ARIZ 315
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(4 Pages)

PRECAST MORTAR BLOCKS TEST

(An Arizona Test Method)

SCOPE

1. (a) This test method covers the accepted procedure for determining the compressive strength of precast mortar spacer blocks which are used to maintain the proper clearance on reinforcing steel bars. Precast mortar spacer blocks are prepared utilizing portland cement, aggregates, water, and admixtures.

(b) The compressive strength of the precast mortar spacer blocks shall be equal to or greater than the required twenty-eight day strength of the concrete that will encase the spacer blocks.

(c) The normal compressive strength of the precast mortar spacer blocks shall be in a range between 15 to 40 MPa (2000 to 6000 psi).

(d) This test method may involve hazardous material, operations, or equipment. This test method does not purport to address all of the safety concerns associated with its use. It is the responsibility of the user to consult and establish appropriate safety and health practices and determine the applicability of any regulatory limitations prior to use.

(e) See Appendix A1 of the Materials Testing Manual for information regarding the procedure to be used for rounding numbers to the required degree of accuracy.

(f) Metric (SI) units and values are shown in this test method with English units and values following in parentheses. Values given for metric and English units may be numerically equivalent (soft converted) for the associated units, or they may be given as rounded or rationalized values (hard converted). Either the metric or English units along with their corresponding values shall be used in accordance with applicable specifications. See Appendix A2 of the Materials Testing Manual for additional information on the metric system.

APPARATUS

2. Requirements for the frequency of equipment calibration and verification are found in Appendix A3 of the Materials Testing Manual. Apparatus for this test procedure shall consist of the following:

(a) A testing machine that conforms to the description given in AASHTO T 22, Section 5.

(b) A saw having a diamond or silicon-carbide cutting edge capable of cutting specimens which conform to the prescribed dimensions, without excessive heating or shock.

(c) Alignment devices and melting pots for sulfur mortars, conforming to the applicable sections of AASHTO T 231.

PREPARATION

3. (a) The length of the specimen, when capped, shall be as nearly as practical twice the diameter or least width. A specimen having a length which is less than the diameter or least width after capping shall not be tested.

(b) The ends of the specimens to be tested in compression shall be essentially smooth, perpendicular to the longitudinal axis, and of the same cross-sectional area as the body of the specimen. If necessary, saw or tool the ends of the specimens until the following requirements are met:

1) Projections, if any, shall not extend more than 5 mm (0.2 inch) above the end surfaces.

2) The end surfaces shall not depart from the perpendicular to the longitudinal axis by more than 5 degrees.

(c) Before making the compression test, cap the ends of the specimens in conformance with the procedure prescribed in the applicable section of AASHTO T 231. The capped surfaces of the specimens shall conform to the planeness requirements of AASHTO T 231.

(d) Prior to testing, measure the length of the capped specimen to the nearest 2.5 mm (0.1 inch) and use this length to compute the ratio of length to diameter or least width. Determine the dimension of the diameter or each width by averaging two measurements taken at the 1/3 points of the length of the specimen. Measure the diameter or each width and determine the average dimension to at least the nearest 2.5 mm (0.1 inch). If the ratio of length to diameter or least width of the specimen exceeds 2.10, the specimen shall be reduced in length to have a ratio of 1.94 to 2.10.

TEST PROCEDURE

4. (a) Test the specimens in accordance with the applicable provisions of AASHTO T 22.

Note: Short specimens fail at a greater load because the steel platens of the testing machine restrain lateral expansion throughout the specimen more effectively. The effect of end restraint is conventionally assumed to be negligible for a standard specimen with a ratio of length to diameter or least width of two. Short specimens are clearly defined in both AASHTO T 22 and T 24.

CALCULATIONS

5. (a) Calculate the compressive strength of each specimen using the computed cross-sectional area based on the average area of the specimen.

(b) Specimens which have a ratio of length to diameter or least width of 1.94 to 2.10 require no correction.

(c) If the ratio of length to diameter or least width of the specimen is less than 1.94, apply correction factors shown in the following table:

Ratio of Length to Diameter or Least Width	Strength Correction Factor
1.75	0.98
1.50	0.96
1.25	0.93
1.00	0.87
Values not given in the table shall be determined by interpolation.	

REPORT

6. (a) The compressive strength of the tested specimen at ultimate load shall be reported to the nearest 50 kPa (10 psi), after correction for length to diameter or least width ratio when appropriate.