



Designation: D 5107 – 03

Standard Practice for Preparatory Surface Cleaning of Architectural Sandstone¹

This standard is issued under the fixed designation D 5107; 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 approval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers non-abrasive surface cleaning of architectural sandstone to remove grease, dirt, loose material, and surface deposits such as soot, fly ash, hydrocarbon residues, and algae and other biological growth in preparation for the application of water repellent coatings. Procedures include broom cleaning, vacuum cleaning, air blast cleaning, water cleaning (and detergent water cleaning), and chemical cleaning.

1.2 *Limitations*—This practice is intended to clean architectural sandstone without damaging it or altering the surface profile. These procedures are not intended for interior stonework. Where work on surfaces of artistic, architectural, cultural, or historic significance is being considered, guidance from specialists should be sought.

1.3 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.4 *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 4.

2. Referenced Documents

2.1 ASTM Standards:

- C 119 Terminology Relating to Dimension Stone²
- D 4262 Test Method for pH of Chemically Cleaned or Etched Concrete Surfaces³
- D 4263 Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method³
- D 4285 Test Method for Indicating Oil or Water in Compressed Air³

¹ This practice is under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.47 on Concrete, Stone and Masonry Treatments.

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² *Annual Book of ASTM Standards*, Vol 04.07.

³ *Annual Book of ASTM Standards*, Vol 06.02.

3. Significance and Use

3.1 Surface cleaning is necessary to prepare architectural sandstone surfaces for application of coatings intended for water repellent protection. Surface cleaning of the sandstone substrate helps to ensure proper adhesion of the coating.

3.2 Use of procedures described in this practice may not be adequate where protective systems will be used for continuous or intermittent immersion or mechanical loading.

4. Hazards

4.1 Moisture in the architectural sandstone may be detrimental to coating adhesion or (in some cases) cure. Moisture content shall be in compliance with coating manufacturer's recommendation. See also Test Method D 4263.

4.2 Localized staining (for example efflorescence and metallic staining) and previously applied coatings or preservative treatments not compatible with the treatment may require removal by other surface preparation methods.

4.3 Water cleaning, detergent water cleaning, and chemical cleaning should not be performed at temperatures below 40°F.

4.4 Many chemical cleaning products contain acids and should be handled according to manufacturers' recommendations. Use and disposal of materials should conform to established federal, state, local, and project requirements.

4.5 If pressure washing equipment is employed for water cleaning or for flushing the surface with detergent water cleaning or chemical cleaning, the minimum effective pressure should be used. Avoid excessive pressures that could damage the sandstone substrate.

5. Procedure

5.1 Air blast, water, scrubbing, sweeping, or vacuuming are acceptable cleaning methods. Chemical cleaning agents may be used to remove surface deposits such as soot, fly ash, and hydrocarbon residues not removed by any of the above methods. Chemical cleaning should be preceded and followed by a thorough fresh water rinse.

5.2 Existing conditions of the substrate will determine the selection of appropriate procedure(s). Prior to the initiation of cleaning, small test areas should be cleaned in inconspicuous areas by the selected procedure to determine effectiveness.