



Standard Guide for Repair and Restoration of Dimension Stone¹

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1. Scope

1.1 This guide describes materials and procedures for restoring facades constructed of or finished with dimension stone. All of the materials, procedures, and principles are suitable for restoration of historic and nonhistoric structures.

1.2 This guide is not intended to address restoration of interior dimension stone, although many of the materials and procedures may be suitable for interior use.

1.3 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.

1.4 *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 requirements prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

- C5 Specification for Quicklime for Structural Purposes
- C10 Specification for Natural Cement
- C91 Specification for Masonry Cement
- C119 Terminology Relating to Dimension Stone
- C141 Specification for Hydraulic Hydrated Lime for Structural Purposes
- C150 Specification for Portland Cement
- C207 Specification for Hydrated Lime for Masonry Purposes
- C270 Specification for Mortar for Unit Masonry
- C1180 Terminology of Mortar and Grout for Unit Masonry
- C1242 Guide for Selection, Design, and Installation of Dimension Stone Attachment Systems

¹ This guide is under the jurisdiction of ASTM Committee C18 on Dimension Stone and is the direct responsibility of Subcommittee C18.07 on Environmental Properties, Behavior, and Cleaning.

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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.

C1324 Test Method for Examination and Analysis of Hardened Masonry Mortar

C1329 Specification for Mortar Cement

C1489 Specification for Lime Putty for Structural Purposes

C1515 Guide for Cleaning of Exterior Dimension Stone, Vertical And Horizontal Surfaces, New or Existing

C1521 Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints

2.2 OSHA Directive:

STD 1-12.026 Abrasive Operations Using Cut Off Wheels and Masonry Saws

3. Terminology

3.1 *Definitions*—For definitions of terms used in this guide, other than those listed below, refer to Terminology C119 and Terminology C1180.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *defect*—naturally occurring flaw in the stone.

3.2.2 *dimension stone restoration consultant*—one who is knowledgeable and experienced with the care, restoration, and repair of building dimension stone.

3.2.3 *distress*—localized damage of stone units such as cracks, chips, holes, deterioration, bowing, and projections that have been broken off or worn down caused by wear, erosion, settlement, displacement, or other adverse chemical or mechanical actions.

3.2.4 *dutchman repair*—a stone repair method whereby a portion of a stone unit is cut out and replaced with another piece of stone (called a dutchman). The dutchman is usually rectangular or square in shape, but may also be rounded, and is usually at a corner or edge of the stone unit.

3.2.5 *pointing*—placing mortar in the outer portion of the joints between stone units. To point stone joints, the outer portion of the joints must either be left open during installation or cut or ground out, i.e. have the mortar removed from the outer portion of the joint. New mortar is then pressed into the joint with a pointing tool. The increased compaction of the new mortar provides an improved resistance to water penetration at the joint compared to the primary stone setting mortar.

3.2.5.1 *repointing*—the removal of existing mortar from the outer portion of the joints between stone units and the subsequent pointing of the joints.