ISO/TC 71 "Concrete, reinforced concrete and pre-stressed concrete"
Secretariat: **JISC**
Committee manager: **Yokota Hiroshi Dr**

Meeting document - 29th TC 71 Plenary meeting - Report of subcommittees, working groups and ad-hoc group

Document type	Related content	Document date	Expected action
Meeting / Presentation	Meeting: Bangkok (Thailand) 22 Nov 2024	2024-11-27	**INFO**

Description

This document relates to Agenda 9 of the 29th TC 71 Plenary meeting.

Report from Subcommittees and Working groups

Status of work, consideration of revised work plans, proposed new work items and sub-committee resolutions

ISO/TC 71/SC 1

Test methods for concrete

ISO/TC 71/SC 1 - Test Methods for Concrete

Secretariat: The Standards Institution of Israel (SII)
Chairperson: Yossi Sikuler (Israel)
Committee Manager: Nir Shamir (Israel)

TC 71 29th Meeting
November 22nd, 2024
Hybrid:
Bangkok, Thailand
Zoom Host: SII

ISO TC 71/SC 1
Test Methods for Concrete
MEMBERSHIP STATUS:

Participating countries (17)

1. Australia (SA)
2. Brazil (ABNT)
3. China (SAC)
4. France (AFNOR)
5. Germany (DIN)
6. India (BIS)
7. Indonesia (BSN)
8. Iran (INSO)
9. Israel (SII)
10. Japan (JISC)
11. Korea, Republic of (KATS)
12. Norway (SN)
13. Russian Federation (GOST-R)
14. Sri Lanka (SLSI)
15. Sudan (SSMO)
16. Switzerland (SNV)
17. United Kingdom (BSI)

One P member added, Sudan

Observing countries (32)

1. Belarus (BELST)
2. Belgium (NBN)
3. Bulgaria (BDS)
4. Chile (INN)
5. Colombia (ICONTEC)
6. Czech Republic (UNMZ)
7. Egypt (EOS)
8. Finland (SFS)
9. Greece (NQIS ELOT)
10. Guatemala (COGUANOR)
11. Hong Kong (ITHKSAR)
12. Hungary (MSZT)
13. Iceland (IST)
14. Italy (UNI)
15. Kazakhstan (KAZMEST)
16. Mexico (DGN)
17. Mongolia (MASM)
18. Netherlands (NEN)
19. New Zealand (SNZ)
20. Pakistan (PSQCA)
21. Palestine (PSI)
22. Philippines (BPS)
23. Poland (PKN)
24. Romania (ASRO)
25. Serbia (ISS)
26. Singapore (SSG)
27. Slovakia (UNMS-SR)
28. South Africa (SABS)
29. Spain (AENOR)
30. Turkey (TSE)
31. Ukraine (DSTU)
32. Uruguay (UNIT)

One O member removed, Sudan

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Status of work and consideration of revised work plan

ISO TC 71/SC 1
Test Methods for Concrete

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General

- The committee works in full coordination to achieve best synergy in the preparation of both testing (SC 1) and requirements standards (SC 3).
- There is useful activity of the WG conveners.
- There is a strong activity for aggregate test methods.
- Two new proposal for Sprayed Concrete test method are under development.
- The test methods may be classified by:
  - Fresh concrete tests
  - Hardened concrete tests
  - Hardened concrete performance tests (Chemical, Physical, Mechanical)
  - Special Concrete types tests (Pervious, Sprayed)
  - Aggregate tests (Chemical, Physical, Mechanical)

Projects under development :

- **ISO/CD 23945-2 - Test methods for sprayed concrete - Part 2: Sampling fresh and hardened concrete – Closed for comments on 10/10/2024**
- **ISO/CD 23945-3 - Test methods for sprayed concrete - Part 3: Measurement of compressive strength – closed for comments on 10/10/2024**
- **ISO/DIS 23945-1IS methods**

ISO TC 71/SC 1
Test Methods for Concrete

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ISO 1920 Series – Testing of concrete (14)

1920 series		Status	Observations
Part 1 v.3	**Sampling of fresh concrete**	Published 2004	**SR approved on: 2024-03-09**
Part 2 v.1	**Properties of fresh concrete (Regular concrete)**	Published 2016	**SR approved on: 2022-04-03**
Part 3 v.2	**Making and curing of test specimens**	Published 2019	**SR – Ballots open date on: 2024-10-15**
Part 4 v.2	**Strength of hardened concrete**	Published 2020	**Publication since 2020-01-07**
Part 5 v.2	**Properties of hardened concrete other than strength**	Published 2018	**SR approved on: 2023-10-28**
Part 6 v.2	**Sampling, preparing and testing of concrete cores**	Published 2019	**SR – Ballots open date on: 2024-10-15**
Part 7 v.3	**Non-destructive tests on hardened concrete**	Waiting for revision	**SR – Ballots open date on: 2024-10-15**
Part 8 v.2	**Determination of the drying shrinkage of concrete for samples prepared in the field or in the laboratory**	Published 2009	**SR – Ballots open date on: 2024-10-15**
Part 9 v.2	**Determination of creep of concrete cylinders in compression**	Published 2009	**SR – Ballots open date on: 2024-10-15**

ISO TC 71/SC 1
Test Methods for Concrete

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ISO 1920 Series – Testing of concrete (14) - continuation

ISO 1920 series		Status	Observations
Part 10 v.2	**Determination of static modulus of elasticity in compression**	Published 2010	**SR approved on: 2021-07-05**
Part 11 v.1	**Determination of the chloride resistance of concrete, unidirectional diffusion**	Published 2013	**SR approved on: 2024-01-16**
Part 12 v.1	**Determination of the potential carbonation resistance of concrete – accelerated carbonation method**	Published 2015	**SR approved on: 2020-10-06**
Part 13 v.1	**Properties of Self Compacting Concrete**	Published 2018	**SR approved on: 2023-10-28**
Part 14 v.1	**Setting time of concrete mixtures by resistance to penetration**	Published 2019	**SR – Ballots open date on: 2024-10-15**

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ISO 17785 Series - Pervious concrete testing methods (3)

ISO 17785 series		Status	Observations
Part 1 v.1	Infiltration rate	Published 2016	**SR approved on: 2021-11-18**
Part 2 v.1	Density and Void content	Published 2018	**SR approved on: 2023-09-03**
Part 3 CD	Resistance to surface degradation	Published 2023	**Published since: 2023-9-18**

ISO TC 71/SC 1
Test Methods for Concrete

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ISO 20290 Series –Aggregates for concrete-- Test methods for mechanical and physical properties (5)			
	Title	Status	Observations
Part 1	Part 1: Determination of bulk density, particle density, particle mass-per-volume and water absorption	Publication 2021	Published since: 2021-11-02
Part 2	Part 2: Method for determination of resistance to fragmentation by Los Angeles Test (LA-Test)	Published 2019	SR – Ballots open date on: 2024-10-15
Part 3	Part 3: Determination of aggregate crushing value (ACV)	Published 2019	SR – Ballots open date on: 2024-10-15
Part 4	Part 4: Determination of ten per cent fines value (TFV)	Published 2019	SR – Ballots open date on: 2024-10-15
Part 5	Part 5: Determination of particle size distribution by sieving method	Published 2023	Published on 2023-02-03

ISO TC 71/SC 1
Test Methods for Concrete

THE STANDARDS INSTITUTION OF ISRAEL

ISO 24684 Series –Aggregates for concrete-- Test methods for chemical properties (2)

	Title	Status	Observations
Part 1 CD	Part 1: Determination of acid soluble chloride salts	CD	Cancelled
Part 2 DIS	Part 2:Determination of soluble sulfate salts	Published 2023	Published since: 2023-01-10

ISO TC 71/SC 1
Test Methods for Concrete

THE STANDARDS INSTITUTION OF ISRAEL

ISO 24684 Series –Aggregates for concrete-- Test methods for chemical properties (2)

	Title	Status	Observations
Part 1 CD	Part 1: Determination of acid soluble chloride salts	CD	Cancelled
Part 2 DIS	Part 2:Determination of soluble sulfate salts	Published 2023	Published since: 2023-01-10

ISO TC 71/SC 1
Test Methods for Concrete

THE STANDARDS INSTITUTION OF ISRAEL

ISO 23945 Series – Test Methods for Sprayed Concrete (1)			
	Title	Status	Observations
Part 1	Part 1: Flash setting accelerating admixtures — Setting time	Published 2022	Published since: 2022-07-11
Part 2	Test methods for sprayed concrete — Part 2: Sampling fresh and hardened concrete	CD	CD Closed for Comments 2024-10-10
Part 3	Test methods for sprayed concrete — Part 3: Measurement of compressive strength	CD	CD Closed for Comments 2024-10-10

Resolutions of ISO/TC 71/SC 1

Virtual ZOOM Meeting November 13th, 2024

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Resolution 1, of ISO/TC 71/SC 1, November 13, 2024

ISO/TC 71/SC 1 decides to reinitiate ISO/CD 24684-1—Test Methods of Aggregates for Concrete Chemical properties – Part 1: Determination of acid soluble chloride salt.

- **The drafting of this standard will be handled by WG 4 Test methods for aggregates.**
- **The committee thanks Mr. Jan Karlsen for agreeing to continue to serve as project leader for this IS.**
- **NP Ballot for this IS will be repeated.**
- **As we reached this stage before, we recommend to restart this project at DIS stage.**
- **It was agreed that in places where there are references to Japanese standards or documents, they will be replaced by text from such documents.**

Unanimously accepted

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Resolution 2, of ISO/TC 71/SC 1, November 13, 2024

ISO/TC 71/SC 1 The committee appreciate Professor Zi-Ming Wang :activity on the following standards

- **ISO/CD 23945-2 - Test methods for sprayed concrete - Part 2: Sampling fresh and hardened concrete.**
- **ISO/CD 23945-3 - Test methods for sprayed concrete - Part 3: Measurement of compressive strength.**

Unanimously accepted

ISO TC 71/SC 1
Test Methods for Concrete

THE STANDARDS INSTITUTION OF ISRAEL

Resolution 3, of ISO/TC 71/SC 1, November 13, 2024

:ISO/TC 71/SC 1 decides to register as PWI

ISO 1920 Part 15 Air void content in hardened concrete

ISO 1920 Part 16 Capillary Absorption of Concrete

- **New WG 8 will be created for these two IS via CIB**
- **Project Leader will be Mr. P.N. Ojha (India)**
- **The following countries resolved to appoint experts for this WG:**
  China, Israel, India, Japan and one more country to be named later
  WG 8 resolves to meet within six months after being confirmed.

Unanimously accepted.

THE STANDARDS INSTITUTION OF ISRAEL

Resolution 4, of ISO/TC 71/SC 1, November 13, 2024

TC 71/SC 1 Approved that WG 7 will initiate two new standards for .sprayed concrete

ISO 23945-4 – Test methods for sprayed concrete-Part 4: flexural - .strength

ISO 23945-5 – Test methods for sprayed concrete-Part 5: - - Rebound Test

Unanimously accepted.

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Resolution 5, of ISO/TC 71/SC 1, November 13, 2024

TC 71/SC 1 Approved professor Noguchi presentation of his appreciated initiative for Non-Destructive test methods at the CAG meeting, for near future activity.

Unanimously accepted

THE STANDARDS INSTITUTION OF ISRAEL

Resolution 6, of ISO/TC 71/SC 1, November 13, 2024

TC 71/SC 1 The committee thanks professor Choi for his long service to SC 1. Upon his recommendation, the committee decides to disband .WG 3

Unanimously accepted

THE STANDARDS INSTITUTION OF ISRAEL

Resolution 7, of ISO/TC 71/SC 1, November 13, 2024

ISO/TC 71/SC 1 The committee decides that Yossi Sikuler continue as convenor for WG 4.

Unanimously accepted

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Resolution 8, of ISO/TC 71/SC 1, November 13, 2024

ISO/TC 71/SC 1 resolves to meet in 2025 in conjunction with ISO/TC 71 Plenary Meeting.

Unanimously accepted

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The skyline of Tel Aviv were the SII is located

THE STANDARDS INSTITUTION OF ISRAEL

Thank you

Chairperson: Yossi Sikuler

Yossi.sikuler@hanson.biz

Committee Manager: Nir Shamir

Nir_sh@sii.org.il

ISO/TC 71/SC 3

Concrete production and execution of concrete structures

Standards Norway

Report from ISO/TC 71/SC 3

ISO/TC 71meeting Bangkok

2024-11-22

Åsmund Tøsse

Organisation

Subcommittee ISO/TC 71/ SC 3	Chairman/ convenor	Secretary	Work items		Published documents
			PWI	Active	
Concrete production and execution of concrete structures	Jan Karlsen	Åsmund Tøsse			11
Working Groups ISO/TC 71/SC 3/WG x					
WG 1 Concrete Production and compliance criteria	Toshiki Ayano			3	
WG 3 Mixing water for concrete	Caijun Shi	Qiang Yuan		1	
WG 10 Recycled aggregates for concrete	Donguk Choi			1	
AHG 2 – Mass concrete with MgO as expansive agent	Wenwei Li	Sijia Zhang			
Total				5	11

Liaisons and observers

Organisation		Status	Represents
BIBM	European Federation for Precast Concrete	Liaison representative	Rimoldi, Alessio
BIBM	European Federation for Precast Concrete	Liaison representative	Dano, Eddy
CEMBUREAU	The European Cement Association	Liaison representative	Loréa, Claude
FIB	International Federation for Structural Concrete	Liaison representative	Tewes, Rüdiger

Published documents

Reference	Document title
ISO 22966:2009	Execution of concrete structures
ISO 22965-1:2007	Concrete — Part 1: Methods of specifying and guidance for the specifier
ISO 22965-2:2007	Concrete — Part 2: Specification of constituent materials, production of concrete and compliance of concrete
ISO 22904:2020	Additions for concrete
ISO 19596:2017	Admixtures for concrete
ISO 19595:2017	Natural aggregates for concrete
ISO 16204:2012	Durability — Service life design of concrete structures
ISO 14824-1:2012	Grout for prestressing tendons — Part 1: Basic requirements
ISO 14824-2:2012	Grout for prestressing tendons — Part 2: Grouting procedures
ISO 14824-3:2012	Grout for prestressing tendons — Part 3: Test methods
ISO 12439:2010	Mixing water for concrete

Active work items

ISO/TC 71/SC 3 has the following active work items:

Standard and/or project under the direct responsibility of ISO/TC 71/SC 3 Secretariat (5) ↑	Stage	ICS
ISO/DIS 12439 Mixing water for concrete	40.60	91.100.30
ISO/DIS 18985 Recycled aggregates for concrete	40.20	91.100.30
ISO/CD TS 21056 Recycled aggregate concrete — Additional provisions and guidance for specification, performance, and production	30.60	
ISO/DIS 22965-1 Concrete — Part 1: Methods of specifying and guidance for the specifier	40.20	91.100.30
ISO/DIS 22965-2 Concrete — Part 2: Specification of constituent materials, production of concrete and compliance of concrete	40.20	91.100.30

Members and participation

From ISO Directive 1:

1.7.4 A committee secretariat shall notify the Office of the CEO if a P-member of that committee has been persistently inactive or has failed to vote:

a) Persistently inactive criteria:

A P-Member is considered persistently inactive by failing to attend two successive committee meetings (in person, virtually or by correspondence) and failing to have any Expert(s) appointed to the technical work, or

b) Failing to vote criteria

Has failed to vote on any of the following document(s)

- Proposal stage ballot,
- Enquiry stage ballot,
- Approval stage ballot (for IS, TS, PAS, TR and in IEC SRD)

Members (P-members and participation)

Participating Members [22]

Country/Territory	Acronym
Australia	SA
Bangladesh	BSTI
Brazil	ABNT
China	SAC
France	AFNOR
Germany	DIN
India	BIS
Indonesia	BSN
Iran, Islamic Republic of	INSO
Israel	SII
Japan	JISC
Korea, Republic of	KATS
Monaco	AMNOR
Netherlands	NEN
Norway	SN
Russian Federation	GOST R
Saudi Arabia	SASO
Serbia	ISS
Sudan	SSMO
Switzerland	SNV
United Kingdom	BSI
Uruguay	UNIT

- Plenary 2024
- Plenary 2023
- WG1 experts
- WG3 experts
- WG10 experts

Members (P-members and participation

Participating Members [22]

Country/Territory	Acronym
Australia	SA
Bangladesh	BSTI
Brazil	ABNT
China	SAC
France	AFNOR
Germany	DIN
India	BIS
Indonesia	BSN
Iran, Islamic Republic of	INSO
Israel	SII
Japan	JISC
Korea, Republic of	KATS
Monaco	AMNOR
Netherlands	NEN
Norway	SN
Russian Federation	GOST R
Saudi Arabia	SASO
Serbia	ISS
Sudan	SSMO
Switzerland	SNV
United Kingdom	BSI
Uruguay	UNIT

Plenary 2024
Plenary 2023
WG1 experts
WG3 experts
WG10 experts

Members (O-member)

Observing Members [33]

Country/Territory ↑	Acronym
Algeria	IANOR
Bahrain	BTMD
Belarus	BELST
Belgium	NBN
Bulgaria	BDS
Chile	INN
Colombia	ICONTEC
Czech Republic	UNMZ
Dominica	DBOS
Egypt	EOS
Finland	SFS
Greece	NQIS ELOT
Guatemala	COGUANOR
Hungary	MSZT
Iceland	IST
Ireland	NSAI
Italy	UNI
Kazakhstan	CTRM
Kenya	KEBS
Malta	MCCAA
Mexico	DGN
Mongolia	MASM
New Zealand	NZSO
Pakistan	PSQCA
Poland	PKN
Portugal	IPQ
Romania	ASRO
Singapore	SSC
Slovakia	UNMS SR
South Africa	SABS
Spain	UNE
Tanzania, United Republic of	TBS
United Arab Emirates	MoIAT-STR

Documents with pending Systematic review

The following documents are on Systematic review in 2025:

- ISO 22966:2009 Execution of concrete structures
- ISO 22904:2020 Additions for concrete

SC 3 meeting

2024-11-20

Decisions since the last SC 3 meeting

Resolution 01/2024 - New AHG approved:

- **AHG 2 Mass concrete with MgO as the expansive agent (see N538 and N557)**
- **Only two P-members (SAC and JISC) nominated experts, since two more members (GOST and SN) has nominated**

Resolution 1/2024 taken by ISO/TC 71/SC 3 on 2024-xx-xx

Subject: NEW AHG MASS CONCRETE WITH MGO AS EXPANSIVE AGENT

ISO/TC 71/SC 3, considering:

- The proposal for a new standardization project from SAC on the meeting of ISO/TC 71/SC 3 on 2023-10-26 (see Nxxx)
- Resolution 7/2023

decides to establish a new AHG "Mass concrete with MgO as the expansive agent", to make as state-of-the-art report and draft a recommendation on the way forward on standardization on the topic. The AHG will report to ISO/TC 71/SC 3 on their recommendation.

The resolution was taken by 8 positive votes, 0 negative votes and 12 abstentions.

Decisions since the last SC 3 meeting

Resolution 2/2024: Re-appointment of ISO/TC 71/SC 3/WG 1 convenor Dr. Toshiki Ayano

ISO/TC 71/SC 3:

- Noting that the term of the convenorship for Dr. Ayano will end on 2024-12-31;
- Welcomes the willingness of Dr. Ayano to continue as WG 1 convenor;

Re-appoints Dr. Ayano as WG 1 convenor for a new term of three years.

The resolution was taken by 11 positive votes, 0 negative votes and 10 abstentions.

Decisions since the last SC 3 meeting

Draft Resolution 3/2024: Re-appointment of ISO/TC 71/SC 3/WG 3 convenor Dr. Caijun Shi

ISO/TC 71/SC 3:

- Noting that the term of the convenorship for Dr. Shi will end on 2024-12-31;
- Welcomes the willingness of Dr. Shi to continue as WG 3 convenor;

Re-appoints Dr. Shi as WG 3 convenor for a new term of three years.

The resolution was taken by 11 positive votes, 0 negative votes and 10 abstentions.

