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This report also contains:

- City of LA Supplement
- FL Supplement w/ HVHZ

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DIVISION: 04 00 00—MASONRY Section: 04 05 19.16—Masonry Anchors	REPORT HOLDER: HILTI, INC.	EVALUATION SUBJECT: HILTI HIT-HY 200 V3 ADHESIVE ANCHOR SYSTEM IN CRACKED AND UNCRACKED GROUTED CONCRETE CONCRETE MASONRY UNIT WALLS	

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2021, 2018, and 2015 *International Building Code®* (IBC)
- 2021, 2018, and 2015 *International Residential Code®* (IRC)

Property evaluated:

Structural

2.0 USES

The Hilti HIT-HY 200 V3 Adhesive Anchor System is used as anchorage in cracked and uncracked concrete masonry unit (CMU) walls to anchor building components to grouted- lightweight, medium weight, or normal-weight concrete masonry wall construction. The adsesive anchors are designed to resist static, wind, and earthquake (Sesimic Design Categories A through F) tension and shear loads.

The adhesive anchors are an alternative to cast-in-place anchors described in Section 8.1.3 (2016 or 2013 editions) of TMS 402 as referenced in Section 2107.1 of the IBC. The anchors are permitted be used where an engineered design is submitted in accordance with Section R301.1.3 of the IRC.

3.0 DESCRIPTION

3.1 General:

The Hilti HIT-HY 200 V3 Adhesive Anchoring System is comprised of the following components:

- Hilti HIT-HY 200 V3 adhesive packaged in foil packs (either Hilti HIT-HY 200-A V3 or Hilti HIT-HY 200-R V3)
- All-threaded steel rods, steel reinforcing bars, or Hilti HIS steel internally threaded inserts
- Adhesive mixing and dispensing equipment
- Equipment for hole cleaning and adhesive injection

The manufacturer's printed Installation instructions (MPII), as included with each adhesive unit package, are replicated as Figure 5.

3.2 Materials:

3.2.1 Hilti HIT-HY 200 V3 Adhesive: The Hilti HIT-HY 200 V3 adhesive is an injectable, two-component hybrid adhesive mortar. The two components are separated by means of a dual-cylinder foil pack attached to

a manifold. The two components combine and react when dispensed through a static mixing nozzle attached to the manifold. Hilti HIT-HY 200 V3 is available in 11.1-ounce (330 mL) and 16.9-ounce (500 mL) foil packs. The manifold attached to each foil pack is stamped with the adhesive expiration date. The shelf life, as indicated by the expiration date, applies to an unopened foil pack stored in a dry, dark environment and in accordance with Figure 5.

Hilti HIT-HY 200 V3 Adhesive is available in two options, Hilti HIT-HY 200-A V3 and Hilti HIT-HY 200-R V3. Both options are subject to the same technical data as set forth in this report. Hilti HIT-HY 200-A V3 will have shorter working times and curing times than Hilti HIT-HY 200-R V3. The packaging for each option employs a different color (dark grey for the plastic cap of HIT-HY 200-A V3, and light grey for that of HIT-HY 200-R V3), which helps the user distinguish between the two adhesives.

3.2.2 Hole Cleaning Equipment:

3.2.2.1 Standard Equipment: Standard hole cleaning equipment, comprised of steel wire brushes and air nozzles, is described in Figure 5 of this report.

3.2.2.2 Hilti Safe-Set™ System: When the Hilti TE-CD or TE-YD hollow carbide drill bit with a carbide drilling head conforming to ANSI B212.15 is used in conjunction with a Hilti vacuum with a minimum value for the maximum volumetric flow rate of 129 CFM (61 ℓs), the Hilti TE-CD or TE-YD drill bit will remove drilling dust, automatically cleaning the hole.

3.2.3 Dispensers: Hilti HIT-HY 200 V3 must be dispensed with manual or electric dispensers provided by Hilti.

3.2.4 Anchor Elements:

3.2.4.1 Threaded Steel Rods: Threaded steel rods must be clean, continuously threaded rods (all-thread) in diameters as described in Table 4 of this report. Carbon steel threaded rods must be furnished with a 0.0002-inch-thick (0.005 mm) zinc electroplated coating complying with ASTM B 633 SC 1 or must be hot-dipped galvanized complying with ASTM A 153, Class C or D. Stainless steel threaded rods must comply with ASTM F593 or ISO 3506 A4. Threaded steel rods must be straight and free of indentations or other defects along their length. The ends may be stamped with identifying marks and the embedded end may be blunt cut or cut on the bias to a chisel point.

3.2.4.2 Steel Reinforcing Bars: Steel reinforcing bars are deformed reinforcing bars (rebar) having diameters described in Table 5 of this report, and must comply with ASTM A615, Grade 60. The embedded portions of reinforcing bars must be straight, and free of mill scale, rust, mud, oil, and other coatings that impair the bond with the adhesive.

3.2.4.3 Hilti HIS-N and HIS-RN Inserts: Hilti HIS-N and HIS-RN steel inserts have a profile on the external surface and are internally threaded. Inserts are available in $^3/_8$- and $^1/_2$-inch (9.5 and 12.7 mm) internal thread diameters. HIS-N inserts are produced from carbon steel and furnished either with a 0.005-millimeter-thick (5 µm) zinc electroplated coating complying with ASTM B633 SC 1 or a hot-dipped galvanized coating complying with ASTM A153, Class C or D. The stainless steel HIS-RN inserts conform to DIN 10088-3. Common threaded rods as per Section 3.2.4.1, or bolts, cap screws, and studs conforming to SAE J429 Grade 5, ASTM A325, ASTM A490, ASTM A193 Grade B8M (for use with HIS-RN), and ASTM A193 Grade B8T (for use with HIS-RN) can be used with internally threaded inserts. Bolt grade and material type (carbon, stainless) must be matched to the insert.

3.3 Grout-filled Concrete Masonry: Grouted concrete masonry must comply with Chapter 21 of the IBC. The compressive strength of masonry, f'_m, at 28 days must be a minimum of 1,500 psi (10.3 MPa). Fully grouted masonry must be constructed from the following materials:

3.3.1 Concrete Masonry Units (CMUs): Grouted concrete walls must be constructed from minimum lightweight, medium-weight or normal-weight, closed-end or open-end, concrete masonry units (CMUs) conforming to ASTM C90. The minimum allowable nominal size of the CMU is 8 inches (203 mm) wide by 8 inches (203 mm) high by 16 inches (406 mm) long.

3.3.2 Grout: Grout must comply with Section 2103.3 of the 2021, 2018 and 2015 IBC, Section R606.2.12 of the 2021 and 2018 IRC, or Section R606.2.11 of the 2015 IRC, as applicable. Alternatively, the grout must have a minimum compressive strength, when tested in accordance with ASTM C1019, equal to its specified strength, but not less than 2,000 psi (13.8 MPa).

3.3.3 Mortar: Mortar must be Type N, S or M, prepared in accordance with Section 2103.2.1 of the 2021, 2018 and 2015 IBC, Section R606.2.8 of the 2021 and 2018 IRC, or Section R606.2.7 of the 2015 IRC, as applicable.

4.0 DESIGN AND INSTALLATION

4.1 Strength Design of Anchors in Grouted Concrete Masonry Unit Construction:

4.1.1 General: Sections 4.1, 4.2, and 4.3 provide strength design requirements for anchors used in grouted concrete masonry unit construction, where anchors are used to transmit structural loads by means of tension, shear or a combination of tension and shear.

Strength design of adhesive anchors in grouted concrete masonry unit construction shall be conducted in accordance with the provisions for the design of adhesive anchors in concrete in *ACI 318 (-19 or -14) Chapter 17,* and TMS 402-16 as modified by the sections that follow. Design in accordance with this report cannot be conducted without reference to *ACI 318 (-19 or -14)* with the deletions and modifications summarized in Table 1A and TMS 402-16 Eq. 9-7.

This report references sections, tables, and figures in both this report and ACI 318, with the following method used to distinguish between the two document references:

- References to sections, tables, and figures originating from ACI 318 are *italicized*, with the leading reference corresponding to 318-19 and the parenthetical reference corresponding to 318-14. For example, Section 2.2 in ACI 318-19, which is analogous to Section 2.2 in ACI 318-14, will be displayed as *ACI 318-19 Section 2.2 (ACI 318-14 Section 2.2)*.
- References to sections, tables, and figures originating from this report do not have any special font treatment, for example Section 4.2.1.

Where language from ACI 318 is directly referenced, the following modifications generally apply:

- The term “masonry” shall be substituted for the term “concrete” wherever it occurs.
- The modification factor to reflect the reduced mechanical properties for mixtures with lightweight aggregate and lightweight units, λ_a, shall be taken as 1.0.

The following terms shall be replaced wherever they occur:

***ACI 318 (-19 or -14)* term**	**Replacement term**
f_c'	f_m'
N_{cb}, N_{cbg}	N_{mb}, N_{mbg}
N_a, N_{ag}	N_{ma}, N_{mag}
V_{cb}, V_{cbg}	V_{mb}, V_{mbg}
V_{cp}, V_{cpg}	V_{mp}, V_{mpg}

4.1.2 Restrictions for anchor placement are noted in Table 5 and shown in Figure 1. For CMU construction with closed end blocks and hollow head joints, in addition to the ends and edges of walls, the nearest head joint on a horizontal projection from the anchor shall be treated as an edge for design purposes. The minimum distance from the nearest adjacent head joint shall be 2 inches (50.8 mm) as measured from the centerline of the head joint in CMU construction with hollow head joints. For anchor groups installed in CMU construction with solid head joints, the nearest head joint outside of the group on a horizontal projection to the group shall be treated as an edge. If open-ended units are employed, only the ends and edges of walls shall be considered for edge distance determination. For horizontal ledgers in fully-grouted CMU walls with hollow head joint applications, see Section 4.2.20.

4.2 ACI Modifications Required for Design: Table 1A provides a summary of all applicable *ACI 318-19 and ACI 318-14* sections for the design of adhesive anchors in fully grouted masonry. Where applicable, modifying sections contained within this report are also provided.

4.2.1 *ACI 318-19 Section 17.1.1, 17.1.6 & 17.2.2 (ACI 318-14 Section 17.1.1-17.1.2)* apply with the general changes prescribed in Section 4.1.2.

4.2.2 In lieu of *ACI 318-19 Section 17.1.2 (ACI 318-14 Section 17.1.3):* Design provisions are included for adhesive anchors that meet the assessment criteria of ICC-ES AC58.

4.2.3 *ACI 318-19 Section 17.1.4, 17.2.1, 17.4.1 & 17.5.1.3.1 (ACI 318-14 Section 17.1.4-17.2.2)* apply with the general changes prescribed in Section 4.1.2.

