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RESEARCH REPORT: RR 25949
(CSI # 15060)

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GENERAL APPROVAL – Renewal and Clerical Modification - 4", 6", and 8" Clevis Hanger Assembly, Seismic Bracing Attachment Brackets of Support on Non-Structural Components, Seismic Hold-down Clamps for Cable Tray, Seismic Beam Clamps, and Seismic Sway Bracing

DETAILS

1. 4", 6", and 8" Clevis Hanger Assembly:

Each size assembly consists of the following components:

- a) Fig. 1 CBS cross bolt spacer and Fig. B3100 Standard Clevis Hanger.
- b) 5/8" threaded rod for the 4" standard clevis hanger, 3/4" threaded rod for the 6" and 8" standard clevis hanger.
- c) Fig. 980 sway brace attachment. The TOLCO Fig. 980 was designed to be used with B-Line B22 solid channel.

The maximum allowable transverse load applied at the center of the pipe for each assembly is shown in attached Overall Load Table.

2. Fig. 985 Mechanical Fast Clamp:

The Fig. 985 mechanical fast clamp is a low carbon steel used for attachment of seismic bracing to pipe hanger or trapeze. This clamp fits a rod size of 1/2" through 5/8" in diameter.

The maximum allowable load applied to a bracing member attached to the clamp at 30 or 45 degrees from a vertical plane are shown in attached Overall Load Table.

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3. Fig. 986 Mechanical Fast Clamp:

The Fig. 986 mechanical fast clamp is a low carbon steel used for attachment of seismic bracing to pipe hanger or trapeze. This clamp fits a rod size of 1/2" in diameter, or 1/2" bolt to attach to the structure.

The maximum allowable load applied to a bracing member attached to the clamp at 30 or 45 degrees from a vertical plane are shown in attached Overall Load Table.

4. Fig. 981 Sway Brace Attachment:

The Fig. 981 sway brace attachment is a low carbon steel multi-functional attachment to hanger rod, strut or structural steel in a lateral or longitudinal brace assembly. The TOLCO Fig. 981 was designed to be used with B-Line B22 solid channel or steel pipe.

The maximum allowable load applied to a bracing member attached to the Fig. 981 sway brace at 30 or 45 degrees from a vertical plane are shown in attached Overall Load Table.

5. Fig. 990 Cable Sway Brace Attachment:

The cable sway brace attachment is a carbon steel material with pre galvanized finish and is used to attach min 3/16" diameter pre-stretched galvanized aircraft cable to structure or hanger with a rod size of 1/2" in diameter, or 1/2" bolt to attach to the structure.

The maximum allowable load applied to the aircraft cable attached to the clamp at 30 or 45 degrees from a vertical plane are shown in attached Overall Load Table.

6. Fig. 991 Cable Sway Brace Attachment:

The cable sway brace attachment is a carbon steel material with pre galvanized finish and is used to attach min 3/16" diameter pre-stretched galvanized aircraft cable to structure or hanger with a rod size of 3/8" through 5/8" in diameter.

The maximum allowable load applied to the aircraft cable attached to the clamp at 30 or 45 degrees from a vertical plane are shown in attached Overall Load Table.

7. Fig. 9ZN-1205, 9ZN-1208, 9ZN-1241 & B335 Hold Down Clamps:

The hold down clamps hold B-Line branded cable tray to trapezes' utilizing B-Line branded strut.

The maximum allowable loads applied to the hold down clamps are shown in attached Overall Load Table.

8. Fig. 98B Rod Stiffener:

The rod stiffener is a low carbon steel that secures the B-Line channel to hanger rod for increased stiffness.

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9. Fig. 828 Universal Sway Brace Attachment:

The universal sway brace attachment is a low carbon steel designed to attach sway bracing and hanger assemblies to structural members using a secure, non-friction connection without drilling or welding. The attachment can be used to secure brace to structure along or across the structural member.

The maximum allowable loads for Fig. 828 are shown in on pages 19 and 20 of attached assembly details.

10. Fig. 4LA In-Line Sway Brace:

The in-line sway brace is a low carbon steel attachment designed as a connection of the pipe system to B-Line channel or steel pipe bracing member.

The allowable loads for Fig. 4LA are shown on pages 23 to 28 of attached assembly details.

11. Fig. 1001 Sway Brace Attachment:

The sway brace attachment is a low carbon steel used in conjunction with a Fig 900 series fitting and joined together with bracing per NFPA 13, forming a complete lateral sway brace assembly.

The allowable loads for Fig. 1001 are shown on pages 29 to 31 of attached assembly details.

12. Fig. 68S, 68W and 65XT Beam Clamp:

The Fig. 68S/68W beam clamp are cast malleable steel with a SAE 1035 case hardened steel head cut point screw and hex jam nut. The 68S clamp has a narrower mouth opening than the 68, otherwise the designs are similar.

The Fig. 65XT beam clamp is made from ASTM A-569 carbon steel strip bent into a U shape. The clamp features a drawn section around the threaded holes in the bottom of the U. Notches formed in the arms of the U engage the beam. The set screw is a SAE 1035 case hardened cup point screw.

The allowable loads for Fig 68S, 68W and 65XT are shown on page 32 of attached assembly details.

13. Fig. 980 Universal Swivel Brace Attachment:

The universal swivel sway brace attachment is a low carbon steel structural attachment designed to attach sway bracing to structural members. The TOLCO Fig. 980 was designed to be used with B-Line B22 solid channel or steel pipe.

The maximum allowable loads for the Fig. 980 are shown on page 21 of the attached assembly details.

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The approval is subject to the following conditions:

1. Allowable capacities of brace attachments, beam clamps and clevis hanger assemblies are listed in attached Overall Load Table.
2. Existing ceiling, walls, or other structures that support hanger rods and brace attachments shall be evaluated by an architect, civil or structural engineer licensed in the State of California. The plans and calculations shall be submitted to structural plan check for review and approval.
3. Approval of the supported systems is outside the scope of the research report.
4. Calculations for the design of hanger rods and brace elements in accordance with the 2020 Los Angeles Building Code shall be submitted to structural plan check for review and approval.
5. Installation of the brace system shall be in accordance with the manufacturer's instructions.
6. The design of the connection used to attach the clamps and sway braces to the supporting structure shall be evaluated by an architect, civil or structural engineer licensed in the State of California. The plans and calculations shall be submitted to structural plan check for review and approval.
7. The mechanical fast clamps, hold down clamps, and the sway braces shall not be used to resist forces produced by the effects of gravity.
8. The use of the clamps and sway braces is limited to the support of non-structural components.
9. The design of the clamps and sway braces shall be in accordance with Chapter 13 of ASCE 7-16.
10. Cable Sway braces must be used in opposing pairs.
11. The brace attachments listed in the attached Overall Load Table are only approved as specified under the Details section of this Research Report.
12. The allowable loads shall not be increased for duration of load.

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DISCUSSION

The clerical modification is to capture compliance with the 2020 Los Angeles Building Code.

The report is in compliance with the 2020 Los Angeles Building Code.

The approval is based on load tests.

For this General Approval to be valid on any individual construction project in the City of Los Angeles, an engineer or inspector of the Department of Building and Safety must make a determination that all conditions of the General Approval required to provide equivalency have been met in the case of each construction project under consideration.

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.

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Attachments: Overall Load Table (2 Pages)
 Detail drawings (30 Pages)