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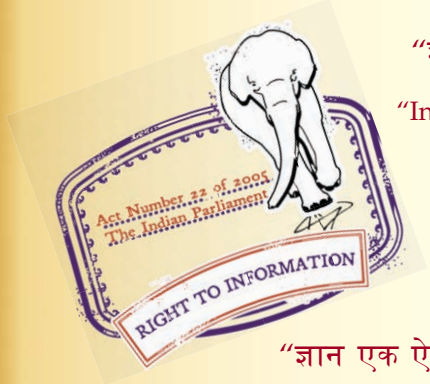

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METHODS OF TESTS FOR AUTOCLAVED CELLULAR CONCRETE PRODUCTS

PART IX JOINTING OF AUTOCLAVED CELLULAR CONCRETE ELEMENTS

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METHODS OF TESTS FOR AUTOCLAVED CELLULAR CONCRETE PRODUCTS

PART IX JOINTING OF AUTOCLAVED CELLULAR CONCRETE ELEMENTS

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(*Continued on page* 7

Indian Standard

METHODS OF TESTS FOR AUTOCLAVED CELLULAR CONCRETE PRODUCTS

PART IX JOINTING OF AUTOCLAVED CELLULAR CONCRETE ELEMENTS

0. FOREWORD

0.1 This Indian Standard (Part IX) was adopted by the Indian Standards Institution on 22 March 1973, after the draft finalized by the Cement and Concrete Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 Autoclaved cellular concrete is a class of material, which has been developed commercially abroad and is in the process of development in this country also. A series of Indian Standards on cellular concrete is being formulated so as to provide guidance in obtaining reliable products in autoclaved cellular concrete. The Sectional Committee has considered it desirable to issue a standard for the methods of tests for autoclaved cellular concrete products for the guidance of manufacturers and users.

0.3 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.

0.4 For convenience of reference, 'Indian Standard methods of tests for autoclaved cellular concrete products' has been grouped into the following nine parts:

Part I Determination of unit weight or bulk density and moisture content

Part II Determination of drying shrinkage

Part III Determination of thermal conductivity

Part IV Corrosion protection of steel reinforcement in autoclaved cellular concrete

Part V Determination of compressive strength

Part VI Strength, deformation and cracking of flexural members subject to bending-short duration loading test

Part VII Strength, deformation and cracking of flexural members subject to bending-sustained loading test

Part VIII Loading tests for flexural members in diagonal tension

Part IX Jointing of autoclaved cellular concrete elements

0.5 In reporting the result of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS : 2-1960*.

1. SCOPE

1.1 This standard (Part IX) covers the procedure for testing the jointing of autoclaved cellular concrete flexural members, such as, floor and roof slabs.

2. TEST SPECIMENS

2.1 Size of Specimens — For determining the strength of joints a series, consisting of 3 specimens shall be tested. Each specimen shall consist of 3 element parts conforming in all respects to the requirements of the relevant Indian Standard (or the requirements specified by the manufacturer) in respect of shape and dimensions, but of length 0·5 m (*see* Fig. 1) jointed together.

2.1.1 *Temperature of Specimen* — The temperature of the specimen shall not be materially different from the ambient temperature in which it is being tested and in any case not less than 0°C.

