



# Standard Specification for Cork Floor Tile<sup>1</sup>

This standard is issued under the fixed designation F3008; 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. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

<sup>ε</sup><sup>1</sup> NOTE— In paragraph 8.5, “Method A” was added to reference ISO 24338 editorially in October 2016.

## 1. Scope

1.1 This specification covers requirements for the compound and physical characteristics of cork floor tile. This standard specifies the requirements for cork floor coverings made from agglomerated composition cork supplied in tile form, which are designed to be used with a factory finish or an in situ finish, or both.

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

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:*<sup>2</sup>

- F137 Test Method for Flexibility of Resilient Flooring Materials with Cylindrical Mandrel Apparatus
- F141 Terminology Relating to Resilient Floor Coverings
- F386 Test Method for Thickness of Resilient Flooring Materials Having Flat Surfaces
- F710 Practice for Preparing Concrete Floors to Receive Resilient Flooring
- F925 Test Method for Resistance to Chemicals of Resilient Flooring
- F970 Test Method for Static Load Limit
- F1914 Test Methods for Short-Term Indentation and Residual Indentation of Resilient Floor Covering
- F2055 Test Method for Size and Squareness of Resilient

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee F06 on Resilient Floor Coverings and is the direct responsibility of Subcommittee F06.80 on Specifications.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

- Floor Tile by Dial Gage Method
- F2199 Test Method for Determining Dimensional Stability of Resilient Floor Tile after Exposure to Heat
- 2.2 *European Standards:*<sup>3</sup>
  - EN 672 Resilient floor coverings - Determination of apparent density of agglomerated cork
  - EN 434 Resilient floor coverings - Determination of dimensional stability and curling after exposure to heat
- 2.3 *ISO Standards:*<sup>4</sup>
  - ISO 4918 Resilient textile, and laminate floor coverings – Castor Chair Test
  - ISO 24338 Laminate floor coverings – Determination of abrasion resistance
- 2.4 *ANSI/ASQC Standard:*<sup>4</sup>
  - ANSI/ASQC ZX1.4 Sampling Procedures and Tables for Inspection by Attributes

## 3. Terminology

3.1 *Definitions*—For definitions of terms used in this standard, see Terminology F141.

3.2 *agglomerated cork*—product obtained from the blending of cork granules with the addition of a binder. The percentage of cork, by weight, shall be >90 %.

## 4. Classification

4.1 *Class*—Type: cork floor tile covered by this specification shall have a smooth surface and be classified as follows:

- 4.1.1 *Class I*—Homogeneous Cork Tile (6.1)
  - 4.1.1.1 *Type A*—Unfinished (specify details of staining or site finishing, or both)
  - 4.1.1.2 *Type B*—Factory finished (specify per manufacturer's product information)
- 4.1.2 *Class II*—Heterogeneous Cork Tile (6.2)
  - 4.1.2.1 *Type A*—Unfinished (specify details of staining or site finishing, or both)
  - 4.1.2.2 *Type B*—Factory finished (specify per manufacturer's product information)

<sup>3</sup> Available from European Committee for Standardization (CEN), Avenue Marnix 17, B-1000, Brussels, Belgium, <http://www.cen.eu>.

<sup>4</sup> Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

## 5. Ordering Information

5.1 Purchaser shall state whether this specification is to be used, select the preferred options permitted herein, and include the following information in the invitation to bid or purchase order:

- 5.1.1 Title, number, and date of this specification.
- 5.1.2 Class, type, pattern, and wearing surface (Section 4).
- 5.1.3 Quantity, in square feet, square metres, or cartons.
- 5.1.4 Size required.
- 5.1.5 Thickness required.
- 5.1.6 Resistance to chemicals (8.6).
- 5.1.7 Lot information; if other than as specified in ANSI/ASQC Z1.4 (11.1).
- 5.1.8 Packing requirements, if other than as specified (Section 14).
- 5.1.9 Palletizing, if required.
- 5.1.10 Marking required, if other than specified (Section 13).
- 5.1.11 Other requirements.

## 6. Materials and Manufacture

6.1 *Class I*—Homogeneous Cork Tile – Homogeneous cork tile shall be of uniform structure and composition throughout, consisting of cork granules thoroughly and uniformly bonded together.