Resolutions

Resolution 04/2024	<u>Subject: Member activity</u> ISO/TC 71/SC 3, considering − the ISO Directives, Part 1 1.7.4; − noting that member bodies have not participated in the last two meetings (including 2024) and have no registered experts in the WGs o Australia, France, Germany, Netherlands, Saudi Arabia, Serbia, Sudan, United Kingdom and Uruguay Decides to − requests that ISO/CS review the participation of the mentioned Pmembers in ISO/TC 71/SC 3 with the view of reminding them on their obligation as P-members − encourage the members to actively participate in SC 3 and working group activities The decision was taken by unanimity.

Resolutions

Resolution 05/2024	**<u>Subject: Submission of ISO 12439 to publication stage</u>** ISO/TC 71/SC 3, considering − the presentation provided in the meeting by WG 3 Secretary Yuan Qiang − the proposed solution to comments received in DIS ballot − noting no technical changes being made decides − to submit the draft ISO 12439 (N542) to publication stage, taking into account the editorial changes after the DIS draft The decision was taken unanimity.

Resolutions

Resolution 06/2024	**<u>Subject: ISO/TS 21056 Recycled aggregate concrete</u>** ISO/TC 71/SC 3, considering − The draft ISO/TS 21056 Recycled aggregate concrete (N570) − The close relationship between ISO/TS 21056 and the related documents ISO 22965-1 and -2, ISO 22966 and ISO 18985 − The comments received in the meeting and expected comments to related document ISO 18985 − The technical comments received in the meeting decides to − request that the TS is sent back to be revised by the working body − change the title to include execution – new title being “Recycled Aggregate Concrete -Additional provisions and guidance for specification, performance, production and execution” − request that publication of the TS is aligned with the related documents ISO 18985 The decision was taken by unanimity.

Resolutions

Resolution 07/2024	Subject: AHG 2 Mass concrete using MEA ISO/TC 71/SC 3, considering − the activity report from ISO/TC 71/SC 3/AHG 2 − the input from the ISO/TC 71/SC 3 meeting decides to − request that AHG 2 continues their work to prepare new standard proposals for mass concrete, and further discussions on how the structure and order of proposed documents should be India is encouraged to nominate experts to the AHG 2. The decision was taken by unanimity.

Standards Norway

Speaker:
Åsmund Tøsse

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Follow us on

ISO/TC 71/SC 4

Performance requirements for structural concrete

ISO/TC 71/SC 4

Performance requirements for structural concrete

Secretariat: GOST R

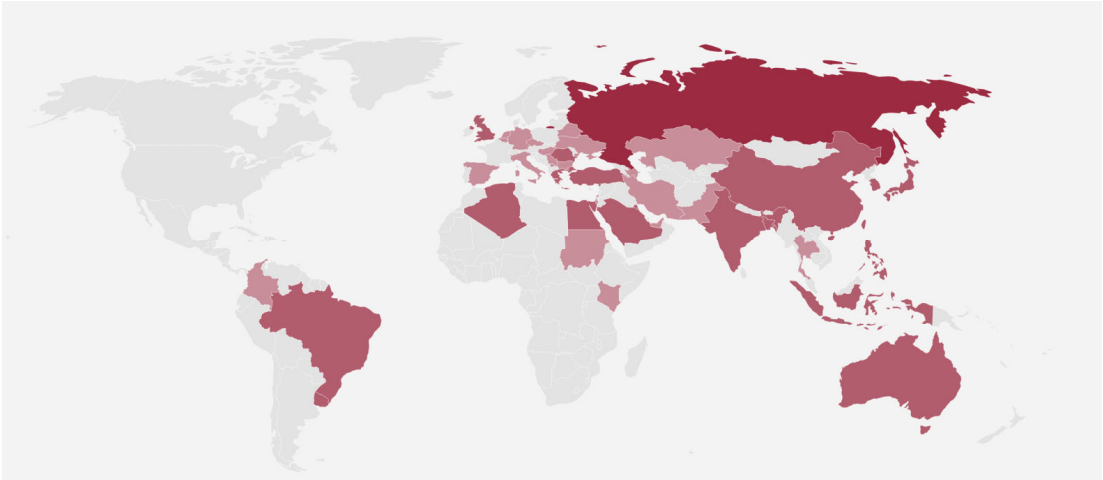
Committee manager: Mrs. Alexandra Chaltseva

Chairperson: Mr. Dmitry Kuzevanov

ISO/CS contact: Dr. Anna Caterina Rossi

ISO/TC 71/SC 4

Participating Members (19)		Observing Members (23)	
Algeria	IANOR	**Azerbaijan**	AZSTAND
Australia	SA	Bahrain	BSMD
Bangladesh	BSTI	Belarus	BELST
Brazil	ABNT	Belgium	NBN
China	SAC	Bulgaria	BDS
Egypt	EOS	Colombia	ICONTEC
Greece	NQIS ELOT	Czech Republic Germany	UNMZ
India	BIS	Germany	DIN
Indonesia	BSN	Hungary	MSZT
Japan	JISC	Iran, Islamic Republic of	INSO
Korea, Republic of	KATS	Israel	SII
Kuwait	KOWSMD	Italy	UNI
Philippines	BPS	Kazakhstan	KAZMEMST
Romania	ASRO	Kenya	KEBS
Russian Federation	GOST R	Netherlands	NEN
Saudi Arabia	SASO	Pakistan	PSQCA
Turkey	TSE	Serbia	ISS
United Kingdom	BSI	Singapore	SSC
Uruguay	UNIT	Spain	UNE
		Sudan	SSMO
		Thailand	TISI
		Ukraine	SE UkrNDNC
		United Arab Emirates	MoIAT-STR



+ Bangladesh
+ Azerbaijan

ISO/TC 71/SC 4

STRUCTURE	LIASON		
WG 1 Performance requirements for design standards on structural concrete	ISO/TC 98/SC 1 ISO/TC 98/SC 2 ISO/TC 98/SC 3	Terminology and symbols Reliability of structures Loads, forces and other actions	ISO ISO ISO
Convenor: Mrs Sofia Maria Carrato Diniz	EC - European Commission	European Commission	A

ISO/TC 71/SC 4/WG 1

Published standards

ISO 19338:2014
Performance and assessment requirements for design standards on structural concrete

Revision

ISO 19338:2014
Performance and assessment requirements for design standards on structural concrete

FDIS 19338 Performance requirements for standards on concrete structures

ISO/TC 71/SC 4/WG 1 SCOPE

This International Standard provides performance requirements for standards on concrete structures. It can be used for international alignment of design, assessment, and construction requirements.
This International Standard includes:

a) requirements, which define the required performance of the concrete structure,

b) criteria, which give means for expressing the requirements, and

c) evaluation clauses, which give acceptable methods of verifying the specific criteria.

This document provides performance requirements for standards on concrete structures. It can be used for international alignment of design, assessment, and construction requirements.
This document includes:

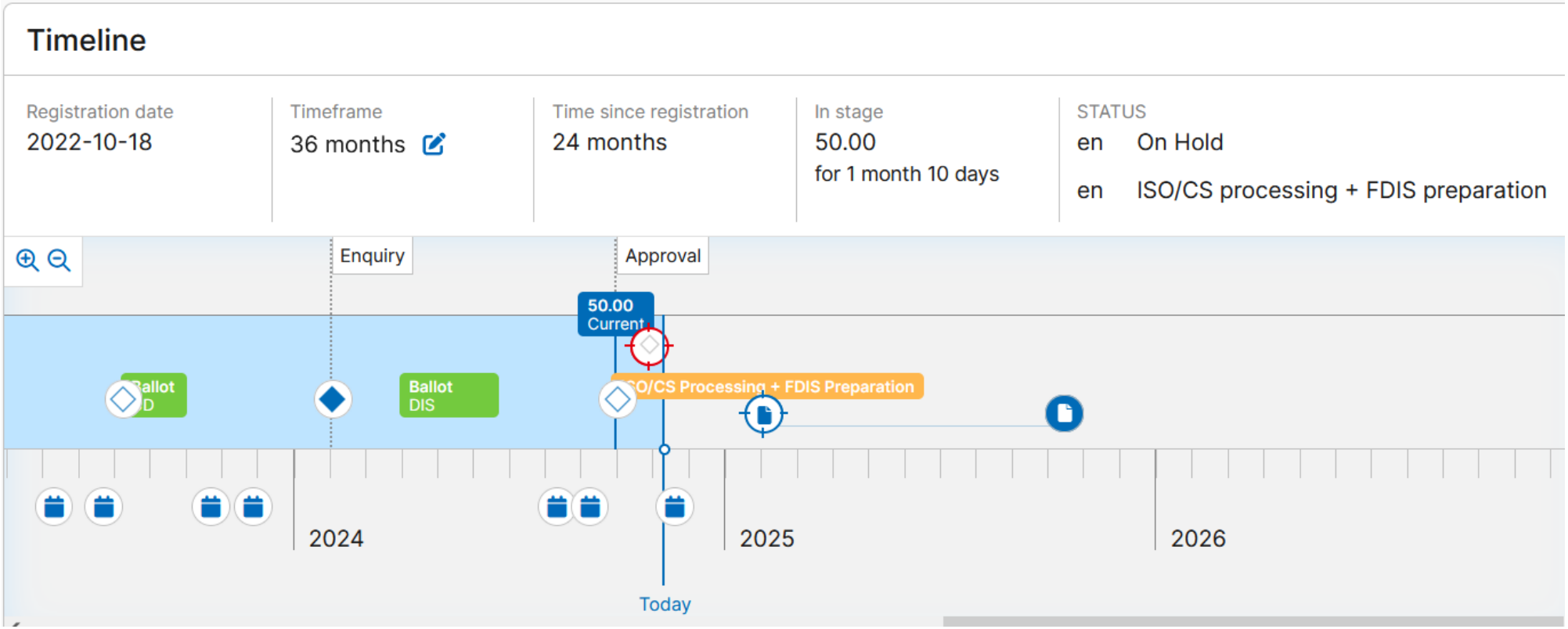
a) principles, which guide the selection of requirements that translate societal and owner's expectations for the performance of the concrete structure,

b) requirements, which define the required performance of the concrete structure,

c) criteria, which give means for expressing the requirements,

d) evaluation clauses, which give acceptable methods of verifying the specific criteria.

ISO/TC 71/SC 4/WG 1




Thank you!

ISO/TC 71/SC 5

Simplified design standard for concrete structures

2024 ISO TC71 hybrid meeting
November 22, 2024, Bangkok, Thailand, 09-13 (UTC 02-06, KST 11-15)

ISO/TC 71/SC **5** plenary

Secretariat Report

ISO TC71/SC5
Simplified Design Standard for Concrete Structures

Chairman:

Jongsung SIM, Ph.D. FACI, FIABSE, FIIFC
(jongsungsim47@gmail.com, jssim@hanyang.ac.kr)
Professor Emeritus
Dept. of Civil & Environmental Engineering
Hanyang University

Committee Manager:

Dong Joo KIM, Ph.D.
(djkim75@sejong.ac.kr)
Professor
Dept. of Civil & Environmental Engineering
SEJONG University

Contents

1. Structure

1. Structure

About

Secretariat: KATS

Committee Manager: Dr Dong Joo Kim

Chairperson (until end 2026): Dr Jongsung Sim

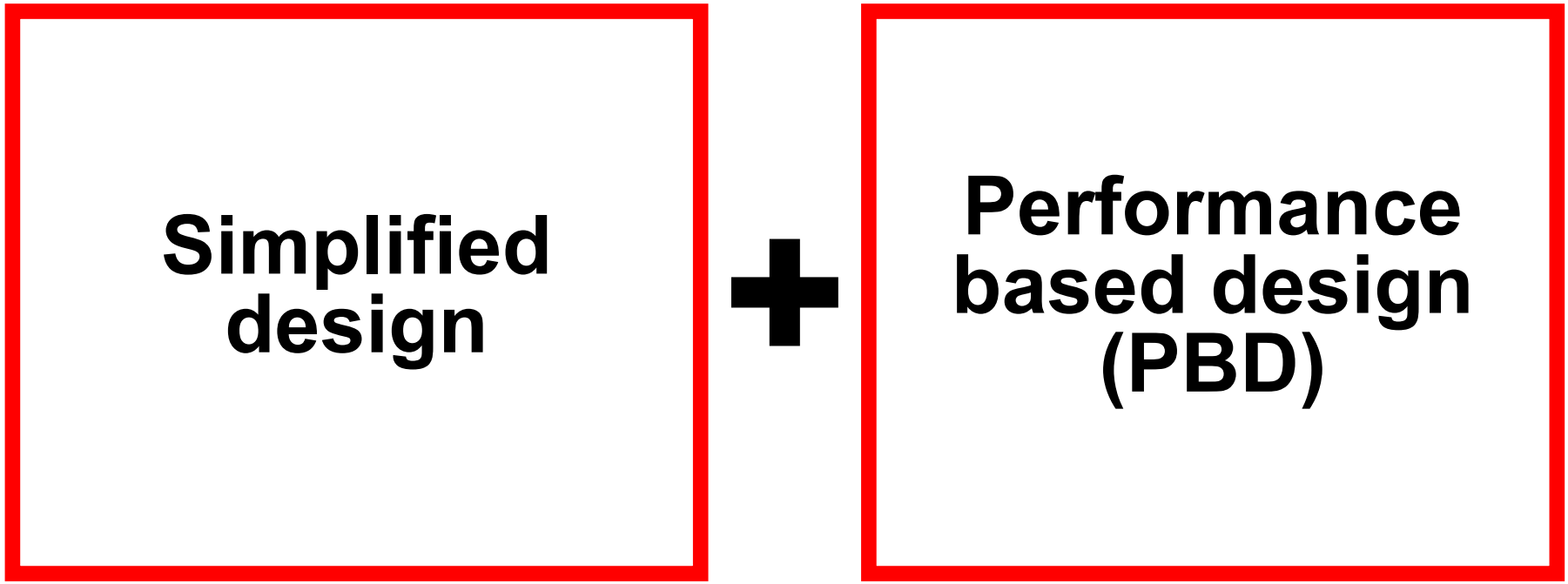
ISO Technical Programme Manager [TPM]: Ms Anna Caterina Rossi
ISO Editorial Manager [EM]: Ms Anne Guiet

Creation date: 1996

Scope

Standardization in the field of simplified design of concrete structures including performance-based design concepts.

1. Structure



1. Structure

SUSTAINABLE DEVELOPMENT GOALS

This committee contributes with 11 standards to the following Sustainable Development Goals:

3 6 9 10 11

9	2	14	23
Published ISO standards *	ISO standards under development *	Participating members	Observing members

* number includes updates

Structure | Liaisons | Meetings

Reference ↑	Title	Type
ISO/TC 71/SC 5/WG 1	Simplified seismic assessment and rehabilitation of concrete buildings	Working group
ISO/TC 71/SC 5/WG 6	Pre-stressed concrete tanks for potable water	Working group
ISO/TC 71/SC 5/WG 7	Small pre-stressed concrete bridges	Working group

※ 2024: P-member(14), O-member(23)

P-memberships (14)

Australia (SA), Bangladesh (BSTI), Brazil (ABNT), China (SAC), India (BIS), Japan (JISC), Korea (KATS), Kuwait (KOWSMD), Russian Federation (GOST R), Sudan (SSMO), Türkiye (TSE), Uganda (UNBS), United Kingdom (BSI), Uruguay (UNIT)

O-memberships (23)

Algeria (IANOR), Argentina (IRAM), Bahrain (BTMD), Belarus (BELST), Belgium (NBN), Bulgaria (BDS), Colombia (ICONTEC), Egypt (EOS), France (AFNOR), Hungary (MSZT), Islamic Rep. of Iran (INSO), Israel (SII), Namibia (NSI), Netherlands (NEN), Pakistan (PSQCA), Romania (ASRO), Serbia (ISS), Singapore (SSC), South Africa (SABS), Spain (UNE), Thailand (TISI), Ukraine (SE UkrNDNC), United Arab Emirates (MoIAT-STR)

2. Follow up to the resolutions of July 5, 2024 SC5 meeting

2. Follow up to 2024 zoom meeting, July 5, 2024.

A total of 24 delegates representing 7 countries (6 P-members, 1 O-member) and European Commission (Dr. Negro Paolo and Lamperti Tornaghi Marco) attended the meeting. **Quorum was approved.**

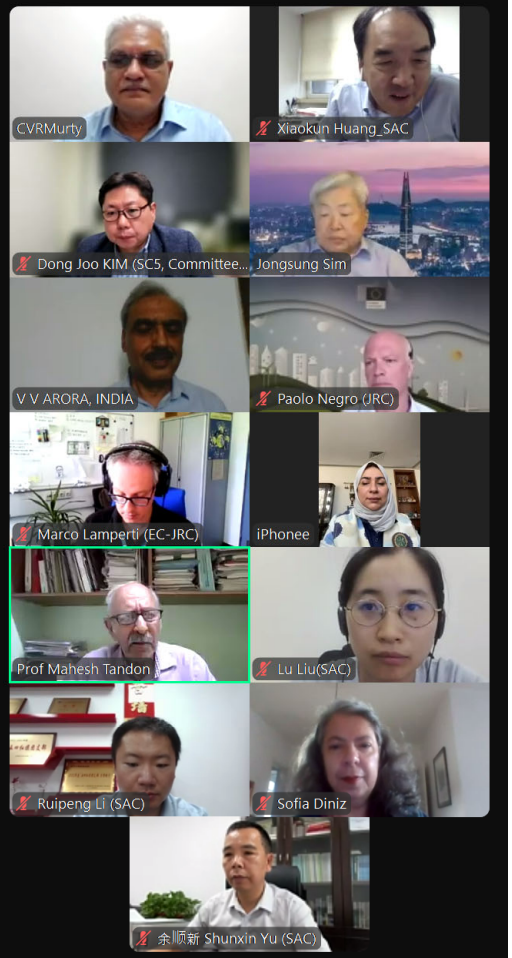
※ 2024: P-member(13), O-member(24)

P-memberships (13)

Australia (SA), Brazil (ABNT), China (SAC), India (BIS), Japan (JISC), Korea (KATS), Kuwait (KOWSMD), Russian Federation (GOST R), Sudan (SSMO), Türkiye (TSE), Uganda (UNBS), United Kingdom (BSI), Uruguay (UNIT)

O-memberships (24)

Algeria (IANOR), Argentina (IRAM), Bahrain (BTMD), Belarus (BELST), Belgium (NBN), Bulgaria (BDS), Colombia (ICONTEC), Egypt (EOS), France (AFNOR), Hungary (MSZT), Islamic Rep. of Iran (INSO), Israel (SII), Namibia (NSI), Netherlands (NEN), Pakistan (PSQCA), Romania (ASRO), Serbia (ISS), Singapore (SSC), South Africa (SABS), Spain (UNE), Sweden (SIS), Thailand (TISI), Ukraine (SE UkrNDNC), United Arab Emirates (MoIAT-STR)



2. Follow up to 2024 zoom meeting, July 5, 2024.

Number	Resolution	Action
ISO/TC71/SC5-2024-01	ISO/TC71/SC5 decides to create a NP voting for the PWI 22556.2 "Simplified Performance-Based Wind Design of Concrete Buildings," proposed by Professor Thomas KANG, Seoul National University, Seoul, Korea.	**CIB for ISO/PWI 22446.2 is opened** now between 2024-09-08 and 2024-12-01.
ISO/TC71/SC5-2024-02	ISO/TC71/SC5 agrees to launch a NP voting for "Performance matrix for strain-based simplified design of reinforced concrete beams," proposed by Professor Dong Joo KIM, Sejong University, Seoul, Korea.	CIB for ISO/PWI 24949 was closed. **6 members approved the NP but only 2 members assigned experts** for the project. Thus, a new CIB for nominating experts is opened now between 2024-10-28 and 2024-11-24.
ISO/TC71/SC5-2024-03	ISO/TC71/SC5 agrees to launch a NP voting for the “Simplified design standard on concrete arch bridges," proposed by Professor Baochun CHEN, Fujian University of Technology, Fuzhou, China.	The NWIP is registered as ISO/PWI 24951 “Simplified design of concrete arch bridges”.
ISO/TC71/SC5-2024-04	ISO/TC71/SC5 decides to revise ISO 18407:2018 “Simplified design of prestressed concrete tanks for potable water” and to assign Prof. Hiroshi YOKOTA as a project leader under WG 6. **In addition to Japan and China, India and Korea volunteered to join this project and nominate experts**.	It is registered as ISO/CD 18407 since 2024-07-16.

