

# **Guide for Obtaining Cores and Interpreting Compressive Strength Results**

Reported by ACI Committee 214



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## Guide for Obtaining Cores and Interpreting Compressive Strength Results

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# Guide for Obtaining Cores and Interpreting Compressive Strength Results

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*Core testing is the most direct method to determine the compressive strength of concrete in a structure. Generally, cores may be obtained to assess whether concrete in a new structure complies with strength-based acceptance criteria or to evaluate the structural capacity of an existing structure based on the in-place concrete strength. In either case, the process of obtaining core specimens and interpreting strength test results is often confounded by various factors affecting in-place concrete strength or measured strength of test specimens. The scatter in strength test data, which is unavoidable given the inherent randomness of in-place concrete strengths and the uncertainty attributable to preparation and testing of the specimens, may further complicate compliance and evaluation decisions.*

*This guide summarizes practices for obtaining cores and interpreting core compressive strength test results. Factors that affect in-place concrete strength are reviewed so sampling locations that are consistent with objectives of the investigation can be selected. Strength correction factors are presented for converting the measured strength of non-standard core-test specimens to the strength of equivalent specimens with standard diameters, length-to-diameter ratios, and moisture conditioning. This guide provides direction for checking strength compliance of concrete in a structure under*

*construction and methods for determining equivalent specified strength to assess capacity of an existing structure. The materials, processes, quality control measures, and inspections described in this document should be tested, monitored, or performed as applicable only by individuals holding the appropriate ACI Certifications or equivalent.*

**Keywords:** compressive strength; core; hardened concrete; sampling; test.

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