

# इंटरनेट

# मानक

## Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 6073 (2006): Autoclaved reinforced cellular concrete floor and roof slabs - [CED 51: Planning, Housing and pre-fabricated construction]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”



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भारतीय मानक  
फर्श व छतों के ऑटोक्लेवित प्रबलित  
कोशिकीय कंक्रीट स्लैब — विशिष्टि  
( पहला पुनरीक्षण )

*Indian Standard*

AUTOCLAVED REINFORCED CELLULAR CONCRETE  
FLOOR AND ROOF SLABS — SPECIFICATION  
( *First Revision* )

ICS 91.060.30; 91.100.30

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

## FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Planning, Housing and Prefabricated Construction Sectional Committee had been approved by the Civil Engineering Division Council.

A series of National Standards on the cellular concrete have been formulated, so as to provide standard products for the construction of buildings. This standard for cellular concrete floor and roof elements has been brought out in order to guide both the manufacturers and users of these elements.

In addition to the physical properties and other general requirements for the precast autoclaved reinforced cellular concrete floor and roof slabs, the specification gives structural requirements essential to ensure safe performance of slabs under flexural loading without specifying the detailed method of design. The detailed method for the design of these members is not within the scope of this standard. As in any other precast concrete products, which are mass produced, the detailed design of the elements is not in the hands of the user but is only in the hands of the manufacturers. Therefore, from the user's angle, it would be more useful if any additional requirements regarding the performance and loading coupled with acceptance tests are included in the specification. Suitable precautionary measures, such as use of appropriate coatings, may be taken for exposed surfaces of autoclaved reinforced cellular concrete slabs.

This standard was first published in 1971. This first revision has been brought out to incorporate the changes found necessary in light of the use of this standard since its first publication. Following are the major changes incorporated in this revision:

- a) References to all cross-referred Indian Standards have been updated,
- b) Only relevant requirements for sand have now been specified,
- c) Use of 53 grade ordinary Portland cement has been permitted,
- d) Sizes of slabs have been rationalized in line with current practices,
- e) Guidance for preferred modular dimensions has been given,
- f) Requirement of minimum cover to reinforcement has been increased from 10 mm to 15 mm, and
- g) Provision for ensuring structural integrity of the whole structure has been incorporated.

In the formulation of this standard due weightage has been given to international co-ordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country.

The Composition of the technical committee responsible for the formulation of this standard is given in Annex C.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

## *Indian Standard*

# AUTOCLAVED REINFORCED CELLULAR CONCRETE FLOOR AND ROOF SLABS — SPECIFICATION

*(First Revision)*

## 1 SCOPE

This standard covers the requirements for autoclaved reinforced cellular concrete floor and roof slabs, having density above 450 and up to 1 000 kg/m<sup>3</sup>.

## 2 REFERENCES

The Indian Standards listed in Annex A contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated in Annex A.

## 3 TERMINOLOGY

**3.0** For the purpose of this standard, the following definitions shall apply.

**3.1 Autoclaved Cellular Concrete** — The material conforming to this standard and consisting of an inorganic binder (such as lime or cement or both) in combination with a finely ground material containing silicon dioxide (such as sand), gas generating material (for example, aluminium powder), water and harmless additives (optional); and steam cured under high pressure in autoclaves.

**3.2 Basic Module** — The fundamental module used in modular co-ordination, the size of which is selected for general application to building and its components.

NOTE — The value of the basic module has been chosen as 100 mm for the maximum flexibility and convenience. The symbol for the basic module is *M*.

**3.3 Design Load** — The permissible superimposed load (excluding the self weight of the slab) on the floor or roof under normal service conditions. For the floor slab the superimposed load will include the imposed load on floor and dead loads including flooring and ceiling finish, if any likely to be carried by the floor. For the roof slab, the superimposed load will include the imposed load on the roof (including snow or rainwater load) and dead loads including roof and ceiling finish likely to be carried by the roof.

## 4 MATERIALS

**4.1** The major materials for the manufacture of autoclaved reinforced cellular concrete floor and roof slabs shall be as given in 4.2 to 4.7.