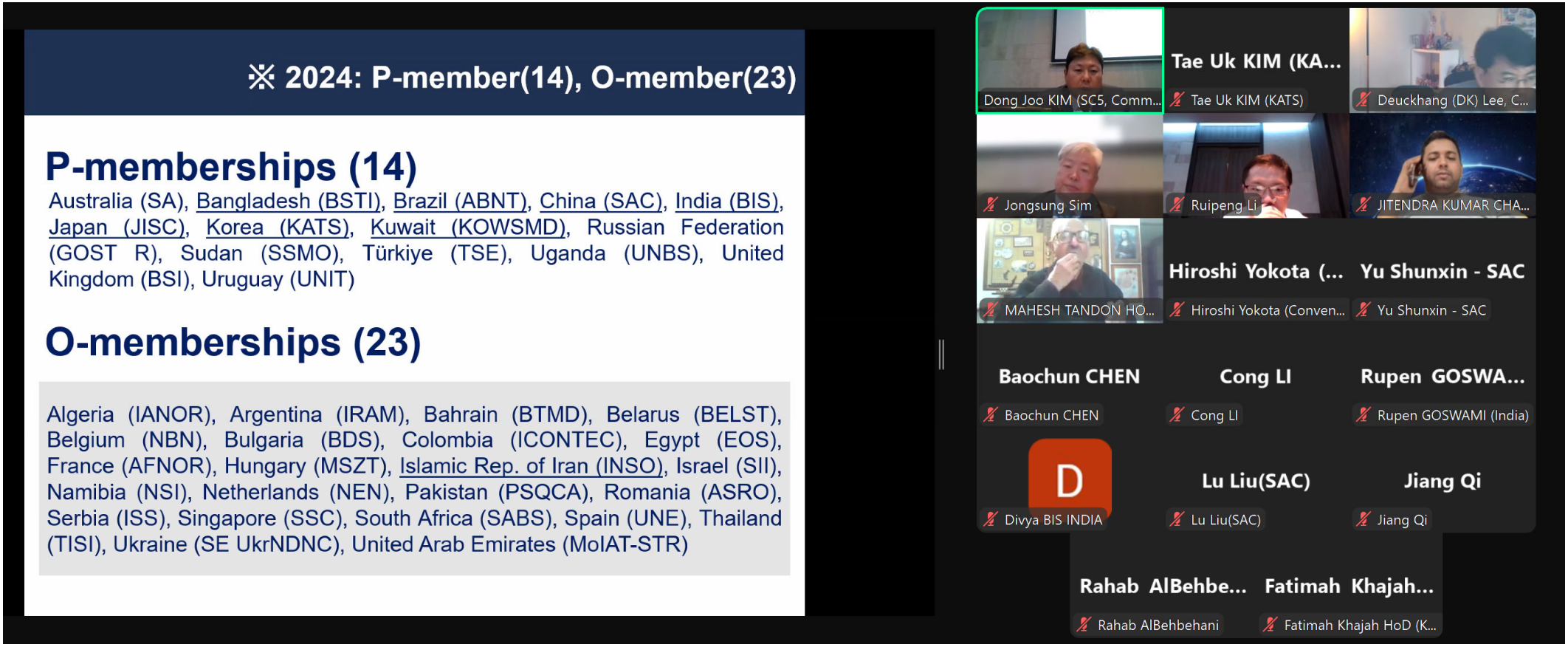
2. Follow up to 2024 zoom meeting, July 5, 2024.

Number	Resolution	Action
ISO/TC71/SC5-2024-05	ISO/TC71/SC5 decides to revise ISO 28841:2013 “Guidelines for simplified seismic assessment and rehabilitation of concrete buildings” and to assign Dr. Jiang QI as the project leader under WG1. ISO/TC71/SC5 decides to reactivate WG1 with Prof. Bin ZHAO as the convenor.	The project is registered as ISO/AWI 28841 (20.00).
ISO/TC71/SC5-2024-06	ISO/TC71/SC5 agrees to proceed with the NP "Simplified Design of Segmental Precast Concrete Box Girder Bridges", Stage 00.00, proposed by Dr. Ruipeng LI, CCCC Second Highway Consultants Co., Ltd., China Communications Construction, China.	Under discussion (ISO 21725-2:2021 Simplified design of prestressed concrete bridges — Part 2: Box-girder bridges)
ISO/TC71/SC5-2024-07	ISO/TC71/SC5 will meet in conjunction with the 29th plenary meeting of ISO/TC71, 19-22 November 2024, Bangkok, Thailand.	

3. SC 5 Hybrid meeting on November 20, 2024

3.1 SC5 Hybrid meeting on November 20, 2024

A total of 26 delegates representing 8 countries (7 P-members, 1 O-member) attended the meeting. **Quorum was approved.**



3.2 Review on the ongoing projects

Project	Title	Stage
ISO / NP 22556.3	**Simplified performance based wind design (PBWD) for concrete buildings**	10.20

- Under CIB voting

3.2 Review on the ongoing projects

Project	Title	Stage
ISO / NP 24949	Performance matrix for strain-based simplified design of reinforced concrete beams	10.60

Member responses - Votes by members

Country (Member body)	Status*	1a. Agree to add to work programme							Market relevance	1b.Stakeholders consultation		2. Relevant documents		3. Comments		4. Participation	
		Yes			No		Abs*										
		20.00	30.00	40.00	PWI: Yes	PWI: No	NC	Exp		Yes	No	Yes	No	Yes	No	Yes	No
Australia (SA)	P							X			X		X		X		X
Bangladesh (BSTI)	P	X								X		X			X		X
Brazil (ABNT)																	X
China (SAC)																	
India (BIS)																	X
Japan (JISC)																	
Korea, Republic of																	
Kuwait (KOWSMD)																	X
Russian Federation (GOST R)								X			X		X		X		X
Sudan (SSMO)	P	X								X			X		X		X
Turkey (TSE)	P							X		X			X		X		X
Uganda (UNBS)	P	X									X		X		X		X
United Kingdom (BSI)	P							X			X		X		X		X
Uruguay (UNIT)	P							X		X			X		X		X
Sub-Total Question 1a		6	0	0	1	0	0	7									
Totals		**6**			**1**		**7**		**1**	**7**	**7**	**1**	**13**	**1**	**13**	**3**	**11**

CIB for ISO/PWI 24949 was closed. **6 members approved the NP but only 2 members assigned experts** for the project. Thus, a new CIB for nominating experts is opened now between 2024-10-28 and 2024-11-24.

* Status P for P-Member, O for O-Member and S for Secretariat

* Abs: NC for lack of National Consensus, Exp for lack of Expert Input

3.2 Review on the ongoing projects

Project	Title	Stage
ISO / PWI 24950	Simplified seismic performance evaluation and design guideline for precast concrete building (proposed by Prof. Deuckhang LEE)	

- Under development

3.2 Review on the ongoing projects

Project	Title	Stage
ISO / PWI 24951	Simplified design of concrete arch buildings (proposed by Prof. Baochun CHEN)	00.00

- Under development

3.2 Review on the ongoing projects

Project	Title	Stage
NP	Simplified design of segmental precast concrete box girder bridges (proposed by Dr. Ruipeng LI)	

- Under discussion

ISO 21725-2:2021 Simplified design of prestressed concrete bridges — Part 2: Box-girder bridges

3.2 Review on the ongoing projects

Project	Title	Stage
NWIP	A simplified design method on development and lap splice lengths of deformed reinforcing bars in tension (proposed by Prof. Oan Chul CHOI)	

- Proposed

The NWIP is still under discussion and requires further investigation.

3.2 Review on the ongoing projects

Project	Title	Stage
NWIP	Simplified Design of Reinforced Concrete Box Culverts (proposed by Mr. Shunxi YU)	

- Proposed

ISO/TC71/SC5 agrees to launch a NP voting within 6 months for the “Simplified Design of Reinforced Concrete Box Culverts,” proposed by Mr. Shunxin YU, China.

3.3 Systematic Review

Project	Title	Stage
ISO 18408:2019	Simplified structural design for reinforced concrete wall buildings	

- Under CIB

3.3 Systematic Review

Project	Title	Stage
ISO/CD 18407	Simplified design of prestressed concrete tanks for potable water (by Prof. Hiroshi YOKOTA)	30.00

- Under revision

ISO/TC71/SC5 decides to start CD consultation by the end of this year for ISO CD 18407.

3.4 Resolutions of November 20, 2024 SC5 meeting

Number	Resolutions
ISO/TC71/SC5-2024-08	ISO/TC71/SC5 agrees to launch a NP voting within 6 months for the “Simplified Design of Reinforced Concrete Box Culverts,” proposed by Mr. Shunxin YU, China.
ISO/TC71/SC5-2024-09	ISO/TC71/SC5 decides to start CD consultation by the end of this year (2024) for ISO CD 18407.
ISO/TC71/SC5-2024-10	ISO/TC71/SC5 will meet in conjunction with the 30th plenary meeting of ISO/TC71, 2025.

4. Resolutions of SC5 meeting in 2024

4.1 Resolutions of 2024 SC5 meeting

Number	Resolution	Action
ISO/TC71/SC5-2024-01	ISO/TC71/SC5 decides to create a NP voting for the PWI 22556.2 "Simplified Performance-Based Wind Design of Concrete Buildings," proposed by Professor Thomas KANG, Seoul National University, Seoul, Korea.	**CIB for ISO/PWI 22446.2 is opened** now between 2024-09-08 and 2024-12-01.
ISO/TC71/SC5-2024-02	ISO/TC71/SC5 agrees to launch a NP voting for "Performance matrix for strain-based simplified design of reinforced concrete beams," proposed by Professor Dong Joo KIM, Sejong University, Seoul, Korea.	CIB for ISO/PWI 24949 was closed. **6 members approved the NP but only 2 members assigned experts** for the project. Thus, a new CIB for nominating experts is opened now between 2024-10-28 and 2024-11-24.
ISO/TC71/SC5-2024-03	ISO/TC71/SC5 agrees to launch a NP voting for the “Simplified design standard on concrete arch bridges," proposed by Professor Baochun CHEN, Fujian University of Technology, Fuzhou, China.	The NWIP is registered as ISO/PWI 24951 “Simplified design of concrete arch bridges”.
ISO/TC71/SC5-2024-04	ISO/TC71/SC5 decides to revise ISO 18407:2018 “Simplified design of prestressed concrete tanks for potable water” and to assign Prof. Hiroshi YOKOTA as a project leader under WG 6. **In addition to Japan and China, India and Korea volunteered to join this project and nominate experts**.	It is registered as ISO/CD 18407 since 2024-07-16.

4.1 Resolutions of 2024 SC5 meeting

Number	Resolution	Action
ISO/TC71/SC5-2024-05	ISO/TC71/SC5 decides to revise ISO 28841:2013 “Guidelines for simplified seismic assessment and rehabilitation of concrete buildings” and to assign Dr. Jiang QI as the project leader under WG1. ISO/TC71/SC5 decides to reactivate WG1 with Prof. Bin ZHAO as the convenor.	The project is registered as ISO/AWI 28841 (20.00).
ISO/TC71/SC5-2024-06	ISO/TC71/SC5 agrees to proceed with the NP "Simplified Design of Segmental Precast Concrete Box Girder Bridges", Stage 00.00, proposed by Dr. Ruipeng LI, CCCC Second Highway Consultants Co., Ltd., China Communications Construction, China.	Under discussion (ISO 21725-2:2021 Simplified design of prestressed concrete bridges — Part 2: Box-girder bridges)
ISO/TC71/SC5-2024-07	ISO/TC71/SC5 will meet in conjunction with the 29th plenary meeting of ISO/TC71, 19-22 November 2024, Bangkok, Thailand.	
ISO/TC71/SC5-2024-08	ISO/TC71/SC5 agrees to launch a NP voting within 6 months for the “Simplified Design of Reinforced Concrete Box Culverts,” proposed by Mr. Shunxin YU, China.	
ISO/TC71/SC5-2024-09	ISO/TC71/SC5 decides to start CD consultation by the end of this year (2024) for ISO CD 18407.	
ISO/TC71/SC5-2024-10	ISO/TC71/SC5 will meet in conjunction with the 30th plenary meeting of ISO/TC71, 2025.	

5. Status of proposed performance based simplified design

5.1 Status of proposed performance based simplified design

Project	Title	Status
ISO/TC71/SC5 PWI 22556.2	"Simplified Performance-Based Wind Design of Concrete Buildings," proposed by Professor Thomas KANG.	Under CIB voting
ISO/TC71/SC5 PWI 24949	"Performance matrix for strain-based simplified design of reinforced concrete beams," proposed by Professor Dong Joo KIM.	Require more number of experts
ISO/TC71/SC5 PWI 24950	“Simplified seismic performance evaluation and design guideline for precast concrete building,” proposed by Prof. Deuckhang LEE.	Under development

THANK YOU !

ISO/TC 71/SC 6

Non-traditional reinforcing materials for concrete structures

ISO/TC71/SC6
Non-traditional reinforcing materials for concrete structures

SECRETARIAT: JISC
Committee Manager: Dr. Jian-Guo Dai
Chairperson: Dr. Toshiyuki Kanakubo

P-Members (12)

Australia
Bangladesh
China
Germany
India
Japan
Korea
Russia
Saudi Arabia
Sudan
Switzerland
UK

O-Members (17)

Bahrain
Belarus
Belgium
Brazil
Colombia
Egypt
Iran
Israel
Netherlands
Pakistan
Philippines
Poland
Romania
Serbia
Singapore
Spain
UAE

ISO/TC71/SC6 18th meeting 21/11/2024 Non-traditional reinforcing materials for concrete structures

2024 Bangkok meeting
21st November, 2024

P-Members (38)

Australia
Bangladesh(1)
China(23)
Germany
India(2)
Japan(8)
Korea(1)
Russia
Saudi Arabia(1)
Sudan
Switzerland(1)
UK(1)

O-Members (2)

Bahrain
Belarus
Belgium
Brazil(2)
Colombia
Egypt
Iran
Israel
Netherlands
Pakistan
Philippines
Poland
Romania
Serbia
Singapore
Spain
UAE

(Face-to-face: 28, Virtual: 12)

ISO Standards under the responsibility of SC6

as of 2024-11-15

Fibre-reinforced polymer (FRP) materials for concrete structures

Target	Test method[WG6]	Specification[WG6] Classification	Design guideline
Bar	CD 10406-1	WD 13197	ISO 14484
Grid	CD 10406-4		
Sheet	CD 10406-2	CD 18319-1 PWI 18319-3	
Strip (CF)	ISO 10406-3	ISO 18319-2	

Fibre-reinforced cementitious composite (FRCC)

Target	Discrete fibre[WG5]		Test of FRCC[WG2]		Fresh / Mixture
	Test	Spec.	Tension	Bending	
Strain-Hardening	ISO 23523 [Polymer]	CD 13182 [Polymer]	WD 13180-1	ISO 19044 [3PL-notched] ISO 21022 [Circular plate] ISO 21914 [4PL]	-
Deflection-Hardening			-		
FRC (Steel)	(TC17/SC17)				ISO 22873

WGs in SC6

SC6/WG2: Testing methods for fibre-reinforced cementitious composites

Convenor, Undecided (Dr. Dong Joo Kim nominated)

SC6/WG5: Discrete polymer fibre for fibre-reinforced cementitious composites

Convenor, Prof. Yusuke Kurihashi (until end of 2024)

SC6/WG6: FRP material properties

Convenor, Prof. Zhishen Wu (until end of 2025)

Meetings of WG5 and WG6 were held on 30th August 2024 in Nanjing, China.

ISO Standards under the responsibility of SC6

After SC6 meeting 2024-11-21

Fibre-reinforced polymer (FRP) materials for concrete structures

Target	Test method[WG6]	Specification[WG6] Classification	Design guideline
Bar	CD 10406-1→DIS	WD 13197→CD	ISO 14484
Grid	CD 10406-4→DIS		
Sheet	CD 10406-2→DIS	CD 18319-1→DIS PWI 18319-3	
Strip (CF)	ISO 10406-3	ISO 18319-2	

Fibre-reinforced cementitious composite (FRCC)

Target	Discrete fibre[WG5]		Test of FRCC[WG2]		Fresh / Mixture
	Test	Spec.	Tension	Bending	
Strain-Hardening	ISO 23523 [Polymer]	CD 13182 →DIS [Polymer] PWI [Inorganic]	WD 13180-1	ISO 19044 [3PL-notched] ISO 21022 SR→Revise [Circular plate] ISO 21914 [4PL]	-
Deflection-Hardening			-		
FRC (Steel)	(TC17/SC17)				ISO 22873

Resolution of the 18th SC6 meeting

Resolution 1:

TC71/SC6 decides to appoint Prof Dong Joo KIM, as WG2 Convenor, for a term of 3 years.

Resolution 2:

TC71/SC6 agrees to extend the term of Prof Yusuke KURIHASHI, as the convenor of WG5, for additional 3 years until December 31st 2027.

Resolution 3:

TC71/SC6 decides to appoint Prof Zhishen WU, as the Project Leader of ISO 10406-1 Fibre-reinforced polymer (FRP) reinforcement of concrete— Test methods — Part 1: FRP bars, replacing the current Project Leader Prof Jian-Guo DAI.

Resolution 4:

TC71/SC6 decides to appoint Prof Xin WANG, as the Project Leader of ISO 10406-4 Fibre-reinforced polymer (FRP) reinforcement of concrete — Test methods — Part 4: FRP grids, replacing the current Project Leader Prof Zhishen WU.

Resolution of the 18th SC6 meeting

Resolution 5:

TC71/SC6 decides to proceed with “ISO CD 13182 Classification for discrete polymer fibre for fibre-reinforced cementitious composites” for DIS submission after necessary revisions.

Resolution 6:

TC71/SC6 decides to proceed with “ISO CD 10406-1 Fibre-reinforced polymer (FRP) reinforcement of concrete — Test methods — Part 1: FRP bars” for DIS Submission after necessary revisions.

Resolution 7:

TC71/SC6 decides to proceed with “ISO CD 10406-2 Fibre-reinforced polymer (FRP) reinforcement of concrete — Test methods — Part 2: FRP sheets” for DIS Submission after necessary revisions.

Resolution 8:

TC71/SC6 decides to proceed with “ISO CD 10406-4 Fibre-reinforced polymer (FRP) reinforcement of concrete — Test methods — Part 4: FRP grids” for DIS Submission after necessary revisions.

Resolution of the 18th SC6 meeting

Resolution 9:

TC71/SC6 decides to proceed with “ISO CD 18319-1 Fibre-reinforced polymer (FRP) reinforcement for concrete structures — Specifications of FRP sheets” for DIS Submission after necessary revisions.

Resolution 10:

TC71/SC6 decides to proceed with “ISO AWI 13197 Fibre-reinforced polymer (FRP) reinforcement for concrete structures — Specifications of FRP bars and grids” for CD consultation after WG consultation.

Resolution 11:

TC71/SC6 agrees to develop “Specification of inorganic (basalt) fibre for fibre-reinforced cementitious composites” as a PWI, with Dr Zuqi WANG (SAC) as the project leader, under WG5.

Resolution of the 18th SC6 meeting

Resolution 12:
TC 71/SC 6, considering the systematic voting results, decides to revise ISO 21022: 2018 Test method for fibre-reinforced cementitious composites – Load deflection curve using circular plates:

- Development track (36 months)
- Project leader: Prof. Zi Goangseup
- TC, SC, WG in charge: WG2 “Testing methods for fibre-reinforced cementitious composites”
- the current scope is confirmed
- the project is starting at stage: (20.20)

Project plan (target dates):

- Circulation of first WD (20.20) (if any): April 2025
- Circulation of CD (30.20) (if any): April 2026
- Submission of DIS (40.00): October 2026
- Publication: October 2027

Goals 8,9, and 11 of the UN Sustainable Development Goals (SDGs) will be supported. P-Members are invited to appoint experts to contribute to the project development.

Resolution of the 18th SC6 meeting

Resolution 13:

ISO/TC71/SC6 expressed sincere thanks to all the members for attending the meeting.

Resolution 14:

ISO/TC71/SC6 will meet in conjunction with the 30th Plenary Meeting of ISO/TC71.


Thank You!

