ICC-ES Evaluation Report

ESR-4567

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This report also contains:

- **City of LA Supplement**
- **CA Supplement w/ DSA and OSHPD**

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DIVISION: 21 00 00—FIRE SUPPRESSION **Section: 21 05 48—Vibration and Seismic Controls for Fire-suppression Piping and Equipment** **DIVISION: 22 00 00—PLUMBING** **Section: 22 05 48—Vibration and Seismic Controls for Plumbing Piping and Equipment** **DIVISION: 23 00 00—HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)** **Section: 23 05 48—Vibration and Seismic Controls for HVAC** **DIVISION: 26 00 00—ELECTRICAL** **Section: 26 05 48—Vibration and Seismic Controls for Electrical Systems** **DIVISION: 27 00 00—COMMUNICATIONS** **Section: 27 05 48—Vibration and Seismic Controls for Communications Systems**	**REPORT HOLDER:** **ERICO INTERNATIONAL CORPORATION, A DIVISION OF NVENT**	**EVALUATION SUBJECT:** **NVENT CADDY STEEL CABLE AND FITTING ASSEMBLIES FOR SEISMIC SWAY BRACING OF NONSTRUCTURAL COMPONENTS**	

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2024, 2021 and 2018 *International Building Code®* (IBC)

Main references in this report are for the 2024 IBC. See Table A for applicable sections of the code for previous IBC editions.

Properties evaluated:

■ Structural

2.0 USES

The nVent Caddy steel cable and fitting assemblies (SCFAs) are tension-only cable seismic sway braces used to resist seismic forces and control seismic force-induced sway (displacements) of non-structural MEP components such as HVAC, electrical, plumbing and fire sprinkler suspended systems.

3.0 DESCRIPTION

3.1 General: The nVent Caddy SCFAs consist of steel cables, attachment fittings, structural adapters and swaged oval sleeves. The ends of the cables are looped around the pipes, bar joists or fittings and secured with the swaged oval sleeves. The fittings are then anchored to structural wood, concrete or steel members with bolts or structural attachment adapters. The fittings come in three configurations: Universal Restraint Clips, Retrofit Universal Restraint Clips and No Pry Clips. See Figure 1. Structural adapters are available to secure fittings to open web steel bar joists, I-beams or concrete, masonry, or wood members.

3.2 Materials:

3.2.1 Steel Cable: The steel wire rope cable is a pre-stretched cable complying with ASTM A1023, cut to length as needed and is available in sizes 12, 18 and 36. The cable is pre-galvanized. See Table 1 for additional specifications.

3.3 Fittings: The fittings are electrogalvanized steel complying with ASTM A1011, Grade 50 with a specified yield strength of 50 ksi and a specified tensile strength of 65 ksi.

3.3.1 Universal Restraint Clip (CSBURC): The universal restraint clips are 0.168" (4.27 mm) thick and are to be used with steel cable sizes 12, 18 and 36 and fastener with diameters 1/4" (6.35 mm), 3/8" (9.53 mm), ½" (12.7 mm), 5/8" (15.88 mm), ¾" (19.05 mm) and 7/8" (22.23 mm) or M6 (0.236"), M10 (0.394"), M12 (0.472"), M16 (0.630") and M20 (0.787"). See Figure 1.

3.3.2 Universal Retrofit Restraint Clip (CSBURCR): The universal retrofit restraint clips are 0.168" (4.27 mm) thick and are to be used with steel cable sizes 12 and 18 and fasteners with diameters 3/8" (9.53 mm), 1/2" (12.7 mm) and 5/8" (15.88 mm) or M6 (0.236"), M12 (0.472") and M16 (0.630"). See Figure 1.

3.3.3 No Pry Clip (CSBNPC): The no pry clips are 0.168" (4.27 mm) thick and are to be used with steel cable sizes 12, 18 and 36 and fasteners with diameters 3/8" (9.53 mm), 1/2" (12.7 mm) and 5/8" (15.88 mm) or M10 (0.394"), M12 (0.472") and M16 (0.630"). See Figure 1.

3.3.4 Swaged Oval Sleeves: The oval sleeves are electrogalvanized Copper Alloy ASTM B75 and are to be used with steel cable sizes 12, 18 or 36. See Figure 2.

3.4 Structural Adaptors: The structural adapters are electrogalvanized steel or ductile cast iron devices used connect cable end fittings for cable seismic sway braces to building structural elements. See Figure 3.

3.4.1 Bar Joist Adapter (CSBBARJEG): The bar joist adapter is ductile cast iron clamp complying with ASTM A536 with a ½" (12.7 mm) or M12 (0.472") diameter bolted connection for attachment of a CSBURC12EG cable end fitting to the top chord of an open web steel bar joist.