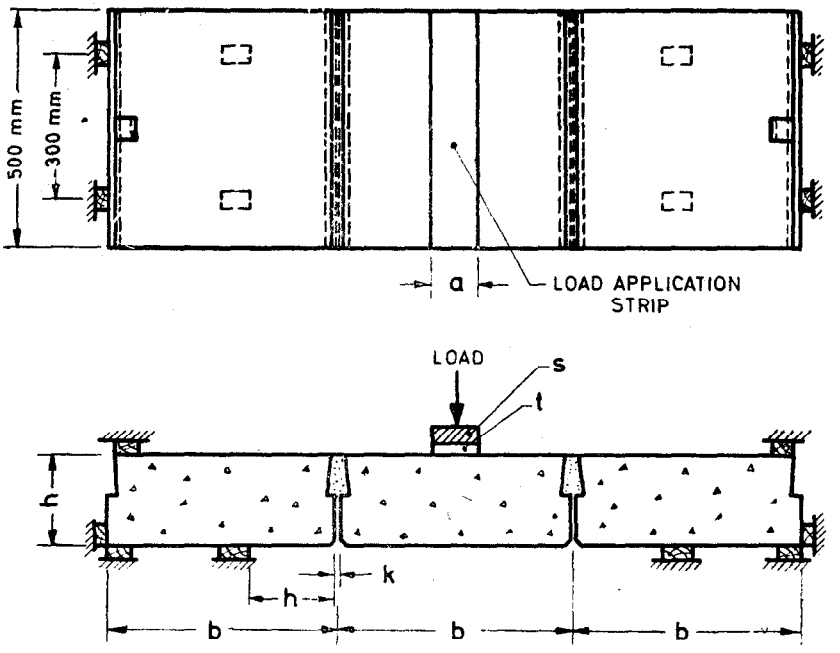
2.1.2 *Moisture Content of Specimen* — The moisture content of the concrete during the test should be indicated and should be not less than 10 percent by weight when determined in accordance with IS : 6441 (Part 1) - 1972†.

2.2 Jointing — The jointing shall be done in accordance with the directions of the manufacturer. If the manufacturer has prescribed a modified method of jointings for use in cold weather, the specimens jointed in that way shall also be tested in accordance with this procedure.

2.2.1 When no jointing material is required for interaction of loading between the adjacent elements, the jointing of specimens shall be done without the jointing material in accordance with the directions of the manufacturer.

*Rules for rounding off numerical values (*revised*).

†Methods of tests for autoclaved cellular concrete products: Part I Determination of unit weight or bulk density and moisture content.



h = thickness of element;

s = load spreading device with great rigidity, such as, 25 mm thick mild steel plate;

t = 12 mm porous fibre board;

b = width of element;

a = b — 2. h, but not less than 100 mm; and

k = clearance between elements

FIG. 1 LOADING ARRANGEMENT FOR JOINTED ELEMENTS OF CELLULAR CONCRETE

2.2.2 In case the interjacent element part has been supported, the support shall not be removed until the testing takes place.

2.3 Curing — The curing of the mortar shall be done according to the directions of the manufacturer. The specimens shall not be moved during the period between jointing and testing.

3. PROCEDURE

3.1 Laying on Supports — Each of the two external element parts shall be laid on three firm supports (*see* Fig. 1). Two of these shall be placed at a distance from the joint equal to the thickness of the element part and at a

distance of 300 mm from each other. The third support shall be placed at the external edge of the element parts. The supports shall be placed symmetrically from the centre line, perpendicular to the joints. The element part shall be fixed tightly to the external support, avoiding rising and sliding movements. Each support, shall have an area of about 50 cm^2. No paddings shall be used. If the joints are to be filled with cement mortar or some similar mortar, the laying of the specimen on the supports and fixing shall be done before the jointing.

3.2 Loading Appliances — The loading shall be applied with a linear load, along the centre line of the central element parallel to the joints and through a pad of porous fibre board, 12 mm thick (*see* Fig. 1). The load shall be uniformly distributed on an area of length 500 mm and width equal to the width of the element minus twice the height of the element, but in no case less than 100 mm.

3.3 Testing — The joint shall not be loaded earlier than the period recommended in the directions from the manufacturer. The increase of loading shall be effected at a rate of about 50 kg/min until rupture occurs. The loading at rupture shall be measured accurately with a maximum permissible deviation of $\pm 1{\cdot}5$ percent.

4. REPORTING TEST RESULTS

4.1 The strength of the jointing shall be calculated as the total load at rupture including the weight of the interjacent element part and the loading equipment expressed in kg/m.

4.1.1 For each specimen the strength of the jointing shall be expressed in kg/m and the mean value of the jointing strength, for the testing series, shall be expressed in kg/m rounded off in accordance with IS : 2-1960*

4.2 The test report shall indicate the following:

a) Place, date and method of taking specimens;

b) Specification, designation of the element;

c) Designation of the joint design;

d) Description of the jointing method;

e) Rate of curing of the jointing material (wet erection);

f) Joint strength for each particular specimen; and

g) Mean value of the joint strength for the testing series.

*Rules for rounding off numerical values (*revised*).

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