ISO/TC 71/SC 7

Maintenance and repair of concrete structures

ISO/TC 71/SC 7 Report

29th Plenary Meeting @ hybrid

November 22, 2024

18th SC7 Meeting August 30, 2024

19th SC7 Meeting November 20, 2024

Manabu KANEMATSU, Chair (JISC)

Soobong SHIN, Committee Manager (KATS)

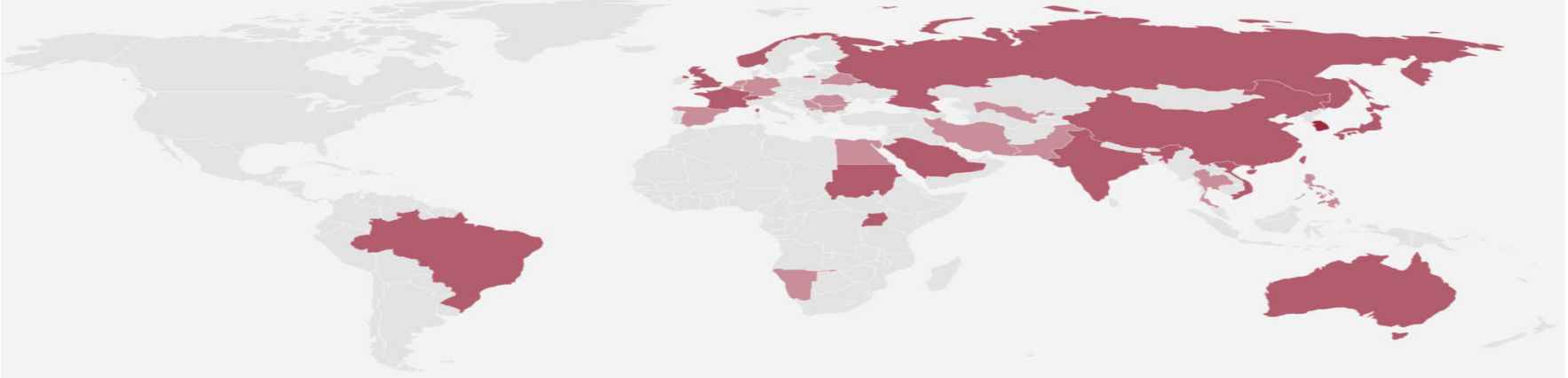
Current Member Status

P – Members (14→16)

Country	Organization
Australia	SA
Bangladesh	BSTI
Brazil	ABNT
China	SAC
France	AFNOR
India	BIS
Japan	JISC
Korea, Republic of	KATS
Norway	SN
Russian Federation	GOST R
Saudi Arabia	SASO
Sudan	SSMO
Switzerland	SNV
Uganda	UNBS
United Kingdom	BSI
Viet Nam	STMEQ

O – Members (17→17)

Country	Organization
Belarus	BELST
Belgium	NBN
Bulgaria	BDS
Egypt	EOS
Germany	DIN
Hong Kong	ITCHKSAR
Iran, Islamic republic of	INSO
Namibia	NSI
Netherlands	NEN
Pakistan	PSQCA
Philippines	BPS
Romania	ASRO
Serbia	ISS
Singapore	SSC
Spain	UNE
Thailand	TISI
Uzbekistan	O'ZTTSA



List of WGs in SC7

SUSTAINABLE DEVELOPMENT GOALS

This committee contributes with 26 standards to the following Sustainable Development Goals:

4 8 9 11 15

16	2	16	17
Published ISO standards *	ISO standards under development *	Participating members	Observing members

* number includes updates

Structure | Liaisons | Meetings

Reference ↑	Title	Type
ISO/TC 71/SC 7/AHG 8	Concrete structures damaged by fire	Working group
ISO/TC 71/SC 7/WG 6	Assessment, prevention, and repair for steel corrosion in reinforced concrete structures	Working group
ISO/TC 71/SC 7/WG 7	Surface protection systems for underground concrete structures	Working group

ISO/TC 71/SC 7 - Secretariat

KATS [Korea, Republic of]

Projects under Development

Standards by ISO/TC 71/SC 7

Maintenance and repair of concrete structures

Filter : ☐ Published ☑ Under development ☐ Withdrawn ☐ Deleted

Standard and/or project under the direct responsibility of ISO/TC 71/SC 7 Secretariat (2) ↑

ISO/CD 18726
Assessment, prevention, and repair for steel corrosion in reinforced concrete structures

ISO/AWI TS 18734
Guideline for Elastomeric Barriers, Waterproofing, and Protection of Underground Concrete Structures

Current Liaisons

Structure | Liaisons | Meetings

Liaison Committees to ISO/TC 71/SC 7

The committees below can access the documents of ISO/TC 71/SC 7:

Reference ↑	Title
ISO/TC 71/SC 1	Test methods for concrete
ISO/TC 71/SC 5	Simplified design standard for concrete structures
ISO/TC 221	Geosynthetics

Liaison Committees from ISO/TC 71/SC 7

ISO/TC 71/SC 7 can access the documents of the committees below:

Reference ↑	Title
ISO/TC 35/SC 15	Protective coatings: concrete surface preparation and coating application
ISO/TC 71/SC 1	Test methods for concrete
ISO/TC 71/SC 5	Simplified design standard for concrete structures
ISO/TC 156	Corrosion of metals and alloys

Attendees, 18th ISO/TC71/SC7 meeting(Hybrid), Tashkent, Uzbekistan, 30 August 2024

Twenty-three (23) delegates representing six (6) member bodies: Six (6) P-member bodies of China (8), India (4), Japan (5), Korea, Republic of (4), Switzerland (1), and Uganda (1). In addition, one delegate from ISO (1).

Attendees, 19th ISO/TC71/SC7 meeting(Hybrid), Bangkok-Thailand 20 November 2024

Twenty-nine (29) delegates representing nine (9) member bodies: Eight (8) P-member bodies of Bangladesh (1), Brazil (2), China (9), India (3), Japan (7), Korea, Republic of (5), Switzerland (1), and one (1) O-member body of Iran, Islamic Republic of (1). In addition, one delegate from ISO (1).

WG 1, WG2, WG3

Resolution 1, Hybrid, 30 August 2024
18th ISO/TC71/SC7 meeting @Tashkent, Uzbekistan

1.	TC 71/SC 7 disbands WG 1 (*General principles for maintenance and repair*), WG 2 (*Condition assessment, and design & execution of repairs*), and WG 3 (*Leakage due to cracks*). TC 71/SC 7 appreciates their efforts on the successful publication of the documents.

WG1 :	ISO 16311-1:2024	Maintenance and repair of concrete structures — Part 1: General principles
WG2 :	ISO 16311-2 ~ 4 :2024	Maintenance and repair of concrete structures — Part 2: Assessment of existing concrete structures — Part 3: Design of repairs — Part 4: Execution of repairs
WG3 :	ISO/TS 16774-1,4,5:2024	Test methods for repair materials for water-leakage cracks in underground concrete structures — Part 1: Test method for thermal stability — Part 5: Test method for watertightness — Part 6: Test method for response to the substrate movement

WG 6 *"Assessment, prevention, and repair for steel corrosion in reinforced concrete structures".*

Resolution 2, 18th ISO/TC71/SC7 meeting(Hybrid), **Tashkent, Uzbekistan**, 30 August 2024

Resolution 2	TC 71/SC 7 accepts WG 6 report by Prof. Ann regarding ISO/WD 18726 titled, *"Assessment, prevention, and repair for steel corrosion in reinforced concrete structures"*.

Status, 19th ISO/TC71/SC7 meeting(Hybrid), **Bangkok-Thailand** 20 November 2024

- Prof. Ki Yong Ann, the Convenor of WG 6, reviewed the comments collated from the CD consultation (ended at 30 October 2024) including 94 comments from Brazil, China, and Japan.
- Proceed to the DIS ballot.

WG 7

"Guideline for elastomeric barriers, waterproofing, and protection of underground concrete structures."

Resolution 3, 18th ISO/TC71/SC7 meeting(Hybrid), **Tashkent, Uzbekistan**, 30 August 2024

Resolution 3	TC 71/SC 7 accepts WG 7 report by Dr. Kim regarding ISO/AWI TS 18734 titled, "*Guideline for elastomeric barriers, waterproofing, and protection of underground concrete structures.*" and encourages to hold online WG 7 meetings before the next TC 71/SC 7 Plenary meeting to proceed the project.

Status, 19th ISO/TC71/SC7 meeting(Hybrid), **Bangkok-Thailand** 20 November 2024

- Dr. Jungil Kim, the Convenor, reported the development of a WD with WG and liaison members and proposed a schedule for future progress.

AHG 8 *"Assessment and repair of fire damaged concrete structures."*

Resolution 4, 18th ISO/TC71/SC7 meeting(Hybrid), **Tashkent, Uzbekistan**, 30 August 2024

Resolution 4	TC 71/SC 7 accepts AHG 8 report by Dr. Mahdi regarding ISO/PWI 13117 titled, "Assessment and repair of fire damaged concrete structures", and encourages to report its progress at the next TC 71/SC 7 Plenary meeting in Bangkok.

AHG 8 *"Assessment and repair of fire damaged concrete structures."*

Resolution 1, 19th ISO/TC71/SC7 meeting(Hybrid), Bangkok-Thailand 20 November 2024

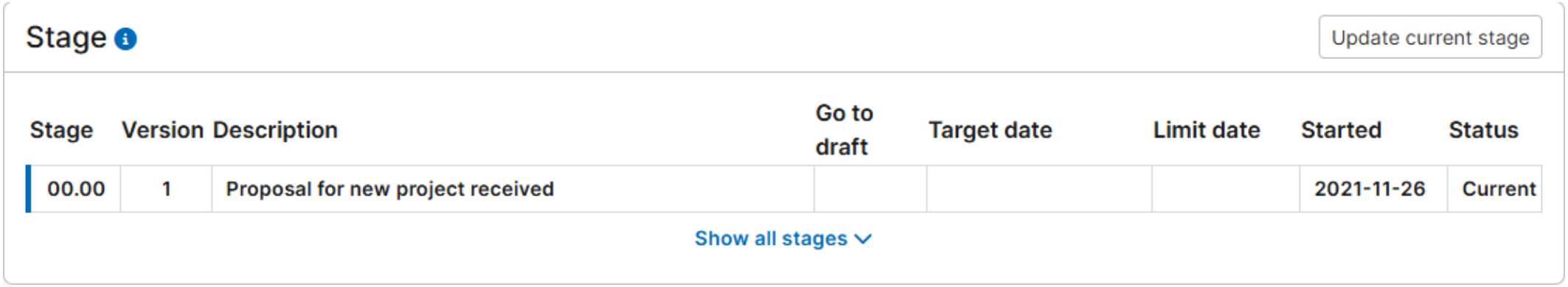
Resolution 1	TC 71/SC 7 decides to disband AHG 8 and establish a new WG "Assessment and repair of concrete structures damaged by fire" to develop ISO 13117, with Dr. Mahdi Raouffard as Convenor

- Dr. Mahdi Raouffard, the Convenor, reported the AHG 8 activities.
- TC 71/SC 7 decided to **disband AGHG 8** and move the project from **PWI to AWI phase by NP ballot** (project period 36 months).

Resolution 1, Hybrid, 30 August 2024

@Uzbekistan, Hybrid

4.	TC 71/SC 7 accepts AHG 8 report by Dr. Mahdi regarding ISO/PWI 13117 titled, "*Assessment and repair of fire damaged concrete structures*", and encourages to report its progress at the next TC 71/SC 7 Plenary meeting in Bangkok.
STATUS	



Liaisons

Resolution 2, 19th ISO/TC71/SC7 meeting(Hybrid), Bangkok-Thailand 20 November 2024

2.	TC 71/SC 7 confirms Thierry Berset as Liaison Representative to TC35/SC 15 *"Protective coatings: concrete surface preparation and coating application"* participating also in TC 35/SC 15/WG 1 *"Protective coatings for concrete structures".*

Liaisons

Resolution 5 - 8, 18th ISO/TC71/SC7 meeting(Hybrid), **Tashkent, Uzbekistan**, 30 August 2024

5.	Having reviewed its internal liaisons, TC 71/SC 7 confirms that its internal liaisons with SC 1 (*Test methods for concrete*) and SC 5 (*Simplified design standard for concrete structures*) are still valid and necessary. Prof. Shin is confirmed as the Liaison Representative.
6.	Having reviewed its internal liaisons, TC 71/SC 7 confirms that its internal liaison with TC 221 (*Geosynthetics*) is still valid and necessary. Dr. Kim is confirmed as the Liaison Representative.
7.	Having reviewed its liaisons, TC 71/SC 7 confirms that its liaisons with CEN TC 104/SC 8 (*Repair and Maintenance of Concrete Structures*) and ISO/TC 35/SC 15 (*Protective Coatings: concrete surface preparation and coating applications*) are still valid and necessary. Mr. Berset is confirmed as the Liaison Representative.
8.	Having reviewed its internal liaisons, TC 71/SC 7 confirms that its internal liaison with TC 156 (*Corrosion of metals and alloys*) is still valid and necessary. Prof. Ann is confirmed as the Liaison Representative.

Other business

Resolution 9, 18th ISO/TC71/SC7 meeting(Hybrid), Tashkent, Uzbekistan, 30 August 2024

9.	TC 71/SC 7 resolves that the next meeting will be held in conjunction with the TC 71 Plenary meeting.

Resolution 3, 19th ISO/TC71/SC7 meeting(Hybrid), Bangkok-Thailand 20 November 2024

3.	TC 71/SC 7 resolves that the next meeting will be held in conjunction with the 30th TC 71 Plenary meeting.


INHA University in Tashkent
Soobong Shin
Shao Jinggan
Xiaokun Huang_SAC
wangjunchao
Oh Sang Keun (KATS)
UEDA Tamon
JITENDRA KUMAR CHAUDH...
Manabu KANEMATSU
Aman Deep BIS INDIA
Xiangri GENG (SAC)
Tingyu.Hao-Cribc
Robert Jung Il Kim
Ki Yong Ann
Hiroshi Yokota (TC71_CM)
Wei LI (SAC)
Thierry Berset, SNV
Mahdi (JP)
Bo Jiang (SAC)
Jose Kurian BIS India
Yunqi Luo
Toshinobu Yamaguchi
Anna Rossi, TPM
P.N.Ojha
Lingyun Cheng
보기
Xiangri GENG (S...
Xiangri GENG (SAC)
Jiang Bo
Xiaokun Huang_...
Xiaokun Huang_SAC
Aman Deep BIS INDIA
P.N.Ojha
오디오
비디오
참가자
채팅
반응
공유
호스트 도구
더 보기
종료

ISO/TC 71/SC 8

Environmental management for concrete and concrete structures

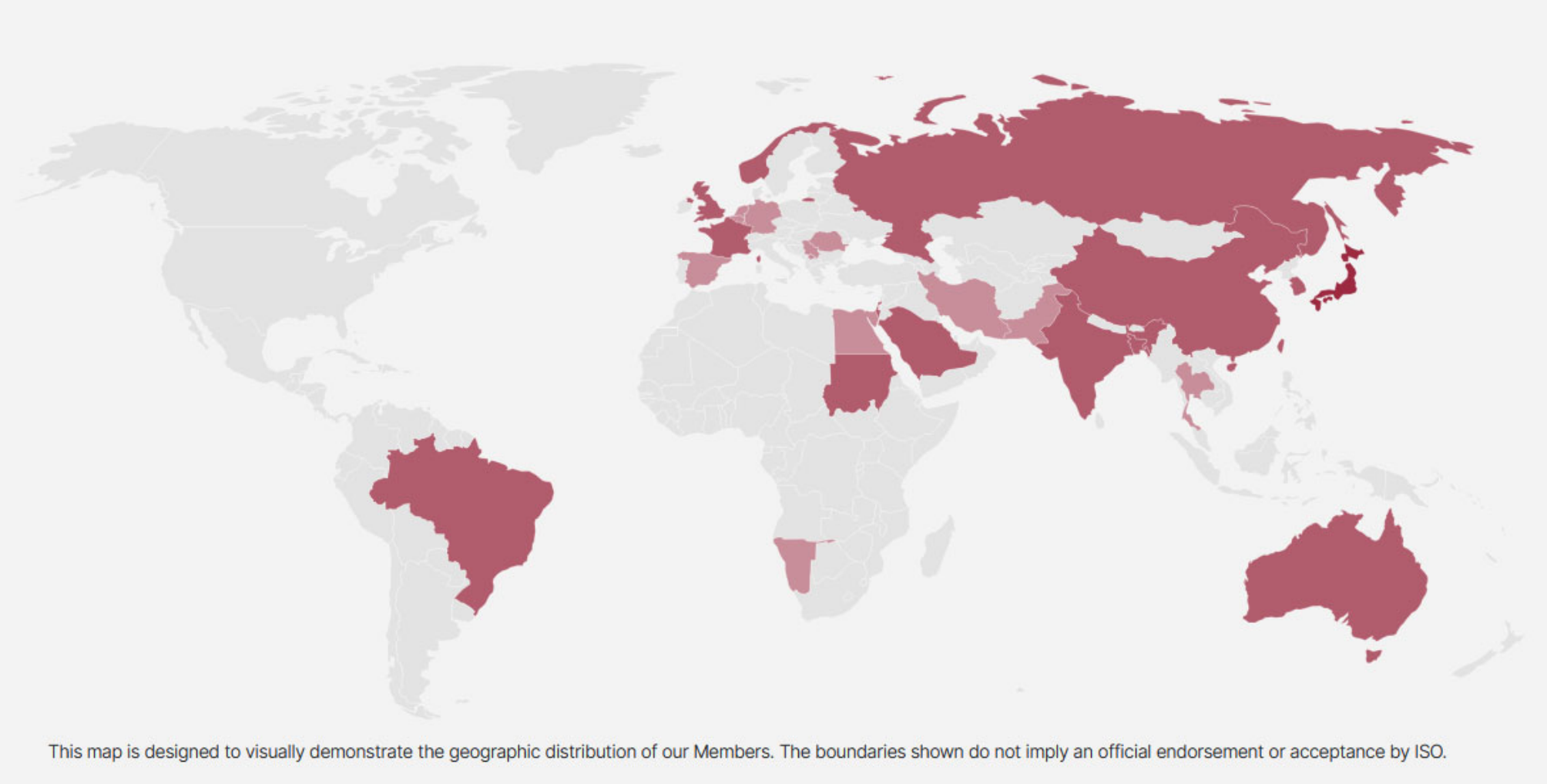
Report of ISO/TC71/SC8

Takafumi Noguchi (SC8 Chair)

Satoshi Fujimoto (SC8 Committee Manager)

Membership of SC8

Participating Members [11→14] **Observing Members [14→13]**



This map is designed to visually demonstrate the geographic distribution of our Members. The boundaries shown do not imply an official endorsement or acceptance by ISO.

Membership of SC8

Participating Members [14]

Country/Territory	Acronym
Australia	SA
Bangladesh	BSTI
Brazil	ABNT
China	SAC
France	AFNOR
India	BIS
Israel	SII
Japan	JISC
Korea, Republic of	KATS
Norway	SN
Russian Federation	GOST R
Sudan	SSMO
Saudi Arabia	SASO
United Kingdom	BSI

Observing Members [13]

Country/Territory	Acronym
Belgium	NBN
Egypt	EOS
Germany	DIN
Iran, Islamic Republic of	INSO
Luxembourg	ILNAS
Namibia	NSI
Netherlands	NEN
Pakistan	PSQCA
Romania	ASRO
~~Russian Federation~~	~~GOST R~~
Serbia	ISS
Singapore	SSC
Spain	UNE
~~Sudan~~	~~SSMO~~
Thailand	TISI

Voting results in 2024

ISO/DIS 13315-2

Environmental management for concrete and concrete structures
— Part 2: System boundary and inventory data

- DIS ballot was approved on 2024-02-07 (**SC8/N214**)
- FDIS ballot is ongoing.

ISO/CD 13315-5

Environmental management for concrete and concrete structures
— Part 5: Execution of concrete structures

- CD consultation was closed on 2024-01-11. (**SC8/N215**)

Voting results in 2024

ISO/SR 13315-8

Environmental management for concrete and concrete structures
— Part 8: Environmental labels and declarations

- SR ballot was closed on 2024-01-15.
- CIB ballot for SC8 decision was closed on 2024-07-18 (**SC8/N223**)
- SC8/WG4 is re-activated and revision project was launched.
- SC8/WG4 meeting was held on 2024-10-6.

