



भारतीय मानक ब्यूरो BUREAU OF INDIAN STANDARDS

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CIRCULATION

DOCUMENT DESPATCH ADVICE

Reference	Date
CED 2:2/T- 5	16 March 2009

Technical Committee:

Cement and Concrete Sectional Committee, CED 2

ADDRESSED TO :

1. All Members of Civil Engineering Division Council, CEDC
2. All Members of CED 2 and its concerned Subcommittees and Panels
3. All other interests

Dear Sir(s),

Please find enclosed the following draft amendment:

Doc No: CED 2(7634) : Draft Amendment No. 4 to IS 456:2000 Code of Practice for Plain and reinforced concrete (*fourth revision*)

Kindly examine the draft amendment and forward your views stating any difficulties which you are likely to experience in your business or profession, if this is finally adopted as an Amendment to National Standard.

Last Date for comments: **15 May 2009**

Comments if any, may please be made in the enclosed format and mailed to the undersigned at the above address. Kindly feel free to send your comments, if any on other clauses of the standard. You are requested to send your comments preferably through e-mail to sanjaypant@bis.org.in.

In case no comments are received or comments received are of editorial nature, you may kindly permit us to presume your approval for the above document as finalized. However, in case of comments of technical nature are received then it may be finalized either in consultation with the Chairman, Sectional Committee or referred to the Sectional Committee for further necessary action if so desired by the Chairman, Sectional Committee.

The document is also hosted on BIS website www.bis.org.in.

Thanking you,

Yours faithfully,

(A.K. Saini)
Scientist `F` & Head (Civil Engg)
Tele/Fax: 011 23235529

Encl: as above

FORMAT FOR SENDING COMMENTS ON BIS DOCUMENTS

[Please use A4 size sheet of paper only and type within fields indicated. Information in column (3) should include reasons for comments, technical references and suggestions for modified wording of the clause when the existing text is found not acceptable. **Comments through e-mail to sanjaypant@bis.org.in shall be appreciated.**]

Name of the Commentator/ Organization: _____

BIS Document No.: CED 2 (7634) **Title:** Draft AMENDMENT NO. 4 TO IS 456:2000 PLAIN AND REINFORCED CONCRETE – CODE OF PRACTICE

BIS Letter Reference No. CED 2:2/T-5

Dated 16 March 2009

Clause/ Figure/ Table No.	Comments/ Modified Wordings	Justification of Proposed Change
(1)	(2)	(3)

BUREAU OF INDIAN STANDARDS

DRAFT FOR COMMENTS ONLY

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Draft AMENDMENT NO. 4

TO

IS 456:2000 PLAIN AND REINFORCED CONCRETE – CODE OF PRACTICE

(Fourth Revision)

Technical Committee: **Cement and Concrete**
Sectional Committee, CED 2

Last Date of Comments: **15 May 2009**

(Page 14, clause 5.3, second sentence) – Delete.

(Page 14, clause 5.3.4, second sentence) – Delete.

(Page 14, clause 5.4.3, first sentence) – Substitute the following for the existing:

‘Sea water shall not be used for mixing or curing of concrete because of presence of harmful salts.’

(Page 16, clause 5.5.6) – Add the following new clause.

‘5.5.7 The amount of admixture added to a mix shall be recorded in the production record. Redosing of admixtures is not normally permitted. In special circumstances, if necessary, additional dose of admixture may be added at project site to regain the workability of concrete with the mutual agreement between the producer/supplier and the purchaser/user of concrete.’

(Page 16, Table 2) – Replace with the following table:

Table 2 Grades of Concrete

(Clauses 6.1, 9.2.2, 15.1.1 and 36.1)

Group	Grade Designation	Specified Characteristic Compressive Strength of 150 mm Cube at 28 days, in N/mm ²
(1)	(2)	(3)
Ordinary Concrete	M 10	10
	M 15	15
	M 20	20
Standard Concrete	M 25	25
	M 30	30
	M 35	35
	M 40	40
	M 45	45
	M 50	50
	M 55	55
	M 60	60
High Strength Concrete	M 65	65
	M 70	70
	M 75	75
	M 80	80
	M 85	85
	M 90	90
	M 95	95
	M 100	100

NOTES

1 In the designation of concrete mix M refers to the mix and the number of the specified compressive strength of 150 mm size cube at 28 days, expressed in N/mm².

2 For concrete of compressive strength greater than M 60, design parameters given in the standard may not be applicable and the values may be obtained from specialized literatures and experimental results.

(Page 17, clause 8.1, line 3) – Add the word 'life' after the word 'service'.

(Page 19, Table 4, Note 1) – Add the following at the end:

'Adjustment may be made in the minimum cement content specified in case of use of aggregate other than 20 mm nominal maximum size as per Table 6.'