### 4.2 Cement

Cement used for manufacturing shall be 33 grade ordinary Portland cement conforming to IS 269 or 43 grade ordinary Portland cement conforming to IS 8112 or 53 grade ordinary Portland cement conforming to IS 12269 or Portland slag cement conforming to IS 455 or Portland pozzolana cement conforming to IS 1489 (Part 1) or IS 1489 (Part 2).

### 4.3 Lime

Lime shall satisfy the requirements for Class C lime specified in IS 712.

### 4.4 Sand

Sand shall be finely ground silicious sand and its requirements shall be as follows:

<i>Property</i>	<i>Requirement</i>
Slit content	3 percent, <i>Max</i>
Humus	3 percent, <i>Max</i>
SiO <sub>2</sub> content	80 percent, <i>Min</i>
Chloride	0.025 percent, <i>Max</i>
Loss on ignition	5 percent, <i>Max</i>
Mica	In accordance with IS 383

### 4.5 Fly Ash

Fly ash shall conform to IS 3812 (Part 1).

### 4.6 Granulated Blast Furnace Slag

Granulated blast furnace slag shall conform to IS 12089.

### 4.7 Water

Water shall conform to the requirements given in 5.4 of IS 456.

### 4.8 Pigment

The quality of pigment, if required for aesthetic

purposes, shall be according to the requirements specified by the purchaser. Alternatively the manufacturer shall declare to the purchaser the composition and quality of the pigment.

#### 4.9 Reinforcement

Reinforcement shall be any of the following:

- Mild steel and medium tensile steel bars conforming to Grade I of IS 432 (Part 1),
- Hard-drawn steel wire conforming to IS 432 (Part 2),
- High strength deformed steel bars and wires conforming to IS 1786, and
- Welded wire fabric conforming to IS 1566.

4.9.1 Spot welding may be adopted for keeping the reinforcement in position.

### 5 CLASSIFICATION AND DESIGNATION

#### 5.1 Classification

Autoclaved reinforced cellular concrete roof and floor slabs shall be classified into the following five classes on the basis of their oven-dry density (without reinforcement) and the compressive strength (see also 8 and Table 2).

- |         |  |
|---------|--|
| Class A | Gross density over 850 kg/m <sup>3</sup> and up to 1 000 kg/m <sup>3</sup> and compressive strength 7 N/mm <sup>2</sup> , <i>Min</i> |
| Class B | Gross density over 750 kg/m <sup>3</sup> and up to 850 kg/m <sup>3</sup> and compressive strength 6 N/mm <sup>2</sup> , <i>Min</i>   |
| Class C | Gross density over 650 kg/m <sup>3</sup> and up to 750 kg/m <sup>3</sup> and compressive strength 5 N/mm <sup>2</sup> , <i>Min</i>   |
| Class D | Gross density over 550 kg/m <sup>3</sup> and up to 650 kg/m <sup>3</sup> and compressive strength 3.5 N/mm <sup>2</sup> , <i>Min</i> |
| Class E | Gross density over 450 kg/m <sup>3</sup> and up to 550 kg/m <sup>3</sup> and compressive strength 2 N/mm <sup>2</sup> , <i>Min</i>   |

#### 5.2 Designation

The floor and roof slabs shall be designated by indicating the compressive strength in N/mm<sup>2</sup>, the load bearing capacity (design load) in N/mm<sup>2</sup> and the length (m), breadth (mm), and thickness (mm) respectively, for example:

a) *For Floor Slab*

FS/7/2 300 × *l* × *b* × *t* will mean a floor slab of compressive strength of 7 N/mm<sup>2</sup> (of Class A with a gross density 850 kg/m<sup>3</sup> to 1 000 kg/m<sup>3</sup>), load bearing capacity of 2 300 N/m<sup>2</sup>, *l* mm long, *b* mm wide and *t* mm thick.

b) *For Roof Slab*

RS/5/1 100 × *l* × *b* × *t* will mean a roof slab of compressive strength of 5 N/mm<sup>2</sup> (of Class C with a gross density 650 kg/m<sup>3</sup> to 750 kg/m<sup>3</sup>), load bearing capacity of 1 100 N/m<sup>2</sup>, *l* mm long, *b* mm wide and *t* mm thick.

