DEWALT®

ENGINEERED BY Powers™

IMPORTANT!
EMBEDMENT DEPTH
WEDGE (EXPANSION) ANCHORS

With the advent of Post-Installed Anchor Design per ACI 318, two very important anchor embedment depths were defined – Effective Embedment Depth (h_{ef}) and Nominal Embedment Depth (h_{nom}).

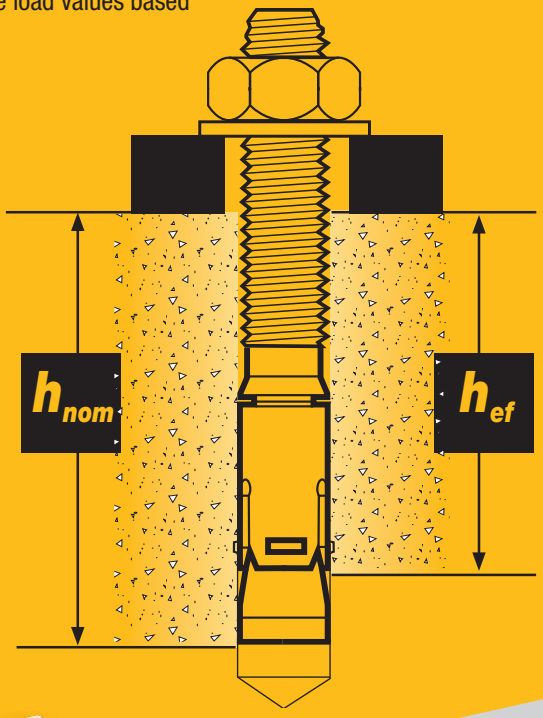
- ***h_{ef}*** is the design embedment depth measured from the surface of the base material (e.g. concrete) to the point on the anchor's expansion clip where the clip engages the base material. This value is used to calculate the anchor shear and tension capacities per ACI 318.
- ***h_{nom}*** is the minimum installation embedment depth, as measured from the surface of the base material to the embedded end of the anchor body. This installation depth is required to ensure the bottom of the anchor clip is embedded to h_{ef} (depth used in calculations to determine the anchor's capacity). The first Expansion Anchor with published Strength Design Cracked Concrete load values based on ACI 318 originally listed only the Effective Embedment Depth(h_{ef}), with no mention of the Nominal Embedment Depth (h_{nom}). As a result, many designers have incorrectly been using h_{ef} as the expansion anchor's installation (call-out) depth in their plans (anchor details or general notes).

- **Using h_{ef} as the installation embedment depth results in capacities significantly less than the calculated values and can result in anchors not being installed in accordance with the minimum requirements necessary for Cracked Concrete or Seismic Qualification.**

The correct installation depth for all wedge anchors is ***h_{nom}***.

Check your details and general notes to ensure you are specifying the appropriate installation embedment depth for your specified anchors.

Nominal (Installation) Embedment Depth is the depth from the surface of the concrete to the embedded end of the anchor prior to application of torque. This is the installation embedment depth. The designer **MUST CALL OUT** this depth in their plans (anchor details or general notes) to ensure proper anchor installation.



Effective (Design) Embedment Depth is the depth from the concrete surface to the bottom of the anchor clip. The designer **MUST USE** this depth to calculate the anchor shear and/or tension capacity per ACI 318. This depth should either not be shown or accompanied by h_{nom} in the project plans (anchor details or general notes). The h_{ef} dimension defines the depth of the theoretical concrete spall cone. The anchor must be installed to h_{nom} to achieve the appropriate h_{ef} of the anchor clip.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ICC-ES Evaluation Report

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DIVISION: 03 00 00—CONCRETE
SECTION: 03 16 00—CONCRETE ANCHORS
DIVISION: 05 00 00—METALS
SECTION: 05 05 19—POST-INSTALLED CONCRETE ANCHORS

REPORT HOLDER:

DEWALT

701 EAST JOPPA ROAD
TOWSON, MARYLAND 21286

EVALUATION SUBJECT:

POWER-STUD®+ SD1 EXPANSION ANCHORS FOR CRACKED AND UNCRACKED CONCRETE (DEWALT / POWERS)

Additional Approval Report Highlights:

- **Top of Concrete Filled Steel Deck** – Design values for 3/8" and 1/2" Diameter Anchors for Cracked Concrete & Seismic. DEWALT/Powers was the first company to offer these design values.
- **Soffit of "B" Deck** – Design values for 3/8" and 1/2" Diameter Anchors for Cracked Concrete & Seismic. DEWALT/Powers was the first company to offer such design values.
- **7/8" & 1-1/4" Diameter Anchors** – Design values for Cracked Concrete and Seismic. DEWALT/Powers was the first company to offer these wedge anchor sizes for cracked concrete.

ICC-ES Report ESR-2818 Renewal Update
Power-Stud®+ SD1 Wedge (Expansion) Anchor