



Designation: F710 – 22

Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring¹

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1. Scope

1.1 This practice covers the determination of the acceptability of a concrete floor for the installation of resilient flooring.

1.2 This practice includes suggestions for the construction of a concrete floor to ensure its acceptability for installation of resilient flooring.

1.3 This practice does not cover the adequacy of the concrete floor to perform its structural requirements.

1.4 This practice covers the necessary preparation of concrete floors prior to the installation of resilient flooring.

1.5 This practice does not supersede in any manner the resilient flooring or adhesive manufacturer's written instructions. Consult the individual manufacturer for specific recommendations.

1.6 Although carpet tiles, carpet, wood flooring, coatings, films, and paints are not specifically intended to be included in the category of resilient floor coverings, the procedures included in this practice may be useful for preparing concrete floors to receive such finishes.

1.7 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use. See 4.1.1, 7.1.1, and 7.1.2 for specific warning statements.*

1.8 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.

1.9 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

¹ This practice is under the jurisdiction of ASTM Committee F06 on Resilient Floor Coverings and is the direct responsibility of Subcommittee F06.40 on Practices.

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2. Referenced Documents

2.1 ASTM Standards:²

- C109/C109M Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50 mm] Cube Specimens)
- C472 Test Methods for Physical Testing of Gypsum, Gypsum Plasters, and Gypsum Concrete
- D4259 Practice for Preparation of Concrete by Abrasion Prior to Coating Application
- D4263 Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method
- D4397 Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications
- E1155 Test Method for Determining F_F Floor Flatness and F_L Floor Levelness Numbers
- E1486 Test Method for Determining Floor Tolerances Using Waviness, Wheel Path and Levelness Criteria
- E1745 Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs
- F141 Terminology Relating to Resilient Floor Coverings
- F710 Practice for Preparing Concrete Floors to Receive Resilient Flooring
- F1869 Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
- F2170 Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
- F3191 Practice for Field Determination of Substrate Water Absorption (Porosity) for Substrates to Receive Resilient Flooring

NOTE 1—Specifications and test methods for cements and other related materials are found in ASTM Volume 04.01. Specifications and test methods for concretes and related materials are found in ASTM Volume 04.02.

2.2 ACI Guides:³

- 302.1R-06 Guide for Concrete Floor and Slab Construction
- 302.2R-06 Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from American Concrete Institute (ACI), 38800 Country Club Dr., Farmington Hills, MI 48331-3439, <http://www.concrete.org>.

117R Standard Tolerances for Concrete Construction and Materials

2.3 *Resilient Floor Covering Institute (RFCI):*⁴

Recommended Work Practices for the Removal of Resilient Floor Coverings

2.4 *Other Standards:*

MASTERSPEC Guide Spec Section 03 30 00 “Cast-In-Place Concrete”⁵

3. Terminology

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

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *design team, n*—design professionals (including architects, designers, consultants, engineers and specifiers) acting as a Team to provide planning, design, and construction administration services for a project; universally referred to as the A/E (architect/engineer).

3.2.2 *mat, as in “mat test”, n*—a sample of vapor-retardant sheet resilient floor finish material or equivalent.

3.2.3 *moisture vapor emission, n*—a term used by the flooring industry in the U.S. to measure moisture emission from concrete floors in lb/1000 ft² · 24 h (56.51 µg/(s · m²) using the anhydrous calcium chloride test.

4. General Guidelines

4.1 The surface of concrete floors to receive resilient flooring shall be dry, clean, smooth, and structurally sound. They shall be free of dust, solvent, paint, wax, oil, grease, residual adhesive, adhesive removers, film-forming curing compounds, silicate penetrating curing compounds, sealing, hardening, or parting compounds, alkaline salts, excessive carbonation or laitence, mold, mildew, and other foreign materials that might affect the rate of moisture dissipation from the concrete, the adhesion of resilient flooring to the concrete or cause a discoloration of the flooring from below. Non-chemical methods for removal, such as abrasive cleaning or bead-blasting, including methods described in Practice D4259 may be used on existing slabs with deleterious residues.

4.1.1 **Warning**—Hydraulic cement used in concrete construction may contain trace amounts of free crystalline silica. Prolonged exposure to airborne free crystalline silica may be a health hazard. Avoid actions that cause dust to become airborne. Use local or general ventilation to control exposures below applicable exposure limits.

4.1.2 **Warning**—See 7.1.1 and 7.1.2 for warnings regarding asbestos and lead paint.

4.2 Surface cracks, grooves, depressions, control joints or other non-moving joints, and other irregularities shall be filled or smoothed with latex patching or underlayment compound recommended by the resilient flooring manufacturer for filling or smoothing, or both. Patching or underlayment compound

shall be moisture-, mildew-, and alkali-resistant, and, for commercial installations, shall provide a minimum of 3000 psi compressive strength after 28 days, when tested in accordance with Test Method C109/C109M or Test Method C472, whichever is appropriate.

4.2.1 Joints such as expansion joints, isolation joints, or other moving joints in concrete slabs shall not be filled with patching compound or covered with resilient flooring. Consult the resilient flooring manufacturer regarding the use of an expansion joint covering system.

4.3 The surface of the floor shall be cleaned of all loose material by scraping, brushing, vacuuming, or other methods, or a combination thereof, as recommended by the resilient flooring manufacturer, immediately before commencing installation of resilient flooring.

4.4 Many resilient floorings may not be installed over concrete when residual asphalt adhesive residue is present. Consult the resilient flooring manufacturer’s written recommendations concerning use of resilient flooring products in these situations.

4.5 Concrete floors shall be smooth to prevent irregularities, roughness, or other defects from telegraphing through the new resilient flooring. The surface of concrete floors shall be flat to within the equivalent of 3/16 in. (3.9 mm) in 10 ft, (as described in ACI 117R, or as measured by the method described in Test Method E1155 or any industry-recognized method specified) and within the equivalent of 1/32 in. (0.8 mm) in 12 in. (305 mm). See X1.7 for more information regarding flatness measurement methods.

4.6 *Acclimation*—Because of the role acclimation plays in a successful installation, most resilient flooring manufacturers recommend or require that their flooring products, sundry supplies (adhesives, coatings, welding rods, underlayments, etc.) and the area to receive the resilient flooring are properly conditioned. Consult floor covering and sundry manufacturers for appropriate ambient temperature, substrate surface temperature and ambient relative humidity ranges for the products to be installed and the geographic area where the job site is located. When determining suitable installation conditions, including dew point and potential surface condensation, suitable instrumentation shall be utilized to measure ambient temperature, percent of ambient relative humidity and substrate surface temperature. General recommendations are for the installation area and materials listed above to be maintained at a minimum of 65 °F (18.3 °C) and a maximum of 85 °F (29.4 °C) for 48 h before, during and for 48 h after completion of the installation. Relative humidity level extremes should also be avoided because of their influence on proper drying and curing of patching compounds and adhesives. General recommended humidity control level is between 35 – 55 %. If a system other than the permanent HVAC source is utilized, it must provide proper control of both temperature and humidity to recommended or specific levels for the appropriate time duration.

4.6.1 *Dew Point*—All concrete slabs to receive resilient flooring shall be evaluated for dew point regardless of age or grade level. For the required dew point limit, consult the

⁴ Resilient Floor Covering Institute, 966 Hungerford Drive, Rockville, MD 20850.

⁵ Available from MASTERSPEC, AIA Master Systems, King Street Station, 225 Reinekers Lane, Suite 215, Alexandria, VA 22314-2875.