### 6 SIZES

6.1 The dimensions of autoclaved reinforced cellular concrete floor and roof slab shall be arrived at keeping in view the required load bearing capacity and the considerations relating to modular co-ordination.

6.1.1 The preferred dimensions shall be as given below (see Fig. 1):

- |              |  |
|--------------|--|
| a) Length    | 1 m to 6 m                               |
| b) Width     | 300 mm to 600 mm                         |
| c) Thickness | 75 mm to 250 mm with increments of 25 mm |

Sizes other than those specified above may also be used by mutual agreement between the purchaser and the supplier.

6.1.2 The preferred dimensions (modular) may also be taken as follows:

- |              |   |
|--------------|---|
| a) Length    | Nominal length shall be in multiples of 1 <i>M</i>  |
| b) Width     | Nominal width shall be in multiples of 0.5 <i>M</i> |
| c) Thickness | Thickness shall be in multiples of 0.1 <i>M</i>     |

#### 6.2 Tolerances

Tolerances for dimensions shall be as follows:

- |                           |       |
|---------------------------|-------|
| a) Below and up to 500 mm | ±2 mm |
| b) Over 500 mm            | ±5 mm |

#### 6.3 Form Tolerances

The form tolerances (see Fig. 2) for the floor and roof slabs shall be as in Table 1.

### 7 MANUFACTURE AND FINISH

#### 7.1 Reinforcement

Reinforcement shall be located in the unit according to the design. The reinforcement shall be effectively protected against corrosion by suitable coating. The protective coating shall not be damaged during placing and casting, autoclaving and other manufacturing process. The applied protective coating shall conform to the requirements given in IS 6441 (Part 4). In addition to protecting the reinforcement against corrosion, it shall be ensured that the cellular concrete