4.2.4 In lieu of *ACI 318-19 Section 17.2.10 (ACI 318-14 Section 17.2.3):* The design of anchors in structures assigned to Seismic Design Category (SDC) C, D, E, or F shall satisfy the requirements of this section.

4.2.4.1 The design of anchors in the plastic hinge zones of masonry structures under earthquake forces is beyond the scope of these acceptance criteria.

4.2.4.2 The anchor or group of anchors shall be designed for the maximum tension and shear obtained from the design load combinations that include E, with E_h increased by Ω_o. The anchor design tensile strength shall satisfy the tensile strength requirements of Section 4.2.4.3.

4.2.4.3 The anchor design tensile force for resisting earthquake forces shall be determined from consideration of (a) through (c) for the failure modes given in Table 1B assuming the masonry is cracked unless it can be demonstrated that the masonry remains uncracked.

(a) ϕN_{sa} for a single anchor, or for the most highly stressed individual anchor in a group of anchors.

(b) 0. 75 ϕN_{mb} or 0.75 $\phi N_{mbg.}$

(c) 0.75 ϕN_{ma} or 0.75 $\phi N_{mag.}$

(d) where ϕ is in accordance with Section 4.2.9.

4.2.5 In lieu of *ACI 318-19 Section 17.5.1.3 & 17.5.2.2.1 (ACI 318-14 Section 17.2.5):* For anchors designed for sustained tension loading, *ACI 318-19 Section 17.5.2.2 (ACI 318-14 Section 17.3.1.2)* shall be satisfied. For groups of anchors, *ACI 318-19 Eq. 17.5.2.2 (ACI 318-14 Eq. 17.3.1.2)* shall be satisfied for the anchor that resists the highest sustained tension load. Inspection requirements for horizontal anchors designed for sustained tension loading shall be in accordance with *ACI 318-19 Section 26.13.3.2(e) (ACI 318-14 Section 17.8.2.4).* Installers of such anchors shall be qualified for the installation of the anchor type used.

4.2.6 *In lieu of ACI 318-19 Section 17.5.2 (ACI 318-14 Section 17.3.1.1)*: The design of anchors shall be in accordance with Table 1B. In addition, the design of anchors shall satisfy Section 4.2.4 for earthquake loading and *ACI 318-19 Section 17.5.2.2 (ACI 318-14 Section 17.3.1.2)* for anchors designed for sustained tensile loading.

4.2.7 *ACI 318-19 Section 17.5.2.2-17.5.2.3 (ACI 318-14 Section 17.3.1.2-17.3.1.3)* applies with the general changes prescribed in Section 4.1.2.

4.2.8 *ACI 318-19 Section 17.5.1.2* (*ACI 318-14 Section 17.3.2 excluding Section 17.3.2.1*) applies with the general changes prescribed in Section 4.1.2.

4.2.9 In lieu of *ACI 318-19 Section 17.5.3 (ACI 318-14 Section 17.3.3):* Strength reduction factor ϕ for anchors in masonry shall be as follows when the LRFD load combinations of ASCE 7 are used:

a. For steel capacity of ductile steel elements as defined in *ACI 318-19 Section 2.3* (*ACI 318-14 Section 2.3*), ϕ shall be taken as 0.75 in tension and 0.65 in shear. Where the ductility requirements of ACI 318 are not met, ϕ shall be taken as 0.65 in tension and 0.60 in shear.

b. For shear crushing capacity, ϕ shall be taken as 0.50.

c. For cases where the nominal strength of anchors in masonry is controlled by masonry breakout in tension, ϕ shall be taken as 0.65.

d. For cases where the nominal strength of anchors in masonry is controlled by masonry failure modes in shear, ϕ shall be taken as 0.70.

e. For cases where the nominal strength of anchors in masonry is controlled by bond failure or pullout failure, ϕ shall be taken as 0.65 for anchors qualifying for Category 1 and 0.55 for anchors qualifying for Category 2.

4.2.10 *ACI 318-19 Section 17.6.1 (ACI 318-14 Section 17.4.1)* applies with the general changes prescribed in Section 4.1.2.

4.2.11 In lieu of *ACI 318-19 Section 17.6.2.1 (ACI 318-14 Section 17.4.2.1)*: The nominal breakout strength in tension, N_{mb} of a single anchor or N_{mbg} of a group of anchors, shall not exceed:

a. For a single anchor:

$$N_{mb} = \frac{A_{Nm}}{A_{Nmo}} \psi_{ed,N,m} \cdot \psi_{c,N,m} \cdot N_{b,m} \qquad (17.6.2.1a)$$

b. For a group of anchors:

$$N_{mbg} = \frac{A_{Nm}}{A_{Nmo}} \psi_{ec,N,m} \cdot \psi_{ed,N,m} \cdot \psi_{c,N,m} \cdot N_{b,m} \quad (17.6.2.1b)$$

Factors $\psi_{ec,N,m}$,$\psi_{ed,N,m}$,$\psi_{c,N,m}$ are defined in *ACI 318-19 Section 17.4.2.3-17.4.2.5 (ACI 318-14 Section 17.4.2.4-17.4.2.6)*. A_{Nm} is the projected masonry failure area of a single anchor or group of anchors that shall

be approximated as the base of the rectilinear geometrical figure that results from projecting the failure surface outward $1.5h_{ef}$ from the centerlines of the anchor, or, in the case of a group of anchors, from a line through a row of adjacent anchors. A_{Nm} shall not exceed $n \cdot A_{Nmo}$, where n is the number of anchors in the group that resist tension. A_{Nmo} is the projected masonry failure area of a single anchor with an edge distance equal to or greater than $1.5h_{ef}$.

$$A_{Nmo} = 9h_{ef}^2 \qquad (17.6.2.1.4)$$

4.2.12 In lieu of *ACI 318 Section 17.6.2.2 (ACI 318-14 Section 17.4.2.2):* The basic masonry breakout strength of a single anchor in tension in cracked masonry, $N_{b,m}$, shall not exceed:

$$N_{b,m} = k_m \sqrt{f'_m}\, h_{ef}^{1.5} \qquad (17.6.2.2.1)$$

where

k_m = effectiveness factor for breakout strength in masonry

= $\alpha_{masonry} \cdot k_c$

k_c = effectiveness factor for breakout strength in concrete

= 17; and

$\alpha_{masonry}$ = reduction factor for the inhomogeneity of masonry materials in breakout and bond strength determination.

= 0.7

4.2.13 *ACI 318-19 Section 17.6.2.1.2 & 17.6.2.3-17.6.2.4 (ACI 318-14 Section 17.4.2.3-17.4.2.5)* apply with the general changes prescribed in Section 4.1.2.

4.2.14 In lieu of *ACI 318-19 Section 17.6.2.5 (ACI 318-14 Section 17.4.2.)*: The basic masonry breakout strength of a single anchor in tension, $N_{b,m}$, must be calculated using the values of $k_{m,cr}$ and $k_{m,uncr}$ as described in Table 6. Where analysis indicates no cracking is anticipated, $N_{b,m}$ must be calculated using $k_{m,uncr}$ and $\Psi_{c,N,m}$ = 1.0.

4.2.15 *ACI 318-19 Section 17.6.2.6 (ACI 318-14 Section 17.4.2.7)* need not be considered since the modification factor for post installed anchors, $\psi_{cp,N}$ is not included in Eq. 17.6.2.1a & b.

4.2.16 In lieu of *ACI 318-19 Section 17.6.5.1 (ACI 318-14 Section 17.4.5.1)*: The nominal bond strength in tension, N_{ma} , of a single anchor or N_{mag} of a group of anchors, shall not exceed:

4.2.16.1 For a single anchor:

$$N_{ma} = \frac{A_{Na}}{A_{Nao}} \psi_{ed,Na} \cdot N_{ba,m} \qquad (17.6.5.1a)$$

4.2.16.2 For a group of anchors:

$$N_{mag} = \frac{A_{Na}}{A_{Nao}} \psi_{ec,Na} \cdot \psi_{ed,Na} \cdot N_{ba,m} \qquad (17.6.5.1b)$$

Factors $\psi_{ec,Na}$ and $\psi_{ed,Na}$ are defined in *ACI 318-19 Sections 17.6.5.3-17.6.5.4 (ACI 318-14 Sections 17.4.5.3-17.4.5.4)*. A_{Na} is the projected influence area of a single anchor or group of anchors that shall be approximated as a rectilinear area that projects outward a distance c_{Na} from the centerlines of the anchor, or in the case of a group of anchors, from a line through a row of adjacent anchors. A_{Na} shall not exceed nA_{Nao}, where n is the number of anchors in the group that resist tension. A_{Nmo} is the projected masonry failure area of a single anchor with an edge distance equal to or greater than c_{Na}.

$$A_{Nao} = (2c_{Na})^2 \qquad (17.6.5.1.2a)$$

where

$$c_{Na} = 10d_a \sqrt{\frac{\tau_{uncr}}{1100}} \qquad (17.6.5.1.2b)$$

and constant 1100 carries the unit of lb./in.^{2}

4.2.17 *In lieu of ACI 318-19 Section 17.6.5.2 (ACI 318-14 Section 17.4.5.2)*: The basic bond strength of a single adhesive anchor in cracked masonry, $N_{ba,m}$, shall not exceed:

$$N_{ba,m} = \tau_{cr,m} \cdot \pi \cdot d_a \cdot h_{ef} \qquad (17.6.5.2.1)$$

The characteristic bond stresses $\tau_{cr,m}$ shall be taken from Tables 7, 8 or 9. For adhesive anchors located in a region of a masonry member where analysis indicates no cracking at service load levels, $\tau_{uncr,m}$ shall be permitted to be used in place of $\tau_{cr,m}$ in *ACI 318-19 Eq. 17.6.5.2.1 (ACI 318-14 Eq. 17.4.5.2)* and shall be taken as the value of $\tau_{k,uncr}$ as determined from Tables 7, 8 or 9.

4.2.18 The following apply with the general changes prescribed in Section 4.1.2:

1. *ACI 318-19 Section 17.6.5.3-17.6.5.4 (ACI 318-14 Section 17.4.5.3-17.4.5.4).*
2. *ACI 318-19 Section 17.7.1 excluding Sections 17.7.1.2a & 17.7.1.2c (ACI 318-14 Sections 17.5.1 excluding Sections 17.5.1.2a & 17.5.1.2c).*
3. *ACI 318-19 Sections 17.7.2.1-17.7.2.2.1 (ACI 318-14 Sections 17.5.2.1-17.5.2.2).*
4. *ACI 318-19 Section 17.7.2.1.2 & 17.7.2.3-17.7.2.4 (ACI 318-14 Section 17.5.2.4-17.5.2.6).*
5. *ACI 318-19 Section 17.7.2.6 (ACI 318-14 Section 17.5.2.8).*
6. *ACI 318-19 Section 17.7.3 (ACI 318-14 Section 17.5.3).*
7. *ACI 318-19 Section 17.2.5 (ACI 318-14 Section 17.8.1).*

4.2.19 In lieu of *ACI 318-19 Section 17.7.2.5 (ACI 318-14 Section 17.5.2.7):* For anchors located in a region of masonry construction where cracking is anticipated, $\psi_{m,V}$ shall be taken as 1.0. for cases where analysis indicates no cracking at service levels, it shall be permitted to take $\psi_{m,V}$ as 1.4.

