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IS 1464 (1992): Clay ridge and ceiling tiles-Specification [CED 30: Clay and Stabilized Soil Products for





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(दूसरा पुनरीक्षण)

Indian Standard

CLAY RIDGE AND CEILING TILES – SPECIFICATION

(Second Revision)

UDC 666[.]74

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

Price Group 2

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized be the Clay Products for Buildings Sectional Committee had been approved by the Civil Engineering Division Council.

Clay ridge and ceiling tiles were originally manufactured in Mangalore but are now being produced on a large scale in Malabar, Cochin, Madras, Calicut and other places. This specification covers some of the such common tiles which are used with Mangalore pattern clay roofing tiles. This standard was published in 1959 and subsquently revised in 1973. This revision has been prepared so as to make its provisions up-to-date and also to relate the various dimensions to latest version of IS 654 : 1992 'Clay roofing tiles, mangalore pattern — specification'.

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

CLAY RIDGE AND CEILING TILES – SPECIFICATION

(Second Revision)

1 SCOPE

1.1 This standard covers specification of machinepressed clay ridge and ceiling tiles.

1.2 This standard does not cover tiles of irregular sizes, shapes and colour and those made to meet special requirements.

2 REFERENCES

2.1 IS 2248 : 1991 'Glossary of terms relating to structural clay products for building (second revision)' is a necessary adjuncts to this standard.

3 TERMINOLOGY

3.1 For the purpose of this standard the definitions given in IS 2248 : 1991 shall apply.

4 CLASSIFICATION

4.1 Ridge and ceiling tiles shall be of two classes, namely Class AA and Class A with their characteristics as specified in Table 1 and in 5 and 6.

5 MANUFACTURE

5.1 Ridge and ceiling tiles shall be made from good soils of even texture and shall be uniformly well burnt. They shall be uniform in shape and shall be free from irregularities, such as twists, bends, cracks and laminations.

5.2 The tiles shall be free from impurities like particles of stone, lime or other foreign materials visible to the naked eye, either on the surface or on the fractured surface of the tile obtained by breaking the sample. However, occasional particles up to 2 mm in size shall be permissible. When struck, the tile shall give a ringing sound and when broken, the fracture shall be clean, dense and sharp at the edges.

6 SHAPE, DIMENSIONS AND TOLERANCES

6.1 Shape

Common patterns of the ridge and ceiling tiles are shown in Fig. 1 and 2 respectively. The gap at the corners of the ceiling tiles, when placed on a plane surface in the normal position, shall be not more than $6^{\circ}0$ mm.

6.2 The dimensions of the ridge and ceiling tiles shall be as given in 6.2.1 and 6.2.2 respectively.

6.2.1 Ridge Tile

- a) Length The length of ridge tile measured from face to face excluding the portion containing the catch shall be 375, 400 and 435 mm (see dimension A in Fig. 1). The tolerance on the length of ridge tile shall be \pm 5 mm.
- b) Width and Height When a ridge tile is placed on a horizontal plane, the triangle formed in elevation by producing the inner faces of the tile shall have a base of 265 mm and height of 100 mm with a tolerance of \pm 5 mm.
- c) *Thickness* The thickness of the tiles shall be not less than 10 mm throughout excluding ornamentation, etc.
- d) *Rib* The rib at the rear end of the tile shall be of such a height and shape as to prevent effectively the tendency of the front face of the tile interlocked to slide over it.

6.2.2 Ceiling Tiles

There shall be two types of ceiling tiles:

- a) Double lug (see Fig. 2A), and
- b) Single lug (see Fig. 2B).

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SI No.	Characteristic	Method of Test	Requirement for	
			Class AA	Class A
(1)	(2)	(3)	(4)	(5)
i)	Water absorption percent (for ridge and ceiling tiles), Max	See Annex A	18	20
ii)	Breaking strength (for ridge tiles only) kN, <i>Min</i>	See Annex B Average Individual	0 [.] 015 0 (1 [.] 5 kg) 0 [.] 012 5 (1 [.] 25 kg)	0 [.] 011 0 (1 [.] 10 kg) 0 [.] 009 5 (0 [.] 95 kg)

Table 1 Classification of Ridge and Ceiling Tiles











2A Double Lug Type

A — Length of ceiling tile at the bottom. B — Width of ceiling tile at the bottom.

All dimensions in millimetres.