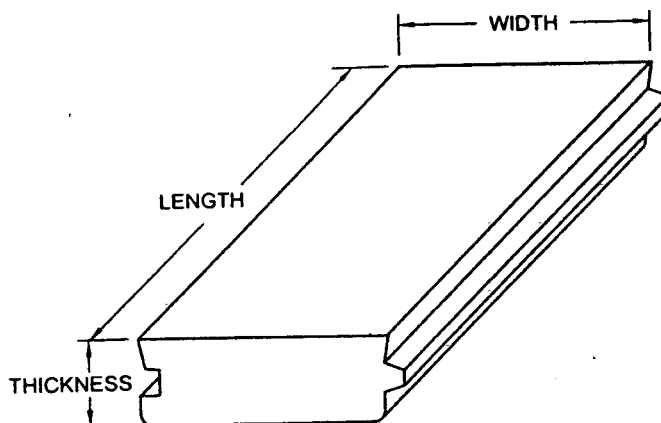


FIG. 1 ILLUSTRATING DIMENSIONS OF FLOOR AND ROOF SLABS

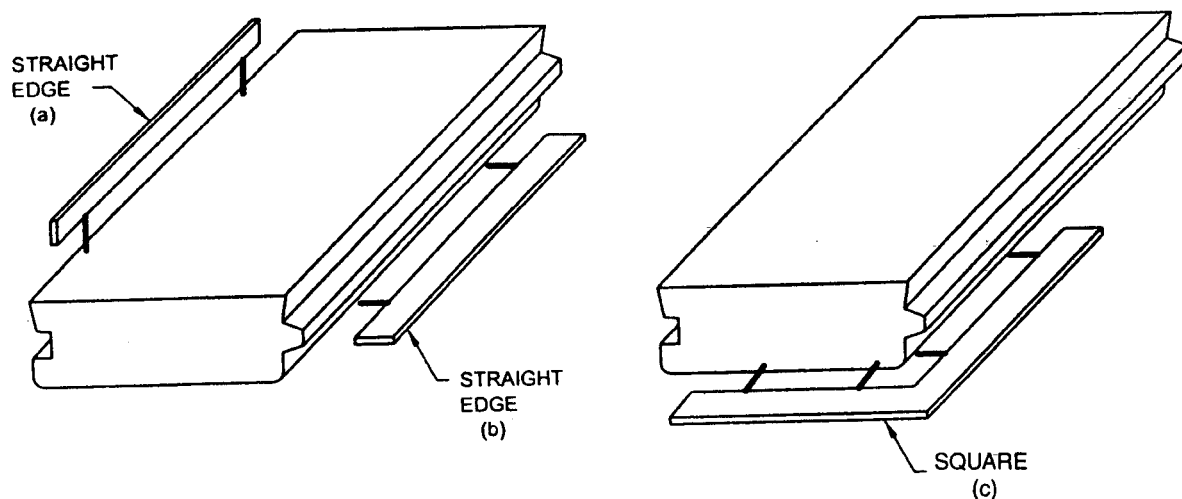


FIG. 2 ILLUSTRATING FORM TOLERANCES OF FLOOR AND ROOF SLABS

Table 1 Form Tolerances for Floor and Roof Slabs

(Clause 6.3)

Sl No.	Details	Tolerance, mm				
		Distance Between Measuring Pins, m				Entire Length
		0.25	1.0	2.0	0.5	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	Flatness:					
	Warp	±2	±4	±6	—	—
	Torsion	—	—	—	—	0.1 percent, Max
ii)	Edge straightness (does not apply to end edges):					
	In a plane perpendicular to the plane of the unit [see (a) of Fig. 2]	±1	±2	±3	—	—
	In the plane of the unit [see (b) of Fig. 2]	—	—	—	—	±3
iii)	Squareness of angle between adjacent faces [see (c) of Fig. 2]	—	—	—	±5	—



cover to the steel shall not be less than that necessary to attain the required fire resistance grading and in any case not less than 15 mm.

**7.1.1** The main reinforcement shall be:

- at least 3 bars for spans up to 2 m,
- at least 4 bars for spans up to 5 m, and
- at least 5 bars for spans longer than 5 m.

For wider slabs, a correspondingly larger number of bars shall be placed.

**7.1.2** The reinforcement of the tension and compression zones shall lie after the setting of the concrete in such a way that the concrete cover is at least 15 mm and the static effective height shall, in no case, fall short by more than 5 mm.

## 7.2 Formation of Cells of Cellular Concrete

The aerated structure or the cells of the cellular concrete slabs are formed by generation of a gas by chemical action with the mix prior to hardening with the aid of suitable chemical foaming agents and mixing devices. The cells in the slab shall be distributed evenly throughout its volume.

### 7.2.1 Method of Autoclaving

After accurate proportioning, the raw materials are mixed in a mechanical mixer to form a mass of uniform colour. Water and aluminium powder in accurately measured quantity are then mixed to the mix and the final mix is then poured into the moulds quickly. Due to chemical reaction between the binding material and water, the mass overgrows over the edges and expands like a dough and simultaneously hardens. When the chemical reaction is completed as indicated by cessation of the growth phenomenon, the portion bulging out of the mould is cut off to obtain the block of the desired size and shape. The mould is then introduced into the autoclave, where it is subjected to steam pressure of 0.7 N/mm<sup>2</sup> and temperature of about 185°C.

## 7.3 Finishes

The faces of the slabs shall be rectangular, opposite faces shall be parallel and all edges shall be straight. The different faces shall be at right angle. The slabs shall be free from all defects liable to affect adversely their suitability for use.

## 7.4 Joints

Each floor and roof slab shall be provided with tongue at one side and groove at the other side to match with the corresponding tongue and groove in the adjacent unit; alternatively, the slab may have a groove at either sides matching with the groove in the adjacent unit to

permit easy filling with cement mortar, or some other suitable provisions may be made to allow for the transfer of force from unit to unit. The longitudinal edges of the bottom face of each slab shall be chamfered.

## 8 PHYSICAL PROPERTIES

Autoclaved reinforced cellular concrete floor and roof slabs shall have the properties specified below:

- Density of Element (Excluding Reinforcement)** — It shall be in the range specified in 5.1 when tested in accordance with IS 6441 (Part 1).
- Drying Shrinkage** — It shall not be more than 0.09 percent when tested in accordance with IS 6441 (Part 2).
- Residual Water Content at the Time of Delivery to the User** — It shall be declared by the manufacturer.
- Compressive Strength and Thermal Conductivity** — They shall be as given in Table 2 when tested in accordance with IS 6441 (Part 5) and IS 3346 respectively.
- Fire Resistance** — It shall not be less than 2 h when tested in accordance with IS 3809.

