



Standard Specification for Clay Roof Tiles¹

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1. Scope

1.1 This specification covers clay tiles intended for use as roof covering where durability and appearance are required to provide a weather-resistant surface of specified design.

1.2 Tiles are manufactured from clay, shale, or similar naturally occurring earthy substances and subjected to heat treatment at elevated temperatures (firing). The heat treatment must develop a fired bond between the particulate constituents to provide the strength and durability requirements of this specification (see *firing* and *fired bond* in Terminology C 43).

1.3 Tiles are shaped during manufacture by molding, pressing, or extrusion and it is permitted to use the shaping method to describe the tiles.

1.4 Tiles are generally planar or undulating rectangular shapes available in a variety of cross-sectional profiles, shapes, sizes, surface textures, and colors.

1.5 Three grades of tile having various degrees of resistance to weathering are covered in this specification. Three types of tile are defined to cover the features that influence appearance.

1.6 The values stated in inch-pound units are to be regarded as the standard.

2. Referenced Documents

2.1 ASTM Standards:

C 43 Terminology of Structural Clay Products²

C 67 Test Methods of Sampling and Testing Brick and Structural Clay Tile²

C 297 Test Method for Tensile Strength of Flat Sandwich Constructions in Flatwise Plane³

C 554 Test Method for Crazing Resistance of Fired Glazed Ceramic Whitewares by a Thermal Shock Method⁴

3. Terminology

3.1 *Definitions*—For definitions of terms relating to structural clay products, and clay roof tiles, see Terminology C 43.

4. Classification

4.1 Clay roof tiles covered by this specification are classified by grade for durability and type for appearance as follows:

4.1.1 Grades:

4.1.1.1 *Grade 1*—Providing resistance to severe frost action.

4.1.1.2 *Grade 2*—Providing resistance to moderate frost action.

4.1.1.3 *Grade 3*—Providing negligible resistance to any frost action.

4.1.1.4 Grades relate to exposure to weather as defined in Table 1.

4.2 Types:

4.2.1 *Type I*—High-profile tiles—tiles having a rise-to-width ratio greater than 1:5.

4.2.2 *Type II*—Low-profile tiles—tiles having a rise-to-width ratio equal to, or less than 1:5.

4.2.3 *Type III*—All other tiles, including flat.

5. Material and Finish

5.1 Colors and textures produced by application of inorganic coatings to the faces of the tiles are not prohibited provided that evidence satisfactory to the purchaser is furnished regarding the durability of the coatings. Tiles that are colored by flashing or textured by sanding, where the sand does not form a continuous coating, are not considered as surface-colored tiles for the purpose of this specification.

NOTE 1—When surface colored tiles (other than sanded or flashed) are specified, data satisfactory to the purchaser shall be submitted showing that after 50 cycles of freezing-thawing (5.2) there is no observable difference in the applied finish when viewed from a distance of 40 ft (12 m) under an illumination of not less than 50 fc (538 lm/m²) by an observer with normal vision. It is not prohibited to present service records of the performance of the particular coated tiles in appropriate locations in place of the freezing and thawing test, with the consent of the purchaser.

5.2 The tiles shall be free of defects, deficiencies, or bloating, that would interfere with the proper laying of the tiles, the performance of the roof, or the requirements of this specification.

5.2.1 Tiles that, when broken, have a dark area that has a steely appearance and is sharply delineated from the surrounding normal color of tile are not prohibited. This dark area is known as black heart or black core. Black heart is generally the

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² *Annual Book of ASTM Standards*, Vol 04.05.

³ *Annual Book of ASTM Standards*, Vol 15.03.

⁴ *Annual Book of ASTM Standards*, Vol 15.02.