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Standard Terminology for Anchors and Fasteners in Concrete and Masonry¹

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1. Scope

1.1 This document covers standard terminology for anchors and fasteners installed in structural members made of concrete or masonry.

1.2 This terminology does not cover terms relating to the mechanical properties of the materials used for fabricating anchors, nor does it cover their use.

1.3 The terms are listed alphabetically. Compound terms appear in the natural spoken order.

2. Referenced Documents

2.1 *ASTM Standards*:²

E 488 Test Methods for Strength of Anchors in Concrete and Masonry Elements

E 631 Terminology of Building Constructions

E 1190 Test Methods for Strength of Power-Actuated Fasteners Installed in Structural Members

E 1512 Test Methods for Testing Bond Performance of Bonded Anchors

3. Terminology

adhesive-bonded anchor—anchor placed into a hole in the base material, and which derives its holding strength from a chemical adhesive placed between the wall of the hole in the base material and the embedded portion of the anchor.

allowable load—capacity assigned to an anchor in accordance with allowable-stress design procedures.

anchor—cast-in-place or post-installed fastening device installed in the base material for the purpose of transferring loads to the base material.

anchor loading: axial—load applied concentrically with the anchor longitudinal axis.

anchor loading: bending—flexure induced in the anchor by application of a shear load at a distance from the surface of the base material.

anchor loading: combined—axial and shear loading applied simultaneously (oblique loading).

anchor loading: shear—load applied parallel to the surface of the base material and perpendicular to the anchor's longitudinal axis.

anchor spacing—distance between anchors measured centerline to centerline.

attachment—structural element (fixture) external to the surface of the base material, and which transmits loads to the anchor.

base material—material in which anchor is installed, such as concrete or masonry.

bond failure—failure mode characterized by loss of bond either between the anchor and adhesive or between the adhesive and the base material.

cast-in-place anchor—anchor installed in formwork prior to placement of concrete.

characteristic value—the 5 % fractile (value with a 95 % probability of being exceeded, with a confidence of 90 %).

clamping force—compression force transmitted to the base material as a result of preload in the anchor.

concrete breakout failure—anchor failure mode characterized by concrete cone failure or concrete edge failure.

connection—attachment of load-bearing element to concrete or masonry base materials using anchors.

critical edge distance—minimum anchor edge distance, measured from the anchor centerline to the edge of the structural member, at which the full anchor capacity can be obtained without concrete edge breakout failure or splitting failure.

critical spacing—minimum anchor spacing, measured centerline to centerline of the anchors, at which the full anchor capacity can be obtained without influence from adjacent anchors.

cure time—the length of time required for an adhesive-bonded anchor to develop its ultimate strength.

¹This terminology is under the jurisdiction of ASTM Committee E06 on Performance of Buildings and is the direct responsibility of Subcommittee E06.13 on Structural Performance of Connections in Building Construction.

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²For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.