

Standard Specifications for STRUCTURAL CLAY FLOOR TILE¹



ASTM Designation: C 57 - 57 (Reapproved 1965)

This Standard of the American Society for Testing and Materials is issued under the fixed designation C 57; 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 reapproval.

Scope

1. (a) These specifications cover structural clay floor tile made from surface clay, shale, fire clay, or mixtures thereof. Two grades of tile are covered, designated grade *FT1* and grade *FT2*. Both grades are suitable for use in flat or segmental arches or in combination tile and concrete ribbed-slab construction.

(b) If tile having a particular color (Note), texture, or finish are desired, these features should be specified separately by the purchaser.

NOTE.—Color of tile varies with the type of clay used and degree of burning; hence, it cannot be taken as indicative of classification until after it has been related to absorption and strength by actual tests.

Physical Properties

2. (a) Structural clay floor tile shall

¹ Under the standardization procedure of the Society, these specifications are under the jurisdiction of the ASTM Committee C-15 on Manufactured Masonry Units. A list of members may be found in the ASTM Year Book.

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conform to the requirements as to physical properties for the grade specified as prescribed in Table I.

TABLE I.—PHYSICAL REQUIREMENTS.

Grade	Absorption by 1-hr Boiling, ^a per cent	Compressive Strength (Based on Net Area), ^b psi			
		End-Construction Tile		Side-Construction Tile	
		Maximum Average of Five Tests	Individual Minimum	Minimum Average of Five Tests	Individual Minimum
<i>FT1</i>	25	3200	2250	1600	1100
<i>FT2</i>	25	2000	1400	1200	850

^a The range in percentage absorption for tile delivered to any one job shall be not more than 12.

^b Net area of a unit shall be taken as the area of solid material in shells and webs actually carrying stresses in a direction parallel to the direction of loading.

(b) End construction floor tile are tile designed to resist forces applied in a direction parallel to axes of the cells. Side construction floor tile are tile de-

signed to resist forces applied in a direction perpendicular to axes of the cells. Where end-construction tile are used on the side, they shall conform to the requirements of side-construction tile and *vice versa*.

Number of Cells and Weights

3. (a) Flat and segmental arch tile shall conform to the requirements pre-

TABLE II.—NUMBER OF CELLS AND WEIGHT OF TILE FOR USE IN ARCHES.

Depth of Arch, in.	Minimum Number of Cells in Depth of Arch	Average Dry Weight, lb per sq ft of tile	
		Minimum	Maximum
FLAT ARCH TILE			
6.....	1	25	29
7.....	1	28	34
8.....	2	30	36
9.....	2	31	37
10.....	2	33	39
11.....	2	36	43
12.....	2	38	45
13.....	3	41	48
14.....	3	44	52
15.....	3	45	53
16.....	3	49	58
SEGMENTAL ARCH TILE			
6.....	2	28	34
8.....	2	34	40

scribed in Table II as to number of cells in the depth of arch, and average dry weights per square foot of tile.

(b) Tile designed to resist stresses in combination tile and concrete ribbed-slab construction shall conform to the requirements prescribed in Table III as to number of cells in the direction of depth of slab and average dry weights per square foot of tile.

(c) The requirements for minimum weights of structural clay floor tile shall be waived if the over-all thickness of the shells, measured between the inner and

extreme outer surfaces, is not less than $\frac{5}{8}$ in. and the thickness of the webs is not less than $\frac{1}{2}$ in.

(d) The maximum average weight of closed end floor units may be 3 lb per sq ft greater than the weights listed in Table III.

TABLE III.—NUMBER OF CELLS AND WEIGHT OF TILE FOR SLAB CONSTRUCTION.

Thickness of Units, in.	Minimum Number of Cells ^a in Thickness of Tile	Average Dry ^b Weight, lb per sq ft of tile	
		Minimum	Maximum
3.....	1	13.5	16.5
4.....	1	14.5	17.5
5.....	1	17.0	21.0
5.....	2	20.5	25.5
6.....	1	20.0	24.0
6.....	2	22.5	27.5
7.....	1	21.5	26.5
7.....	2	24.5	29.5
8.....	1	24.5	29.5
8.....	2	26.0	32.0
9.....	2	28.0	34.0
9.....	3	32.5	39.5
10.....	2	29.5	36.5
10.....	3	34.0	42.0
12.....	2	36.0	44.0
12.....	3	40.5	49.5

^a Cells are hollow spaces enclosed within the perimeter of the exterior shells, and having a minimum dimension of not less than $\frac{1}{2}$ in. and a cross-sectional area of not less than 1 sq in.

^b The weights given in the table are for scored tile. If any of the faces are unscored, the weights shall be increased 0.5 lb per sq ft of unscored area.

Permissible Variations in Dimension

4. No over-all dimension shall vary more than 3 per cent over or under the specified dimension for any form or size of tile.

Visual Inspection

5. All tile shall be reasonably free from laminations and from cracks, blisters, surface roughness, and other defects that would interfere with the proper setting of the tile or impair the