ISO/SR 13315-6

Environmental management for concrete and concrete structures
— Part 6: Use of concrete structures

- SC8 recommendation ballot was closed on 2024-06-11, which recommends to revise the document.
- SR ballot is ongoing.

Voting results in 2024

ISO/NP 13315-7

Environmental management for concrete and concrete structures
— Part 7: End of life phase of concrete and concrete structures

- NP ballot was approved on 2024-04-09.
- SC8/WG8 meeting was held on 2024-8-23.

Voting results in 2024

ISO/NP 21282-1

Determination of carbon dioxide sequestrated in concrete and concrete constituents
— Part 1: General principles

ISO/NP 21282-2

Determination of carbon dioxide sequestrated in concrete and concrete constituents
— Part 2: Acid decomposition and titration analysis

ISO/NP 21282-3

Determination of carbon dioxide sequestrated in concrete and concrete constituents
— Part 3: Thermal gravimetric analysis

- NP ballots are ongoing.

Resolution 1

TC 71/SC 8 agrees to launch CD consultation ballot of ISO/WD 13315-7 “Environmental management for concrete and concrete structures — Part 7: End of life phase of concrete and concrete structures”, after revising the document according to the comments received during the WG meeting and Working Draft Study.

Resolution 2

TC 71/SC 8 agrees to launch DIS ballot for ISO 13315-5 “Environmental management for concrete and concrete structures — Part 5: Execution of concrete structures”.

THANK YOU FOR WONDERFUL HOSTING!!

- Thai Industrial Standards Institute (TISI), Ministry of Industry
- Engineering Institute of Thailand (EIT) under His Majesty the King's Patronage
- Construction and Maintenance Technology Research Center (CONTEC), Sirindhorn International Institute of Technology, Thammasat University
- The Concrete Products and Aggregate Co., Ltd. (CPAC)
- Ritta Co., Ltd.
- M Concrete Co., Ltd.
- Ladkrabang Bored Pile Co., Ltd.
- Pro Phoenix Co., Ltd.
- Posten Engineering Co., Ltd.
- Thai Wire Products PCL.

ISO/TC 71/SC 9

Steel-concrete composite and hybrid structures

Report of ISO/TC 71/SC 9 Steel-concrete composite and hybrid structures

Chair: Prof. Lin-Hai Han

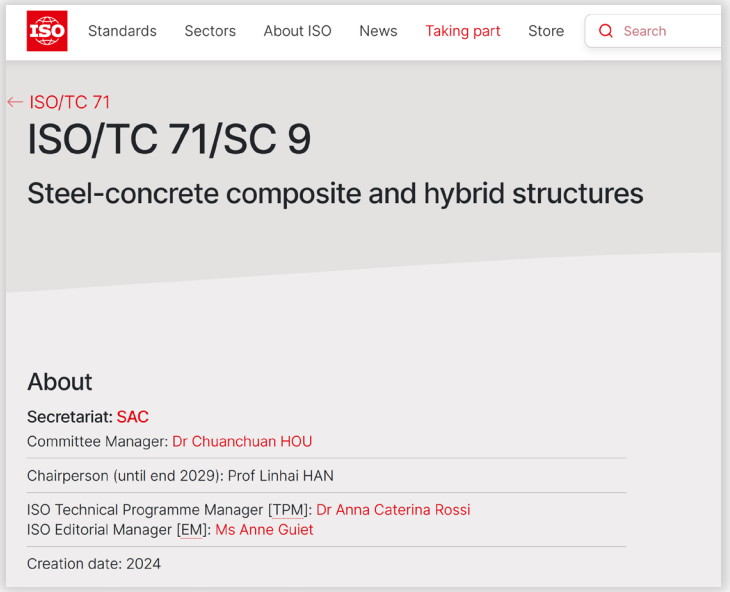
CM: Dr. Chuanchuan Hou

Bangkok, Thailand

2024.11.22

1 Establishment

- The establishment of ISO/TC 71/SC 9 Steel-concrete composite and hybrid structures was ratified by **ISO/TMB Resolution 45/2024** adopted in April 2024; the secretariat of ISO/TC 71/SC 9 was allocated to **SAC (China)**
- Prof. Lin-Hai Han was appointed as **Chair** of ISO/TC 71/SC 9 in June 2024



TMB Resolutions 2024
Page 21

TECHNICAL MANAGEMENT BOARD RESOLUTION 45/2024
Adopted by correspondence on 2024-04-15

Establishment of a new subcommittee on (SC 9) Steel-concrete composite and hybrid structures under ISO/TC 71

The Technical Management Board,

Ratifies the decision of ISO/TC 71 *Concrete, reinforced concrete and pre-stressed concrete* to establish a new subcommittee (ISO/TC 71/SC 9) on Steel-concrete composite and hybrid structures, and

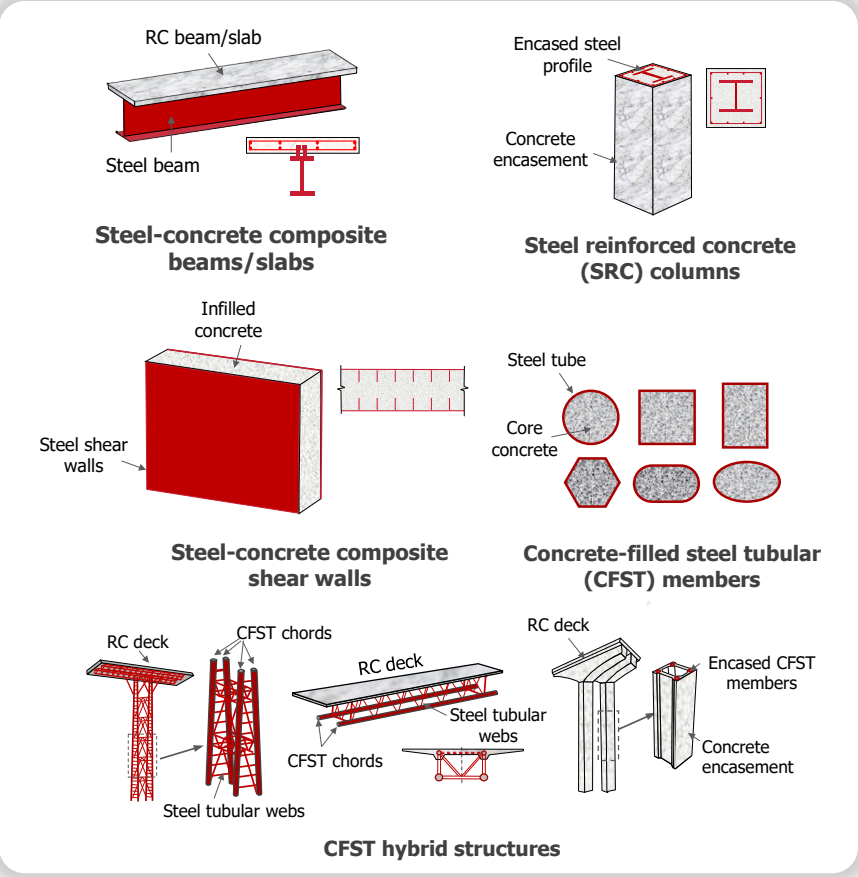
Approves the allocation of the secretariat to SAC (China).

1 Establishment

- The secretariat has been established and decorated, with **display boards** about ISO, TC 71 and TC 71/SC 9 installed
- **Models** of steel-concrete composite and hybrid structures are exhibited

2 Scope

- Standardization in the field of **steel-concrete composite and hybrid structures** including:



- ✓ **general framework** for design, execution, maintenance, repair and recycling of steel-concrete composite and hybrid structures;
- ✓ **performance-based design** of steel-concrete composite and hybrid structures;
- ✓ **execution and acceptance** of steel-concrete composite and hybrid structures;
- ✓ **structural performance assessment and maintenance and repair** of steel-concrete composite and hybrid structures;
- ✓ **demolition and structural-member-based recycling** of steel-concrete composite and hybrid structures

3 Structure

- ISO/TC 71/SC 9 currently has **11 P-members and 3 O-members**

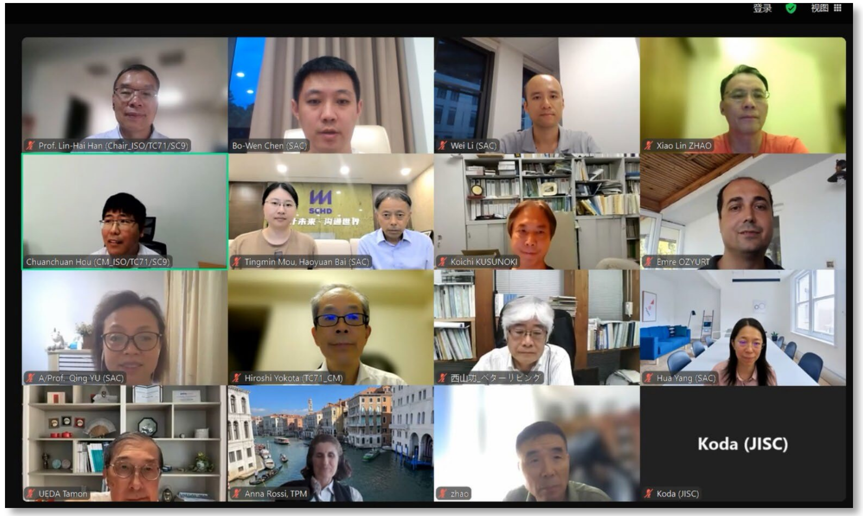
P-members

O-members

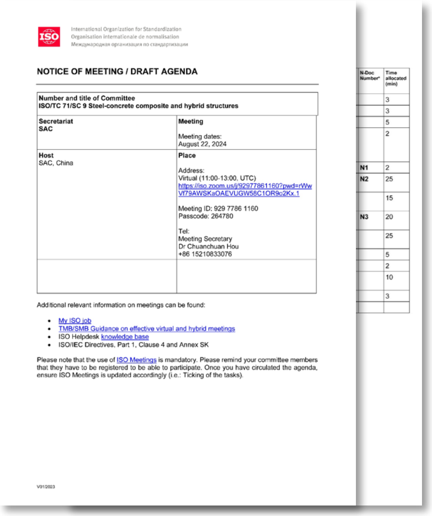
- Liaison from and to **ISO/TC 167** Steel and aluminium structures, has been established
- One WG, **ISO/TC 71/SC 9/WG 1** Design of concrete-filled steel tubular (CFST) hybrid structures, has been established (Convenor: Chuanchuan Hou)
- One AHG, **ISO/TC 71/SC 9/AHG 1** Use of recycled aggregate concrete, has been established (Convenor: Hua Yang)

4 Meetings

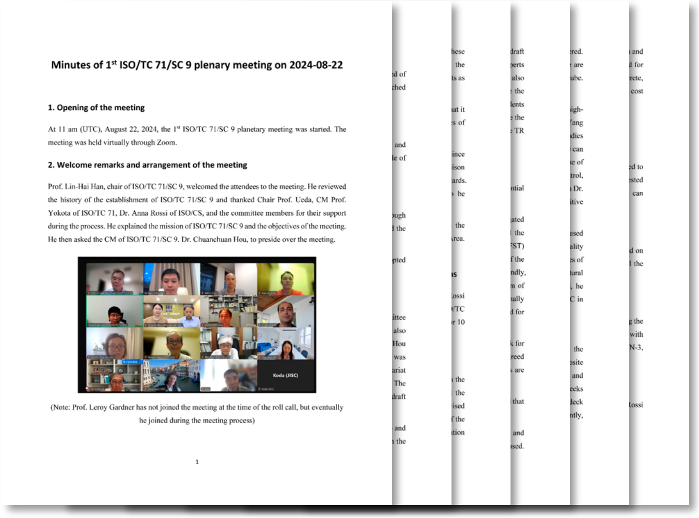
- **1st ISO/TC 71/SC 9 Plenary Meeting** was held virtually on August 22, 2024, with 18 attendees joined
- Draft strategic business plan (SBP), plan to establish liaison, proposal to develop a technical report (TR), proposals for two potential projects were discussed



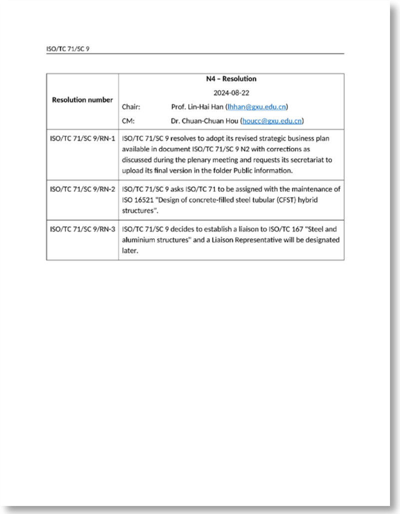
Attendees



Agenda



Minutes

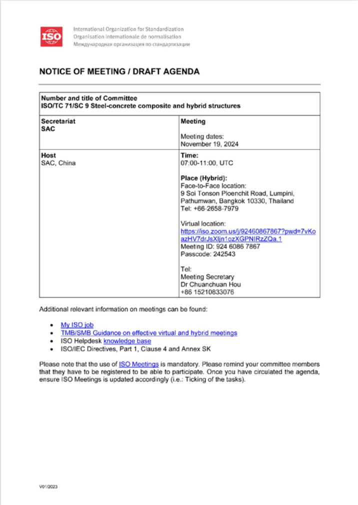


Resolutions

4 Meetings

- **2nd ISO/TC 71/SC 9 Plenary Meeting** was held in hybrid form on November 19, 2024 in Bangkok, Thailand
- Revised strategic business plan (SBP), strategy for development of technical standard system for CFST structures, ISO/AWI TR 25439, proposals for two potential projects were discussed

Attendees



International Organization for Standardization
Organisation internationale de normalisation
Международная организация по стандартизации

NOTICE OF MEETING / DRAFT AGENDA

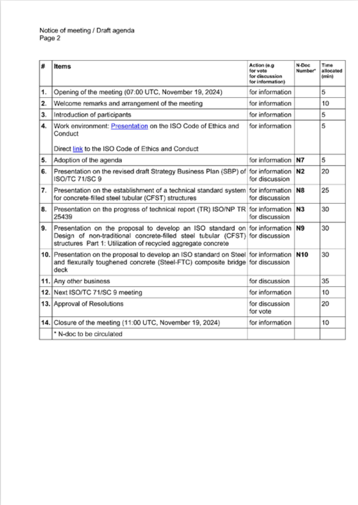
Number and title of Committee ISO/TC 71/SC 9 Steel-concrete composite and hybrid structures	
Secretariat SAC	**Meeting** Meeting dates: November 19, 2024
Host SAC, China	**Time:** 07:00-11:00, UTC **Place (Hybrid):** Face-to-Face location: 9 Soi Tonson Ploenchit Road, Lumpini, Pathumwan, Bangkok 10330, Thailand Tel: +66-2658-7979 Virtual location: https://iso.zoom.us/j/92460867867?pwd=7vKoazHV7drJsXljn1ozXGPNIRzZQa.1 Meeting ID: 924 6086 7867 Passcode: 242543 Tel: Meeting Secretary Dr Chuanchuan Hou +86 15210833076

Additional relevant information on meetings can be found:

- My ISO job
- TMB/SMB Guidance on effective virtual and hybrid meetings
- ISO Helpdesk knowledge base
- ISO/IEC Directives, Part 1, Clause 4 and Annex SK

Please note that the use of ISO Meetings is mandatory. Please remind your committee members that they have to be registered to be able to participate. Once you have circulated the agenda, ensure ISO Meetings is updated accordingly (i.e.: Ticking of the tasks).

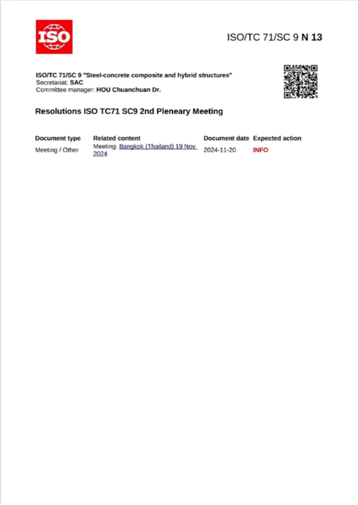
V01/2023



Notice of meeting / Draft agenda
Page 2

#	Items	Action (e.g for vote for discussion for information)	N-Doc Number*	Time allocated (min)
1.	Opening of the meeting (07:00 UTC, November 19, 2024)	for information		5
2.	Welcome remarks and arrangement of the meeting	for information		10
3.	Introduction of participants	for information		5
4.	Work environment: Presentation on the ISO Code of Ethics and Conduct Direct link to the ISO Code of Ethics and Conduct	for information		5
5.	Adoption of the agenda	for information	N7	5
6.	Presentation on the revised draft Strategy Business Plan (SBP) of ISO/TC 71/SC 9	for information for discussion	N2	20
7.	Presentation on the establishment of a technical standard system for concrete-filled steel tubular (CFST) structures	for information for discussion	N8	25
8.	Presentation on the progress of technical report (TR) ISO/NP TR 25439	for information for discussion	N3	30
9.	Presentation on the proposal to develop an ISO standard on Design of non-traditional concrete-filled steel tubular (CFST) structures Part 1: Utilization of recycled aggregate concrete	for information for discussion	N9	30
10.	Presentation on the proposal to develop an ISO standard on Steel and flexurally toughened concrete (Steel-FTC) composite bridge deck	for information for discussion	N10	30
11.	Any other business	for discussion		35
12.	Next ISO/TC 71/SC 9 meeting	for information		10
13.	Approval of Resolutions	for discussion for vote		20
14.	Closure of the meeting (11:00 UTC, November 19, 2024)	for information		10
	* N-doc to be circulated			

Agenda

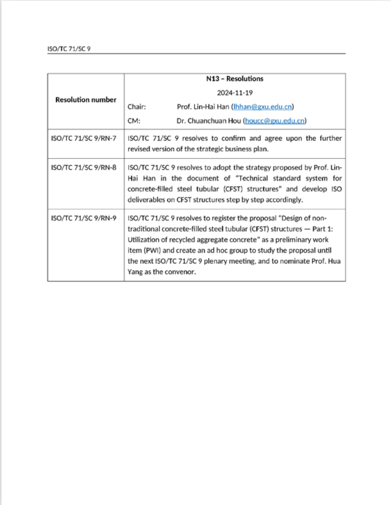


ISO/TC 71/SC 9 **N 13**

ISO/TC 71/SC 9 "Steel-concrete composite and hybrid structures"
Secretariat: **SAC**
Committee manager: **HOU Chuanchuan Dr.**

Resolutions ISO TC71 SC9 2nd Pleneary Meeting

Document type	Related content	Document date	Expected action
Meeting / Other	Meeting: Bangkok (Thailand) 19 Nov 2024	2024-11-20	INFO



ISO/TC 71/SC 9

Resolution number	**N13 – Resolutions** 2024-11-19 Chair: Prof. Lin-Hai Han (lhhan@gxu.edu.cn) CM: Dr. Chuanchuan Hou (houcc@gxu.edu.cn)
ISO/TC 71/SC 9/RN-7	ISO/TC 71/SC 9 resolves to confirm and agree upon the further revised version of the strategic business plan.
ISO/TC 71/SC 9/RN-8	ISO/TC 71/SC 9 resolves to adopt the strategy proposed by Prof. Lin-Hai Han in the document of "Technical standard system for concrete-filled steel tubular (CFST) structures" and develop ISO deliverables on CFST structures step by step accordingly.
ISO/TC 71/SC 9/RN-9	ISO/TC 71/SC 9 resolves to register the proposal "Design of non-traditional concrete-filled steel tubular (CFST) structures — Part 1: Utilization of recycled aggregate concrete" as a preliminary work item (PWI) and create an ad hoc group to study the proposal until the next ISO/TC 71/SC 9 plenary meeting, and to nominate Prof. Hua Yang as the convenor.