**Table 2 Compressive Strength and Thermal Conductivity**  
(Clauses 5.1 and 8)

Class of Slab	Compressive Strength, Min (N/mm <sup>2</sup> )	Thermal Conductivity in Air-Dry Condition, Max (kcal/m/h/°C)
(1)	(2)	(3)
Class A	7	0.36
Class B	6	0.32
Class C	5	0.26
Class D	3.5	0.21
Class E	2	0.18

NOTE — The compressive strength shall be the average of three sample cubes tested and the lowest individual value shall not be less than 85 percent of the required average value.

## 9 STRUCTURAL REQUIREMENTS

### 9.1 Loading

The slabs shall be designed for loading in accordance with IS 875. However, the dead load of the slab proper shall be assessed in accordance with densities specified in 5.1 plus the mass of reinforcement.

### 9.2 Design Load and Deflection

The manufacturer shall indicate the design load (see 3.3) for which the floor and roof slab has been designed. When tested in accordance with the method given in Annex B, the deflection of the slab under the

design load and the self weight of the slab shall not be more than 1/300 of the effective span.

### 9.3 Ultimate Load

The manufacturer shall indicate the ultimate load for the floor and roof slab, which in any case shall not be less than the following:

$$\text{Ultimate load} = (1.5 \times \text{Design Dead Load}) + (2.2 \times \text{Design Imposed Load})$$

**9.3.1** The ultimate load, when tested in accordance with the method given in Annex B, shall neither be less than the value indicated in 9.3 nor less than the value indicated by the manufacturer.

**9.4** While using the autoclave cellular concrete floor and roof slabs, the structural integrity of the whole structure has to be ensured. For various applications, for ensuring diaphragm action, the provisions specified in IS 1893 (Part 1) and IS 4326 shall be followed.

## 10 STORAGE AND HANDLING

Cellular concrete slabs shall be stock-piled on planks or other supports free from contact with the ground. The slabs of different densities and shapes shall be kept in separate stacks. The slabs shall be handled with care according to the instructions of the manufacturer and damaged slabs shall be rejected. Slabs shall not be cut without permission of the designer or engineer-in-charge. Such permission shall be granted by designer or engineer-in-charge after finding out the suitability of the slab for the intended purpose and, if necessary, in consultation with the manufacturer.

## 11 MARKING

**11.1** Each slab shall be clearly and permanently marked with the following information on the face not visible in actual use in the structure:

- a) Identification of the source of manufacture,
- b) Year of manufacture,
- c) Designation,
- d) The words 'Do not Cut', and
- e) The word 'Top' on the face of the slab.

**11.2** The manufacturer shall provide technical literature containing information on:

- a) the design load and the deflection on design load,
- b) the ultimate load,
- c) residual water content on delivery,
- d) the provisions for making holes,
- e) the detailed storage and handling instructions (see Note), and

- f) the thermal conductivity of different classes of products.

NOTE — Unsuitable storage and handling after delivery can cause permanent deformation in the slab, especially with regard to torsion and warp.

### 11.3 BIS Certification Marking

Each slab may also be marked with the Standard Mark.

**11.3.1** The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

## 12 COST OF TESTS AND MANUFACTURER'S CERTIFICATE

**12.1** The manufacturer shall arrange to maintain production control measures, so that the floor and roof slabs conform to the requirements of this standard and, if requested, shall apply a certificate to this effect to the purchaser or his representative.

**12.1.1** In case the slab does not possess the required load-carrying capacity in certain positions, the manufacturer shall mark the slab in a way, which makes clear in what position it should be handled, assembled and used. Slabs which have to be supported or lifted, at special points, during storage or in handling, shall be furnished with necessary markings. Slabs intended for special hole making shall be marked as to where the holes may be made.

