

DESCRIPTION OF INSPECTION

The inspection was designed to include a review of the laboratory's quality assurance system, an examination of the apparatus and an observation of the test procedures used in determining the physical properties of brick as set forth in ASTM Specification C67.

The ASTM Standards on which the work was based are as follows: C67-07a, C1093-07, and E4-07.

Documentation

The inspection of the laboratory's documentation was designed to include a review of the laboratory's quality system and quality system manual as described in ASTM Standard Practice C1093. The quality system is defined in C1093 as the organizational structure, responsibilities, procedures, processes, capabilities, and resources for implementing quality management. The quality system, as listed in Section 8 of C1093, includes the requirements for equipment calibration and verification and records of calibration and verification, inspection of facilities, agency accreditation, proficiency sample testing and records, test records, traceability of calibration, external audit records, and test methods. The quality system manual, as listed in Section 9 of C1093, includes the requirements for organization and organizational policies, staff, facilities and equipment, equipment calibration and verification, test records and reports, sample management, diagnostic and corrective actions, internal quality system reviews, and subcontracting.

Apparatus

Specimen Preparation (C67)

A balance and drying room were checked during the inspection. The balance was checked for the minimum capacity and proper sensitivity. The drying room was checked for proper temperature and relative humidity to determine that the drying environment conformed to the requirements of applicable standards.

Measurement of Dimensions of Brick(s) (C67)

Apparatus used in making measurements of bricks was checked for conformance to the size and readability requirements of C67.

Compression Test Apparatus (C67, and E4)

Apparatus used in making compressive strength tests of bricks include the compression machine in which specimens are tested; the bearing plates (if applicable) used in testing the specimens when the bearing blocks are not of a suitable size; and the capping equipment and materials used to obtain smooth load bearing surfaces on specimens.

Compression Machine - Unless otherwise noted, only one testing machine was inspected. During this inspection, several of the more important mechanical and design features were noted; the design, dimensions, and surface planeness of bearing blocks used were checked for conformance to the requirements of C67; and the accuracy of load indication was verified.

The verification tests were made using force measuring instruments (load cells) calibrated at the National Institute of Standards and Technology. In these tests, each load indicator was set at the zero position customarily employed by the laboratory. The selection of test points was made based on loads consistent with the range of use of the material being inspected. Test loads were approached by increasing the load to the test point as specified in Method E4.

Bearing Plates - When applicable, the bearing plates were checked for proper thickness, planeness, and dimensions required for the test specimens presented in the inspection.

Capping Equipment and Materials - The apparatus used in capping was checked for conformance to the requirements of C67, with particular attention being given to the dimensions, planeness, surface condition, and thickness of capping plates. The preparation and use of the capping material was observed and special safety and verification apparatus were checked.

Absorption (C67)

The balances and ovens used in determining the absorption were checked for conformance to C67, with particular attention being given to the sensitivity of the balance and proper temperature of the oven.

Initial Rate of Absorption (C67)

The containers and supports used were inspected to ensure they were the proper size and condition to conform to the requirements of C67. Also, the containers were checked to ensure that a proper water level is maintained throughout the test.

Procedures

The brick testing procedures, which were observed and discussed during the inspection, are as follows: specimen preparation, measurement of dimensions, capping, compression test, absorption, and initial rate of absorption. The laboratory's conformance to specified procedures was as indicated in the Summary of Findings.

All departures noted were reviewed in detail with laboratory personnel with particular attention being given to those matters described in the Footnote Section.