[In addition to the ACI 318 provisions] Masonry crushing strength for anchors in shear shall be calculated in accordance with TMS 402-16 Eq. 9-7 —The nominal strength of an anchor in shear as governed by masonry crushing, V_{mc}, shall be calculated using Eq. (3-1).

$$V_{mc} = 1750\sqrt[4]{f'_m A_{se,V}} \qquad (3\text{-}1)$$

4.2.20 Determination of shear capacity for anchors in horizontal ledgers in fully-grouted CMU walls with hollow head joint applications with an assumed masonry unit length of 16 inches, standard:

Where six or more anchors are placed at uniform horizontal spacing in continuous wood or steel ledgers connecting floor and roof diaphragms to fully grouted CMU walls constructed with hollow head joints (using closed-end block), the horizontal and vertical shear capacity of the anchors may be permitted to be calculated in accordance with Eq. (3-1.1) and Eq. (3-1.2), respectively, in lieu of Section 3.3.1.2.

$$V_{mb,horiz} = 0.75 \cdot V_{gov,horiz} \cdot \frac{12}{s_{horiz}} \qquad (3\text{-}1.1)$$

$$V_{mb,vert} = 0.75 \cdot V_{gov,vert} \cdot \frac{12}{s_{horiz}} \qquad (3\text{-}1.2)$$

where:

s_{horiz} = horizontal anchor spacing in the ledger, (in). For anchor spacings that are multiples of 8 inches, locate the first anchor in the ledger at least 2 inches from the head joint and the center of the block. For other anchor spacings, minimum edge distance as specified in the evaluation report shall apply.

$V_{gov,horiz}$ = min(V_{sa}, $V_{mb,4}$, V_{mc}, $V_{mp,4}$), (lb).

$V_{gov,vert}$ = min(V_{sa}, $2 \cdot V_{mb,4}$, V_{mc}, $V_{mp,4}$), (lb).

V_{sa} = shear capacity for a single anchor calculated in accordance with *ACI 318-19 Section 17.7.1.2 (ACI 318-14 Section 17.5.1.2),* (lb).

$V_{mb,4}$ = breakout capacity for a single anchor with edge distance of 4 inches, (lb).

V_{mc} = crushing capacity for a single anchor calculated in accordance with Eq. (3-1), (lb).

$V_{mp,4}$ = pryout capacity for a single anchor with edge distance of 4 inches, (lb).

Where anchors are spaced at 8” on center or another multiple of 8” on center, multiply the calculated $V_{mb,horiz}$ and $V_{mb,vert}$ by $\frac{4}{3}$.

4.2.21 In lieu of *ACI 318-19 Section 26.7.1(i) (ACI 318-14 Section 17.8.2.1):* The construction documents shall specify all parameters associated with the characteristic bond stress used for design in accordance with Section 4.2.16 and Section 4.2.17, including minimum age of masonry; masonry temperature range; moisture

condition of masonry at time of installation; type of lightweight masonry, if applicable; and requirements for hole drilling and preparation.

4.2.22 *ACI 318-19 Section 26.7.2(e) (ACI 318-14 Section 17.8.2.4)* applies with the general changes prescribed in Section 4.1.2.

4.2.23 Interaction shall be calculated in compliance with *ACI 318-19 17.8 (ACI 318-14 Section 17.6)* as follows:

For shear loads $V \leq 0.2V_{allowable,ASD}$, the full allowable load in tension shall be permitted.

For tensile loads $T \leq 0.2T_{allowable,ASD}$, the full allowable load in shear shall be permitted.

For all other cases:

$$\frac{T}{T_{allowable}} + \frac{V}{V_{allowable}} \leq 1.2$$

4.2.24 Satisying the parabolic equation complying with *ACI 318-19 Section R17.8 (ACI 318-14 Section R17.6)* may be used in lieu of satisfying Section 4.2.23. The parabolic equation is given as:

$$\left(\frac{N_{ua}}{\phi N_n}\right)^{5/3} + \left(\frac{V_{ua}}{\phi V_n}\right)^{5/3} = 1$$

4.3 Strength Design in Partially Grouted Concrete Masonry Unit Construction:

4.3.1 In all cases, the minimum distance from hollow head joints shall be 2 inches as measured from the centerline of the head joint.

4.3.2 Anchors located in grouted cells shall be designed in accordance with Sections 4.1 and 4.2, whereby the distance to the edge of the ungrouted cell shall be taken as a free edge.

4.4 Conversion of Strength Design to Allowable Stress Design (ASD):

For adhesive anchors designed using load combinations in accordance with IBC Section 1605.3 (Allowable Stress Design) allowable loads shall be established using the equations below:

$$T_{allowable,ASD} = \frac{\phi N_n}{\alpha} \quad \text{(3-2)}$$

and

$$V_{allowable,ASD} = \frac{\phi V_n}{\alpha} \quad \text{(3-3)}$$

where

$T_{allowable,ASD}$ = Allowable tensile load (lb. or kN);

$V_{allowable,ASD}$ = Allowable shear load (lb. or kN);

N_n = Lowest design strength of an anchor or anchor group in tension as determined in accordance with this report, as applicable, and 2021, 2018, and 2015 IBC Section 1905.1.8 (lb. or kN);

V_n = Lowest design strength of an anchor or anchor group in shear as determined in accordance with this report, as applicable, and 2021, 2018, and 2015 IBC Section 1905.1.8 (lb or kN);

α = Conversion factor calculated as a weighted average of the load factors for the controlling load combination. In addition, α shall include all applicable factors to account for non-ductile failure modes and required overstrength; and

ϕ = relevant strength reduction factor for load case and Anchor Category.

4.5 Installation: Installation parameters are illustrated in Figure 4. Installation of the Hitli HIT-HY 200 V3 Adhesive Anchor System must conform to the manufacturer's printed installation instruction (MPII) included in each unit package as provided in Figure 4 of this report. Anchor locations must comply with this report and the plans and specifications approved by the code official.

4.6 Special Inspection:

At a minimum, periodic special inspection shall be provided for all anchors in accordance with the IBC, and is also applicable for installations under the IRC. Continuous special inspection shall be provided for anchors

installed in horizontally inclined orientations and designed to resist sustained tension loads. Installation in head joints shall only be permitted in fully grouted walls constructed with open-ended units, fully grouted bond beams or any other type of construction where the head joint void is filled.

The special inspector must be on the jobsite initially during anchor installation to verify anchor type, anchor dimensions, adhesive identification and expiration date, masonry type, masonry compressive strength, drill bit size and compliance with ANSI B212.15-1994, hole dimensions, hole cleaning procedures, installation outside of hollow head joints, anchor spacing, edge distances, masonry thickness, anchor embedment, tightening torque, base-material temperature, and adherence to the manufacturer's printed installation instructions (MPII).

The special inspector must verify the initial installations of each type and size of adhesive anchor by construction personnel on the site.

For periodic inspection, subsequent installations of the same anchor type and size by the same construction personnel are permitted to be performed in the absence of the special inspector. Any change in the anchor product being installed or the personnel performing the installation requires an initial inspection. For ongoing installations over an extended period, the special inspector must make regular inspections to confirm correct handling and installation of the product.

The special inspector must inspect and verify that anchor installation complies with this evaluation report and Hilti's published installation instructions.

5.0 CONDITIONS OF USE:

The Hilti HIT-HY 200 V3 Adhesive Anchor System described in this report is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 The Hilti HIT-HY 200 V3 Adhesive Anchor System must be installed in accordance with the manufacturer's printed installation instructions (MPII) and this report. In case of conflict, this report governs.

5.2 Anchors have been evaluated for use in cracked and uncracked grouted concrete masonry unit (CMU) construction with a minimum compressive strength of 1,500 psi (10.3 MPa) at the time of anchor installation.

5.3 Anchor sizes, dimensions, and minimum embedment depths must be as set forth in this report.

5.4 Prior to installation, calculations and details demonstrating compliance with this report must be submitted to the code official for approval. The calculations must be prepared by a registered design professional when required by the statutes of the jurisdiction in which the project is to be constructed.

5.5 Anchors installed in the face or the top of fully grouted CMU masonry may be used to resist short-term loading due to wind or seismic forces in structures assigned to Seismic Design Categories A through F under the IBC.

Loads applied to the anchors must be adjusted in accordance with Section 1605.1 of the 2021 IBC or Section 1605.2 of the 2018, and 2015 IBC for strength design and in accordance with Section 1605.1 of the 2021 IBC or Section 1605.3 of the 2018 and 2015 IBC for allowable stress design.

5.6 Strength design values shall be established in accordance with Sections 4.1, 4.2 and 4.3 of this report.

5.7 Allowable design values shall be established in accordance with Section 4.4 of this report.

5.8 Design of anchors in fully grouted CMU construction must avoid location of anchors in hollow head joints.

5.9 Since an ICC-ES acceptance criteria for evaluating data to determine the performance of adhesive anchors subjected to fatigue or shock loading is unavailable at this time, the use of these anchors under these conditions is beyond the scope of this report.

5.10 The Hilti HIT-HY 200 V3 Adhesive Anchor Systems may be used to resist tension and shear forces in wall installations only if consideration is given to the effects of elevated temperature conditions on anchor performance.

5.11 Anchors are not permitted to support fire-resistive construction. Where not otherwise prohibited by the code, anchors are permitted for installation in fire-resistive construction provided that at least one of the following conditions is fulfilled:

- Anchors are used to resist wind or seismic forces only.
- Anchors that support gravity load-bearing structural elements are within a fire-resistive envelope or a fire-resistive membrane, are protected by approved fire-resistive materials, or have been evaluated for resistance to fire exposure in accordance with recognized standards.
- Anchors are used to support nonstructural elements.

5.12 The design of anchors must be in accordance with the provisions for cracked masonry where analysis indicates that cracking may occur ($f_t > f_r$) in the vicinity of the anchor due to service loads or deformations over the anchor service life.

5.13 Use of carbon steel anchors is limited to dry, interior locations.

5.14 Use of stainless steel anchors or hot dipped galvanized anchors with a zinc coating conforming to ASTM A153, Class C or D, is permitted for exterior exposure or damp environments.

5.15 The Hilti HIT-HY 200 V3 Adhesive Anchor System may be installed in base materials having interior temperatures between 14°F (-10°C) and 104°F (40°C) for threaded rods, rebars at the time of installation. Installation of HIT-HY 200 V3 adhesive in base materials having temperatures beyond this range is outside the scope of this report.