Resolutions

5 Resolutions

- **ISO/TC 71/SC 9/RN-1:** ISO/TC 71/SC 9 resolves to adopt its revised strategic business plan available in document ISO/TC 71/SC 9 N2 with corrections as discussed during the plenary meeting and requests its secretariat to upload its final version in the folder Public information.
- **ISO/TC 71/SC 9/RN-2:** ISO/TC 71/SC 9 asks ISO/TC 71 to be assigned with the maintenance of ISO 16521 "Design of concrete-filled steel tubular (CFST) hybrid structures".
- **ISO/TC 71/SC 9/RN-3:** ISO/TC 71/SC 9 decides to establish a liaison to ISO/TC 167 "Steel and aluminium structures" and a Liaison Representative will be designated later.

5 Resolutions

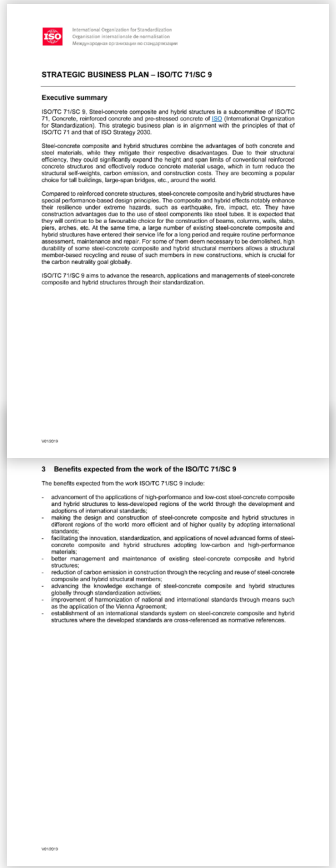
- **ISO/TC 71/SC 9/RN-4:** ISO/TC 71/SC 9 decides to initiate the development of a Technical Report (TR) titled "Design examples of concrete-filled steel tubular (CFST) hybrid structures in accordance with ISO 16521" and register the document as a Working Draft (WD).
- **ISO/TC 71/SC 9/RN-5:** ISO/TC 71/SC 9 decides to establish ISO/TC 71/SC 9/WG 1 "Design of concrete-filled steel tubular (CFST) hybrid structures" to develop the proposed Technical Report (TR) and to maintain ISO 16521.
- **ISO/TC 71/SC 9/RN-6:** ISO/TC 71/SC 9 decides to appoint Dr. Chuanchuan Hou as convenor of ISO/TC 71/SC 9/WG 1.

5 Resolutions

- **ISO/TC 71/SC 9/RN-7:** ISO/TC 71/SC 9 resolves to confirm and agree upon the further revised version of the strategic business plan.
- **ISO/TC 71/SC 9/RN-8:** ISO/TC 71/SC 9 resolves to adopt the strategy proposed by Prof. Lin-Hai Han in the document of "Technical standard system for concrete-filled steel tubular (CFST) structures" and develop ISO deliverables on CFST structures step by step accordingly.
- **ISO/TC 71/SC 9/RN-9:** ISO/TC 71/SC 9 resolves to register the proposal "Design of nontraditional concrete-filled steel tubular (CFST) structures — Part 1: Utilization of recycled aggregate concrete" as a preliminary work item (PWI) and create an ad hoc group to study the proposal until the next ISO/TC 71/SC 9 plenary meeting, and to nominate Prof. Hua Yang as the convenor.

6 Strategic Business Plan (SBP)

- **SBP of TC 71/SC 9** lays out the business environment, benefits expected, representation and participation, objectives, structure, current projects and publications; it was finally adopted through ISO/TC 71/SC 9/RN-7



STRATEGIC BUSINESS PLAN – ISO/TC 71/SC 9

Executive summary

ISO/TC 71/SC 9, Steel-concrete composite and hybrid structures is a subcommittee of ISO/TC 71, Concrete, reinforced concrete and pre-stressed concrete of ISO (International Organization for Standardization). This strategic business plan is in alignment with the principles of that of ISO/TC 71 and that of ISO Strategy 2030.

Steel-concrete composite and hybrid structures combine the advantages of both concrete and steel materials, while they mitigate their respective disadvantages. Due to their structural efficiency, they could significantly expand the height and span limits of conventional reinforced concrete structures and effectively reduce concrete material usage, which in turn reduce the structural self-weights, carbon emission, and construction costs. They are becoming a popular choice for tall buildings, large-span bridges, etc., around the world.

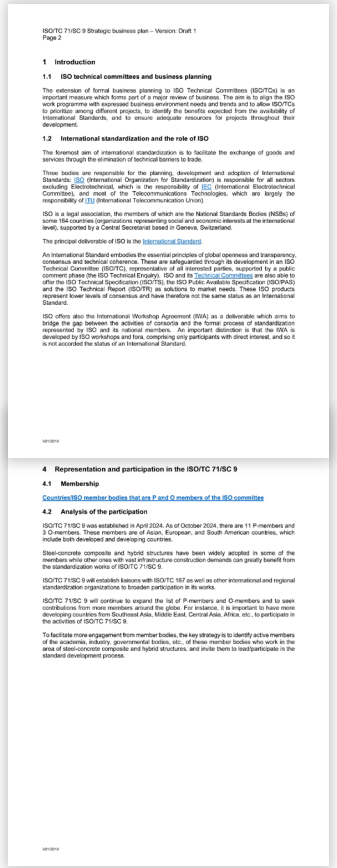
Compared to reinforced concrete structures, steel-concrete composite and hybrid structures have special performance-based design principles. The composite and hybrid effects notably enhance their resilience under extreme hazards, such as earthquake, fire, impact, etc. They have construction advantages due to the use of steel components like steel tubes. It is expected that they will continue to be a favourable choice for the construction of bridges, columns, walls, slabs, etc. in the future. They are also a key part of the sustainable infrastructure development as hybrid structures have entered their service life for a long period and require routine performance assessment, maintenance and repair. For some of them deem necessary to be demolished, high durability of some steel-concrete composite and hybrid structural members allows a structural member-based recycling and reuse of such members in new constructions, which is crucial for the carbon neutrality goal globally.

ISO/TC 71/SC 9 aims to advance the research, applications and managements of steel-concrete composite and hybrid structures through their standardization.

3 Benefits expected from the work of the ISO/TC 71/SC 9

The benefits expected from the work ISO/TC 71/SC 9 include:

- advancement of the applications of high-performance and low-cost steel-concrete composite and hybrid structures to less-developed regions of the world through the development and adoptions of international standards;
- making the design and construction of steel-concrete composite and hybrid structures in different regions of the world more efficient and of higher quality by adopting international standards;
- facilitating the innovation, standardization, and applications of novel advanced forms of steel-concrete composite and hybrid structures adopting low-carbon and high-performance materials;
- better management and maintenance of existing steel-concrete composite and hybrid structures;
- reduction of carbon emission in construction through the recycling and reuse of steel-concrete composite and hybrid structural members;
- advancing the knowledge exchange of steel-concrete composite and hybrid structures globally through standardization activities;
- improvement of harmonization of national and international standards through means such as the application of the Vienna Agreement;
- establishment of an international standards system on steel-concrete composite and hybrid structures where the developed standards are cross-referenced as normative references.



ISO/TC 71/SC 9 Strategic business plan – Version: Draft 1
Page 2

1 Introduction

1.1 ISO technical committees and business planning

The extension of formal business planning to ISO Technical Committees (ISO/TCs) is an important measure which forms part of a major review of business. The aim is to align the ISO work programme with expressed business environment needs and trends and to allow ISO/TCs to prioritize among different projects, to identify the benefits expected from the availability of International Standards, and to ensure adequate resources for projects throughout their development.

1.2 International standardization and the role of ISO

The foremost aim of international standardization is to facilitate the exchange of goods and services through the elimination of technical barriers to trade.

Three bodies are responsible for the planning, development and adoption of International Standards: ISO (International Organization for Standardization) is responsible for all sectors excluding Electrotechnical, which is the responsibility of IEC (International Electrotechnical Committee), and most of the Telecommunications Technologies, which are largely the responsibility of ITU (International Telecommunication Union).

ISO is a legal association, the members of which are the National Standards Bodies (NSBs) of some 164 countries (organizations representing social and economic interests at the international level), supported by a Central Secretariat based in Geneva, Switzerland.

The principal deliverable of ISO is the International Standard.

An International Standard embodies the essential principles of global openness and transparency, consensus and technical coherence. These are safeguarded through its development in an ISO Technical Committee (ISO/TC), representative of all interested parties, supported by a public comment phase (the ISO Technical Enquiry). ISO and its Technical Committees are also able to offer the ISO Technical Specification (ISO/TS), the ISO Public Available Specification (ISO/PAS) and the ISO Technical Report (ISO/TR) as solutions to market needs. These ISO products represent lower levels of consensus and have therefore not the same status as an International Standard.

ISO offers also the International Workshop Agreement (IWA) as a deliverable which aims to bridge the gap between the activities of consortia and the formal process of standardization represented by ISO and its national members. An important distinction is that the IWA is developed by ISO workshops and fora, comprising only participants with direct interest, and so it is not accorded the status of an International Standard.

4 Representation and participation in the ISO/TC 71/SC 9

4.1 Membership

Countries/ISO member bodies that are P and O members of the ISO committee

4.2 Analysis of the participation

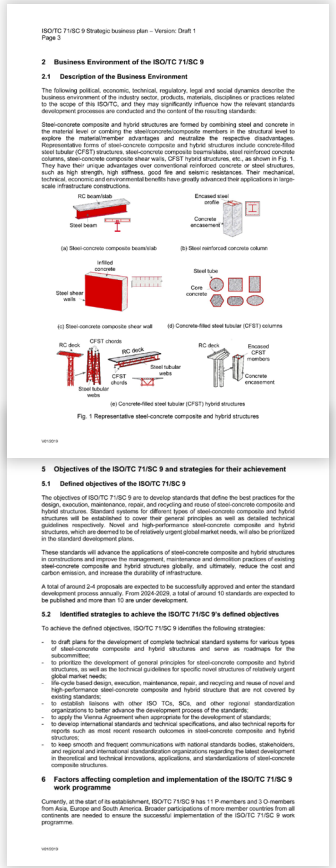
ISO/TC 71/SC 9 was established in April 2024. As of October 2024, there are 11 P-members and 3 O-members. These members are of Asian, European, and South American countries, which include both developed and developing countries.

Steel-concrete composite and hybrid structures have been widely accepted in some of the members while other ones with vast infrastructure construction demands can greatly benefit from the standardization works of ISO/TC 71/SC 9.

ISO/TC 71/SC 9 will establish liaisons with ISO/TC 167 as well as other international and regional standardization organizations to broaden participation in its works.

ISO/TC 71/SC 9 will continue to expand the list of P-members and O-members and to seek contributions from more members around the globe. For instance, it is important to have more developing countries from Southeast Asia, Middle East, Central Asia, Africa, etc., to participate in the activities of ISO/TC 71/SC 9.

To facilitate more engagement from member bodies, the key strategy is to identify active members of the academia, industry, governmental bodies, etc., of these member bodies who work in the area of steel-concrete composite and hybrid structures, and invite them to lead/participate in the standard development process.



ISO/TC 71/SC 9 Strategic business plan – Version: Draft 1
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2 Business Environment of the ISO/TC 71/SC 9

2.1 Description of the Business Environment

The following political, economic, technical, regulatory, legal and social dynamics describe the business environment of the industry sector, products, materials, disciplines or practices related to the scope of this ISO/TC, and they may significantly influence how the relevant standards development processes are conducted and the content of the resulting standards:

Steel-concrete composite and hybrid structures are formed by combining steel and concrete in the material level or combing the steel/concrete/composite members in the structural level to explore the material/member advantages and neutralize the respective disadvantages. Representative forms of steel-concrete composite and hybrid structures include concrete-filled steel tubular (CFST) structures, steel-concrete composite beams/slabs, steel reinforced concrete columns, steel-concrete composite shear walls, CFST hybrid structures, etc., as shown in Fig. 1. They have their unique advantages over conventional reinforced concrete or steel structures, such as high strength, high stiffness, good fire and seismic resistances. Their mechanical, technical, economic and environmental benefits have greatly advanced their applications in large-scale infrastructure constructions.

Fig. 1 Representative steel-concrete composite and hybrid structures

5 Objectives of the ISO/TC 71/SC 9 and strategies for their achievement

5.1 Defined objectives of the ISO/TC 71/SC 9

The objectives of ISO/TC 71/SC 9 are to develop standards that define the best practices for the design, execution, maintenance, repair, and recycling and reuse of steel-concrete composite and hybrid structures. Standard systems for different types of steel-concrete composite and hybrid structures will be established to cover their general principles as well as detailed technical guidelines respectively. Novel and high-performance steel-concrete composite and hybrid structures, which are deemed to be of relatively urgent global market needs, will also be prioritized in the standard development plans.

These standards will advance the applications of steel-concrete composite and hybrid structures in constructions and improve the management, maintenance and demolition practices of existing steel-concrete composite and hybrid structures globally, and ultimately, reduce the cost and carbon emission, and increase the durability of infrastructure.

A total of around 2-4 proposals are expected to be successfully approved and enter the standard development process annually. From 2024-2029, a total of around 10 standards are expected to be published and more than 10 are under development.

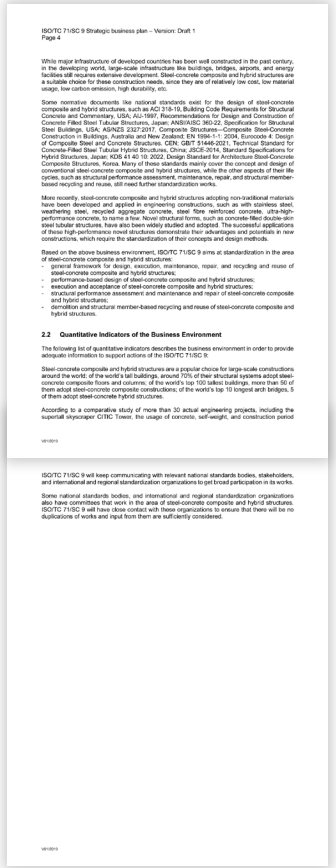
5.2 Identified strategies to achieve the ISO/TC 71/SC 9's defined objectives

To achieve the defined objectives, ISO/TC 71/SC 9 identifies the following strategies:

- to draft plans for the development of complete technical standard systems for various types of steel-concrete composite and hybrid structures and serve as roadmaps for the subcommittee;
- to prioritize the development of general principles for steel-concrete composite and hybrid structures, as well as the technical guidelines for specific novel structures of relatively urgent global market needs;
- life-cycle based design, execution, maintenance, repair, and recycling and reuse of novel and high-performance steel-concrete composite and hybrid structure that are not covered by existing standards;
- to establish liaisons with other ISO TCs, SCs, and other regional standardization organizations to better advance the development process of the standards;
- to apply the Vienna Agreement when appropriate for the development of standards;
- to develop international standards and technical specifications, and also technical reports for reports such as most recent research outcomes in steel-concrete composite and hybrid structures;
- to keep smooth and frequent communications with national standards bodies, stakeholders, and regional and international standardization organizations regarding the latest development in theoretical and technical innovations, applications, and standardizations of steel-concrete composite structures.

6 Factors affecting completion and implementation of the ISO/TC 71/SC 9 work programme

Currently, at the start of its establishment, ISO/TC 71/SC 9 has 11 P-members and 3 O-members from Asia, Europe and South America. Broader participations of more member countries from all continents are needed to ensure the successful implementation of the ISO/TC 71/SC 9 work programme.



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While major infrastructure of developed countries has been well constructed in the past century, in the developing world, large-scale infrastructure like buildings, bridges, airports, and energy facilities still requires extensive development. Steel-concrete composite and hybrid structures are a suitable choice for these construction needs, since they are of relatively low cost, low material usage, low carbon emission, high durability, etc.

Some normative documents like national standards exist for the design of steel-concrete composite and hybrid structures, such as ACI 318-19, Building Code Requirements for Structural Concrete and Commentary, USA; ANSI/AISC 360-22, Specification for Structural Steel Buildings, USA; ANSI/AISC 232-22, Composite Sections for Concrete-Filled Steel Tubular Structures, USA; ANSI/AISC 360-22, Specification for Structural Steel Buildings, USA; AS/NZS 2327:2017, Composite Structures—Composite Steel-Concrete Construction in Buildings, Australia and New Zealand; EN 1994-1-1: 2004, Eurocode 4: Design of Composite Steel and Concrete Structures. CEN; GB/T 51446-2021, Technical Standard for Concrete-Filled Steel Tubular Hybrid Structures, China; JSCE-2014, Standard Specifications for Hybrid Structures, Japan; KDS 41 40 10: 2022, Design Standard for Architecture Steel-Concrete Composite Structures, Korea. Many of these standards mainly cover the concept and design of conventional steel-concrete composite and hybrid structures, while the other aspects of their life cycles, such as structural performance assessment, maintenance, repair, and structural member-based recycling and reuse, still need further standardization works.

More recently, steel-concrete composite and hybrid structures adopting non-traditional materials have been developed and applied in engineering constructions, such as with stainless steel, weathering steel, recycled aggregate concrete, steel fibre reinforced concrete, ultra-high-performance concrete, to name a few. Novel structural forms, such as concrete-filled double-skin steel tubular structures, have also been widely studied and adopted. The successful applications of these high-performance novel structures demonstrate their advantages and potentials in new constructions, which require the standardization of their concepts and design methods.

Based on the above business environment, ISO/TC 71/SC 9 aims at standardization in the area of steel-concrete composite and hybrid structures:

- general framework for design, execution, maintenance, repair, and recycling and reuse of steel-concrete composite and hybrid structures;
- performance-based design of steel-concrete composite and hybrid structures;
- execution and acceptance of steel-concrete composite and hybrid structures;
- structural performance assessment and maintenance and repair of steel-concrete composite and hybrid structures;
- demolition and structural member-based recycling and reuse of steel-concrete composite and hybrid structures.

2.2 Quantitative Indicators of the Business Environment

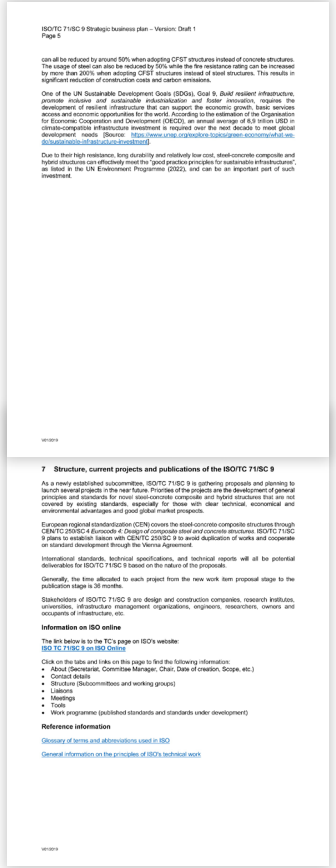
The following list of quantitative indicators describes the business environment in order to provide adequate information to support actions of the ISO/TC 71/SC 9:

Steel-concrete composite and hybrid structures are a popular choice for large-scale constructions around the world; of the world's tall buildings, around 70% of their structural systems adopt steel-concrete composite floors and columns; of the world's top 100 tallest buildings, more than 50 of them adopt steel-concrete composite constructions; of the world's top 10 longest arch bridges, 5 of them adopt steel-concrete hybrid structures.

According to a comparative study of more than 30 actual engineering projects, including the supertall skyscraper CITIC Tower, the usage of concrete, self-weight, and construction period

ISO/TC 71/SC 9 will keep communicating with relevant national standards bodies, stakeholders, and international and regional standardization organizations to get broad participation in its works.

Some national standards bodies, and international and regional standardization organizations also have committees that work in the area of steel-concrete composite and hybrid structures. ISO/TC 71/SC 9 will have close contact with these organizations to ensure that there will be no duplications of works and input from them are sufficiently considered.



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can all be reduced by around 50% when adopting CFST structures instead of concrete structures. The usage of steel can also be reduced by 50% while the fire resistance rating can be increased by more than 200% when adopting CFST structures instead of steel structures. This results in significant reduction of construction costs and carbon emissions.

