



Designation: C 502 – 93a (Reapproved 1999)

Standard Test Method for Wedging of Flat, Rectangular Ceramic Wall and Floor Tile¹

This standard is issued under the fixed designation C 502; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last approval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers the determination of the wedging or deviation from rectangularity of flat, rectangular wall and floor tile. The test method covers tile as defined in Terminology C 242.

1.2 The values stated in inch-pound units are to be regarded as the standard. The values in parentheses are for information only.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

C 242 Terminology of Ceramic Whitewares and Related Products²

C 499 Test Method for Facial Dimensions and Thickness of Flat, Rectangular Ceramic Wall and Floor Tile²

3. Terminology

3.1 Definitions:

3.1.1 *wedging of tile*—the difference between two spaced measurements of the length or width of a tile, expressed as a percentage of the distance between points of measurements.

3.2 For the definition of major and minor facial dimensions see Test Method C 499.

4. Significance and Use

4.1 Tile are normally pressed in dies having true 90° angle construction. However, minor variations in die fill, compacting pressure, and heat treatment can result in finished tile with

acute and obtuse angles. This out-of-squareness results in a difference in length of opposite sides, and the tile may have the appearance of a keystone or wedge.

4.2 Excessive wedging presents difficulties in the installation of tile. This test method provides a means for determining the degree of wedging.

5. Apparatus

5.1 An apparatus as shown in Fig. 1 or other suitable apparatus. The dial gage (B) is used for measuring rectangularity.

5.2 A calibrating plate made of steel of accurate dimensions and with straight, flat sides.

6. Test Specimens

6.1 Tile specimens shall be selected at random from the lot to be tested. For items smaller than 6 in.² (38.7 cm²) in facial area, at least ten specimens shall be used. For items 6 in.² in facial area or larger, at least five specimens shall be used. The specimens shall be brushed to remove all adhering particles of clay and sand.

7. Procedure

7.1 Select an apparatus of the appropriate dimensions so that, when a tile is placed in the apparatus, the locating studs are 5 mm from each corner of the side adjacent to the side being measured. The plunger of the dial gage (B) shall also be 5 mm from the corner of the tile on the side being measured.

7.2 Fit the appropriate calibrating plate exactly into position on the instrument and adjust the dial gauge reading to a suitable known value.

7.3 Remove the calibrating plate, place the proper surface of the tile on the locating studs in the apparatus, and record the dial gage reading 5 mm from the corner. Rotate the tile, if square, to obtain four measurements. Repeat this procedure for each tile. In the case of oblong tiles, use separate instruments of the appropriate dimensions to measure lengths and widths. Measure to an accuracy of 0.1 mm.

¹ This method is under the jurisdiction of ASTM Committee C-21 on Ceramic Whitewares and Related Products and is the direct responsibility of Subcommittee C21.06 on Ceramic Tile.

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² Annual Book of ASTM Standards, Vol 15.02.

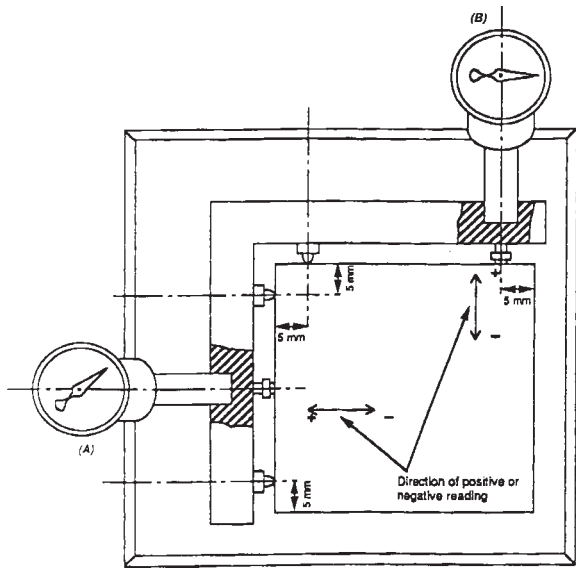


FIG. 1 Apparatus for Measurement of Straightness of Sides and Rectangularity

8. Calculation

8.1 Calculate the percentage of wedging or deviation from rectangularity as follows:

$$\frac{d}{L} \times 100 = \% \quad (1)$$

where:

L = length of the adjacent side of the tile and
 d = deviation of the outer corner of the side of the tile (measured 5 mm from the corner) from the inner side of the calibrating plate.

9. Report

9.1 The report shall give the type and number of tile tested and shall show for each specimen:

9.1.1 Average, maximum, and minimum percentage of wedging of the major lengths,

9.1.2 Average, maximum, and minimum percentage of wedging of the major widths,

9.1.3 Average, maximum, and minimum percentage of wedging of the minor lengths, and

9.1.4 Average, maximum, and minimum percentage of wedging of the minor widths.

NOTE 1—For nominally square tile, 9.1.2 and 9.1.4 are not given and 9.1.1 and 9.1.3 for such tile are calculated from the maximum difference among the four measurements.

10. Precision and Bias

10.1 Precision is being determined.

10.2 Bias depends almost entirely on the accuracy of the measuring devices and care taken to set up the equipment. No interlaboratory data are available with which to estimate a bias.

11. Keywords

11.1 flat, rectangular ceramic wall and floor tile; wedging

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