3.4.2 I-Beam Adapter (CSBBC075EG): The I-Beam Adapter is a ductile cast iron clamp complying with ASTM A536 with a ½" (12.7 mm) or M12 diameter bolted connection for attachment of a CSBURC12EG or CSBNPC12EG cable end fitting to either the top or bottom flange of a structural steel I-Beam with a flange thickness between ¼ to ¾ inches (6.35 to 19.05 mm) and a flange width between 4 to 14.5 inches (102 to 368 mm).

3.4.3 Multi-Attachment Adapter (CSBMA0500XXEG): The Multi-Attachment Adapter is electrogalvanized 2 ½" x 2 ½" x ¼" (63.5 mm x 63.5 mm x 6.35 mm) structural steel angle complying with ASTM A36 with either two ½" (12.7 mm) or two ¾" (19.05 mm), or two M12 or two M20 diameter bolt holes in one leg for anchorage to a structural element and one ½" (12.7 mm) or M12 (0.472") diameter bolt hole for attachment of a CSBURC12EG or CSBNPC12EG cable end fitting.

3.4.4 Single and Double Side Flange Adapter (CSBS1, CSBS2, CSBS3, CSBS4, CSBS5, CSBIB075XXXEG): The CSBS1 and CSBS2 are single side stamped steel flange attachment clamps complying with ASTM A1018 with ½" (12.7 mm) or M12 (0.472") diameter bolted connection for attachment of

a CSBURC12EG cable end fitting to either the top or bottom flange of a structural steel I-Beam with a flange thickness of ¼ to ¾ inch (6 to 19 mm) and ¾ to 1 ¼ inch (19 to 31 mm), respectively.

The CSBS3, CSBS4 and CSBS5 are double-side cast ductile iron flange attachment clamps complying with ASTM A1018 with ½" (12.7 mm) or M12 (0.472") diameter bolted connection for attachment of a CSBURC12EG cable end fitting to the bottom flange of a structural steel I-Beam with a flange thickness of ¼ to 1 1/4 inch (6 to 31 mm) and flange width of 4 to 18 inch (100 to 455 mm).

The CSBIB075XXXEG is a double-side cast ductile iron clamp complying with ASTM A536 with a ½" (12.7 mm) or M12 (0.472") diameter bolted connection for attachment of a CSBURC12EG cable end fitting to the bottom flange of a structural steel I-Beam.

4.0 DESIGN AND INSTALLATION

4.1 General: The design load must be determined from the applicable load combinations in Sections 3.2.2 and 3.2.3 of ASCE/SEI 19 or Section 1605.1 and 1605.2 of IBC, as applicable, and must be less than the corresponding tabulated SCFA values determined in accordance with Tables 3 to 5, as applicable.

The non-structural components (i.e. architectural, mechanical and electrical components) to be braced with the SCFAs are outside the scope of this report must be designed by a registered design professional in accordance with Section 13.5 and 13.6 of ASCE/SEI 7, as applicable.

The anchor bolts and mechanical fasteners used to attach SCFAs to their structural supports are outside the scope of this report and must be designed by a registered design professional in accordance with Section 13.4 of ASCE/SEI 7. Consideration must be given to prying effects resulting from fitting geometry.

4.2 Additional Connection Configurations: The cables can be secured or spliced in accordance with this section, with design strengths to be determined from Table 4. See Figure 4 for various configurations.

4.2.1 Cable Wrap Pipe: Size 12, 18 and 36 cables can be wrapped 1 ½ times around pipe and secured with oval sleeve.

4.2.2 Bar Joist Cable Loop: Size 12, 18 and 36 cables can be looped around the top chord of a bar joist at a panel point and secured with an oval sleeve.

4.2.3 Cable Lap Splice: Size 12 and 18 cables can be lap spliced with two oval sleeves.

4.3 Installation:

Installation of the nVent Caddy steel cable and fitting assemblies must be in accordance with this report, the approved plans and the manufacturer's printed installation instructions. Dead load of the nonstructural components must be supported independent of the SCFAs. The SCFAs must only be hand-tightened sufficiently to remove slack.

See Figures 6 through 10 for examples of brace assembly details for various non-structural elements.

4.4 Special Inspection:

During field installation, such as field-cutting and swaging of all SCFAs, special inspections must be as noted in Sections 1704 and 1705 of the IBC, as applicable.

5.0 CONDITIONS OF USE:

The nVent Caddy steel cable and fitting assemblies described in this report comply with, or are 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 Installation of the nVent Caddy steel cable and fitting assemblies must be in accordance with this report, approved plans, and the manufacturer's printed installation instructions. In event of a conflict between this report and the manufacturer's printed installation instructions, the more restrictive requirement governs.