5.16 Anchors are not permitted for tightening torque installation until adhesive cure time indicated in the MPII is fully reached.

5.17 Steel anchoring materials in contact with preservative-treated wood or fire-retardant-treated wood must be stainless steel or hot-dipped galvanized in accordance with ASTM A153 Class C or D or ASTM B695 Class 55 minimum coating.

5.18 Special inspection, where required, must be provided in accordance with Section 4.5. Continuous special inspection must be provided for anchors designed to resist sustained tension loads.

5.19 The Hilti HIT-HY 200 V3 Adhesive Anchor Systems must be installed in holes created using a carbide-tipped masonry drill bit manufactured within the range of the maximum and minimum dimensions of ANSI B212.15-1994 in accotdance with the instructions provided in Figure 4 of this report.

5.20 Hilti HIT-HY 200-A V3 and Hilti HIT-HY 200-R V3 adhesives are manufactured by Hilti GmbH, Kaufering, Germany, with quality control inspections by ICC-ES.

5.21 The Hilti HIS-N and HIS-RN inserts are manufactured by Hilti (China) Ltd., Guangdong, China, with quality control inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with ICC-ES Acceptance Criteria for Adhesive Anchors in Cracked and Uncracked Masonry Elements AC58 (24) 2nd Edition, published April 2025.

6.2 Quality-control documentation.

7.0 IDENTIFICATION

7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-4878) along with the name, registered trademark, or registered logo of the report holder must be included in the product label.

7.2 In addition, the Hilti HIT-HY 200-A V3 and Hilti HIT-HY 200-R V3 adhesive is identified by packaging labeled with the manufacturer's name (Hilti Corp.) and address, product name, lot number, expiration date, and evaluation report number (ICC-ES ESR-4878).

7.3 The Hilti HIS-N and HIS-RN inserts are identified by packaging labeled with the manufacturer's name (Hilti Corp.) and address, anchor name and size, and evaluation report number (ICC-ES ESR-4878).

7.4 Threaded rods, reinforcing bars, nuts, washers, bolts, cap screws, and deformed reinforcing bars are standard elements and must conform to applicable national or international specifications.

7.5 The report holder's contact information is the following:

HILTI, INC.
7250 DALLAS PARKWAY, SUITE 1000
PLANO, TEXAS 75024
(800) 879-8000
www.us.hilti.com

TABLE 1A — ACI 318-19 and -14 SECTIONS APPLICABLE OR MODIFIED BY THIS REPORT

ACI 318-19 Section	*ACI 318-14 Section*	**Modified by this report Section:**
2.2	*(2.2)*	unchanged*
2.3	*(2.3)*	
17.1.1 & 17.1.5	*(17.1.1 – 17.1.2)*	
17.1.2	*(17.1.3)*	Section 4.2.2
17.1.4, 17.2.1, 17.4.1, & 17.5.1.3.1	*(17.1.4 – 17.2.2)*	unchanged*
17.10	*(17.2.3)*	Section 4.2.4
17.5.1.3 & 17.5.2.2	*(17.2.5)*	Section 4.2.5
17.5.2	*(17.3.1.1)*	Section 4.2.6
17.5.2.2 – 17.5.2.3	*(17.3.1.2 – 17.3.1.3)*	unchanged*
17.5.1.2	*(17.3.2 excluding 17.3.2.1)*	
17.5.3	*(17.3.3)*	Section 4.2.9
17.6.1	*(17.4.1)*	unchanged*
17.6.2.1	*(17.4.2.1)*	Section 4.2.11
17.6.2.2	*(17.4.2.2)*	Section 4.2.12
17.6.2.1.2 & 17.6.2.3 – 17.6.2.4	*(17.4.2.3 – 17.4.2.5)*	unchanged*
17.6.2.5	*(17.4.2.6)*	Section 4.2.14
17.6.2.6	*(17.4.2.7)*	Section 4.2.15
17.5.2.1	*(17.4.2.9)*	unchanged*
17.6.5.1	*(17.4.5.1)*	Section 4.2.16
17.6.5.2	*(17.4.5.2)*	Section 4.2.17
17.6.5.3 – 17.6.5.4	*(17.4.5.3 – 17.4.5.4)*	unchanged*
17.7.1.1 – 17.7.2.2	*(17.5.1.1 – 17.5.2.2)*	
17.7.2.1.2 & 17.7.2.3 – 17.7.2.4	*(17.5.2.4 – 17.5.2.6)*	
17.7.2.6	*(17.5.2.8)*	
17.7.3	*(17.5.3)*	
17.8	*(17.6)*	
26.7.1	*(17.8.1)*	
17.7.2.5	(17.5.2.7)	Section 4.2.19
26.7.1(i)	*(17.8.2.1)*	Section 4.2.21
26.7.2(e)	*(17.8.2.4)*	unchanged*
17.8	(17.6)	
R17.8	(R17.6)	
17.9.2 and 17.9.5	(17.7.1, 17.7.3, and 17.7.6)	

*Sections marked as unchanged adopt the general changes prescribed in Section 4.1.2.

TABLE 1B — REQUIRED STRENGTH OF ANCHORS IN FULLY GROUTED CMU

Failure mode	Single anchor	Anchor group[1]	
		Individual anchor in a group	Anchors as a group
Steel strength in tension	$\phi N_{sa} \geq N_{ua}$	$\phi N_{sa} \geq N_{ua,i}$	
Masonry breakout strength in tension	$\phi N_{mb} \geq N_{ua}$		$\phi N_{mbg} \geq N_{ua,g}$
Bond strength in tension	$\phi N_{ma} \geq N_{ua}$		$\phi N_{mag} \geq N_{ua,g}$
Steel strength in shear	$\phi V_{sa} \geq V_{ua}$	$\phi V_{sa} \geq V_{ua,i}$	
Masonry breakout strength in shear	$\phi V_{mb} \geq V_{ua}$		$\phi V_{mbg} \geq V_{ua,g}$
Masonry crushing strength in shear	$\phi V_{mc} \geq V_{ua}$	$\phi V_{mc} \geq V_{ua,i}$	
Masonry pryout strength in shear	$\phi V_{mp} \geq V_{ua}$		$\phi V_{mpg} \geq V_{ua,g}$

[1]Required strengths for steel and crushing failure modes shall be calculated for the most highly stressed anchor in the group.

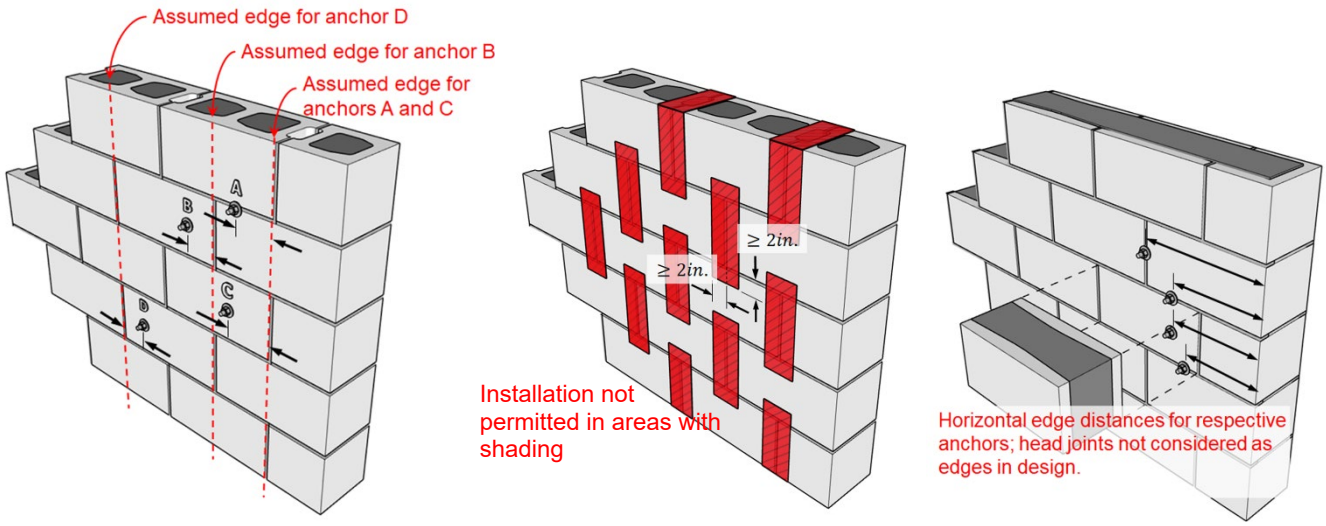

FIGURE 1—(a) Edge distance considerations in fully grouted CMU construction with hollow head joints, (b) exclusion zones in fully grouted construction with hollow head joints, and (c) edge distance considerations in fully grouted CMU construction with solid head joints . Note: dimensions to upper and lower edges omitted for clarity.

TABLE 2 — STEEL DESIGN INFORMATION FOR FRACTIONAL THREADED ROD[1]

