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RESEARCH REPORT: RR 26007
(CSI# 03 15 19 and 03 16 00)

BASED UPON ICC ES EVALUATION
SERVICE REPORT NO. ESR-1008

REEVALUATION DUE
DATE: August 1, 2019
Issued Date: July 1, 2018
Code: 2017 LABC

GENERAL APPROVAL – Reevaluation and Clerical Modification – Halfen HTA Anchor Channels and HS Channel Bolts for Application in Cracked and Uncracked Concrete.

DETAILS

The above assemblies and/or products are approved when in compliance with the use, description, design, installation, conditions of use, and identification of Evaluation Report No. ESR-1008, reissued April 2018, of the ICC-ES Evaluation Services, LLC. The report, in its entirety, is attached and made part of this general approval.

Portions of Report No. ESR-1008 excluded on the attached copy has been removed by the City of Los Angeles Building and Safety Department as not being included in this approval.

The approval is subject to the following conditions:

1. Halfen HTA anchor channels and HS channel bolts are used to resist static, wind and seismic (Seismic Design Categories A & B) tension and shear loads perpendicular to longitudinal channel axis or any combination of these loads.
2. The HTA anchor channels and HS channel bolts must be installed in accordance with this report and the manufacturer's installation instructions.
3. The Halfen anchor channels must be limited to installation in cracked or uncracked concrete having a specified concrete strength, f'c of 2,500 psi to 10,000 psi.
4. The use of anchor channels in lightweight concrete is beyond the scope of this approval.
5. Calculations and details must be submitted to Structural Plan Check Division for approval. Calculations must be prepared, sealed and signed by a Civil or Structural Engineer registered in the State of California.
6. Halfen anchor channels are permitted for use with fire-resistance rated construction provided that at least one of the following conditions is fulfilled:
    a. Anchor channels are used to resist wind or seismic forces only.
    b. Anchor channels that support a fire-resistance rated envelope or a fire resistance rated membrane are protected by approved fire-resistance rated materials, or have been evaluated for resistance to fire exposure in accordance with recognized standards.
    c. Anchor channels are used to support nonstructural elements.
7. The use of anchor channels to resist fatigue or shock loads is beyond the scope of this approval.
8. Use of hot-dipped galvanized carbon steel anchor channels is permitted for exterior exposure or damp environments. In case channels are cut after applying the zinc-coating, only use in dry internal conditions is permitted.
9. Steel anchoring materials in contact with preservative-treated and fire-retardant-treated wood shall be of zinc-coated carbon steel. The minimum coating weights for zinc-coated steel shall comply with ASTM A153.
10. Period Special Inspection during installation shall be performed in accordance with Section 1705.1.1 of the 2017 Los Angeles Building Code, with continuous or periodic special inspections as defined in Section 1702.1 of the 2017 LABC and Section 4.5 of the attached E.S. report, ESR-1008. Under the LABC, additional requirements in Sections 1705, 1706, 1707, and 1709 shall be observed, as applicable.
    a. The special inspector shall be present intermittently during anchor channel placement in the formwork to verify anchor channel type, type of steel, length of channel, and number and diameter of anchors as well as anchor channel placement and edge distance in accordance with the approved plans and proper fastening of the anchor channels to the formwork in accordance with the MPII.

b. Following placement of concrete and form removal, the special inspector shall verify that the concrete around the anchor channel is without significant visual defects and the anchor channel is flush with the concrete surface, and that the channel interior is free of concrete, laitance, or other obstructions. Following the installation of attachments to the anchor channel, the special inspector shall verify that the correct system hardware, such as threaded bolts and saddle washers, has been used, positioned correctly, and torqued, all in accordance with the MPII.

c. The special inspector shall be present for the initial installations of attachments to each type and size of anchor channel. For ongoing installations over an extended period, the special inspector shall perform regular inspections to confirm correct handling and installation.

d. Where they exceed the requirements stated here, the special inspector shall adhere to the special inspection requirements provided in the statement of special inspections as prepared by the registered design professional in responsible charge and approved by LADBS.

11. On-site proof loading to verify the installed anchor channels' capacity is required for all installations designated by the registered design professional or Building Inspector. The proof loading program shall be established by the registered design professional and approved by the LADBS. As a minimum, the following requirements shall be addressed:

    a. Frequency and location of proof loading based on channel size and length

    b. Proof loads specified by channel size

    c. Acceptable displacements at proof load

    d. Remedial action in the event of failure to achieve proof load or excessive displacement.

12. Halfen Anchor Channels and channel bolts are produced under an approved quality-control program with inspections performed by ICC-ES.

13. The anchor channels and channel bolts are identified as indicated under section 7.0 of attached ICC-ES Evaluation Report, ESR-1008.

14. Anchor channel and channel bolt materials and properties are listed in Table 1 below.

DISCUSSION

The clerical modification is to update the address for the petitioning organization.

This report is in compliance with the 2017 City of Los Angeles Building Code.

The approval is based on tests and analysis in accordance with ICC-ES Acceptance Criteria for Anchor Channels in Concrete Elements (AC 232), dated June 2017.

This general approval will remain effective provided the Evaluation Report is maintained valid and unrevised with the issuing organization. Any revision to the report must be submitted to this Department for review with appropriate fee to continue the approval of the revised report.

Addressee to whom this Research Report is issued is responsible for providing copies of it, complete with any attachments indicated, to architects, engineers and builders using items approved herein in design or construction which must be approved by Department of Building and Safety Engineers and Inspectors.

This general approval of an equivalent alternate to the Code is only valid where an engineer and/or inspector of this Department has determined that all conditions of this Approval have been met in the project in which it is to be used.

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Attachments: ICC-ES Report, ESR-1008 (22 pages)

Table 1 – HTA Anchor Channels and HS Channel Bolts: Equivalent U.S. Material Specifications and Properties.

Component	Carbon Steel		Stainless Steel
	Material / Strength Class	Coating	Material / Strength Class
Channel Profile	Carbon Steel	Hot-dip galvanized ≥ 55µm	A4 (316, 316L or 316Ti)
Anchor	Carbon Steel	Hot-dip galvanized ≥ 55µm	A4 (316, 316L or 316Ti)
Channel Bolts	Grade 4.6 and Grade 8.8 (similar to ASTM F568M)	Hot-dip galvanized ≥ 50µm or electorplated ≥ 12µm	A4 (316, 316L according to ASTM F 738M)
Plain Washer	ASTM F844	Hot-dip galvanized or electorplated	A4 (316, 316L)
Hexagonal Nuts	Class 5 or 8 (similar to ASTM F63M)	Hot-dip galvanized ≥ 50µm or electorplated ≥ 12µm	Grade A4-50 or A4-70 (316, 316L according to ASTM F 836M)