



Construction Materials Engineering Council

Date: January 25, 2010

Attention: Individuals involved in the Inspection and Testing Mortar used in Unit Masonry in the Field

Subject: Compressive Strength of Field Mixed Mortars

Specification ASTM C270 does not provide compressive strength requirements for field-tested mortar using 2"x2" cubes.

ASTM C270 Section 3.1 "Specification C270 is *not* a specification to determine mortar strengths through field testing."

ASTM C270 Section 3.3 " The compressive strength values resulting from field tested mortars do not represent the compressive strength of mortar as tested in the laboratory nor that of the mortar in the wall. Physical properties of field sampled mortar shall not be used to determine compliance to this (C270) specification and are not intended as criteria to determine the acceptance or rejection of the mortar."

ASTM C270 Section 8.3 " Test Method C780 is suitable for the evaluation of masonry mortars in the field. However, due to the procedural differences between Specification C270 and C780, the compressive strength values resulting from field sampled mortars are not required nor expected to meet the compressive strength requirements of the property specification of Specification C270, nor do they represent the compressive strength of the mortar in the wall"

Specification ASTM C780 provides methods to evaluate mortars in the field. The specification details several procedures to evaluate the day-to-day variations in the production of mortar.

Preconstruction testing to establish the physical properties of the mortar *must* take place prior to setting any limits on physical properties. Visual monitoring of batching volumes and/or daily monitoring of mortar-aggregate content and mortar-water content tests can be performed and compared to values established during the preconstruction evaluation.

ASTM C780 Note - 4 "Variations in the measured compressive strengths of field sampled mortar and between the measured compressive strengths of construction and pre-construction mortar samples should be expected. Many of these variations result from sampling mortar from the mixer or mortarboard and do not necessarily translate into significant mortar strength variations in the wall. Unit suction will remove water from the mortar in the wall and the curing conditions are different. However, significant variations between measured compressive strength values should prompt evaluation of probable causes of this variation. Conducting companion mortar-aggregate ration tests would assist in determining if changes in the mix constituents and proportions are the likely cause."

Christopher J. Robinson, P.E.
Executive Director
CMEC

850 Courtland Street, Orlando, Florida 32804
(407) 628-3682
www.cmec.org