



Designation: D4259 – 88 (Reapproved 2012)

Standard Practice for Abrading Concrete¹

This standard is issued under the fixed designation D4259; 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 includes surface preparation of concrete to prepare the surface prior to the application of coatings.

1.2 This practice is intended to alter the surface profile of the concrete and to remove foreign materials and weak surface laitance.

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.* For specific hazard statements, see Section 5.

2. Referenced Documents

2.1 *ASTM Standards:*²

D4258 Practice for Surface Cleaning Concrete for Coating

D4285 Test Method for Indicating Oil or Water in Compressed Air

D4541 Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers

2.2 *Other Standard:*

ACI-308 Guide to Curing Concrete³

3. Summary of Practice

3.1 This practice is intended to provide a clean, contamination-free, and roughened surface.

3.2 Acceptable surfaces shall be free of laitance, form release agents, curing agents, oil, grease, and other penetrating contaminants. The surface shall be free of fins, projections and loosely adhering concrete, dirt, and dust particles.

¹ This practice is under the jurisdiction of ASTM Committee D33 on Protective Coating and Lining Work for Power Generation Facilities and is the direct responsibility of Subcommittee D33.05 on Application and Surface Preparation.

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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), P.O. Box 9094, Farmington Hills, MI 48333-9094, <http://www.aci-int.org>.

3.3 For some applications, a minimum concrete surface strength may be required for proper coating performance.

3.4 Acceptable methods of preparation include abrasive blasting (wet or dry), mechanical abrading, water blasting, and other similar procedures that will alter the surface profile of the concrete.

4. Significance and Use

4.1 This practice is used to prepare concrete for coatings where optimum bond is desired for service conditions such as continuous or intermittent immersion, temperature cycling, or mechanical loading.

5. Hazards

5.1 New concrete shall be cured in accordance with ACI-308.

6. Mechanical Abrading Procedure

6.1 *Suitable Surfaces*—Mechanical abrading is suitable for use on formed surfaces and floors and for the removal of fins and projections.

6.2 *Pre-Surface Preparation:*

6.2.1 Remove grease, oil, and other penetrating contaminants. (See Practice D4258.)

6.2.2 Concrete surfaces may be wet or dry as appropriate to the type of equipment to be used.

6.3 *Apparatus:*

6.3.1 Typical apparatus covered by this method are rotary impact, vertical impact, and circular grinding equipment.

6.3.2 Use the equipment in accordance with the manufacturer's instructions in an organized manner in order to thoroughly cover the entire surface to be prepared.

6.4 *Appearance of Prepared Surface:*

6.4.1 The intent is to remove sufficient material in order to achieve a sound concrete surface free of laitance, glaze, efflorescence and incompatible concrete curing compounds or form release agents.

6.4.2 The surface shall have a roughened, textured appearance. Aggregate may be exposed. A roughness standard may be established by mutual agreement.

6.4.3 The appearance will vary depending upon the equipment used and type of concrete.