[Page 20, Table 5, Note 1] – Substitute 'irrespective of grades and types of cement and grades of concrete' for 'irrespective of the grades of cement'.

[Page 20, Table 5, Note 2] – Add the following new note:

'3 The minimum cement content, maximum free water-cement ratio and minimum grade of concrete are individually related to exposure.'

[Page 21, clause 8.2.5.4 (b), para 2] – Substitute 'fly ash conforming to IS 3812 (Part 1) or ground granulated' for 'fly ash (Grade 1) conforming to IS 3812 or granulated'.

(Page 21, clause 8.2.6.2, para 2) – Substitute the following for the existing:

'Additional protection may be obtained by the use of suitable impermeable barriers.'

(Page 22, clause 9.2.1) – Add the following at the end:

'If so desired, the employer shall be provided with supporting data including graphs showing strength versus water-cement ratio for range of proportions, complete trial mix proportioning details to substantiate the choice of cement content, fine and coarse aggregate content, water, mineral admixtures, chemical admixtures, etc.'

(Page 23, Table 8) – Substitute the following for the existing table:

Table 8 Assumed Standard Deviation
(Clause 9.2.4.2 and Table 11)

Grade of Concrete	Assumed Standard Deviation N/mm ²
M 10 } M 15 }	3.5
M 20 } M 25 }	4.0
M 30 } M 35 } M 40 } M 45 } M 50 } M 55 } M 60 }	5.0

NOTES

1. The above values correspond to the site control having proper storage of cement; weigh batching of all materials; controlled addition of water; regular checking of all materials, aggregate grading and moisture content; and periodical checking of workability and strength. Where there is deviation from the above, the values given in the above table shall be increased by 1 N/mm².
2. For High Strength Concrete above M 60, the standard deviation shall be established by actual trials based on assumed proportions, before finalizing the mix.

(Page 24, clause 10.2, para 2, first sentence) – Delete.

(Page 24, clause 10.2.1, first sentence) – Substitute the following for the existing:

'The grading of aggregate should be controlled by obtaining the coarse aggregate in different sizes and blending them in right proportions, the different sizes being stocked in separate stock-piles.'

(Page 24, clause 10.2.2) – Add the following at the end:

‘In a batching plant, the Concrete production equipment shall be calibrated initially on commissioning of the equipment and subsequently at quarterly intervals for Ordinary Concrete and Standard Concrete and at monthly intervals for High Strength Concrete.’

(Page 24, clause 10.2.3, second sentence) – Delete.

(Page 24, clause 10.2.5) – Add the following after fourth sentence:

‘Where batching plants are used, moisture content may be determined by moisture probes fitted to the batching plants.’

(Page 24, clause 10.3, first and second sentence) – Substitute the following for the existing:

‘Concrete shall be mixed in a mechanical mixer (see also IS 1791 and IS 12119).’

(Page 25, clause 10.3.1) – Substitute the following for the existing clause:

‘10.3.1 As a guidance, the mixing time shall be at least 2 min for conventional tilting type drum mixers. For other types of more efficient mixers, manufacturers’ recommendations shall be followed.’

(Page 25, clause 10.3.3) – Add the following at the end:

‘The dosages of polycarboxylate based admixtures shall not normally exceed 1 percent’.

(Page 25, clause 11.1, informal table) – Substitute the following for the existing table:

a) Deviation from specified dimensions of cross-section of columns and beams	+ 10 mm - 5
b) Deviation from dimensions of footings	
1) Dimensions in plan	+ 50 mm - 10
2) Eccentricity	0.02 times the width of the footing in the direction of deviation but not more than 50 mm
3) Thickness	+ 50 mm - 10 or ± 0.05 times the specified thickness, whichever is less

(Page 27, clause 13.4, para 1, last sentence) – Delete.

[Page 41, clause 24.4.1 (a)] – Substitute the following for the existing:

‘a) Calculate the sum of the midspan moment and the average of the support moments (neglecting signs) for each panel.’

(Page 42, clause 26.2.1, Note 2) – Add the following Note:

3 In case nominal reinforcement is provided, design bond stress may be taken as 1.0 N/mm².

(Page 43, clause 26.2.1.1, para 2) – Add the following at the end:

‘For fusion bonded epoxy coated deformed bars, design bond stress values shall be taken as 80 percent of the values given in the above table.’

(Page 67, clause **35.3.2**, last para, last sentence) – Delete.

(Page 74, clause **40.5.2**) – Substitute, ' ΣA_{sv} ' for ' A_s ' in the formula.

[Page 80, clause **B-2.1.1**, informal table (see also Amendment No.2)] – Substitute the following for the last two entries:

<u>M 50 & above</u>
5.2

[Page 81, Table 21 (see also Amendment No.2)] – Delete the last row and insert the following:

(1)	(2)	(3)	(4)
M 55	18.0	13.5	1.5
M 60	20.0	15.0	1.6

(CED 2)