



Designation: C1516 – 05 (Reapproved 2023)

## Standard Practice for Application of Direct-Applied Exterior Finish Systems<sup>1</sup>

This standard is issued under the fixed designation C1516; 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.

### 1. Scope

1.1 This practice covers the minimum requirements and procedures for field application of Direct-applied Exterior Finish Systems (DEFS). Direct-applied exterior finish systems are coating systems applied over various substrates with non-metallic reinforcing mesh, in which the base coat ranges from not less than  $\frac{1}{16}$  in. (1.6 mm) to  $\frac{3}{32}$  in. (2.4 mm) in dry thickness, depending on the mass of the reinforcing mesh. This base coat is subsequently covered with a finish coat that is available in a variety of textures and colors.

1.2 The values stated in inch-pound units are to be regarded as the standard. The metric values given in parentheses are approximate and are provided for information purposes only.

1.3 *This standard may involve hazardous materials, operations, and equipment. 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.*

1.4 *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:*<sup>2</sup>

[C11 Terminology Relating to Gypsum and Related Building Materials and Systems](#)

[C1063 Specification for Installation of Lathing and Furring](#)

[to Receive Interior and Exterior Portland Cement-Based Plaster](#)

[C1177/C1177M Specification for Glass Mat Gypsum Substrate for Use as Sheathing](#)

[C1186 Specification for Flat Fiber-Cement Sheets](#)

[C1278/C1278M Specification for Fiber-Reinforced Gypsum Panel](#)

[C1325 Specification for Fiber-Mat Reinforced Cementitious Backer Units](#)

[E1825 Guide for Evaluation of Building Exterior Enclosure Materials, Products, and Systems](#)

### 3. Terminology

3.1 Definitions used in this standard shall be in accordance with Terminology [C11](#).

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *accessories, n*—preformed metal, fiberglass or plastic members used to form corners, edges, control joints, or decorative effects.

3.2.2 *back wrapping, n*—a deprecated term. See *wrap*.

3.2.3 *base coat, n*—a material, either factory or field-mixed, used to cover the substrate and to encapsulate the reinforcing mesh.

3.2.4 *cold joint, n*—the visible junction in an exterior finish.

3.2.5 *cure, v*—to develop the ultimate properties of a wet state material by a chemical process.

3.2.6 *dry, v*—to develop the ultimate properties of a wet state material solely by evaporation of volatile ingredients.

3.2.7 *durability, n*—the capability of a building, assembly, component, product, or construction to maintain serviceability over not less than a specified time.

3.2.8 *embed, v*—to encapsulate a non-metallic reinforcing mesh in either the joint compound or exterior finish.

3.2.9 *expansion joint, n*—a structural separation between building elements that allows independent movement without damage to the assembly.

3.2.10 *factory mixed, n*—a material that is prepared at the point of manufacture and is ready to use without the addition of other materials, except possibly water to adjust consistency.

3.2.11 *field mix, n*—a material that is mixed in the field with other components, water, or both.

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee C11 on Gypsum and Related Building Materials and Systems and is the direct responsibility of Subcommittee C11.05 on Application of Exterior Insulating and Finish Systems and Related Products.

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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.

3.2.12 *finish coat, n*—the final wet state material, that provides color or additional texture, applied over the reinforced base coat.

3.2.13 *flash set (quick set), n*—the early hardening or stiffness in the working characteristics of a Portland-cement paste, mortar, or concrete, usually with the evolution of considerable heat; stiffness cannot be dispelled nor the plasticity regained by further mixing without addition of water; also known as “quick set.”

3.2.14 *framing member, n*—studs, joist, runners (tracks), bridging, bracing, and related accessories manufactured or supplied in wood or hot or cold formed steel.

3.2.15 *initial grab, n*—the ability of a wet state material to remain in place initially after it has been applied.

3.2.16 *initial set, n*—a time related set caused by the hydration process.

3.2.17 *lamina, n*—composite of base coat, reinforcement, and finish coat.

3.2.18 *mechanical fastener, n*—corrosion resistant component used to attach the substrate to the framing member.

3.2.19 *reinforcing mesh, n*—a non-metallic component of the DEFS encapsulated in the base coat to strengthen the system.

3.2.19.1 *Discussion*—Non-metallic reinforcing mesh is available in various weights to achieve different levels of impact and stress resistance.

3.2.20 *pot life, n*—the duration of time that the wet state material remains workable after it has been mixed.

3.2.21 *primers, n*—liquid coatings applied to improve the adhesion of the DEFS to the substrate.

3.2.21.1 *Discussion*—Primers are sometimes applied to improve the water resistance of cementitious base coats.

3.2.22 *reinforced base coat, n*—base coat that has been reinforced with a non-metallic reinforcing mesh.

3.2.23 *substrate, n*—surface to which the DEFS is applied.

3.2.24 *surface sealer, n*—material used to enhance weather resistance.

3.2.25 *temper, v*—to bring to a workable state by adding water.

3.2.26 *texture, n*—any surface appearance as contrasted to a smooth surface.

3.2.27 *wet edge, n*—the leading edge of a continuously applied wet state material.

3.2.28 *wet state materials, n*—the adhesive, base coat and finish coat components applied in liquid or semi-liquid state.

#### **4. Significance and Use**

4.1 This practice provides minimum requirements for the application of Direct-applied Exterior Finish Systems. The requirements for materials, mixtures, and details shall be contained in the project plans and specifications.

#### **5. Delivery of Materials**

5.1 All materials shall be delivered in packages, containers, or bundles with the identification and markings intact.

#### **6. Inspection**

6.1 Inspection of the materials shall be agreed upon between the purchaser and the supplier as part of the purchase agreement.

#### **7. Rejection**

7.1 Materials that are damaged, frozen, or in any way defective shall not be used. Rejection of materials shall be promptly reported verbally to the producer and immediately reported in writing. The notice of rejection shall contain a statement documenting the basis for material rejection.

#### **8. Certification**

8.1 When specified in the contract documents, the exterior finish producer shall furnish a report certifying that the materials are in conformance with product and material standards and contract documents.

8.2 The substrate panels shall be marked as complying with the applicable product specification.

#### **9. Storage of Materials**

9.1 All materials shall be kept dry by storage under cover and protected from the weather.

9.1.1 When outside storage is required, substrate panels shall be stacked flat with care taken to avoid damage to edges, ends, or surfaces.

9.1.2 All other DEFS components shall be stacked off the ground, supported on a level platform and protected from the direct sunlight, weather, surface contamination or physical damage in accordance with the DEFS producer’s written instructions.

9.2 Materials shall be protected from exposure to temperatures less than 40 °F (4 °C), unless otherwise specified by the manufacturer.

9.3 Portland Cement shall be kept dry until ready for use. It shall be kept off the ground, under cover and away from damp walls and surfaces.

#### **10. Environmental Conditions**

##### *10.1 Cold Weather Conditions:*

10.1.1 Wet materials shall not be applied when the temperature is less than 40 °F (4 °C) unless temporary heat and enclosures are provided to maintain a minimum temperature of 40 °F (4 °C) for a minimum period of not less than 24 h before, during and after application or unless otherwise specified by the manufacturer.

10.1.2 Materials shall not be applied to a base containing frost. Substrate surface temperature shall be not less than 40 °F (4 °C) unless otherwise specified by the manufacturer. Mixtures for application shall not contain any frozen ingredients.