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RESEARCH REPORT: RR 26090
(CSI # 13080)

REEVALUATION DUE
DATE: May 01, 2022
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Code: 2020 LABC

GENERAL APPROVAL – Technical Modification and Renewal – Badger Industries Seismic and Vertical Components

DETAILS

The Badger Industries seismic SSC, SSC-HD and SSC-RF components are composed of ASTM A1011 CS, Grade 33 or equivalent minimum 33,000 psi yield strength carbon steel. Pivot pin is composed of (1/2") diameter ASTM A307 or equivalent carbon steel. A slotted tabbed washer sized to fit connection is provided with, and is required to be installed with each Badger Industries SSC-RF seismic bracket. Seismic brackets can be used for upper or lower brace end connections. Badger SBEMT pivot arm shall be removed when connecting cable brace member to pivot pin. The Allowable and (LRFD) capacities are listed in Attachments 1, 2 and 3.

The Badger Industries seismic SB1258 and SBRF components are composed of ASTM A1011 CS, Grade 33 or equivalent minimum 33,000 psi yield strength carbon steel. Pivot pin is composed of (3/8") diameter ASTM A307 or equivalent carbon steel. Two slotted washers sized to fit connection is provided with, and is required to be installed with each SBRF seismic bracket. Seismic brackets can be used for upper or lower brace end connections. Badger SBEMT pivot arm shall be removed when connecting cable brace member to pivot pin. The Allowable and (LRFD) capacities are listed in Attachments 4 and 5.

The Badger Industries seismic SBEMT rigid bracing component using (2)-(1/4"x1") hex washer head screws. SBEMT component is composed of minimum 33,000 psi yield strength carbon steel. The Allowable and (LRFD) capacities are listed in Attachment 6.

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The Badger Industries seismic SWB component is composed of 0.30-inch diameter, minimum 33,000 psi yield strength carbon steel rod. The Allowable and (LRFD) capacities are listed in Attachment 7.

The Badger Industries seismic SCC-1 cable braces are composed of (1/16") diameter 7x7 galvanized steel aircraft cable with a stake-eye fitting at one end and a Badger Industries SCC-1 cable clamp bolt turn back connection at the other end. Badger Industries seismic SCC-2 cable braces are composed of (1/8") diameter 7x7 galvanized steel aircraft cable, or (3/16") diameter 7x19 galvanized steel aircraft cable with a stake-eye fitting at one end and a Badger Industries SCC-2 cable clamp bolt turn back connection at the other end. The Allowable and (LRFD) capacities are listed in Attachment 8.

The Badger Industries seismic MDH3812, MDH1258 and NDH4S-W3 components are composed of minimum 33,000 psi yield strength carbon steel bodies. Part MDH3812 and part MDH1258 include a ASTM A307 or equivalent carbon steel threaded shaft, a lock washer and an internally threaded barrel with a torque-off hex nut. Part NDH4S-W3 includes (4) carbon steel pointed set bolts with torque-off hex washer heads. The Badger Industries seismic NDH38FV-W3 component is composed of a spring steel body, an internally threaded carbon steel swivel insert nut with thread engagement inspection holes and an elastomeric grommet. The Allowable and (LRFD) capacities are listed in Attachment 9.

The Badger Industries NDH4S-W3 can be used with Badger Industries rigid or cable bracing. The Allowable and (LRFD) capacities are listed in Attachment 10.

The Badger Industries beam clamp SBC158, SBC158-C, SBC158L and SBC158L-C components are composed of ASTM A1011 CS, Grade 33 or equivalent minimum 33,000 psi yield strength carbon steel and a 1/2-13 ASTM A307 or equivalent carbon steel clamp bolt with torque-off hex head. Beam clamps can be used as an individual beam clamp or in pairs as double beam clamps. The Allowable and (LRFD) capacities are listed in Attachments 11 thru 36.

Note, attachments 13, 14, 20, 21, 32 and 33 reference detail (CMN) Cantilevered Member Notice, see Attachment 37. Attachments 16, 17, 23, 24, 30, 31, 32 and 33 note that beam clamps can be used with strut member to span from beam to beam, see Attachments 38 and 39 (BBN) Beam to Beam Notice.

The Badger Industries seismic SHCA and EMT-RSC components are composed of ASTM A1011 CS, Grade 33 or equivalent minimum 33,000 psi yield strength carbon steel. Part SHCA includes a (1/4") diameter V-bolt and (2) tamper proof torque-off hex nuts which are composed of ASTM A307 or equivalent carbon steel. Part EMT-RSC includes a (1/4") diameter carriage bolt and a tamper proof torque-off hex nut which are composed of ASTM A307 or equivalent carbon steel. The Allowable and (LRFD) capacities are listed in Attachment 40 and Attachment 41.

The Badger Industries with Anvil International LLC seismic FIG: 212 component sizes (1-1/2" and smaller) are composed of ASTM A1011 carbon steel. FIG: 212 component sizes (2" thru 4") and FIG: 212FP component sizes (5" thru 12") are composed of ASTM A36 carbon steel. Clamp

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Bolts are composed of (1/2") diameter ASTM A307 or equivalent carbon steel. Badger SBEMT pivot arm shall be removed when connecting cable brace member to clamp bolt. The Allowable and (LRFD) capacities are listed in Attachments 42, 43, 44 and 45, see Attachment 46 (TLN) Transverse as Longitudinal Notice.

The approval is subject to the following conditions:

1. This approval is limited to mechanical, electrical, ductwork, equipment, plumbing components, and fire protection components
2. Fire protection vertical hangers shall be per 2016 NFPA-13, 9.1.1.2.
3. Fire protection seismic bracing shall be per ASCE 7, Seismic Design Requirements for Non-Structural Components.
4. The use of Badger Industries components is for interior use only.
5. The tabulated allowable and/or (LRFD) loads shall not be increased for duration of loading.
6. The values listed in attachments 1-46 are for the Badger Industries components only. Calculations demonstrating the applied loads are less than the loads for each individual component within the assembly shall be submitted for plan check at the time of permit application.
7. The Badger Industries seismic components and assembly installations shall be in accordance with the manufacturer's most current instructions and the requirements herein. A copy of this report and the installation instruction shall be provided at each job site by the installing contractor.
8. Periodic Special Inspection required during installation and anchorage of piping and ductwork designed to carry hazardous material in structures in accordance with LABC 1705.12.6.

DISCUSSION

The Technical Modification is to update the code to the 2020 City of Los Angeles Building Code and to add the new and updated attachments 9 – 10 and 41 – 46.

This report is in compliance with the 2020 City of Los Angeles Building Code.

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

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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: Badger Industries Details (46 Pages)

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