

IS 456 : 2000
(Reaffirmed 2005)

भारतीय मानक

सामान्य एवं प्रबलित कंक्रीट - रीति संहिता

(चौथा पुनरीक्षण)

Indian Standard

PLAIN AND REINFORCED CONCRETE —
CODE OF PRACTICE

(*Fourth Revision*)

Tenth Reprint APRIL 2007
(Including Amendments No. 1 and 2)

ICS 91.100.20

© BIS 2000

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9, BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

AMENDMENT NO. 3 AUGUST 2001
TO
IS 456 : 2000 PLAIN AND REINFORCED
CONCRETE — CODE OF PRACTICE

(Fourth Revision)

(Page 2, Foreword) — Insert the following after para 8:

'The provisions for Self Compacting Concrete have been included for guidance (see Annex J).'

(Page 10) — Add the following at the end:

ANNEX J SELF COMPACTING CONCRETE

(Page 15, clause 5.4.4, last sentence) — Delete.

(Page 15, clause 5.6.2) — Add the following at the end:

Reduction in design bond strength of coated bars shall be looked into.'

(Page 15, clause 5.6.3) — Add the following after the clause and renumber the existing clause '5.7' as '5.8'.

5.7 Fibres

'Fibres may be added to concrete for special applications to enhance properties, or which specialist literature may be referred to.'

(Page 15, clause 6.1.3) — Substitute the following for the existing clause:

Concrete of grades lower than those given in Table 5 may be used for lean concrete, foundation for masonry walls or temporary reinforced concrete construction.'

[Page 17, clause 7.1 (see also Amendment No. 1)] — In the informal table, delete the words 'In situ piling' in column 1.

(Page 23, Table 9) — Number the existing note as 'NOTE 1' and add the following 'NOTE 2':

'NOTE 2 — Quantity of water required from durability point of view may be less than the value given above.'

(Page 29, clause 15.1.4, last line) — Add 'in accordance with 16' at the end.

(Page 30, Table 11, col 2) — Substitute ' $f_{ck} + 3 \text{ N/mm}^2$ ' for ' $f_{ck} + 4 \text{ N/mm}^2$ ', against 'M 20 or above'.

[Page 30, Table 11, col 3 (see also Amendment No. 1)] — Substitute ' $f_{ck} - 3 \text{ N/mm}^2$ ' for ' $f_{ck} - 4 \text{ N/mm}^2$ ', against 'M 20 or above'.

(Page 42, clause 26.1.1) — Add the following at the end:

'Congestion of reinforcement should be avoided during detailing. Various methods such as choosing the diameter and grade of steel carefully and bundling of reinforcement, if required, are available.'

[Page 43, clause 26.2.5.1(a)] — Substitute the following for the existing:

'Lap splices shall not be used for bars larger than 32 mm. Bars larger than 32 mm shall be welded (see 12.4) or mechanically spliced.'

[Page 46, clause 26.3.3(b)(2), last line] — Substitute '300 mm' for '450 mm'.

[Page 47, clause 26.5.1.1(b)] — Add the following note at the end:

'NOTE — The use of 4 percent reinforcement may involve practical difficulty in placing and compacting concrete; hence lower percentage is recommended.'

(Page 47, clause 26.5.1.2) — Add the following note at the end:

'NOTE — The use of 4 percent reinforcement may involve practical difficulty in placing and compacting of concrete; hence lower percentage is recommended.'

(Page 52, clause 29.3.4, last line) — Substitute '32.5' for '32.4'.

(Page 100, Annex 11) — Add the following annex:

ANNEX J

(Foreword)

SELF COMPACTING CONCRETE

J-1 GENERAL

Self compacting concrete is a concrete that fills uniformly and completely every corner of formwork by its own weight without application of any vibration, without segregation, whilst maintaining homogeneity.

J-2 APPLICATION AREA

Self compacting concrete may be used in precast concrete applications or for concrete placed on site. It may be manufactured in a site batching plant or in a ready-mixed concrete plant and delivered to site by truck mixer. It may then be placed either by pumping or pouring into horizontal or vertical forms.

J-3 FEATURES OF FRESH SELF COMPACTING CONCRETE

The following are some of the features of self compacting concrete:

- a) Slump flow: 600 mm, *Min.*
- b) Sufficient amount of fines (< 0.125 mm) preferably in the range of 400 kg/m^3 to 600 kg/m^3 . This can be achieved by having sand content more than 38 percent and using mineral admixture to the order of 25 percent to 50 percent by mass of cementitious materials.
- c) Use of high range water reducing (HRWR) admixture and viscosity modifying agent (VMA) in appropriate dosages.