DESIGN INFORMATION		Symbol	Units	Nominal rod diameter (in.)			
				3/8	1/2	5/8	3/4
Rod O.D.		d	in.	0.375	0.500	0.625	0.750
			(mm)	(9.5)	(12.7)	(15.9)	(19.1)
Rod effective cross-sectional area		A_{se}	in.^{2}	0.0775	0.1419	0.2260	0.3345
			(mm^2)	(50)	(92)	(146)	(216)
ISO 898-1 Class 5.8	Nominal strength as governed by steel strength	N_{sa}	lb	5,620	10,290	16,385	24,250
			(kN)	(25.0)	(45.8)	(72.9)	(107.9)
		V_{sa}	lb	3,370	6,175	9,830	14,550
			(kN)	(15.0)	(27.5)	(43.7)	(64.7)
	Reduction for seismic shear	$\alpha_{V,seis}$	-	0.70			
	Strength reduction factor ϕ for tension[2]	ϕ	-	0.65			
	Strength reduction factor ϕ for shear[2]	ϕ	-	0.60			
ASTM A193 B7	Nominal strength as governed by steel strength	N_{sa}	lb	9,685	17,735	28,250	41,810
			(kN)	(43.1)	(78.9)	(125.7)	(186.0)
		V_{sa}	lb	5,810	10,640	16,950	25,085
			(kN)	(25.9)	(47.3)	(75.4)	(111.6)
	Reduction for seismic shear	$\alpha_{V,seis}$	-	0.70			
	Strength reduction factor ϕ for tension[2]	ϕ	-	0.75			
	Strength reduction factor ϕ for shear[2]	ϕ	-	0.65			
ASTM F1554 Gr. 36	Nominal strength as governed by steel strength	N_{sa}	lb	-	8,230	13,110	19,400
			(kN)	-	(36.6)	(58.3)	(86.3)
		V_{sa}	lb	-	4,940	7,865	11,640
			(kN)	-	(22.0)	(35.0)	(51.8)
	Reduction for seismic shear	$\alpha_{V,seis}$	-	0.60			
	Strength reduction factor ϕ for tension[2]	ϕ	-	0.75			
	Strength reduction factor ϕ for shear[2]	ϕ	-	0.65			
ASTM F1554 Gr. 55	Nominal strength as governed by steel strength	N_{sa}	lb	-	10,645	16,950	25,090
			(kN)	-	(47.4)	(75.4)	(111.6)
		V_{sa}	lb	-	6,385	10,170	15,055
			(kN)	-	(28.4)	(45.2)	(67.0)
	Reduction for seismic shear	$\alpha_{V,seis}$	-	0.70			
	Strength reduction factor ϕ for tension[2]	ϕ	-	0.75			
	Strength reduction factor ϕ for shear[2]	ϕ	-	0.65			
ASTM F1554 Gr. 105	Nominal strength as governed by steel strength	N_{sa}	lb	-	17,740	28,250	41,815
			(kN)	-	(78.9)	(125.7)	(186.0)
		V_{sa}	lb	-	10,645	16,950	25,090
			(kN)	-	(47.4)	(75.4)	(111.6)
	Reduction for seismic shear	$\alpha_{V,seis}$	-	0.70			
	Strength reduction factor ϕ for tension[2]	ϕ	-	0.75			
	Strength reduction factor ϕ for shear[2]	ϕ	-	0.65			
ASTM F593, CW Stainless	Nominal strength as governed by steel strength	N_{sa}	lb	7,750	14,190	22,600	28,435
			(kN)	(34.5)	(63.1)	(100.5)	(126.5)
		V_{sa}	lb	4,650	8,515	13,560	17,060
			(kN)	(20.7)	(37.9)	(60.3)	(75.9)
	Reduction for seismic shear	$\alpha_{V,seis}$	-	0.80			
	Strength reduction factor ϕ for tension[2]	ϕ	-	0.65			
	Strength reduction factor ϕ for shear[2]	ϕ	-	0.60			

For **SI:** 1 inch = 25.4 mm, 1 ft-lb = 1.356 Nm.

[1]Values provided for common rod material types are based on specified strengths and calculated in accordance with ACI 318-19 Eq. 17.6.1.2 and Eq. 17.7.1.2b, and ACI 318-14 Eq. 17.4.1.2 and Eq. 17.5.1.2b. Nuts and washers must be appropriate for the rod.

[2]The tabulated value of ϕ applies when the LRFD load combinations of ASCE 7 are used.

TABLE 3 — STEEL DESIGN INFORMATION FOR FRACTIONAL REINFORCING BARS[1]

DESIGN INFORMATION		Symbol	Units	Nominal Reinforcing bar size (Rebar)			
				#3	#4	#5	#6
Nominal bar diameter		d	in.	0.375	0.500	0.625	0.750
			(mm)	(9.5)	(12.7)	(15.9)	(19.1)
Bar effective cross-sectional area		A_{se}	in.^{2}	0.11	0.20	0.31	0.44
			(mm^2)	(71)	(129)	(200)	(284)
ASTM A615 Grade 40	Nominal strength as governed by steel strength	N_{sa}	lb	6,600	12,000	18,600	26,400
			(kN)	(29.4)	(53.4)	(82.7)	(117.4)
		V_{sa}	lb	3,960	7,200	11,160	15,840
			(kN)	(17.6)	(32.0)	(49.6)	(70.5)
	Reduction for seismic shear	$\alpha_{V,seis}$	-	0.70			
	Strength reduction factor ϕ for tension[2]	ϕ	-	0.65			
	Strength reduction factor ϕ for shear[2]	ϕ	-	0.60			
ASTM A615 Grade 60	Nominal strength as governed by steel strength	N_{sa}	lb	8,800	16,000	24,800	35,200
			(kN)	(39.1)	(71.2)	(110.3)	(156.6)
		V_{sa}	lb	5,280	9,600	14,880	21,120
			(kN)	(23.5)	(42.7)	(66.2)	(93.9)
	Reduction for seismic shear	$\alpha_{V,seis}$	-	0.70			
	Strength reduction factor ϕ for tension[2]	ϕ	-	0.65			
	Strength reduction factor ϕ for shear[2]	ϕ	-	0.60			
ASTM A706 Grade 60	Nominal strength as governed by steel strength	N_{sa}	lb	8,800	16,000	24,800	35,200
			(kN)	(39.1)	(71.2)	(110.3)	(156.6)
		V_{sa}	lb	5,280	9,600	14,880	21,120
			(kN)	(23.5)	(42.7)	(66.2)	(94.0)
	Reduction for seismic shear	$\alpha_{V,seis}$	-	0.70			
	Strength reduction factor ϕ for tension[2]	ϕ	-	0.75			
	Strength reduction factor ϕ for shear[2]	ϕ	-	0.65			

For **SI:** = 1 inch = 25.4 mm, 1 ft-lb = 1.356 Nm.

[1]Values provided for common rod material types are based on specified strengths and calculated in accordance with ACI 318-19 Eq. 17.6.1.2 and Eq. 17.7.1.2b, ACI 318-14 Eq. 17.4.1.2 and Eq. 17.5.1.2b or ACI 318-11 Eq. D-2 and Eq. D-29.

[2]The tabulated value of ϕ applies when the LRFD load combinations of ASCE 7 are used.

TABLE 4 — STEEL DESIGN INFORMATION FOR FRACTIONAL HIS-(R)N THREADED INSERTS[1]

DESIGN INFORMATION		Symbol	Units	Nominal Bolt/Cap Screw Diameter (in.)	
				3/8	1/2
HIS insert O.D.		d	in.	0.65	0.81
			(mm)	(16.5)	(20.5)
HIS insert length		L	in.	4.33	4.92
			(mm)	(110)	(125)
Bar effective cross-sectional area		A_{se}	in^2	0.0775	0.1419
			(mm^2)	(50)	(92)
HIS insert effective cross-sectional area		A_{insert}	in.	0.178	0.243
			(mm)	(115)	(157)
ASTM A193 B7	Nominal steel strength – ASTM A193 B7 bolt/cap screw	N_{sa}	lb	9,690	17,740
			(kN)	(43.1)	(78.9)
		V_{sa}	lb	5,815	10,645
			(kN)	(25.9)	(47.3)
	Nominal steel strength – HIS-N insert	N_{sa}	lb	12,650	16,195
			(kN)	(56.3)	(72.0)
	Reduction for seismic shear	$\alpha_{V,seis}$	-	0.70	
	Strength reduction factor ϕ for tension[2]	ϕ	-	0.65	
	Strength reduction factor ϕ for shear[2]	ϕ	-	0.60	
ASTM A193 Grade B8M SS	Nominal steel strength – ASTM A193 Grade B8M SS bolt/cap screw	N_{sa}	lb	8,525	15,610
			(kN)	(37.9)	(69.4)
		V_{sa}	lb	5,115	9,365
			(kN)	(22.8)	(41.7)
	Nominal steel strength – HIS-RN insert	N_{sa}	lb	17,165	23,430
			(kN)	(76.3)	(104.2)
	Reduction for seismic shear	$\alpha_{V,seis}$	-	0.70	
	Strength reduction factor ϕ for tension[2]	ϕ	-	0.65	
	Strength reduction factor ϕ for shear[2]	ϕ	-	0.60	

For **SI:** = 1 inch = 25.4 mm, 1 ft-lb = 1.356 Nm.

[1]Values provided for common rod material types are based on specified strengths and calculated in accordance with ACI 318-19 Eq. 17.6.1.2 and Eq. 17.7.1.2b or ACI 318-14 Eq. 17.4.1.2 and Eq. 17.5.1.2b. Nuts and washers must be appropriate for the rod.
[2]The tabulated value of ϕ applies when the LRFD load combinations of ASCE 7 are used.

TABLE 5 — HIT-HY 200 V3 INSTALLATION INFORMATION FOR THREADED ROD, REBAR, AND HILTI HIS-(R)N ANCHORS- FULLY GROUTED CMU CONSTRUCTION

INSTALLATION INFORMATION	Symbol	Units	Nominal Rod Diameter / Rebar Size			
			3/8" or #3	1/2" or #4	5/8" or #5	3/4" or #6
Drill Bit Diameter - Threaded Rod	d_o	in.	7/16	9/16	3/4	7/8
Drill Bit Diameter - Rebar	d_o	in.	1/2	5/8	3/4	7/8
Drill Bit Diameter – HIS-(R)N	d_o	in.	11/16	7/8	N/A	N/A
Maximum Tightening Torque	T_{inst}	ft-lbs.	13	30	60	100
Minimum Embedment Depth – Threaded Rod & Rebar	$h_{ef,min}$	in.	2-3/8	2-3/4	3-1/8	3-1/2
Minimum Embedment Depth – HIS-(R)N	$h_{ef,min}$	in.	4-1/4	5	N/A	N/A
Maximum Embedment Depth	$h_{ef,max}$	in.	7-1/2	10	10	10
Minimum Masonry Thickness[1]	h_{min}	in.	7-5/8			
Minimum Edge Distance[2] – Face of Wall	c_{min}	in.	$6d_a$			
Minimum Anchor Spacing – Face of Wall	s_{min}	in.	$6d_a$			
Minimum Edge Distance[2] – Top of Wall	$c_{min,tow}$	in.	N/A	1-3/4 [3]	1-3/4	2-3/4 [4]
Minimum Anchor Spacing – Top of Wall	$s_{min,tow}$	in.	N/A	8 [3]	8	8 [4]

For **SI:** 1 inch = 25.4 mm, 1 ft-lb = 1.356 Nm.

[1]Maximum embedment for installation into the face of 7-5/8" CMU wall is 6-3/4". Maximum embedment for installation into the face of 9-5/8" CMU wall is 8"
[2]The minimum distance from the center of an anchor to the centerline of a hollow head joint (vertical mortar joint) is 2", as shown in Figure 1.
[3]1/2" HIS-(R)N is not applicable for top of wall applications.
[4]#6 rebar is not applicable for top of wall applications.