6.2.2.1 The length of the double lug ceiling tile at the bottom shall be such that when a tile is placed between two battens the space between the face of the batten and that of end of tile shall be between 3 mm and 6 mm.

6.2.2.2 The length of the single lug ceiling tile at the bottom shall be 30 mm less than the face to face spacing of battens.

6.2.2.3 The length of the lug shall not be more than 20 mm.

6.2.2.4 The thickness of the tile or lug shall be not less than 10 mm. The ornamentation on the bottom face shall not reduce the minimum thickness.

7 SAMPLING

7.1 Procedure for Sampling

For conducting the tests specified in 4.1 at least six tiles shall be selected at random for every 5 000 tiles or fraction thereof in a lot, by the purchaser (or his representative) in the presence of the manufacturer (or his representative). Additional specimens may be taken for tests at the discretion of purchaser. The number of tiles taken from a lot for tests shall be not less than 12 in any one lot.

7.2 Facilities for Sampling and Identifying

The manufacturer or the supplier shall afford every facility and provide all the labour and materials for taking and packing the samples.

Each specimen shall be so marked that it may be identified at any time.

8 NON-COMPLIANCE WITH TESTS

8.1 If any of the tiles in the sample fails to comply with any of the requirements of tests specified in 4.1, another sample shall be similarly drawn and tested. If any of the tiles in the second sample also fails to comply with the requirements of any of the tests specified in 4, then the whole lot, from where the samples were taken, shall be rejected as not complying with this standard.

9 CERTIFICATE OF COMPLIANCE

9.1 The manufacturer shall satisfy himself that the tiles conform to the requirement of this standard and if requested shall furnish a certificate to this effect to the purchaser (or his representative).

9.2 The supplier's certification shall be implied. if the material bears the Standard Mark.

10 MARKING

10.1 Each tile shall be legibly and indelibly marked with an indication of source of manufacture. The marking space shall not cover more than five percent of the area of the specimen.

10.1.1 Each tile may also be marked with the Standard Mark.

ANNEX A

(Table 1)

WATER ABSORPTION TEST

A-1 TEST SPECIMENS

A-1.1 Six tiles shall be used for this test from the sample selected in the manner decribed in 7.

A-2 PROCEDURE

A-2.1 Dry the six tiles in an oven at a temperature $105 \pm 2^{\circ}$ C until they attain a constant weight and then cool. Weigh when cool and immerse the dry specimens completely in clean water at 24 to 30°C for 24 h. Remove each specimen, wipe off the surface water carefully with a damp cloth, and weigh the specimen correct to a gram, within 3 min after removing the specimen from the water.

A-3 CALCULATION AND REPORT OF TEST RESULTS

A-3.1 The percentage of water absorption shall be calculated as follows:

Percentage absorption =
$$\frac{(B-A)}{A} \times 100$$

/ n

where

B =weight of the specimen after 24 h immersion in cold water, and

A = weight of the dry specimen.

A-3.2 The average percentage water absorption of the six tiles shall be calculated and reported as the percentage water absorption.

ANNEX B

(*Foreword*)

DETERMINATION OF BREAKING SIRENGTH (FOR RIDGE TILES ONLY)

B-1 TEST SPECIMENS

B-1.1 Six tiles shall be used for this test from the sample selected in the manner described in 7.

B-2 APPARATUS

B-2.1 This test may be conducted in any standard compression testing machine with provision for adjusting the rate of loading.

B-3 PROCEDURE

B-3.1 Six tiles in the wet condition after soaking in water for 24 h shall be tested. The two longitudinal edges of the ridge tile shall be kept, in the normal position, over two strips of 25 mm thick rubber sheet placed on the table of the testing machine. The load shall be applied on the ridge of the tile by means of a wooden block of size $75 \times 100 \times 300$ mm lined with rubber at bottom located symmetrically about the ridge of the tile and running in a direction parallel to the rubber sheets supporting the bottom edges (see Fig. 3). The load shall be applied on the block at a uniform rate of 270 kg/min.

B-4 CALCULATION AND REPORT OF TEST RESULTS

B-4.1 The individual breaking strength shall be obtained by dividing the breaking load by the length of the tile and the average of the values shall be calculated. The result shall be expressed in N/mm.



FIG. 3 ARRANGEMENT FOR FLEXURAL STRENGTH TEST OF RIDGE TILE

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Standard Mark

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 Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

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