One of the UN Sustainable Development Goals (SDGs), Goal 9, *Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation*, requires the development of resilient infrastructure that can support the economic growth, basic services access and economic opportunities for the world. According to the estimation of the Organisation for Economic Cooperation and Development (OECD), an annual average of 6.9 trillion USD in climate-compatible infrastructure investment is required over the next decade to meet global development needs. [Source: https://www.unep.org/explore-topics/green-economy/what-we-do/sustainable-infrastructure-investment]

Due to their high resistance, long durability and relatively low cost, steel-concrete composite and hybrid structures can effectively meet the "good practice principles for sustainable infrastructure", as listed in the UN Environment Programme (2022), and can be an important part of such investment.

7 Structure, current projects and publications of the ISO/TC 71/SC 9

As a newly established subcommittee, ISO/TC 71/SC 9 is gathering proposals and planning to launch several projects in the near future. Priorities of the projects are the development of general principles and standards for novel steel-concrete composite and hybrid structures that are not covered by existing standards, especially for those with clear technical, economical and environmental advantages and good global market prospects.

European regional standardization (CEN) covers the steel-concrete composite structures through CEN/TC 250/SC 4 *Eurocode 4: Design of composite steel and concrete structures*. ISO/TC 71/SC 9 plans to establish liaison with CEN/TC 250/SC 9 to avoid duplication of works and cooperate on standard development through the Vienna Agreement.

International standards, technical specifications, and technical reports will all be potential deliverables for ISO/TC 71/SC 9 based on the nature of its proposals.

Generally, the time allocated to each project from the new work item proposal stage to the publication stage is 36 months.

Stakeholders of ISO/TC 71/SC 9 are design and construction companies, research institutes, universities, infrastructure management organizations, engineers, researchers, owners and occupants of infrastructure, etc.

Information on ISO online

The link below is to the TC's page on ISO's website:
ISO TC 71/SC 9 on ISO Online

Click on the tabs and links on this page to find the following information:
- About (Secretariat, Committee Manager, Chair, Date of creation, Scope, etc.)
- Contact details
- Structure (Subcommittees and working groups)
- Liaisons
- Meetings
- Tools
- Work programme (published standards and standards under development)

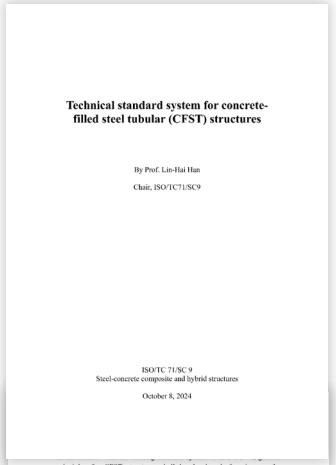
Reference information

Glossary of terms and abbreviations used in ISO

General information on the principles of ISO's technical work

6 Strategic Business Plan (SBP)

- **Strategy for the establishment of a standard system** for concrete-filled steel tubular (CFST) structures, proposed by Chair, Prof. Lin-Hai Han, is also developed and adopted through ISO/TC 71/SC 9/RN-8



Technical standard system for concrete-filled steel tubular (CFST) structures

By Prof. Lin-Hai Han

Chair, ISO/TC71/SC9

ISO/TC 71/SC 9
Steel-concrete composite and hybrid structures

October 8, 2024

principles for CFST structures shall be developed, focusing on the essential and fundamental requirements for the design, construction, and maintenance of CFST structures to meet the performance requirements of engineering projects. They aim to establish common and universally applicable key technical measures for engineering projects utilizing CFST structures.

The general principles for CFST structures will be closely aligned with the strategies, policies, and regulations of both developed and developing countries in ISO/TC 71/SC 9, establishing comprehensive provisions for such structures. Thus, the following ISO standard is expected to be developed:

- *General principles for concrete-filled steel tubular (CFST) structures*

4. Technical guidelines for concrete-filled steel tubular (CFST) structures

In addition to general principles, it is necessary to develop multi-level technical guidelines in the CFST technical standard system. The standards with technical guidelines will provide provisions for the design, construction, acceptance, maintenance, repair, reuse, and recycling of CFST structures. At the technical guidelines level, these can be further categorized into three tiers based on their technical attributes and applicable boundaries: basic guidelines, guidelines for non-traditional CFST structures, and specific guidelines.

4.1 Basic guidelines for CFST structures

Basic guidelines for CFST structures can serve as a foundation for other technical guidelines within this field and be widely utilized. The basic guidelines focus on the technical provisions with broad guiding significance regarding terms, materials, structural analysis, resistance calculations, structural design, construction, acceptance, etc. The

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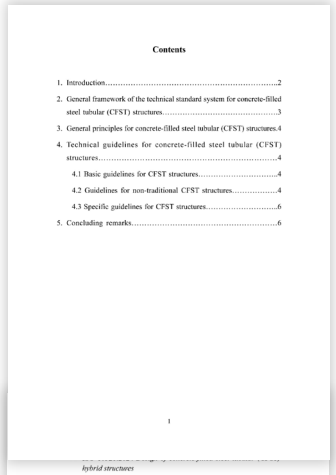

Contents

1

hybrid structures

4.2 Guidelines for non-traditional CFST structures

Based on the basic guidelines for CFST structures, the guidelines for non-traditional CFST structures are to be further developed. The foundational theories, design methods, and requirements adopted in this set of standards will be consistent with the basic guidelines for CFST structures. Relevant provisions will be specifically developed according to the characteristics of the non-traditional CFST structures. The guidelines for non-traditional CFST structures serve as a beneficial supplement to the basic guidelines and are key to maintaining the technical system for CFST structures advanced, innovative, and dynamic.

The guidelines for non-traditional CFST structures are expected to consist of the following ISO standards:

- CFST structures utilizing new materials:
  1) *Design of non-traditional concrete-filled steel tubular (CFST) structures — Part 1: Utilization of recycled-aggregated concrete*
  2) *Design of non-traditional concrete-filled steel tubular (CFST) structures — Part 2: Utilization of stainless steel tubes*
  3) *Design of non-traditional concrete-filled steel tubular (CFST) structures — Part 3: Utilization of ultra-high strength steel tubes and/or high-strength concrete*

- CFST with new cross-sections/forms:
  1) *Design of non-traditional concrete-filled steel tubular (CFST) structures — Part 4: With internal hollow sections*
  2) *Design of non-traditional concrete-filled steel tubular (CFST) structures — Part 5: With special-shaped cross-sections*
  3) Other related standards

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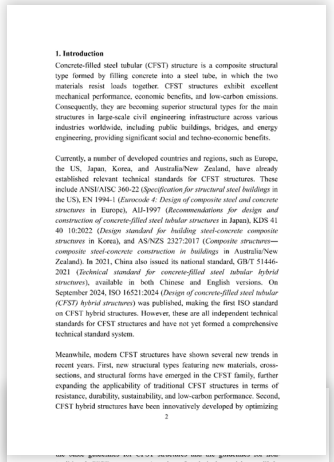

1. Introduction

Concrete-filled steel tubular (CFST) structure is a composite structural type formed by filling concrete into a steel tube, in which the two materials resist loads together. CFST structures exhibit excellent mechanical performance, economic benefits, and low-carbon emissions. Consequently, they are becoming superior structural types for the main structures in large-scale civil engineering infrastructure across various industries worldwide, including public buildings, bridges, and energy engineering, providing significant social and techno-economic benefits.

Currently, a number of developed countries and regions, such as Europe, the US, Japan, Korea, and Australia/New Zealand, have already established relevant technical standards for CFST structures. These include ANSI/AISC 360-22 (*Specification for structural steel buildings* in the US), EN 1994-1 (*Eurocode 4: Design of composite steel and concrete structures* in Europe), AIJ-1997 (*Recommendations for design and construction of concrete-filled steel tubular structures* in Japan), KDS 41 40 10:2022 (*Design standard for building steel-concrete composite structures* in Korea), and AS/NZS 2327:2017 (*Composite structures—composite steel-concrete construction in buildings* in Australia/New Zealand). In 2021, China also issued its national standard, GB/T 51446-2021 (*Technical standard for concrete-filled steel tubular hybrid structures*), available in both Chinese and English versions. On September 2024, ISO 16521:2024 (*Design of concrete-filled steel tubular (CFST) hybrid structures*) was published, making the first ISO standard on CFST hybrid structures. However, these are all independent technical standards for CFST structures and have not yet formed a comprehensive technical standard system.

Meanwhile, modern CFST structures have shown several new trends in recent years. First, new structural types featuring new materials, cross-sections, and structural forms have emerged in the CFST family, further expanding the applicability of traditional CFST structures in terms of resistance, durability, sustainability, and low-carbon performance. Second, CFST hybrid structures have been innovatively developed by optimizing

2

traditional CFST structures. A series of technical provisions will be established for CFST structures, focusing on key mechanical performance indicators, construction quality, and structural performance under service conditions or after extreme disaster impacts during the stages of research, design, construction, acceptance, maintenance, repair, and recycling. The specific technical guidelines are expected to consist of the following ISO standards:

1) *Specific guidelines for concrete-filled steel tubular (CFST) structures — Part 1: Mechanical testing*
2) *Specific guidelines for concrete-filled steel tubular (CFST) structures — Part 2: steel tube fabrication*
3) *Specific guidelines for concrete-filled steel tubular (CFST) structures — Part 3: core concrete filling*
4) *Specific guidelines for concrete-filled steel tubular (CFST) structures — Part 4: Inspection*
5) *Specific guidelines for concrete-filled steel tubular (CFST) structures — Part 5: Assessment and repair*
6) *Specific guidelines for concrete-filled steel tubular (CFST) structures — Part 6: Demolition, reuse, and recycling*
7) Other related standards

5. Concluding remarks

After decades of engineering practice, concrete-filled steel tubular (CFST) structures have gained widespread recognition among design and construction professionals globally. This type of structure has become an important branch of structural engineering, with its foundational theories, analytical methods, and construction techniques undergoing unprecedented development. Consequently, establishing and developing a CFST technical standard system is both necessary and inevitable. The established ISO/TC 71/SC 9 *Steel-concrete composite and hybrid*

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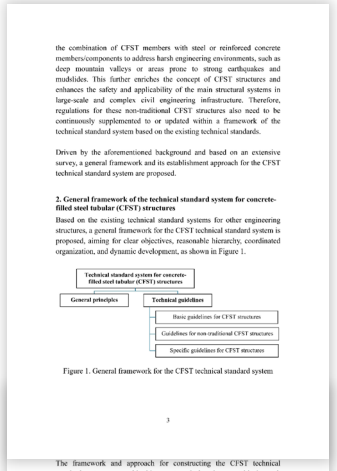

the combination of CFST members with steel or reinforced concrete members/components to address harsh engineering environments, such as deep mountain valleys or areas prone to strong earthquakes and mudslides. This further enriches the concept of CFST structures and enhances the safety and applicability of the main structural systems in large-scale and complex civil engineering infrastructure. Therefore, regulations for these non-traditional CFST structures also need to be continuously supplemented to or updated within a framework of the technical standard system based on the existing technical standards.

Driven by the aforementioned background and based on an extensive survey, a general framework and its establishment approach for the CFST technical standard system are proposed.

2. General framework of the technical standard system for concrete-filled steel tubular (CFST) structures

Based on the existing technical standard systems for other engineering structures, a general framework for the CFST technical standard system is proposed, aiming for clear objectives, reasonable hierarchy, coordinated organization, and dynamic development, as shown in Figure 1.

Figure 1. General framework for the CFST technical standard system

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The framework and approach for constructing the CFST technical standard system proposed in this report are designed to meet this demand. All standards within the framework will adhere to the principle of coordination with other existing ISO standards, particularly the ISO standards related to materials, load actions, and reliability. This principle and the corresponding common standards form the foundation of the report. Similar to other engineering construction standard systems, the CFST technical standard system and the associated standards are dynamically evolving and should continually adapt to the strategies, policies, and regulations of both developed and developing countries. They should also iterate new methods and technologies for design, construction, acceptance, maintenance, repair, reuse, and recycling, leading to the ongoing supplementation, updating, or adjustment of relevant standards within the CFST technical standard system.

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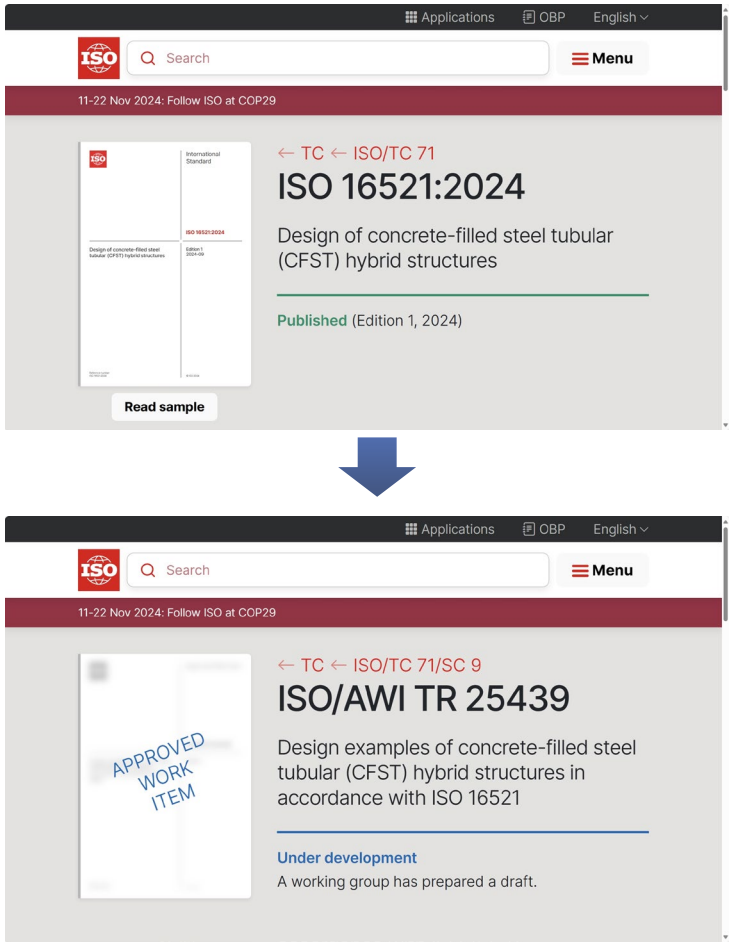
7 Work programme

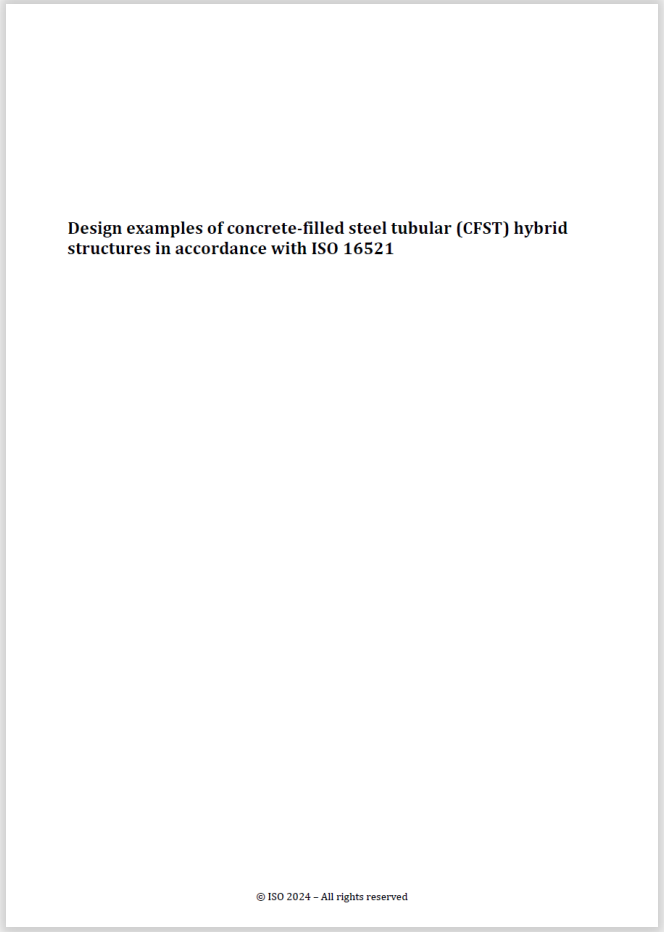
ISO/AWI TR 25439, Design examples of concrete-filled steel tubular (CFST) hybrid structures in accordance with ISO 16521

- ✓ A design example document has been prepared by **ISO/TC 71/WG 2** during the CD stage of project 16521
- ✓ The first draft was first discussed on **Oct. 04, 2023** during the 2nd ISO/TC 71/WG 2 meeting
- ✓ **A ballot on the development of the TR** was initiated on initiated on Sept. 18, 2024 and closed on Nov. 12, 2024
- ✓ The proposal for the development of the TR was approved and the **resolutions RN-4, RN-4 and RN-5** was adopted



7 Work programme

ISO/AWI TR 25439, Design examples of concrete-filled steel tubular (CFST) hybrid structures in accordance with ISO 16521


Design examples of concrete-filled steel tubular (CFST) hybrid structures in accordance with ISO 16521

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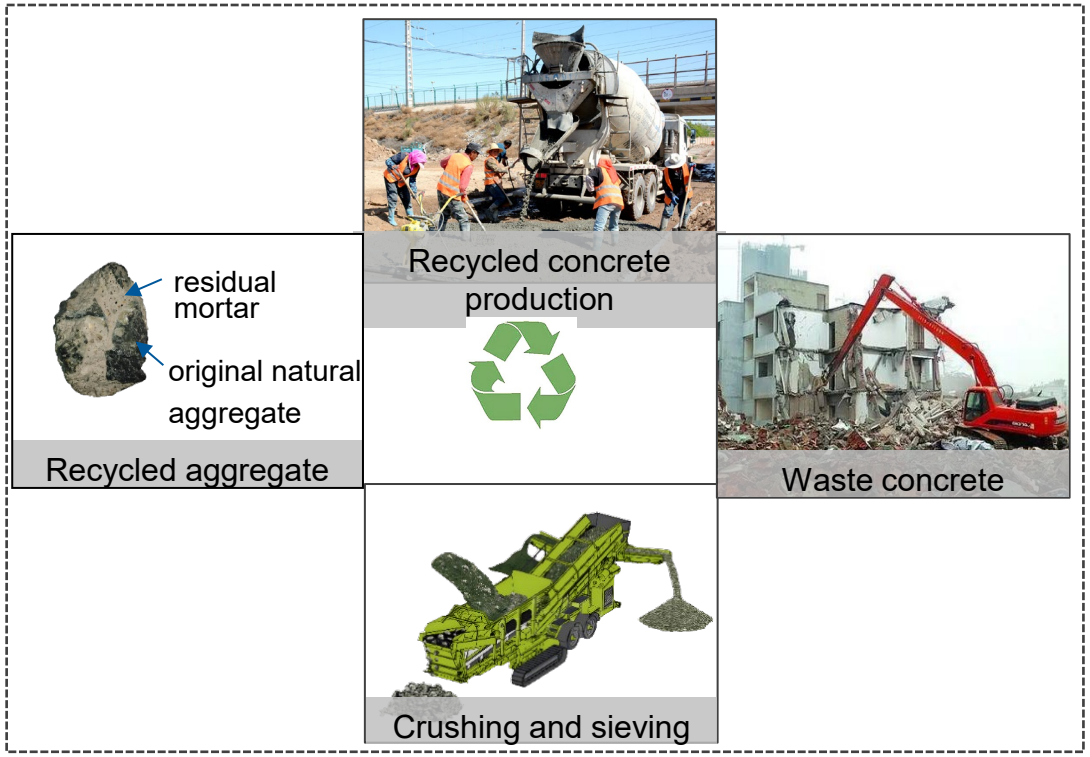
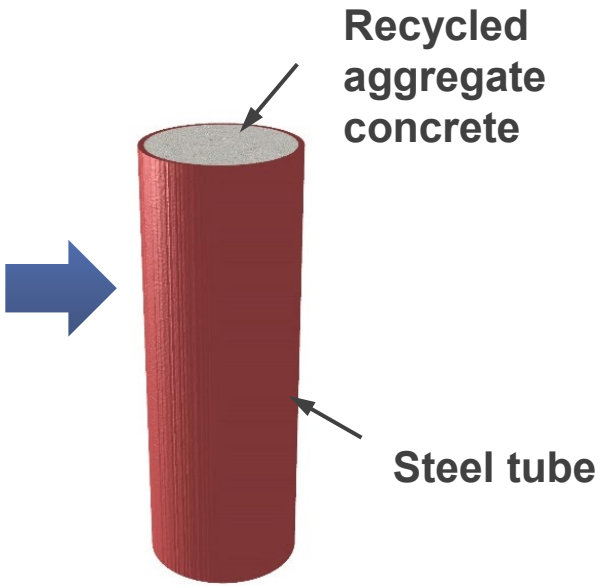
Contents

7 Work programme

- **ISO/PWI 25632-1, Design of non-traditional concrete-filled steel tubular (CFST) structures — Part 1: Utilization of recycled aggregate concrete**





Recycled aggregate concrete – filled steel tubes

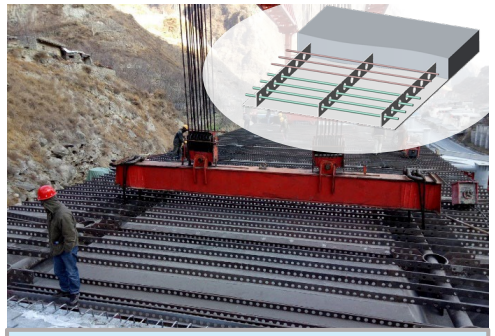
ISO/TC 71/SC 9 /AHG 1 is calling for experts to join

Convenor: Prof. Hua Yang

(yanghua@hit.edu.cn)

8 Possible project

- **Proposal discussed:** Steel and flexurally toughened concrete (Steel-FTC) composite bridge deck



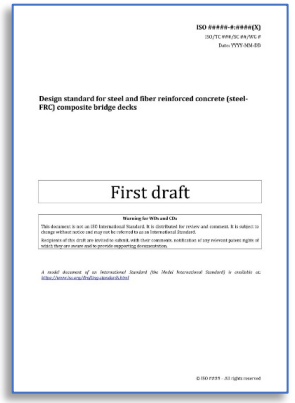
Planar deck

Corrugated deck

- Lighter weight
- Higher strength
- Better durability
- Simple construction
- Excellent span-adaptability

- Applicable to various bridge types and spans.
- Particularly suitable for countries/regions with underdeveloped economy, frequent natural disasters and complex construction environment.