6.2 *Class II*—Heterogeneous Cork Tile – The pattern of this tile comprises a veneer layer of cork and a base layer consisting of cork granules thoroughly and uniformly bonded together. The pattern of this tile need not extend throughout the entire thickness of the tile.

## 7. Physical Properties

7.1 *Squareness*—When tested in accordance with Test Method F2055, cork floor tile squareness variation shall not exceed 0.02 in. (0.5 mm).

7.2 *Thickness*—When tested in accordance with Test Method F386, thickness variation shall not exceed  $\pm 0.01$  in. ( $\pm 0.25$  mm).

7.3 *Size*—When measured in accordance with Test Method F2055, a tolerance of  $\pm 0.016$  in. (0.4 mm) per tile shall be permitted.

7.4 *Apparent Density*—Shall be  $\geq 28$  lb/ft<sup>3</sup> (450 kg/m<sup>3</sup>) when tested in accordance with EN 672.

7.5 *Curling*—When tested in accordance with EN 434, shall curl less than 0.236 in. (6 mm).

7.6 *Moisture Content*—Shall be  $>4.5$  % and  $<6$  %, when tested per manufacturer's guidelines.

7.7 *Flexibility*—When tested in accordance with Test Method F137 and a mandrel size of 2-in. (50.8 mm), the tile shall show no cracks or breaks.

## 8. Performance Requirements

8.1 *Castor Chair Test*—When tested in accordance with ISO 4918 after 20 000 cycles, for commercial use, no disturbance to the surface other than slight change in appearance and no delamination shall occur.

8.2 *Static Load Resistance*—When tested in accordance with Test Method F970, with an applied load of 250 lb (113.4 kg), the residual indentation shall not be greater than 0.005 in. (0.127 mm).

8.3 *Residual Indentation*—When tested in accordance with Test Method F1914, under 30-lb (13-kg) load, 0.25-in. (6.35-mm) flat foot and 10 min indentation, the average residual indentation at the end of 60-min recovery shall not exceed 8 %, and the maximum residual indentation of any single specimen shall not exceed 10 %.

8.4 *Dimensional Stability*—When tested in accordance with Test Method F2199, the tile shall not change in linear dimension more than 0.020 in./linear ft (0.51 mm/305 mm).

8.5 *Abrasion Resistance*—When tested per the method described in ISO 24338—Method A, cork floor tile shall pass at  $\geq 4000$  revolutions for commercial use.

8.6 *Resistance to Chemicals*—The chemical resistance of cork floor tile shall be determined in accordance with Test Method F925. The cork floor tile shall have no more than a slight change in surface dulling, surface attack, or staining when exposed to the following chemicals:

8.6.1 White Vinegar (5 % acetic acid).

8.6.2 Rubbing Alcohol (70 % isopropyl alcohol).

8.6.3 White mineral oil (medicinal grade).

8.6.4 Household ammonia solution (5 % NH<sub>4</sub>OH).

8.6.5 Household bleach (5.25 % NaOCl).

8.6.6 Disinfectant – phenol type (5 % active phenol).

NOTE 1—These chemicals are representative of those most likely to be found in domestic, commercial, and institutional use. Many proprietary compounds contain one or more of these chemicals. Should the flooring for an unusual application need to be resistant to a specific chemical, this additional requirement should be part of the procurement document.

## 9. Workmanship, Finish, and Appearance

9.1 The product shall be free of defects that adversely affect performance or appearance. See Appendix X1 for information about shading and color variation.

## 10. Sampling

10.1 Sampling for testing physical characteristics listed in Section 7 and Section 8 (Table 1) shall be done in accordance with the provisions set forth in the current version of ANSI/ASQC Z1.4. The inspection level shall be special inspection level S-1, as noted in Table I, and the acceptable quality level (AQL) shall be 6.5 defects per hundred units as noted in Table II-A or as otherwise specified in 10.2 herein. The lot size shall be expressed in units. A unit represents a single, manufactured, inventoried, finished tile.

10.2 Sampling for testing physical characteristics listed in Section 7 and Section 8 (Table 1) shall be agreed upon by the purchaser and the manufacturer as part of the procurement document. All testing shall be done using cork tile as it will be used in its installed state. For example, if unfinished tile is specified, or if the manufacturer recommends additional coats after installation, the coating(s) to be applied in situ must be applied before testing. Test results for unfinished cork floor tile shall not be considered valid.

