquake Resistant Design of Structures Part 5: Industrial Structures
<p>The Committee considered the updated Working Draft of <i>IS 1893 Design Earthquake Hazard and Criteria for Earthquake Resistant Design of Structures Part 5 Industrial Structures</i> based on the comments made by the Committee during the last meeting. The recommendations on the comments and changes made in the draft were presented by Shri C. R. Arjun (Member, WG). After due discussions during the meeting, the Committee decided the following:</p> <ol style="list-style-type: none"> (1) Equivalent Static Method shall be used with revised flexure-based coefficients considering shear deformation aspects, in chimneys and cooling towers of elevation aspect ratio of 5 and less. Hence, the coefficients derived for dynamic analysis are not be applicable. (2) The following categorization shall be adopted in <i>IS 1893 (Part 1)</i> and all parts of the <i>IS 1893</i> series of standards: <ol style="list-style-type: none"> (a) Category 1: Normal Structures, (b) Category 2: Important Structures, (c) Category 3: Critical Structures, and (d) Category 4: Special Structures. (3) The load combinations involving effects of earthquake shaking shall be stated as <i>severe</i> load combinations (including those with overstrength factor) and not as <i>basic</i> load combinations. Also, it shall be clarified as to under which conditions or to which structural elements the load combination with overstrength factor need to be applied. This shall be reflected in <i>IS 1893 (Part 1)</i> and all parts of the <i>IS 1893</i> series of standards. Decisions (2) and (3) above shall be incorporated in the <i>IS 1893 (Part 1)</i>, <i>IS 1893 (Part 2)</i>, <i>IS 13920 (Part 1)</i> and <i>IS 13920 (Part 2)</i>, which are under publication. <p>Based on the above, the Committee decided to release the updated draft (with the above suggestions incorporated) of <i>IS 1893 Design Earthquake Hazard and Criteria for Earthquake Resistant Design of Structures Part 5 Industrial Structures</i> in wide circulation for a period of 45 days for public comments.</p>
59.3 REVISION
59.32 Working Draft of IS 1893 (Part 8) IS 1893 Design Earthquake Hazard and Criteria for Earthquake Resistant Design of Structures Part 8: Dams (Section 1: Concrete and Masonry Dams)
<p>The Committee considered the updated working draft on <i>IS 1893 Design Earthquake Hazard and Criteria for Earthquake Resistant Design of Structures Part 8: Dams Section 1: Concrete and Masonry dams</i> with the modifications made and as presented by S. D. Bharti (Convener, WG).</p>

On the comments received from the CWC, it decided that the administrative matters shall be dealt with by the BIS and the *National Dam Safety Authority (NDSA)*, and only technical matters discussed during the meeting of CED39. Also, it was recalled that IS 1893:1984 is still governing, which provides specification for the design of dams. And, now CED39 is revising the same and harmonizing with IS 1893 (Part 1). Hence, the Committee requested NDSA to provide technical comments during the meetings.

Since no substantive comment was received on the draft, the Committee decided to release the updated draft (with the above suggestions incorporated) of *IS 1893 Design Earthquake Hazard and Criteria for Earthquake Resistant Design of Structures Part 8 Dams (Section 1: Concrete and Masonry Dams)* in wide circulation for a period of 60 days for public comments.

59.4 R&D PROJECTS

59.41 | None

59.5 COMMENTS AND SUGGESTIONS

59.51 | The Committee considered the comment received on *IS 15988:2013 Seismic Evaluation and Strengthening of Existing Reinforced Concrete Buildings – Guidelines* and decided to issue an amendment to clarify ‘ τ_c ’ in place of ‘ T_c ’ for direct publication as the matter is urgent and non-controversial.

59.6 PROGRESS OF WORKING GROUPS

No reports were provided by WGs.

59.7 WORK PROGRAMME

59.71 | **Review of Work Program
 – List of Existing Standards and those under Publication**

The Committee noted the details of *Work Program* indicating the status of published standards and those under publication as referred to under the *Agenda Item* and given at **Annexure 59.05** of the Agenda Papers of this meeting.