**12.2** If the purchaser or his representative requires independent tests, the samples shall be taken before or immediately after delivery at the option of the purchaser or his representative and the tests shall be carried out in accordance with this standard.

**12.3** Unless otherwise specified in the enquiry or order, the cost of the test shall be borne as follows:

- a) By the manufacturer in the event of the results showing that the slabs do not conform to this standard, or
- b) By the purchaser in the event of the results showing that the slabs conform to this standard.

## 13 SAMPLING AND CRITERIA FOR CONFORMITY

**13.1** Unless otherwise agreed to between the purchaser and the supplier, the method of drawing representative samples of the slabs and the criteria for conformity shall be as given in 13.2 to 13.5.2.

### 13.2 Lot

In any consignment, all slabs of the same class (*see* 5.1) and size and from the same batch of manufacture shall be grouped together into a minimum number of groups of 500 slabs or part thereof. Each such group shall constitute a lot.

**13.3** From each lot, a sample of ten slabs shall be selected at random. In order to ensure randomness of selection, all the slabs in the lot may be arranged in a serial order. Starting from any random slab, every  $r$ th slab may be selected till ten slabs are included in the sample;  $r$  being the integral part of  $N/10$ , where  $N$  is the lot size.

### 13.4 Number of Tests

**13.4.1** All the ten slabs shall be checked for dimensions and inspected for visual defects.

**13.4.2** Out of the ten slabs, two slabs shall be subjected to the test for design load deflection and cracking load test, the sample from these two slabs after the design load deflection and ultimate load test shall be tested for compressive strength (two samples), density (two samples), drying shrinkage (two samples) and residual

water content (one sample). One slab shall be subjected to test for thermal conductivity.

### 13.5 Criteria for Conformity

The lot shall be considered as conforming to requirements of this standard if the conditions mentioned in 13.5.1 and 13.5.2 are satisfied.

#### 13.5.1 Dimensions and Visual Defects

The number of slabs with dimensions outside the tolerance limit and/or with visual defects, among ten slabs inspected shall be not more than one. If the number of such slabs exceeds one, all slabs in the lot shall be tested for these requirements and those not satisfying the requirements shall be rejected.

#### 13.5.2 Other Tests

All the samples tested for other tests shall satisfy the requirements of the concerned test. If one or more samples fail, twice the number of samples originally tested shall be selected from the concerned lot, and subjected to the test. If there is no failure among these samples, the lot shall be considered to have satisfied the requirements of this test.

## ANNEX A

### (Clause 2)

#### LIST OF REFERRED INDIAN STANDARDS

IS No.	Title	IS No.	Title
269 : 1989	Specification for 33 Grade ordinary Portland cement ( <i>fourth revision</i> )	712 : 1984	Specification for building limes ( <i>third revision</i> )
383 : 1970	Specification for coarse and fine aggregates from natural sources for concrete ( <i>second revision</i> )	875	Code of practice for design loads (other than earthquake) for buildings and structures:
432	Specification for mild steel and medium tensile steel bars and hard-drawn steel wire for concrete reinforcement:	(Part 1) : 1987	Dead loads — Unit weights of building material and stored materials ( <i>second revision</i> )
(Part 1) : 1982	Mild steel and medium tensile steel bars ( <i>third revision</i> )	(Part 2) : 1987	Imposed loads ( <i>second revision</i> )
(Part 2) : 1982	Hard-drawn steel wire ( <i>third revision</i> )	(Part 3) : 1987	Wind loads ( <i>second revision</i> )
455 : 1989	Specification for Portland slag cement ( <i>fourth revision</i> )	(Part 4) : 1987	Snow loads ( <i>second revision</i> )
456 : 2000	Code of practice for plain and reinforced-concrete ( <i>third revision</i> )	(Part 5) : 1987	Special loads and load combinations ( <i>second revision</i> )
		1489	Specification for Portland pozzolana cement:
		(Part 1) : 1991	Fly ash based ( <i>third revision</i> )
		(Part 2) : 1991	Calcined clay based ( <i>third revision</i> )

