

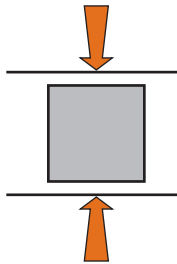
Repair Mortar Test Procedures

There are a variety of commonly used test procedures. This guide is to help you understand the basic procedures of each test and determine which test is best suited for a specific purpose.

COMPRESSIVE STRENGTHS

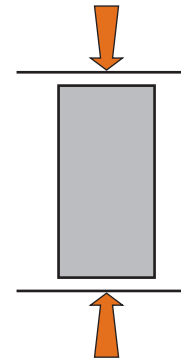
ASTM C-109 COMPRESSIVE STRENGTH

- Reported in psi.
- 2 Inch cubes.
- Usually run on product with fine aggregate, e.g. mortar.



ASTM C-39 COMPRESSIVE STRENGTH

- Reported in psi.
- Cylinder length 2 times diameter.
- Usually run on product with larger aggregate, e.g. concrete.



For compression, multiply results of C-109 by 0.89 to equate to C-39

TENSILE STRENGTHS

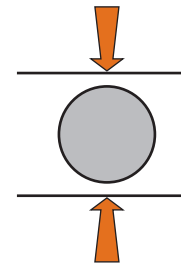
ASTM C-190 TENSILE STRENGTH

- Reported in psi.
- True tensile test.
- Used in lab to compare mortars.



ASTM C-496 SPLITTING TENSILE

- Reported in psi.
- Splitting strength run under compression.
- Used to test cores taken from in-place concrete.

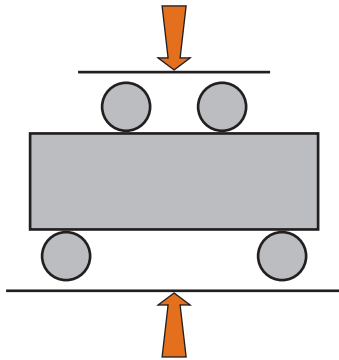


There is no correlation between these tests, and therefore, the results cannot be compared. ASTM C-496 is easier to run than C-190 and will typically report higher values.

FLEXURAL STRENGTH

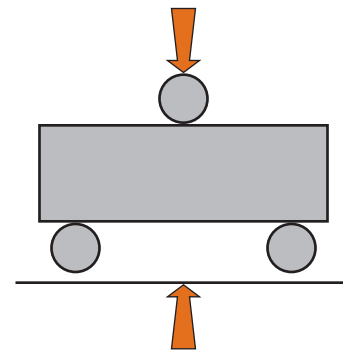
ASTM C-78

- Modules of rupture reported in psi.
- Ingot size: length is 3 times width.
- Third point loading.



ASTM C-348

- Flexural strengths reported in psi.
- Ingot size: 1.575 x 1.575 x 6.3 inches.
- Center point loading.

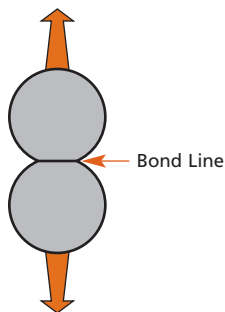


ASTM C-348 is a more severe test for flexural strengths and typically will result in lower values than ASTM C-78. There is no correlation between the test and therefore the results should not be compared.

BOND STRENGTH

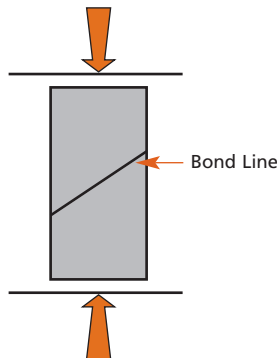
ASTM C-932

- Tensile bond reported in psi.
- Tensile pull.
- For surface applied bonding agents for exterior repair mortars.



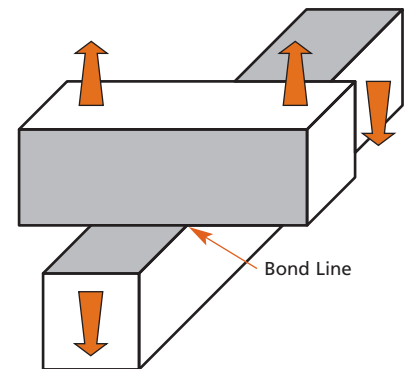
ASTM C-882

- Slant shear reported in psi.
- Bond strength of epoxy resins with concrete.



CROSSED BRICK

- Adhesion reported in psi.
- Not an ASTM method but commonly used.
- Produces results similar to ASTM C-932.

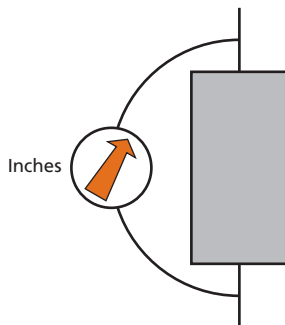


ASTM C-882 results do not correlate to the other two procedures and the results should not be compared.

SHRINKAGE

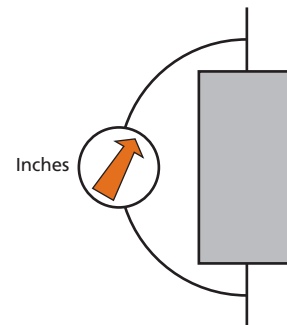
ASTM C-157

- Length change of hardened mortar and concrete.
- Used to compare one product to another.
- Reports length change as a percentage after 28 days.
- 28 days of controlled cure.



ASTM C-596

- Drying shrinkage of mortar containing Portland cement.
- Used to evaluate effect of a cement on mortar.
- Reports ultimate shrinkage (calculated shrinkage at infinity).
- 3 days controlled cure.



Because ASTM C-157 samples are control cured for 28 days, the results do not directly relate to job site conditions. The "ultimate" shrinkage of ASTM C-596 should not be compared to ASTM C-157.