- Over 100 application projects.



Please contact the proposers for discussions if you are interested

Mr. Tingmin Mou

(moutm@vip.sina.com)

Miss Haoyuan Bai

(baihaoyuan@schdri.com)

Acknowledges

- Prof. Ueda, Prof. Yokota, and Dr Rossi for their support of the establishment of ISO/TC 71/SC 9
- ISO/TC 71/SC 9 experts and representatives from Bangladesh, Brazil, Brunei Darussalam, China, Germany, India, Japan, Korea, Saudi Arabia, Türkiye, United Kingdom, Czech Republic, Poland, Spain
- Fellow TC 71/SCs for their help to TC 71/SC 9
- Host of the meeting

Thank you!

ISO/TC 71/WG 1

Life-cycle management of concrete structures

9. Report from ISO/TC 71/WG 1

7th ISO/TC 71/WG 1 meeting, 2024-11-21; 14:00-15:10 ICT

20 experts attended from Brazil, China, Japan, Korea, and Norway

9. Report from ISO/TC 71/WG 1

ISO 22040, Life cycle management of concrete structures

- Published on 2021-01-29

ISO 22040-2, Life cycle management of concrete structures – Part 2: Structural planning and design stage

- FDIS registered on 2024-01-03
- FDIS ballot ended on 2024-04-13
- Published on 2024-05-02

ISO 22040-3, Life cycle management of concrete structures – Part 3: Execution stage

- CD consultation ended on 2024-03-31
- DIS registered on 2024-06-12
- DIS ballot ended on 2024-11-06
- 16 comments were received, all of which are editorial.

ISO 22040-4, Life cycle management of concrete structures – Part 4: Use stage

- Concept of the document was presented, followed by discussion.

Conclusions

ISO/TC 71/WG 1 agrees to skip FDIS ballot of ISO 22040-3 and to move on to the publication stage because no technical comments have been received. ISO/TC 71/WG 1 requires to circulate the final document for check of WG 1 experts before the submission to ISO-CS.

ISO/TC 71/WG 1 agrees to continue studying ISO 22040-4 and to circulate the draft by August 2025 for PWI registration.

ISO/TC 71/AHG 1

Concrete materials terminology

Activity report of ISO/TC 71 Ad hoc group 1 toward development of terminology related to concrete

ISO/TC71 AHG 1 Convenor
Shingo Asamoto
Saitama university, Japan
2024/11/22

History and members of AHG1

The establishment of AHG 1 “Concrete materials terminology” was approved Feb. 2023.

Members

- ✓ Australia (1)
- ✓ Brazil (1)
- ✓ China (3)
- ✓ India (1)
- ✓ Iran (2)
- ✓ Japan (3)
- ✓ Russia (2)

Activities in 2023

- 1st meeting: 2023/5/11@virtual meeting, 7 participants
- 2nd meeting: 2023/7/26@virtual meeting, 11 participants
- 3rd meeting: 2023/9/12@virtual meeting, 10 participants
- 4th meeting: 2023/11/2@virtual meeting, 7 participants
- 5th meeting: 2023/11/28@hybrid meeting (Nanning +Zoom), 9 participants

Extension of activity was approved at the 28th TC71 plenary meeting in Nanning on 27 November 2023.

Short summary of discussion in 2023

- Series: Concrete terminology
- Scope: This international standard provides a compilation of terms related to concrete and concrete structures
- Contents: Terminology development with both material and structural aspects
- Part I: Principle of term categorization

Series and provisional part constitution

Series: Concrete terminology

PART I
Principle of term categorization

Categorization definition of terms in each part

PART II
Materials

- Binder
- Aggregate
- Concrete
- Concrete type
- …

PART III
Mix design

- Design strength
- Setting time
- Slump
- Water-to-cement ratio
- Water-to-binder ratio
- …

PART IV
Production

- Storage facilities
- Mixer
- Measuring equipment
- Mixing
- …

PART V
Quality control & inspection

- Transportation time
- Placing temperature
- Vibration
- Non-destructive test
- …

PART VI
Performance

- Strength
- Workability
- Serviceability
- Structural safety
- Durability
- Environmental impact
- Environmental safety
- …

PART I (Principle of term categorization) and PART II (Materials) will be standardized firstly and other parts will be discussed based on the work on parts I and II.

Activity of ISO/TC71/AHG1 2024

- 6th meeting: 2024/3/7@virtual meeting, 11:00-12:50 UTC

  7 participants: Shingo Asamoto, Tetsushi Kanda, Kazuma Igarashi, Hua Yang, Yue Geng, Sofia Maria Carrato Diniz, Vyacheslav Falikman

  Discussion on the contents of Part I and Part II.

- 7th meeting: 2024/6/4@virtual meeting, 11:00-13:15 UTC

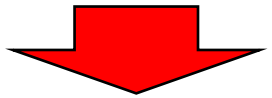
  11 participants: Shingo Asamoto, Tetsushi Kanda, Kazuma Igarashi, Chuanchuan Hou, Yue Geng, Sofia Maria Carrato Diniz, Vyacheslav Falikman, Brijesh Singh, Aria Vand, Mostapha Vand, Tamon Ueda

  Discussion on part constitution and draft of Part I proposed by experts in Japan

- 8th meeting: 2024/9/4@virtual meeting, 11:00-12:30 UTC

  8 participants: Shingo Asamoto, Kazuma Igarashi, Chuanchuan Hou, Yue Geng, Jim Forbes, Vyacheslav Falikman, Aria Vand, Mostapha Vand

  Discussion on documents for NP ballot of working group establishment for Part I and schedule



The NP ballot to establish a Working Group (WG) for the development of Part I has been initiated on 17 October 2024.

Discussion at TC71/AHG1

- Japan proposed to reconstruct “Materials” to deal with fundamental terms such as “concrete” and its constituents as a Part I, considering other part development independently.

  Delegates emphasized the importance of aligning definitions with national standards to avoid conflicting interpretations. The terms in other parts can be defined based on the categorization in Part I avoiding overlapping. It was agreed again that Part I is “Principle of term categorization”.

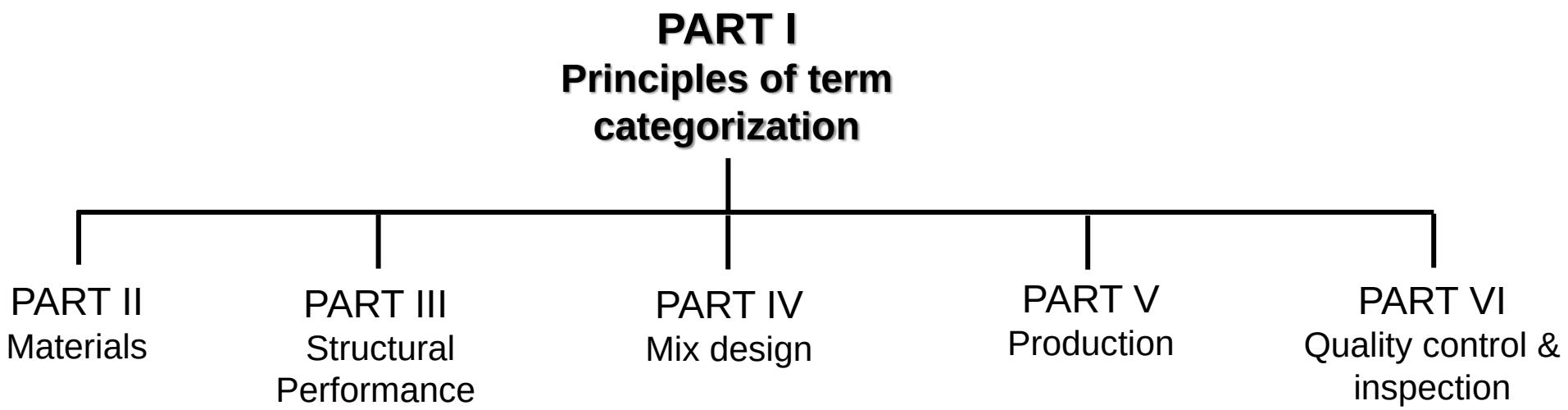
- How are terms related to structures implemented, for example, reinforced concrete”, “prestressed concrete”, “punching shear strength”, bond strength, “fatigue strength”, “anchorage length” and others?

  They can be involved in Part II of “Materials” and Part III of “Structural performance”. It is not necessary to make an independent part to deal with terms related to structures.

- The terminology requirement can be dependent on situation of developed and developing countries. For example, the terms such as "sustainability" or "environmental performance“ would be for developed countries while conventional terms is needed in developing countries.

  The involvement from many countries is necessary when working group is established.

Part structure



- ✓ The title of each part should be defined in Part I.
- ✓ The content of each part defined in Part I can directly connect with the term categorization.
- ✓ The categorization should be simple but broad, with an emphasis on concepts and not just a list of items.

Draft of Part I

1 Scope

This document provides general principles of term categorization in the standard of terminology related to concrete and concrete structures. This includes the part constitution and content in the standard.

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2 Normative references

3 Terms and definitions

No terms and definitions are listed in this document.

4 General principle of concrete terminology

As concrete constituents, properties, design, application and engineering practices differs between countries/regions, concrete terminology shall be defined in accordance with the following principles.

- Quantitative criteria or range should be avoided. When numerical definition is un-avoidable, difference between countries/region shall be covered either by listing or by widening or narrowing the range.
- 2 or more different definition can be accepted when the term is used in both broad and narrow sense.
- A term can be categorized to multiple categories.
- Terms for region specific materials or production methods can be included in this standard as far as the definition reaches consensus.

NOTE 1: Quantitative criteria includes, for example, to set specific compressive strength for a definition of high strength concrete.
NOTE 2: Region specific materials include, for example, materials which are used for concrete only in specific regions or novel materials which can be produced in specific regions.

5 Term categorization in each part

The standard of terminology consists of six parts. Part I categorizes terms related to concrete and concrete structures into each part as follows:

Part II shall define terminology for concrete and its constituent materials. This part can include the essential materials required for the composition of concrete, such as binders and aggregates, as well as materials required for the intended applications and usage purposes, such as admixtures and additives, and materials essential for the construction of concrete structures as reinforcement, strengthening, repairing and others.

Part III shall define terminology related to the structural performance of concrete structures. This part can include safety, serviceability, durability, sustainability, service life, fire resistance, environmental performance, etc.. It can also include terminology related to the properties of concrete that are necessary to explain each performance, for example the safety section can include terminology related to the design of concrete structures such as safety factor, design strength, reinforcement ratio and cover concrete depth.

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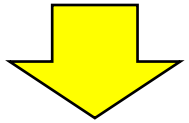
Part IV shall define terminology related to the mix design of concrete. In addition to essential terminology in the process of concrete mix design of concrete, such as water-cement ratio and unit water content, this part can include terminology related to the properties of fresh concrete, such as workability and consistency and terminology related to the properties of hardened concrete, such as strength properties and volume change.

Part V shall define terminology related to the production of concrete. This part can include terminology related to the process of concrete production, such as storage, measurement and mixing of materials, and terminology related to concrete production equipment. It shall cover both cast-in-place and precast concrete. However, it shall not include terminology related to the transportation of the concrete after it has been produced.

Part VI shall define terminology related to the quality control and inspection of concrete materials, reinforcing steel, manufacture, and properties. This part shall not include terminology related to the quality control and inspection of concrete construction.

Agenda for new WG (if approved)

- Call more delegates from more various countries
- Survey on terminology in other standards
- Enhancement of the Part I draft with more appropriate term categorization for other parts
- Allocation of terms related to structures
- Fundamental terminology such as “concrete”, “reinforcement materials” and others



We would like to invite more delegates from various countries to discuss international terminology.

ISO/TC 71/CAG

Chair Advisory Group

ISO/TC71 CAG (Chair Advisory Group) Mtg.

Hybrid

2024-11-19 5:30-6:50 (UTC)

2. Meeting and attendant

	Ueda Tamon	Convenor
	Yokota Hiroshi	CM & WG1
V	Sikuler Yossi	SC1
N	Shamir Nir	SC1
	Karlsen Jan	SC3
	Tøsse Åsmund Eikeland	SC3
V	Kuzevanov Dmitry	SC4
V	Chaltseva Alexandra	SC4
	Sim Jongsung	SC5
	Kim Dong Joo	SC5

	Kanakubo Toshiyuki	SC6
N	Dai Jian-Guo	SC6
	Kanematsu Manabu	SC7
	Shin Soobong	SC7
	Noguchi Takafumi	SC8
	Fujimoto Satoshi	SC8
	Han Linhai	SC9
	Hou Chuanchuan	SC9
N	Asamoto Shingo	AHG1
V	Rossi Anna Caterina	TPM

* V: virtual attendance, N: no attendance

Hybrid at Bliston Suwan Park View Hotel & Serviced Residence, 2024-11-19 5:30-6:50 (UTC)

3. Meeting agenda

1. Opening of the meeting (12:45 UTC+7)
2. Welcome and Introductions
3. Work environment: Presentation on the ISO Code of Ethics and Conduct
4. Adoption of the agenda (**CAG-N022**)
5. Discussion on the activities in TC 71 **5.1 Update the scope of TC 71** 5.2 Disbandment of TC 71/WG 2 and Maintenance of ISO 16521:2024 5.3 Achievement of ISO/TC 71/AHG 1 on concrete materials terminology **5.4 A basic rule of applying for the ISO Excellence Award** **5.5 New work item proposal on non-destructive test by TC 71/SC 1** 5.6 Others
6. Date and venue of next meeting of ISO/TC71 and CAG
7. Closure of the meeting (13:58 UTC+7)

Present

Standardization of the technology of concrete, of the design and construction of concrete, reinforced concrete and pre-stressed concrete structures, so as to ensure progressive development both in quality and in price reduction; and of definitions and terms, as well as testing procedures, to facilitate international exchange of research work.

Revision [draft]

Standardization of the technology of concrete and non-traditional reinforcing materials, of the design, construction and maintenance of concrete and steel-concrete hybrid structures, so as to ensure progressive development in quality, cost efficiency and environmental-friendliness; and of definitions and terms, as well as testing procedures, to facilitate international exchange of research work.

Meeting outcomes

Considering various opinions raised during CAG meeting, Chair and Committee Manager of CAG will prepare the revised draft for the further discussion and approval by TC71

3.2 Disbandment of TC 71/WG 2 and Maintenance of ISO 16521:2024

ISO/TC 71/SC 9 *Steel-concrete composite and hybrid structures* was established in April 2024. Accordingly, ISO/TC 71/WG 2 Design of concrete-filled steel tubular (CFST) hybrid structures terminates its activity and will be disbanded at the TC 71 plenary meeting.

ISO 16521:2024 *Design of concrete-filled steel tubular (CFST) hybrid structures* had been prepared by TC 71/WG 2 and was published in September 2024. After the disbandment of TC 71/WG 2, its maintenance will be assigned to TC 71/SC 9.

TC 71/AHG 1 concludes its activity by launching an NP ballot on ISO/NP 25511-1 Concrete terminology — Part 1: Principles of term categorization on 2024-10-15. It is not allowed to have discussions on it during the ballot period; however, if the NP is approved, the standardization activity will be assigned to a new working group (TC 71/WG 3).

Objective of the award

To recognize the contribution of individuals for recent achievements related to ISO's technical work that can be considered as a major contribution to furthering the interests of standardization and related activities.

Selection

Candidates may be nominated by their peers (other experts, project leader, convenor), by the Chair or Committee Manager of the relevant committee (TC, SC or PC) or by the ISO/CS TPM. In case of nominations in SCs, the TC leadership (Chair or Committee Manager) shall be informed of these nominations.

When considering nominees, the nominating person shall consider those individuals who have made an exceptional contribution to the development of a specific project. This contribution may be of a technical or organizational nature.

It is up to the committee leadership to determine the criteria by which they confirm award recipients, based on what is most relevant to their particular TC.

Eligibility

Any individual nominated in the capacity of expert, project leader or convenor in the working groups of the TC and its SCs is eligible for the award.

Note: Chairs and Committee Managers are not themselves eligible for this award. However, if an expert is active in a given TC or SC but is also a Chair or Committee Manager of another TC or SC, this person is still eligible to receive the award in his/her capacity as expert, project leader or convenor.

Form and presentation of award

The award shall be in the form of a certificate, signed by the ISO Secretary-General. It shall be presented by the committee leadership at the next plenary meeting of the committee or other appropriate event.

In addition, coverage may be given to the award recipients by the committee (via its website, social media, newsletters or other avenues, as it sees fit). Appropriate publicity should also be given to the granting of the award at national level, at the discretion of the relevant ISO Member Body.

The recipient, as well as the relevant ISO Member Body, are encouraged to inform the company/organization employing the recipient of this award.

3.4 A basic rule of applying for the ISO Excellence Award

Number of awards per year/TC

There is no limit on the number of awards per year, or per TC. However, all awards must be conferred for a significant contribution to a project that has been completed (published) within the last year.

3.4 A basic rule of applying for the ISO Excellence Award

Administration of the award

Nominating persons are invited to fill out the form (above) and return it to their committee secretariat. Upon receipt of the nomination, the Committee Manager will discuss the nomination with the committee chair and Technical Programme Manager (TPM) in order to confirm its veracity. The secretariat will then send it to the TPM at ISO/CS (and inform the secretariat of the TC in case of nominations in SC). There is no specific deadline. Requests for awards will be processed throughout the year, as they are received.

The TPM will order the certificate, which will be on a standard template, but will be personalized with the details specified on the form (recipient's name, organization, title of project in question, specific details of achievement, if relevant).

The TPM will inform the relevant member body that their expert has received the award.

ISO/CS will print and deliver the certificate to the committee leadership, who are responsible for awarding it at their next meeting or other event, as they deem appropriate.

Meeting outcomes

Chair and Committee Manager of CAG will prepare the guidelines for nomination within TC71 for confirmation by CAG and TC71

3.5 New work item proposal on non-destructive test

TC 71/SC 1 will present the background and proposal at TC71 Plenary meeting.

4. Date and venue of next meeting of ISO/TC71 and CAG

Possibly 4th quarter of Year 2025

Hybrid style meeting

Any proposal? – Self-nomination or Recommendation

5. Closing

Thank you for your attention