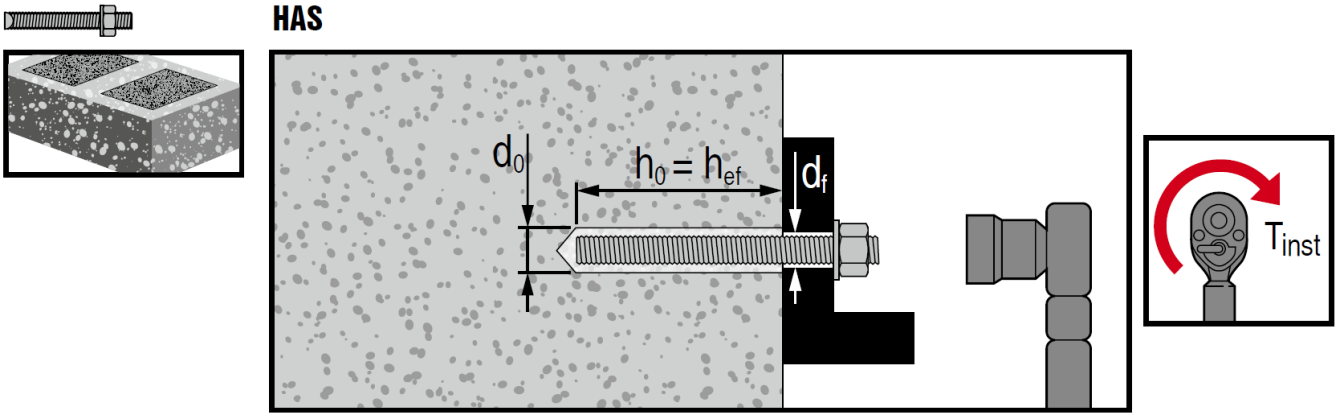

FIGURE 2—Threaded Rod Installation in Fully Grouted CMU

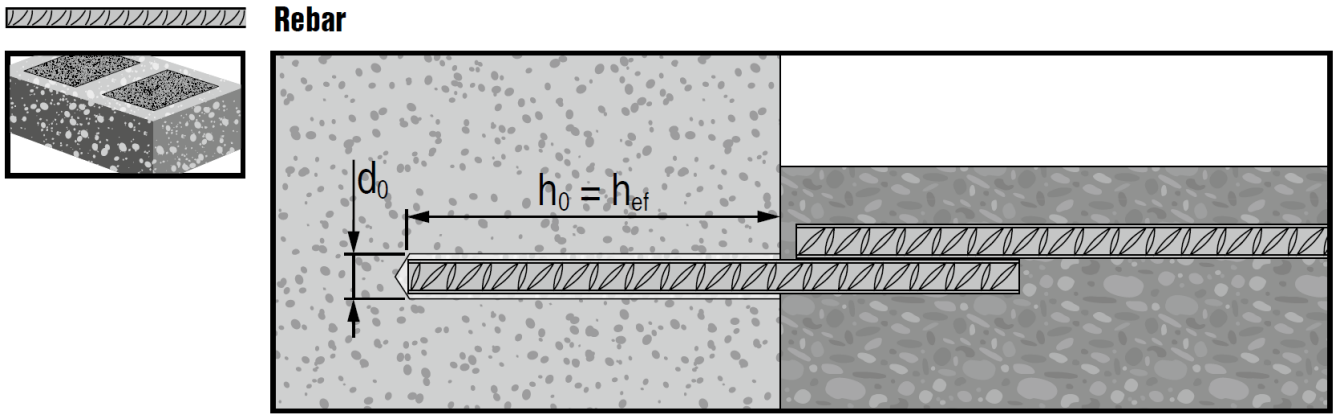

FIGURE 3—Rebar Installation in Fully Grouted CMU

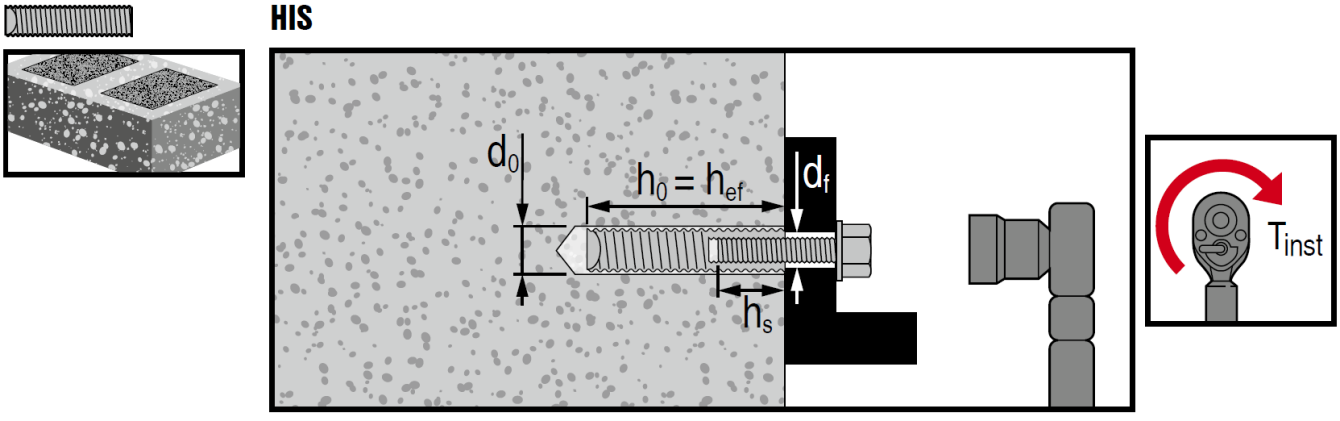

FIGURE 4—HIS-(R)N Installation in Fully Grouted CMU

TABLE 6 — HIT-HY 200 V3 MASONRY BREAKOUT AND SHEAR CRUSHING DESIGN INFORMATION FOR THREADED ROD, REBAR AND HILTI HIS-(R)N ANCHORS

DESIGN INFORMATION	Symbol	Units	Nominal Rod Diameter / Rebar Size			
			3/8" or #3	1/2" or #4	5/8" or #5	3/4" or #6
Nominal Diameter	d_a	in.	3/8	1/2	5/8	3/4
Minimum Embedment Depth – Threaded Rod & Rebar	$h_{ef,min}$	in.	2-3/8	2-3/4	3-1/8	3-1/2
Minimum Embedment Depth – HIS N	$h_{ef,min}$	in.	4-1/4	5	N/A	N/A
Effectiveness Factor for Cracked Masonry	$k_{m,cr}$	-	12			
Effectiveness Factor for Uncracked Masonry	$k_{m,uncr}$	-	17			
Strength Reduction Factor - Masonry Breakout Failure in Tension	ϕ	-	0.65			
Strength Reduction Factor - Masonry Breakout Failure in Shear	ϕ	-	0.70			
Strength Reduction Factor - Shear Crushing	ϕ	-	0.50			

For **SI:** 1 inch = 25.4 mm, 1 ft-lb = 1.356 Nm.

[1]The tabulated value of ϕ applies when the LRFD load combinations of ASCE 7 are used.

TABLE 7 — HIT-HY 200 V3 BOND STRENGTH DESIGN INFORMATION FOR THREADED ROD ANCHORS- FULLY GROUTED CMU CONSTRUCTION[1]

DESIGN INFORMATION		Symbol	Units	Nominal Rod Diameter			
				3/8"	1/2"	5/8"	3/4"
Minimum Embedment		$h_{ef,min}$	in.	2-3/8	2-3/4	3-1/8	3-1/2
Maximum Embedment		$h_{ef,max}$	in.	7-1/2	10	10	10
Temperature Range A[2]	Characteristic Bond Strength in cracked masonry	$\tau_{k,cr}$	psi	700	791	574	525
	Characteristic Bond Strength in uncracked masonry	$\tau_{k,uncr}$	psi	947	1074	897	883
Temperature Range B[2]	Characteristic Bond Strength in cracked masonry	$\tau_{k,cr}$	psi	574	648	470	430
	Characteristic Bond Strength in uncracked masonry	$\tau_{k,uncr}$	psi	777	880	736	724
Dry Installation Condition[3]		Anchor Category	-	1	1	1	1
		ϕ_d	-	0.65	0.65	0.65	0.65
Water Saturated Installation Condition[3]		Anchor Category	-	2	2	2	2
		ϕ_{ws}	-	0.55	0.55	0.55	0.55
Strength Reduction Factor for Saturated Masonry Tension[4]		$\alpha_{N,sat}$	-	1.00	0.93	0.79	0.65
Strength Reduction Factor for Sustained Tension[5]		$\alpha_{N,sust}$	-	1.00	1.00	1.00	1.00
Strength Reduction Factor for Top of Wall Tension[6]		$\alpha_{N,tow}$	-	N/A	0.30	0.28	0.33
Strength Reduction Factor for Seismic Tension[7]		$\alpha_{N,seis}$	-	1.00	1.00	1.00	1.00

For **SI:** 1 inch = 25.4 mm, 1 ft-lb = 1.356 Nm.

[1]Bond strength values shown are for fully grouted CMU construction with lightweight, medium-weight, or normal-weight masonry units, having a net compressive strength of f'_m = 1,500psi.

[2]Temperature Range A: Maximum short term temperature = 130°F, Maximum long term temperature = 110°F.
Temperature Range B: Maximum short term temperature = 176°F, Maximum long term temperature = 110°F.
Short term masonry temperatures are those that occur over short intervals (diurnal cycling). Long term temperatures are roughly constant over significant periods of time.

[3]The tabulated values of ϕ, apply when the LRFD load combinations of ASCE 7 are used.

[4]For anchors installed in water saturated masonry, the bond strength values must be multiplied by $\alpha_{N,sat}$.

[5]For anchors designed for sustained tensile loading, the bond strength values must be multiplied by $\alpha_{N,sust}$.

[6]For anchors installed in the top of a CMU wall, the bond strength values must be multiplied by $\alpha_{N,tow}$.

[7]For anchors installed in regions assigned to Seismic Design Category C, D, E or F, the bond strength values must be multiplied by $\alpha_{N,seis}$.

TABLE 8 — HIT-HY 200 V3 BOND STRENGTH DESIGN INFORMATION FOR REBAR ANCHORS- FULLY GROUTED CMU CONSTRUCTION[1]

DESIGN INFORMATION		Symbol	Units	Nominal Rod Diameter			
				#3	#4	#5	#6
Minimum Embedment		$h_{ef,min}$	in.	2-3/8	2-3/4	3-1/8	3-1/2
Maximum Embedment		$h_{ef,max}$	in.	7-1/2	10	10	10
Temperature Range A[2,4]	Characteristic Bond Strength in cracked masonry	$\tau_{k,cr}$	psi	617	631	430	746
	Characteristic Bond Strength in uncracked masonry	$\tau_{k,uncr}$	psi	696	899	838	746
Temperature Range B[3,4]	Characteristic Bond Strength in cracked masonry	$\tau_{k,cr}$	psi	506	517	352	611
	Characteristic Bond Strength in uncracked masonry	$\tau_{k,uncr}$	psi	571	737	687	611
Dry Installation Condition[3]		Anchor Category	-	1	1	1	1
		ϕ_d	-	0.65	0.65	0.65	0.65
Water Saturated Installation Condition[3]		Anchor Category	-	2	2	2	2
		ϕ_{ws}	-	0.55	0.55	0.55	0.55
Strength Reduction Factor for Saturated Masonry Tension[4]		$\alpha_{N,sat}$	-	1.00	0.93	0.79	0.65
Strength Reduction Factor for Sustained Tension[5]		$\alpha_{N,sust}$	-	1.00	1.00	1.00	1.00
Strength Reduction Factor for Top of Wall Tension[6]		$\alpha_{N,tow}$	-	N/A	0.47	0.45	N/A
Strength Reduction Factor for Seismic Tension[7]		$\alpha_{N,seis}$	-	1.00	1.00	1.00	1.00

For **SI:** 1 inch = 25.4 mm, 1 ft-lb = 1.356 Nm.