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
1566 : 1982	Specification for hard-drawn steel wire fabric for concrete reinforcement ( <i>second revision</i> )	4326 : 1993	Code of practice for earthquake resistant design and construction of buildings ( <i>second revision</i> )
1786 : 1985	Specification for high strength deformed steel bars and wires for concrete reinforcement ( <i>third revision</i> )	6441	Methods of test for autoclaved cellular concrete products:
1893 (Part 1) : 2002	Criteria for earthquake resistant design of structures: Part 1 General provisions and buildings	(Part 1) : 1972	Determination of unit weight or bulk density and moisture content
3346 : 1980	Method for the determination of thermal conductivity of thermal insulation materials (two slab guarded hot plate method) ( <i>first revision</i> )	(Part 2) : 1972	Determination of drying shrinkage
3809 : 1979	Specification for fire resistance test for structures ( <i>first revision</i> )	(Part 4) : 1972	Corrosion protection of steel reinforcement in autoclaved cellular concrete
3812 (Part 1) : 2003	Specification for pulverized fuel ash: Part 1 For use as pozzolana in cement, cement mortar and concrete ( <i>second revision</i> )	(Part 5) : 1972	Determination of compressive strength
		8112 : 1989	Specification for 43 Grade ordinary Portland cement ( <i>first revision</i> )
		12089 : 1987	Specification for granulated slag for manufacture of Portland slag cement
		12269 : 1987	Specification for 53 grade ordinary Portland cement

## ANNEX B

(Clauses 9.2 and 9.3.1)

### DEFLECTION AND ULTIMATE LOAD TEST FOR AUTOCLAVED REINFORCED CELLULAR CONCRETE FLOOR AND ROOF SLABS

#### B-1 SELECTION

**B-1.1** The sample shall be selected in accordance with 13.

**B-1.2** The sample at the time of testing shall have residual water content as indicated in 8(c), but it shall not be less than 10 percent by weight.

#### B-2 DEFLECTION

**B-2.1** The slab shall be placed on two supports, the centre-to-centre distance between the supports (called effective span) being equal to the effective span used in the calculations and as indicated by the manufacturer.

**B-2.2** The slab shall be loaded for half an hour with half the design load; this load being applied through two individual weights at the outside quarter points of the effective span.

**B-2.3** After half an hour without removing the load applied in B-2.2, the balance half of the full design load is applied through the quarter points of the span.

**B-2.4** The total design load shall be kept in position for half an hour after which the sample shall be examined for any cracking and maximum deflection at mid-span of the slab for the full load (design imposed load + self weight of slab) shall be measured.

**B-2.5** If the sample has cracked or if the maximum measured deflection is more than 1/300 of the effective span, the sample shall be considered to have failed the test.

#### B-3 ULTIMATE LOAD

Unless cracks have occurred under the design load, the sample as loaded in B-2.4 shall be loaded further in suitable increments of load till the slab fails. The total load at failure shall be considered as the ultimate load.

## ANNEX C

## (Foreword)

## COMMITTEE COMPOSITION

## Planning, Housing and Prefabricated Construction Sectional Committee, CED 51

<i>Organization</i>	<i>Representative(s)</i>
In personal capacity ( <i>P-233/3, Station House, Officers Enclave, Air Force Station, Rajokri, New Delhi 110 038</i> )	SHRI V. SURESH ( <i>Chairman</i> )
Andhra Pradesh Housing Board, Hyderabad	REPRESENTATIVE
B. G. Shirke Construction Technology Limited, Pune	SHRI V. G. JANA SHRI YOGESH P. KAJALE ( <i>Alternate</i> )
Bharat Heavy Electricals Ltd, New Delhi	SHRI K. VEERA RAGHAVACHARY SHRI S. PAL ( <i>Alternate</i> )
Bhardwaj Bhardwaj & Associates (P) Ltd, New Delhi	SHRI A. BHARDWAJ
Builders Association of India, Mumbai	SHRI S. K. CHOUDHURY SHRI N. KRISHNARAJ ( <i>Alternate</i> )
Building Materials and Technology Promotion Council, New Delhi	SHRI R. K. CELLY
Central Building Research Institute (CSIR), Roorkee	SHRI ASHOK KUMAR SHRI S. K. NEGI ( <i>Alternate</i> )
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