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Standard Terminology for Anchors and Fasteners in Concrete and Masonry[1]

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1. Scope

1.1 This terminology 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. Terminology

adhesive 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.

cracked concrete—for testing purposes, a test member having one or more cracks, each of which is approximately uniform in width through the depth of the member.

DISCUSSION—Only one crack is permitted in the area of influence of the test anchor.

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 a grouted anchor or an adhesive-bonded anchor to develop its specified strength.

diamond core bit—non-percussion drill bit, usually utilizing a hollow cylindrical pipe or tube with a diamond-impregnated matrix at the end that is used to drill in the base material.

displacement—movement of anchor relative to the structural member.

[1] This 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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