**TABLE 1 Characteristics and Tests**

Characteristic	Requirement	Test Method	Reference
Squareness	0.02 in. (0.5 mm)	F2055	7.1
Thickness	±0.01 in. (±0.25 mm)	F386	7.2
Size, tolerance	±0.016 in. (0.4 mm) per tile	F2055	7.3
Apparent Density	≥28 lb/ft <sup>3</sup> 450 kg/m <sup>3</sup> )	EN 672	7.4
Curling	less than 0.236 in. (6 mm)	EN 434	7.5
Moisture Content	>4.5 % and <6 %, per manufacturer's guidelines		7.6
Flexibility	2-in. (50.8-mm) mandrel, no crack or break	F137	7.7
Castor Chair Test	For commercial use, 20 000 cycles with no disturbance to the surface other than slight change in appearance and no delamination shall occur	ISO 4918	8.1
Static Load Resistance	<0.005 in. (0.127 mm) at 250 lb (113.4 kg) load	F970	8.2
Residual Indentation	Average less than 8 %, maximum single reading 10 %	F1914	8.3
Dimensional Stability	Shall not change in linear dimension more than 0.020 in./linear ft (0.51 mm/305 mm)	F2199	8.4
Resistance to Abrasion	≥4000 revolutions, for commercial use	ISO 24338	8.5
Resistance to Chemicals	no more than a slight change in surface dulling, surface attack, or staining	F925	8.6

## 11. Inspection

11.1 Sampling for inspection of the cork floor tile for defects that would adversely affect performance shall be done in accordance with the provisions set forth in the current version of ANSI/ASQC Z1.4. The inspection level shall be Level I as noted in Table I as found in the current version of ANSI/ASQC Z1.4, with an acceptable quality level (AQL) of 6.5 defects per hundred as noted in Table II-A as found in the current version of ANSI/ASQC Z1.4, or as otherwise specified in 11.2 herein. The lot size shall be expressed in units. A unit represents a single, manufactured, inventoried, finished tile.

11.2 The purchaser and the manufacturer shall agree upon inspection of the cork floor tile for defects that would adversely affect performance as part of the procurement documents.

## 12. Certification

12.1 A manufacturer's certification and any other documents required to substantiate certification shall be furnished to the purchaser stipulating that the product is manufactured to meet this specification as detailed in the purchase order or contract (5.1).

## 13. Product Marking

13.1 Unless otherwise specified in 5.1, shipping containers shall be marked with the name of the material as defined by the

contract or order, under which the shipment is made, the size, thickness, the pattern number, the quantity contained therein, the country of manufacture and the name of the supplier.

13.2 Unless otherwise specified in the invitation for bids, shipping containers shall be marked with the following:

- 13.2.1 name of the material,
- 13.2.2 class, type,
- 13.2.3 size,
- 13.2.4 thickness,
- 13.2.5 color,
- 13.2.6 quantity contained,
- 13.2.7 name of the supplier,
- 13.2.8 country of manufacture,
- 13.2.9 name of the contractor, and
- 13.2.10 number of the contract or order.

## 14. Packaging and Package Marking

14.1 Unless otherwise specified in 5.1, the cork floor tile shall be packaged in accordance with normal commercial practices to ensure acceptance by common carrier and to provide protection against damage during normal shipping, handling, and storage.

## 15. Keywords

- 15.1 cork flooring; cork floor tile; resilient flooring

## APPENDIX

### (Nonmandatory Information)

#### X1. ADDITIONAL INFORMATION

X1.1 The colors and patterns that are available are indicated in individual manufacturer's current catalogues. As manufactured and due to the uncontrollable natural characteristics of the raw material, colors may vary somewhat in hue or shade from the catalogue. Where color or shade match, or both, is a concern, samples from the manufacturer shall be obtained to verify color or shade acceptability, or both. It may be necessary to order extra material to ensure color variation is acceptable to owner.

X1.2 As a natural material with many of the same characteristics as wood flooring, cork can be subject to damage from direct sunlight or excess liquid, or both. Consult the manufacturer of cork floor tile for specific recommendations and warranty limitations in these types of applications.

X1.3 *Moisture Testing*—Preparation and testing of concrete substrates shall be conducted per Practice F710.

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