Also, BIS informed the Committee about the publication of *IS 4991 : 2024 Criteria for Blast Resistant Design of Structures Part 1 Above-Ground Explosions (first revision)* and thanked to *Convener* (Manish Kumar, IITB) and all *Members* of the Working Group for their contribution and to complete this huge task of revision.

59.72 | **International Standardization**

The Committee noted the details regarding international standardization as given in agenda of the meeting. The Committee requested Member of the WG (Vasant Matsagar, IITB) to present a report before the next meeting on the last meeting of ISO/TC98 and the developments underway at the *Technical Committee*.

59.8 COMMITTEE MATTERS	
59.81	Review of Existing Technical Committee & Request for New Membership
<p>The Committee noted the <i>Guidelines for participation</i> in the Technical Committee Work of BIS as given at Annexure 59.06 of the agenda. The Committee noted the composition of CED 39 as given in Annexure 59.07 to the <i>Agenda Papers</i>.</p> <p>The Committee decided to admit as <i>invitees</i> both <i>Ritwik Nandi</i> (Terre Armee India, New Delhi) and <i>R. Senthilkumar</i> (National Institute of Technology, Tiruchirapalli) to the meetings of the Working Groups on <i>Earthquake Geotechnical Engineering</i>. The Convener of the WG may consider co-opting them into the WG based on their interest and engagement in the standardization work.</p>	
59.82	Review of Existing Panels
<p>The Committee noted the composition of existing R&D <i>Panel</i> under CED 39 (given in <i>Annexure 59.09</i> of the <i>Agenda Papers</i> of this meeting). Also, the Committee requested any member who would like to participate and contribute in the Panel can send their nomination to BIS for consideration.</p>	
59.83	Review of Existing Working Groups
<p>The Committee noted the revised composition of <i>Working Groups</i> under CED 39 given in Annexure 59.10 of the <i>Agenda Papers</i> of this meeting in line with the process reforms of BIS made under standardization. The Working will be restructured in keeping with the guidance given by DG, BIS, that <i>non-contributing</i> Members can be replaced by newer members.</p> <p>It was suggested during the meeting to review to composition so that the work can be divided judiciously, and the other Members of the Committee also be engaged in the Working Groups. The Committee noted the same.</p>	
59.9 CLOSING COMMENTS	
59.91	Any Other Item from Members
<p>The Committee decided to write a letter to IRC and RDSO for inviting them to for discussion on <i>bridges</i> and <i>retaining walls</i> towards development of a unified code on earthquake resistant design of <i>bridges</i> and <i>retaining walls</i>.</p>	
59.92	Member- Secretary
<p>The <i>Member-Secretary</i> thanked all <i>Members</i>, <i>Invitees</i> and <i>Chairperson</i> for giving their valuable time to national standardization activity and participating actively in the discussions during the meeting. He requested <i>Conveners</i> of <i>Working Groups</i> to send the updated drafts of various standards as well as draft <i>Table of Contents</i> of the new standards so that the same can be moved to advanced stages of the <i>Standards Formulation</i> process.</p>	

59.93 Chairperson

The Chairperson thanked all *Members* for maintaining high interest in the standardization work and sharing their valuable inputs on the Agenda Items presented during the meeting. In view of the urgency of harmonization underway of earthquake engineering standards in line with the revised earthquake hazard, he reiterated the request to:

- (1) *Conveners of Working Groups* that have started their work to consider the inputs of the Committee and complete the drafting of clauses of standards, thereafter prepare the commentary, and present the same for discussion at the ensuing meetings of CED39; and
- (2) *Working Groups* of IS13920 and IS13935 series to begin presenting the draft *Table of Contents* with the initial working drafts of the documents prepared by them.

He informed that the next meeting of CED 39 will be held in the last week of November 2024.

The meeting ended with *thanks* to all attendees.

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