



Standard Practice for Selection, Removal, and Shipment of Manufactured Masonry Units Placed in Usage¹

This standard is issued under the fixed designation C 1420; 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 covers procedures to facilitate the process of selecting, removing, and shipping of manufactured masonry units that have been placed in usage and are intended for testing. This practice also covers procedures for reporting as part of this process.

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

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.*

2. Referenced Documents

2.1 *ASTM Standards:*²

C 43 Terminology of Structural Clay Products

C 1180 Terminology of Mortar and Grout for Unit Masonry

C 1209 Terminology of Concrete Masonry Units and Related Units

C 1232 Terminology of Masonry

C 1532 Practice for Selection, Removal, and Shipment of Masonry Assemblage Specimens from Existing Construction

E 122 Practice for Choice of Sample Size to Estimate a Measure of Quality for a Lot or Process

3. Terminology

3.1 *Definitions:*

3.1.1 *units placed in usage*—manufactured masonry units that have been installed in a masonry assembly.

3.1.2 For definitions of other terms used in this practice, refer to Terminologies **C 43**, **C 1180**, **C 1209**, and **C 1232**.

¹ This practice is under the jurisdiction of ASTM Committee C15 on Manufactured Masonry Units and is the direct responsibility of Subcommittee C15.04 on Research.

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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.

4. Significance and Use

4.1 Manufactured masonry units that have been placed in usage are sometimes removed as part of an assessment of the condition of the units. Such units are commonly prepared for shipment to a laboratory where the specimens are assessed with visual techniques, petrographic techniques, or standard test methods. The process of selecting, removing, and shipping the specimens can have an effect on test results. This practice provides procedures for selecting, removing, and shipping units.

4.2 This practice also covers reporting of the selection, removal, and shipping processes. This information allows the interested parties to assess the impact of these processes on test results.

4.3 This practice does not define the use of the results of tests conducted on removed specimens. This practice does not determine whether manufactured masonry units placed in usage met specification requirements at the time of purchase.

4.4 If masonry assemblages are to be removed from existing construction, refer to Practice **C 1532**.

5. Selection and Removal

5.1 *Selection of Test Specimens:*

NOTE 1—When specimens placed in usage are to be removed for testing in accordance with test methods that include requirements for sampling and selection of specimens, those requirements shall be replaced with **5.1** of this practice.

5.1.1 *Visual Assessment*—Prior to selecting specimens for removal, perform a visual survey of the exposed surface to assess the condition of the units.

5.1.1.1 Record observations from the visual survey on drawings that represent the appearance of the masonry construction. Include sample locations identified in 5.2.

NOTE 2—The use of original construction drawings or drawing sheets prepared for this purpose has been found to be useful for documenting the conditions of masonry construction.

5.1.1.2 Conduct the visual assessment either over the entire construction or on a representative sample of the entire construction.

*A Summary of Changes section appears at the end of this standard.

NOTE 3—Locations with different exposures, such as walls exposed to rain and walls protected from rain may be used to distinguish different segments of construction to be examined.

NOTE 4—Practice E 122 provides information on how to calculate the number and locations of samples necessary in order to estimate with a prescribed precision, a measure of quality representing all the sampling area.

5.1.2 *Sampling*—Select specimens representative of the masonry units used in the entire construction, or a selected part of the entire construction. Sample by one or more of the following techniques:

NOTE 5—When sampling a portion of the entire construction, consider aspects such as the orientation of the units (for example, stretcher, header, or soldier); location in the structure (for example, parapet, corbel, or quoin); or where different masonry units are blended to produce a range of color or architectural effect within the entire construction.

5.1.2.1 *Random Sampling*—Within the entire construction, or in a selected part of the entire construction, select units based on a random sampling process. Designate a numbering system associated with specimen locations and randomly select numbers, or use a similar random sampling method.

5.1.2.2 *Location-specific Sampling*—Select units specific to a particular installed location. The selection of specimens within the specific location shall be based on a random sampling process, as described in 5.1.2.1.

5.1.2.3 *Condition-specific Sampling*—Select units specific to a physical condition of the units. The selection of specimens within the specific condition should be based on a random sampling process, as described in 5.1.2.1.

NOTE 6—Selecting units for condition-specific sampling could include considering units visually assessed to be deteriorated, or units visually assessed to be undamaged, for examples.

NOTE 7—Sampling is useful for identification of differences in masonry units placed in different locations or exposures, that is, the difference between masonry units placed on different elevations, or the difference between masonry units exposed to environmental or atmospheric conditions and those not exposed. Under these circumstances, sampling should be representative of each usage condition. For example, select masonry units visually considered to be in the best physical condition, in the worst physical condition, and the most representative of the overall physical condition.