[1]Bond strength values shown are for fully grouted CMU construction with lightweight, medium-weight, or normal-weight masonry units, having a net compressive strength of f'_m = 1,500psi.

[2]Temperature Range A: Maximum short term temperature = 130°F, Maximum long term temperature = 110°F.
Temperature Range B: Maximum short term temperature = 176°F, Maximum long term temperature = 110°F.
Short term masonry temperatures are those that occur over short intervals (diurnal cycling). Long term temperatures are roughly constant over significant periods of time.

[3]The tabulated values of ϕ, apply when the LRFD load combinations of ASCE 7 are used.

[4]For anchors installed in water saturated masonry, the bond strength values must be multiplied by $\alpha_{N,sat}$.

[5]For anchors designed for sustained tensile loading, the bond strength values must be multiplied by $\alpha_{N,sust}$.

[6]For anchors installed in the top of a CMU wall, the bond strength values must be multiplied by $\alpha_{N,tow}$.

[7]For anchors installed in regions assigned to Seismic Design Category C, D, E or F, the bond strength values must be multiplied by $\alpha_{N,seis}$.

TABLE 9 — HIT-HY 200 V3 BOND STRENGTH DESIGN INFORMATION FOR HILTI HIS-(R)N ANCHORS- FULLY GROUTED CMU CONSTRUCTION[1]

DESIGN INFORMATION		Symbol	Units	Nominal Rod Diameter	
				$^3/_8$"	$^1/_2$"
Minimum Embedment		$h_{ef,min}$	in.	4-1/4	5
Temperature Range A[2,4]	Characteristic Bond Strength in cracked masonry	$\tau_{k,cr}$	psi	302	599
	Characteristic Bond Strength in uncracked masonry	$\tau_{k,uncr}$	psi	405	708
Temperature Range B[3,4]	Characteristic Bond Strength in cracked masonry	$\tau_{k,cr}$	psi	248	491
	Characteristic Bond Strength in uncracked masonry	$\tau_{k,uncr}$	psi	332	581
Dry Installation Condition[3]		Anchor Category	-	1	1
		ϕ_d	-	0.65	0.65
Water Saturated Installation Condition[3]		Anchor Category	-	2	2
		ϕ_{ws}	-	0.55	0.55
Strength Reduction Factor for Saturated Masonry Tension[4]		$\alpha_{N,sat}$	-	0.65	0.65
Strength Reduction Factor for Sustained Tension[5]		$\alpha_{N,sust}$	-	1.00	1.00
Strength Reduction Factor for Top of Wall Tension[6]		$\alpha_{N,tow}$	-	N/A	N/A
Strength Reduction Factor for Seismic Tension[7]		$\alpha_{N,seis}$	-	0.77	1.00

For **SI:** 1 inch = 25.4 mm, 1 ft-lb = 1.356 Nm.

[1]Bond strength values shown are for fully grouted CMU construction with lightweight, medium-weight, or normal-weight masonry units, having a net compressive strength of f'_m = 1,500psi.

[2]Temperature Range A: Maximum short term temperature = 130°F, Maximum long term temperature = 110°F.
Temperature Range B: Maximum short term temperature = 176°F, Maximum long term temperature = 110°F.
Short term masonry temperatures are those that occur over short intervals (diurnal cycling). Long term temperatures are roughly constant over significant periods of time.

[3]The tabulated values of ϕ, apply when the LRFD load combinations of ASCE 7 are used.

[4]For anchors installed in water saturated masonry, the bond strength values must be multiplied by $\alpha_{N,sat}$.

[5]For anchors designed for sustained tensile loading, the bond strength values must be multiplied by $\alpha_{N,sust}$.

[6]For anchors installed in the top of a CMU wall, the bond strength values must be multiplied by $\alpha_{N,tow}$.

[7]For anchors installed in regions assigned to Seismic Design Category C, D, E or F, the bond strength values must be multiplied by $\alpha_{N,seis}$.

HILTI

safe set

qr.hilti.com/manuals/1168-2234835

English
Français
Español
Português

Hilti HIT-HY 200-A V3
Hilti HIT-HY 200-R V3

ICC ES
ICC ESR 4868
ICC ESR 4878

Warning

Contains: hydroxypropylmethacrylate (A) 2,2'-(m-tolylimino)diethanol (A) 1,4-Butandiol-dimethacrylat (A) dibenzoyl peroxide (B) May cause an allergic skin reaction. (A, B) Causes serious eye irritation. (B) Very toxic to aquatic life with long lasting effects. (B)

(A, B) (B)

Hilti HIT-HY 200-A/R V3

Latest version available online, use QR code in front page / Dernière version disponible en ligne, utilisez le code QR en première page / Última versión disponible en línea, use el código QR en portada / Última versão disponível online, use o código QR na primeira página

1		7		13		19	$t_{blowing}$
2		8		14		20	ECO
3				15		21	AUTO
4		10		16	t_{work}		
5		11		17	t_{cure}		
6		12		18	$t_{roughen}$		

en 1 Uncracked concrete; 2 Cracked concrete; 3 Grout-filled CMU; 4 Dry base material; 5 Water saturated base material; 6 Waterfilled borehole in concrete; 7 Threaded rod, Threaded sleeve; 8 Rebar, 9 HIT-Z, HIT-Z-R; 10 Hammer drilling, 11 Hollow drill bit; 12 Diamond coring; 13 Roughening tool; 14 Temperature of base material; 15 cartridge temperature, 16 Working time, 17 Curing time, 18 Roughening time, 19 Blowing time; 20 ECO mode, 21 Automatic filter cleaning

fr 1 Béton non lézardé, 2 Béton lézardé, 3 CMU rempli de mortier, 4 Matériau de base sec, 5 Matériau de base saturé d'eau, 6 Trou dans le béton rempli d'eau; 7 Tige filetée, Douille filetée, 8 Armature métallique, 9 HIT-Z HIT-Z-R, 10 Perçage avec percussion; 11 Foret creux; 12 Forage au diamant; 13 Outil de rugosification; 14 Température du matériau support; 15 Température de la cartouche; 16 Temps de manipulation; 17 Temps de durcissement; 18 Temps de rugosification; 19 Temps de soufflage; 20 Mode ECO; 21 Nettoyage automatique du filtre

es 1 Hormigón no fisurado; 2 Hormigón fisurado; 3 CMU relleno con mortero; 4 Superficie de trabajo seca; 5 Superficie de trabajo saturada de agua; 6 Taladro lleno de agua en hormigón; 7 Varilla roscada, Manguito roscado; 8 Barras corrugadas para armado; 9 HIT-Z HIT-Z-R; 10 Taladro con percusión; 11 Taladro con broca hueca y aspiración; 12 Taladro con diamante; 13 Útil de rugosidad; 14 Temperatura de la superficie de trabajo; 15 Temperatura del cartucho; 16 Tiempo de ajuste; 17 Tiempo de fraguado; 18 Tiempo de rugosidad; 19 Tiempo de soplado; 20 Modo ECO; 21 Limpieza automática del filtro

pt 1 Betão não fissurado; 2 Betão fissurado; 3 CMU preenchido com argamassa; 4 Material base seco; 5 Material base saturado de água; 6 Furo em betão cheio de água; 7 Barra roscada, Casquilho roscado; 8 Ferros de armadura; 9 HIT-Z HIT-Z-R; 10 Perfurar de martelo; 11 Broca de coroa oca; 12 Perfurar com equipamento diamantado; 13 Ferramenta de rugosidade; 14 Temperatura do material base, 15 Temperatura do cartucho; 16 Tempo de trabalho; 17 Tempo de cura lota 18 Tempo de rugosidade 19 Tempo de sopro; 20 Modo ECO; 21 Limpeza automática do filtro

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Hilti HIT-HY 200-A/R V3

HY 200-A V3

[°C]	[°F]	HIT-V, HAS-U, HAS, HAS-E / HIS-N / Rebar t_{work}	t_{cure}
-10…-5	14…23	1,5 h	7 h
-4…0	24…32	50 min	4 h
1…5	33…41	25 min	2 h
6…10	42…50	15 min	75 min
11…20	51…68	7 min	45 min
21…30	69…86	4 min	30 min
31…40	87…104	3 min	30 min

HY 200-R V3

[°C]	[°F]	HIT-V, HAS-U, HAS, HAS-E / HIS-N / Rebar t_{work}	t_{cure}
-10…-5	14…23	3 h	20 h
-4…0	23…32	90 min	8 h
1…5	32…41	45 min	4 h
6…10	41…50	30 min	2,5 h
11…20	50…68	15 min	1,5 h
21…30	69…86	9 min	1 h
31…40	87…104	6 min	1 h

3

Hilti HIT-HY 200-A/R V3 — Fractional/Imperial

d [inch]	❶ US Rebar h_{ef} [inch] HY 200-A V3	❶ US Rebar h_{ef} [inch] HY 200-R V3	❶ US Rebar h_{ef} [inch] HY 200-A V3 HY 200-R V3	❷ HIS-N, -RN d [inch]	h_{ef} [inch]	h_{ef} [inch]	d_t [inch]	h_s [inch]	T_{inst} [lb-ft]	d_0 [inch]
#3	2 3/8 … 22 1/2		3 3/8							1/2
-	-									9/16
#4	2 3/4 … 30		4 1/2							5/8
				3/8	4 3/8	4 3/8	7/16	3/8 … 15/16	≤15	11/16
#5	3 1/8 … 37 1/2		5 5/8							3/4
#6	3 1/2 … 15		6 3/4	1/2	5	5	9/16	1/2 … 1 3/16	≤30	7/8
#6		15 … 45								1
#7	3 1/2 … 17 1/2									
#7		17 1/2 … 52 1/2								
#8	4 … 20			5/8	6 3/4		11/16	5/8 … 1 1/2	≤60	1 1/8
#8	-	20 … 60		3/4	8 1/8		13/16	3/4 … 1 7/8	≤100	1 1/4
#9	4 1/2 … 22 1/2	4 1/2 … 67 1/2								1 3/8
#10	5 … 25	5 … 75								1 1/2

⌀ d_0 [inch]	7/16	1/2	9/16	5/8	11/16	3/4	7/8	1	1 1/8	1 1/4	1 3/8	1 1/2
HIT-RB	7/16	1/2	9/16	5/8	11/16	3/4	7/8	1	1 1/8	1 1/4	1 3/8	1 1/2

