



Designation: F2873 – 18

Standard Practice for the Installation of Self-Leveling Underlayment and the Preparation of Surface to Receive Resilient Flooring¹

This standard is issued under the fixed designation F2873; 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 (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers the installation of self-leveling underlayments, which may include a priming system, over solid wood, wood structural panel subfloors, over concrete, and over certain solidly bonded existing flooring systems such as epoxy floors, ceramic and natural stone tiles, terrazzo, metal subfloors and foils such as steel, copper and lead, solidly bonded patching and other leveling materials as well as properly prepared non water-soluble adhesive residues as recommended by the underlayment manufacturer. This practice also covers the preparation of the self-leveling underlayment's surface prior to the installation of resilient flooring.

1.2 This practice points out the factors that are required to be controlled while installing a self-leveling underlayment to be used as a substrate for resilient flooring.

1.3 This practice does not cover the structural adequacy of the subfloor. The structural integrity of assemblies is governed by local building codes and may be superseded by the resilient flooring manufacturer's and the self-leveling underlayment manufacturer's requirements.

1.4 This practice does not supersede the self-leveling underlayment manufacturer's, adhesive manufacturer's or resilient flooring manufacturer's written instructions. Consult the individual manufacturer for specific recommendations.

1.5 Some self-leveling underlayments are not suitable for use on concrete slabs on or below grade due to potential moisture problems arising from moisture intrusion. However, most of the self-leveling underlayments may be suitable for use on and below grade if an adequate and effective vapor retarder or vapor barrier is present directly beneath the concrete slab or an effective moisture remediation system has been installed beneath the surface of the self-leveling underlayment. Consult the manufacturer of the self-leveling underlayment and flooring system for specific recommendations.

1.6 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.

1.7 This practice does purport to address the necessity for or the safe or correct removal of asbestos containing materials. Breathing of asbestos dust is hazardous. Asbestos and asbestos products present demonstrated health risks for users and for those with whom they come into contact. In addition to other precautions, when working with asbestos-cement products, minimize the dust that results. For information on the safe use of chrysotile asbestos, refer to "Safe Use of Chrysotile Asbestos: A Manual on Preventive and Control Measures."²

1.8 *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.*

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.*

2. Referenced Documents

2.1 *ASTM Standards:*³

C219 Terminology Relating to Hydraulic Cement

C1583 Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method)

C1708 Test Methods for Self-leveling Mortars Containing Hydraulic Cements

F141 Terminology Relating to Resilient Floor Coverings

F710 Practice for Preparing Concrete Floors to Receive Resilient Flooring

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 Available from <http://www.chrysotile.com>

³ 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.

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

F1482 Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring

C109/C109M Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)

2.2 OSHA Standard⁴

29 CFR OSHA §1926.1153 Respirable crystalline silica

3. Terminology

3.1 Definitions used in this practice shall be in accordance with Terminology **F141**.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *fully adhered flooring, n*—resilient flooring which has adhesive under the entire product, bonding it to the underlayment surface.

3.2.2 *non-fully adhered flooring, n*—resilient flooring that may be loose laid, in which no adhesive is utilized, or partially bonded to the surface of the underlayment, typically at seams and the surrounding perimeter of the product.

3.2.3 *self-leveling underlayment system, n*—a non-structural, hydraulic cement-based, poured mortar composed primarily of hydraulic cements, fillers or fine aggregate, and water, which may require the use of a primer to enhance bond strength and inhibit pin hole development, and which is intended to provide a flat, smooth surface for the finished floor covering.

3.2.4 *subfloor, n*—a structurally sound layer intended to provide support for design loads, which may receive resilient floor coverings directly if the surface is suitable to the flooring manufacturer.

3.2.5 *wood structural panel, n*—a panel manufactured from veneers, or wood strands or wafers, or a combination of veneer and wood strands, or wafers, bonded together with waterproof synthetic resins or other suitable, waterproof bonding systems such that they are considered to be Type 1 for exterior exposure. Lauan plywood is not recommended to receive self-leveling underlayments represented in this practice.

4. Significance and Use

4.1 This practice provides minimum recommendations for the installation of self-leveling underlayments suitable to receive resilient floor coverings. This practice establishes the proper preparation of the subfloor, and installation methods and quality control requirements for self-leveling underlayments. This practice addresses necessary preparation of the self-leveling underlayment's surface prior to the installation of floor coverings.

4.2 Actual requirements for self-leveling underlayments are generally included as part of project plans or specifications and

may vary from the recommendations set forth in this practice. Provisions in the project documents at variance with this practice shall take precedence.

5. Product Requirements

5.1 For the purpose of this practice, self-leveling underlayment shall be hydraulic cement based compounds, as defined in 3.2.4 in accordance with Terminology **C219**.

5.2 Self-leveling underlayments shall be tested for compressive strength in accordance with Test Method **C109/C109M** modified (air-cured only as detailed in Test Methods **C1708**). Specified psi at 28 days shall be a minimum of 3000 psi (20.7 MPa).

6. Storage and Handling of Self-Leveling Underlayments

6.1 Self-leveling underlayments included in this practice shall be delivered to the jobsites in original, unopened, undamaged bags with identification labels intact. Bags and the enclosed material should not be damaged and shall be protected from the elements after delivery to the jobsite.

6.2 All products shall be kept off the ground and protected from moisture and excessive heat or cold in accordance with the manufacturer's recommendations.

7. General Guidelines

7.1 The subfloor shall support design loads as required by the prevailing building code but no greater than $L/360$. Use the strictest criteria applicable.

7.2 Subfloors shall be structurally sound and dimensionally stable so as to support both the uniform design live and dead loads in compliance with the local building code and the self-leveling underlayment manufacturer as well as the resilient flooring manufacturer's installation requirements.

7.3 Concrete subfloors shall be as described in Practice **F710**, or meet the requirements of the manufacturer of the self-leveling underlayment and the manufacturer of the resilient floor covering, or both.

7.3.1 Some self-leveling underlayments are recommended by their manufacturers for use over concrete that is less than 28 days old and may be part of a moisture remediation system.

7.3.1.1 The suitability of such materials to receive resilient floor coverings remains the sole responsibility of the self-leveling manufacturer.

7.3.2 Wood subfloors shall be installed and prepared in accordance with Practice **F1482**.

7.4 The HVAC system shall be operational for the minimum specified time period recommended in the moisture test(s) being performed prior to test commencement and shall remain on throughout the test to ensure accurate moisture testing. Otherwise, condition a test area to "in service condition" before testing.

7.5 Concrete subfloors that exceed the floor covering manufacturer's requirements for moisture in 7.4 shall either be made to dry out until the moisture requirements are within the flooring manufacturer's limits or shall be remediated using products that are suitable to receive underlayments represented in this practice.

⁴ Available from Occupational Safety and Health Administration (OSHA), 200 Constitution Ave., NW, Washington, DC 20210, <http://www.osha.gov>.