5.2 *Identification*—Identify each specimen on the wall with a permanent marker and photograph before removal. Do not mark on more than 10 % of any face of the specimen. Reference the marked specimen to the specific location where the specimen was obtained.

5.3 *Pre-Removal Documentation*—Prior to removing unit specimens, thoroughly document the visual condition of the masonry within the proposed sampling locations. Prepare a sketch of or photograph each sample location. Trace over any cracks on the specimens with a felt-tipped marker and document the cracks' maximum width(s). Trace along the outer limits of all other areas of distress using a felt tip pen and document the approximate depth of the distress at each individual location, if any.

NOTE 8—The pre-removal documentation will be used for judging the specimen's pre-removal condition and for comparative purposes to determine if it is damaged during removal or shipping. Documenting the condition of cracks and other distress, if any, will be used in judging if the

extent and size of the existing distress has increased during specimen removal or shipping.

NOTE 9—Distress is any damage not typically associated with a sound unit. It may be manifested as spalling, chipping, crazing, stains, efflorescence, or other types of visually assessable defects.

5.4 *Specimen Removal*:

5.4.1 *Specimen Size*—Remove full-size masonry units.

5.4.2 *Specimen Removal*—Remove specimen by sawcutting or by chiseling through mortar joints. Take care to avoid damage during removal. Do not use electric or hydraulic impact equipment that damages the specimen.

NOTE 10—While removing the units, do not detrimentally affect the structural or serviceability performance of the remaining masonry.

NOTE 11—Masonry units with a nominal thickness of 4 in. (100 mm) are normally removed with a power-driven rotary saw with a diamond-tipped blade having a diameter of 12 to 14 in. (300 to 350 mm).

NOTE 12—One successful way to minimize damage to specimens removed from existing masonry walls by way of cutting is to first make the bottom cut and shim it to take up the weight of the specimen, then make the top cut, and finally make the two side cuts. These cuts should extend past the specimen corners a distance at least equal to the thickness of the specimen and extend completely through the specimen at the corners.

5.4.3 *Specimen Condition After Removal*—Move specimen to site of preparation for shipping and document the specimen's condition on all exposed sides as described in 5.3.

NOTE 13—The purpose of documenting the specimen condition after removal is to judge if the specimen has been damaged during the removal process.

5.4.4 *Condition of Exposed Masonry*—Document the condition of the exposed construction in the resultant hole prior to patching, if any. Note the type, dimensions, and construction of the underlying masonry (such as the air space, insulation, ties, etc.). Use sketches and photographs to assist with documenting the condition.

5.5 *Shipment*:

5.5.1 Protect each individual masonry specimen on all sides with suitable material to prevent damage to the specimens during shipment.

NOTE 14—Past experience has shown wrapping the specimens in a 1-in. (25-mm) thick layer of packaging foam, shipping pellets, sheet foam, or bubble wrap prior to shipping has provided adequate protection of specimens during shipment.

5.5.2 Completely encase one or more specimens and packaging material in crates that will be dent resistant when shipped. Completely fill all space within the crate to prevent movement of the specimens within the crate. Clearly mark the crates, "Handle With Care."

NOTE 15—Successful past shipping of specimens has been accomplished in crates constructed of plywood thicker than 5/8 in. (16 mm).

5.5.3 Document the condition of the specimens after receipt at their final destination as described in 5.4.3.

6. Report

6.1 Report the following information about the selection, identification, removal, and shipment of the specimens.

6.1.1 The results of the visual assessment (see 5.1.1). Include survey sheets indicating the location where the specimens were removed.

- 6.1.2 The sampling technique (see 5.1.2).
- 6.1.3 The condition of each specimen.
- 6.1.4 The method of specimen removal (see 5.4).
- 6.1.5 The method of shipment (see 5.5).
- 6.1.6 The specimen identification (see 5.2) shall be used for cross-reference in the report as well as for cross-reference with subsequent test reports.

7. Keywords

7.1 masonry; masonry units; removal; sampling; selection process; shipment; units places in usage

SUMMARY OF CHANGES

Committee C15 has identified the location of selected changes to this standard since the last issue (C 1420-03a) that may impact the use of this standard.

- (1) **Note 12** has been added to section 5.4.2 to assist the user with cutting procedures that will minimize damage to the specimen during cutting from the existing masonry. Subsequent notes have been renumbered.

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