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FIGURE 5—MANUFACTURERS PRINTED INSTALLATION INSTRUCTIONS

Fractional/Imperial — Hilti HIT-HY 200-A/R V3

❸ HAS / HAS-E / HIT-V

d [inch]	h_{ef} [inch]	h_{ef} [inch]	T_{inst} [lb-ft]	d_{cl} [inch]	d_{cp} [inch]	d_0 [inch]
3/8	2 3/8 ... 7 1/2	3 3/8	≤15	1/2	7/16	7/16
1/2	2 3/4 ... 10	4 1/2	≤30	5/8	9/16	9/16
5/8	3 1/8 ... 12 1/12	5 5/8	≤60	13/16"	11/16	3/4
3/4	3 1/2 ... 15	6 3/4	≤100	15/16	13/16	7/8
7/8	3 1/2 ... 17 1/2	6 3/4	≤125	1 1/8"	15/16	1
1	4 ... 20	-	≤150	1 1/4"	1 1/8	1 1/8
						1 1/4
1 1/4	5 ... 25	-	≤200	1 1/2"	1 3/8	1 3/8
						1 1/2

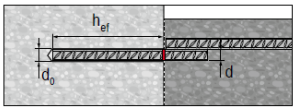
HIT-RE-M			HIT-OHW
Art. No.			Art. No.
337111	HDM 330/500 HDE 500	VC 140/150/300	387550

Ø d_0 [inch]	h_{ef} [inch]	Art. No. 381215	
7/16"...1 1/8"	2 3/8"...20"	✔	≥ 6 bar/90 psi @ 6 m³/h
1 1/4"...1 1/2"	4"...25"	–	≥ 140 m³/h/ ≥82 CFM

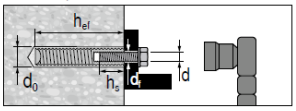
5

Hilti HIT-HY 200-A/R V3 — Metric Values

❶ Rebar



❷ HIS-N, -RN

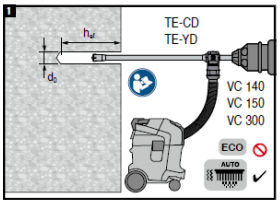


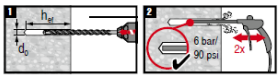
3

d_0: 7/16" ... 1 3/8" ; 10 ... 35 mm
h_{ef}: 2 3/8" ... 39 3/8" ; 60 ... 1000 mm

4

d_0: 7/16" ... 1 1/2" ; 10 ... 40 mm
h_{ef}: 2 3/8" ... 75 1/2" ; 60 ... 1920 mm





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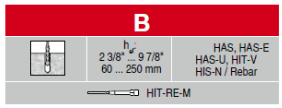

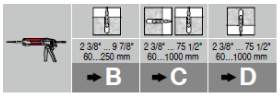

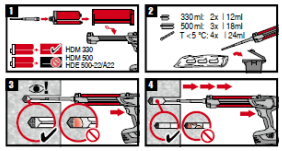

6

Hilti HIT-HY 200-A/R V3

EN **Adhesive anchoring system for rebar and anchor fastenings in concrete.**

Hilti HIT-HY 200-A/-R V3

Contains: hydroxypropylmethacrylate (A) 2,2'-(m-tolylimino) diethanol (A) 1,4-Butandiol-dimethacrylat (A) dibenzoyl peroxide (B)

Warning May cause an allergic skin reaction. (A, B) | Causes serious eye irritation. (B) | Very toxic to aquatic life with long lasting effects. (B) | Do not get in eyes, on skin or on clothing. | Wear eye protection, protective clothing, protective gloves. | IF ON SKIN: Wash with plenty of water. | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. | If skin irritation or rash occurs: Get medical advice/attention. | If eye irritation persists: Get medical advice/attention.

Disposal considerations: Empty packs: Leave the mixer attached and dispose of via the local Green Dot recovery system or EAK waste material code: 150102 plastic packaging **Full or partially emptied packs:** Must be disposed of as special waste in accordance with official regulations. EAK waste material code: 08 04 09* waste adhesives and sealants containing organic solvents or other dangerous substances. or EAK waste material code: 20 01 27* paint, inks, adhesives and resins containing dangerous substances.

Product information: Always keep these instructions together with the product even when given to other persons. **Material Safety Data Sheet:** Review the MSDS before use. **Check expiration date:** See imprint on foil pack manifold (month/year). Do not use expired product. **Foil pack temperature during usage:** 0 °C to 40 °C / 32 °F to 104 °F. **Base material temperature at time of installation: HAS-U, HIT-V, HIS, Rebar:** between -10 °C and 40 °C / 14 °F and 104 °F.; **HIT-Z:** between +5°C and 40°C / 41°F and 104°F. **Conditions for transport and storage:** Keep in a cool, dry and dark place between 5 °C and 25 °C / 41 °F and 77 °F. For any application not covered by this document / beyond values specified, please contact Hilti. **Partly used foil packs must remain in the cassette** and has to be used within **4 weeks**. Leave the mixer attached on the foil pack manifold and **store within the cassette** under the recommended storage conditions. If reused, attach a new mixer and discard the initial quantity of anchor adhesive.

Failure to observe these installation instructions, use of non-Hilti anchors, poor or questionable concrete conditions, or unique applications may affect the reliability or performance of the fastenings.

⚠ NOTICE

⚠ **The surface of the HIT-Z anchor rod must not be altered in any way.**

⚠ **The thread of HIT-Z must stay free from dirt and dust during the installation procedure and its cones must be fully embedded into mortar (especially at minimum embedment). Torque moment must always be applied on HIT-Z nut and washer installed above a solid baseplate laying on concrete.**

⚠ **Improper handling may cause mortar splashes.** Always wear safety glasses, gloves and protective clothes during installation. | Never start dispensing without a mixer properly screwed on. | Attach a new mixer prior to dispensing a new foil pack (ensure snug fit). | Use only the type of mixer (HIT-RE-M) supplied with the adhesive. Do not modify the mixer in any way. | Never use damaged foil packs and/or damaged or unclean foil pack holders (cassettes).

⚠ **Poor load values / potential failure of fastening points due to inadequate borehole cleaning.** Hilti hollow drill bits TE-CD, TE-YD must be used in conjunction with a properly maintained Hilti vacuum cleaner with model and suction capacity (volumetric flow rate) as specified in the accessory table. | The boreholes must be free of debris, dust, water, ice, oil, grease and other contaminants prior to adhesive injection. | For blowing out the borehole – blow out with oil free air until return air stream is free of noticeable dust. | For flushing the borehole – flush with water line pressure until water runs clear. | For brushing the borehole – only use specified wire brush. The brush must resist insertion into the borehole – if not the brush is too small and must be replaced. | Important! Remove all water from the borehole and blow out with oil free compressed air until borehole is completely dried before mortar injection. | Do not exceed the roughening time when roughening the drilled hole!

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Hilti HIT-HY 200-A/R V3

⚠ **Ensure that boreholes are filled from the back of the borehole without forming air voids.** If necessary use the accessories / extensions to reach the back of the borehole. | For overhead applications use the overhead accessories HIT-SZ and take special care when inserting the fastening element. Excess adhesive may be forced out of the borehole. Make sure that no mortar drips onto the installer. | In water saturated concrete it is required to set the anchor immediately after cleaning the borehole.

⚠ **Not adhering to these setting instructions can result in failure of fastening points!**

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FIGURE 5—MANUFACTURERS PRINTED INSTALLATION INSTRUCTIONS (CONTINUED)

DIVISION: 04 00 00—MASONRY
Section: 04 05 19.16—Masonry Anchors

REPORT HOLDER:

HILTI, INC.

EVALUATION SUBJECT:

HILTI HIT-HY 200 V3 ADHESIVE ANCHOR SYSTEM

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the Hitli HIT-HY 200 V3 Adhesive Anchor System, described in ICC-ES evaluation report ESR-4878, has also been evaluated for compliance with the codes noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

Applicable code editions:

- 2023 *City of Los Angeles Building Code* (LABC)
- 2023 *City of Los Angeles Residential Code* (LARC)

2.0 CONCLUSIONS

The Hitli HIT-HY 200 V3 Adhesive Anchor System, described in Sections 2.0 through 7.0 of the evaluation report ESR-4878, complies with LABC Chapter 21, and LARC, and is subject to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The Hitli HIT-HY 200 V3 Adhesive Anchor System described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report ESR-4878.
- The design, installation, conditions of use and labeling of the Hitli HIT-HY 200 V3 Adhesive Anchor System are in accordance with the 2021 *International Building Code®* (IBC) provisions noted in the evaluation report ESR-4878.
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16, 17 and City of Los Angeles Information Bulletin P/BC 2020-092, as applicable.
- Under the LARC, an engineered design in accordance with LARC Section R301.1.3 must be submitted.
- The allowable design values listed in the evaluation report and tables are for the connection of the adhesive anchors to fully grouted concrete masonry walls. The connection between the adhesive anchors and the connected members shall be checked for capacity (which may govern).
- For use in wall anchorage assemblies to flexible diaphragm applications, anchors shall be designed per the requirements of City of Los Angeles Information Bulletin P/BC 2020-071.

This supplement expires concurrently with the evaluation report, reissued November 2024 and revised September 2025.

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ICC-ES Evaluation Report

ESR-4878 FL Supplement w/ HVHZ

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DIVISION: 04 00 00—MASONRY
Section: 04 05 19.16—Masonry Anchors

REPORT HOLDER:

HILTI, INC.

EVALUATION SUBJECT:

HILTI HIT-HY 200 V3 ADHESIVE ANCHOR SYSTEM

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the Hitli HIT-HY 200 V3 Adhesive Anchor System, described in ICC-ES evaluation report ESR-4878, has also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2023 *Florida Building Code—Building*
- 2023 *Florida Building Code—Residential*

2.0 CONCLUSIONS

The Hitli HIT-HY 200 V3 Adhesive Anchor System, described in Sections 2.0 through 7.0 of the evaluation report ESR-4878, comply with the *Florida Building Code—Building* and the *Florida Building Code—Residential*, provided the design requirements are determined in accordance with the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable. The installation requirements noted in ICC-ES evaluation report ESR-4878 for the 2021 *International Building Code®* meet the requirements of the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable.

Use of the Hitli HIT-HY 200 V3 Adhesive Anchor System has also been found to be in compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and the *Florida Building Code—Residential*, with the following conditions:

a) Design and installation must meet the requirements of Section 2122.7 of the Florida Building Code—Building.

b) For anchorage of wood members, the connection subject to uplift, must be designed for no less than 700 pounds (3114 N).

For products falling under Florida Rule 61G20-3, verification that the report holder's quality-assurance program is audited by a quality-assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official, when the report holder does not possess an approval by the Commission).

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