



# Standard Practice for Surface Cleaning Concrete Masonry Units for Coating<sup>1</sup>

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## 1. Scope

1.1 This practice covers surface cleaning of concrete masonry units to remove dust, dirt, mortar spatter, oil, and grease prior to the application of coatings. Procedures include vacuum cleaning, air-blast cleaning, water cleaning, detergent water wash, steam cleaning, and mechanical cleaning.

1.2 This practice may alter the surface profile of the concrete but is primarily intended to clean the surface.

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:<sup>2</sup>

D4258 Practice for Surface Cleaning Concrete for Coating  
D4262 Test Method for pH of Chemically Cleaned or Etched Concrete Surfaces  
D4263 Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method

### 2.2 Other Standard:

ACI 531.1-76 Specification for Concrete Masonry Construction<sup>3</sup>

## 3. Summary of Practice

3.1 Surface cleaning is intended to provide a clean, contamination-free surface suitable for the application of coatings.

3.2 Acceptable surfaces shall be free of dust, dirt, mortar spatter, oil, grease, and other contaminants. Mortar joints shall

be struck flush or tooled with a round jointer and shall be free of rough edges and nibs (see ACI 531.1-76).

3.3 Vacuum cleaning, air blast cleaning, water cleaning, detergent water wash, steam cleaning, hand tool, and mechanical cleaning are acceptable cleaning methods.

3.4 Any one or a combination of listed cleaning procedures may be used to achieve acceptably cleaned surfaces.

## 4. Significance and Use

4.1 Surface cleaning is to be used to prepare concrete unit masonry surfaces for applying coatings intended for light duty service, splash and spillage of water and chemical solutions, radiation exposure, decontamination, and repeated washdowns with alkaline cleaners.

## 5. Cautions

5.1 Moisture in concrete unit masonry may be detrimental to coating adhesion. Moisture content shall be in compliance with the coating manufacturer's recommendations (see Test Method D4263 for moisture test method).

## 6. Procedures

6.1 *Steam Cleaning*—This procedure is intended to remove heavy deposits of grease and oil, as well as other water soluble surface contaminants and emulsifiable materials, with a jet of high pressure steam, in accordance with Practice D4258.

6.2 *Detergent Water Wash*—This procedure is intended to remove water soluble surface contaminants, oils, grease, and other emulsifiable materials with an aqueous solution of detergent or nonsolvent emulsifier in accordance with Practice D4258.

6.3 *Water Cleaning*—This procedure is intended to remove dust, dirt, and water soluble contaminants with a stream of water under pressure, in accordance with Practice D4258.

### 6.4 Mechanical Tool Cleaning:

6.4.1 The intent of this procedure is to remove mortar spatter, efflorescence, and similar dry, firmly adhering foreign material prior to performing either cleaning operation.

6.4.2 This procedure shall consist of scraping, abrading, brushing, or stoning to dislodge mortar and similar materials from the surface.

<sup>1</sup> 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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<sup>2</sup> 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.

<sup>3</sup> Available from American Concrete Institute (ACI), P.O. Box 9094, Farmington Hills, MI 48333-9094, <http://www.concrete.org>.

6.4.3 Clean in accordance with Practice **D4258** to remove dust and loose particles.

6.5 *Vacuum Cleaning*—This procedure is intended to remove surface dust and other debris by vacuum cleaning in accordance with Practice **D4258**.

6.6 *Air Blast Cleaning*—This procedure is intended to remove debris, dust, dirt, and loosely adhering material by air blast cleaning in accordance with Practice **D4258**.

## **7. Inspection**

7.1 Visually examine prepared surface for the presence of debris, dust, dirt, oil, grease, loose particles, mortar spatter, and other contaminants.

7.2 Test surfaces cleaned with detergent or non-solvent emulsifying agents for pH in accordance with Test Method **D4262**.

7.3 Moisture content may be determined in accordance with Test Method **D4263**.

## **8. Acceptance**

8.1 Acceptable surfaces shall be free of dust, dirt, mortar spatter, oil, grease, and other contaminants.

## **9. Keywords**

9.1 coating; concrete unit masonry; surface cleaning preparation

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