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Standard Terminology for Anchors and Fasteners in Concrete and Masonry¹

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1. Scope

1.1 This document provides 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:*

E 488 Test Methods for Strength of Anchors in Concrete and Masonry Elements²

E 631 Terminology of Building Constructions²

E 1190 Test Methods for Strength of Power-Actuated Fasteners Installed in Structural Members²

E 1512 Test Methods for Testing Adhesive-Bonded Anchors²

3. Terminology

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.

expansion anchor—post-installed anchor that derives its capacity predominately from frictional forces generated by mechanical expansion of the anchor against sides of hole.

expansion sleeve—outer part of expansion anchor, which is forced outward by its center part as a result of applied torque or impact, to bear against the sides of the predrilled hole.

failure mode—failure mechanism during load application to anchor.

fastener—see **anchor**.

fatigue test—test involving repeated loading cycles, usually in excess of 2×10^6 cycles.

shock test—test that simulates shock loads applied to an anchorage system using an external load of short duration.

slip—displacement of an anchor with respect to the surrounding base material.

spacing sleeve—sleeve that encases a portion of the anchor shaft but does not expand.

splitting failure—a failure mode in which the base material fractures along a plane passing through the axis of the anchor or anchors.

standoff installation—anchorage assembly in which the attachment is secured at a distance from the surface of the base material.

static load—load condition not involving significant inertial force.

static test—a test involving only static loads.

steel failure—failure mode characterized by fracture of the anchor steel.

stop-drill—drill bit equipped with a drill stop that ensures attaining a predetermined hole depth.

tensile test—application of tensile force concentric with the anchor axis.

4. Keywords

4.1 anchor; concrete; definition; fastener; masonry; terminology

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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² *Annual Book of ASTM Standards*, Vol 04.11.