5.2 SFCAs are limited to resisting seismic forces and controlling seismic force-induced sway (displacements) of nonstructural components only. The registered design professional may need to consider other load requirements as set forth in the applicable codes.

5.3 When used as tension-only sway bracing for fire protection automatic sprinkler system installed in accordance with IBC Section 903 and NFPA 13, as referenced in Sections 13.6.4.1 and 13.6.7.2 of ASCE/SEI 7, the SCFAs must comply with the requirements set forth in Chapter 18 of NFPA 13.

5.4 The following items are beyond the scope of the evaluation report:

(1) Attachments described in Section 11.2 of ASCE/SEI 7, with the exception of end loops or wrapping of the SCFAs, and structural support members;

(2) The effects of elevated temperatures on the performance of SCFAs;

(3) The effects of fatigue on the performance of SCFAs;

(4) Use with vibrating equipment unless dynamic loading on calculated stresses, fatigue, and deflections of the SCFAs are considered by the registered design professional for the specific applications;

(5) Protection against sharp resonant motions of nonstructural components, or shock loading;

(6) Outdoor applications and necessary corrosion protections;

(7) Special certification requirements for Designated Seismic Systems required by Sections 13.2.3, 13.2.6 and 13.2.7 of ASCE/SEI 7;

(8) Use as rigid seismic sway bracings resisting tension and compression forces;

(9) Replaceability requirement prescribed in Section 3.1.2 of ASCE/SEI 19

(10) Post-construction considerations and inspection requirements prescribed in Section 9.0 of ASCE/SEI 19; and

(11) Pipe clamps, grooved couplings, or other similar hanger devices that are installed for the purpose of attaching SCFAs to sprinkler pipes.

(12) Rod stiffeners, when required, used to resist upward vertical movement.

5.5 Special inspection must be provided in accordance with Section 4.6.

5.6 nVent Caddy steel cable and fitting assemblies are manufactured under an approved quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Steel Cable and Fitting Assemblies (SCFAs) for Seismic Sway Bracing of Nonstructural Components (AC413), dated August 2020, editorially revised January 2025.

7.0 IDENTIFICATION

7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-4567) along with the name, registered trademark, or registered logo of the report holder must be included in the product label.

7.2 In addition, product labeling shall include the company name, and the cables coated with permanent color cable coding (Size 12 – RED, Size 18 – WHITE and Size 36- BLUE).

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

ERICO INTERNATIONAL CORPORATION,
A DIVISION OF NVENT
31700 SOLON ROAD
SOLON, OHIO 44139
(440) 248 - 0100
www.erico.com

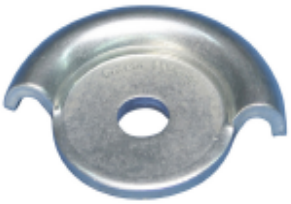
TABLE A—CODE/STANDARD SECTION NUMBER REFERENCE MATRIX

2024 IBC	2021 IBC	2018 IBC
903	903	903
1605.1	1605.1	1605.3.1
1605.2	1605.2	1605.3.1
1704	1704	1704
1705	1705	1705
ASCE/SEI 7		
ASCE/SEI 7-22	**ASCE/SEI 7-16 with Supp. 1**	**ASCE/SEI 7-16**
11.2	11.2	11.2
13.2.3	13.2.2	13.2.2
13.2.6	13.2.5	13.2.5
13.2.7	13.2.6	13.2.6
13.4	13.4	13.4
13.5	13.5	13.5
13.6	13.6	13.6
13.6.4.1	13.6.4.1	13.6.4.1
13.6.7.2	13.6.7.2	13.6.7.2
ASCE/SEI 19		
N/A [1]	**ASCE/SEI 19-16**	**ASCE/SEI 19-16**
	3.1.2	3.1.2
	3.2.2	3.2.2
	3.2.3	3.2.3
	9.0	9.0
	E7.3.1	E7.3.1
ASTM A1023		
ASTM A1023-21	**ASTM A1023-15**	**ASTM A1023-15**
Table 7	Table 7	Table 7
NFPA 13		
NFPA 13-22	**NFPA 13-19**	**NFPA 13-16**
Chapter 18	Chapter 18	Chapter 18

[1] The 2024 IBC references ASCE 19-22. Evaluation of the products in this evaluation report is limited to ASCE 19-16 because the 2022 version of ASCE/SEI 19 has not been published, yet. The evaluation report must be revised after the ASCE 19-22 is published.

UNIVERAL RESTRAINT CLIP
CSBURCXX

RETROFIT UNIVERSAL RESTRAINT CLIP
CSBURCRXX



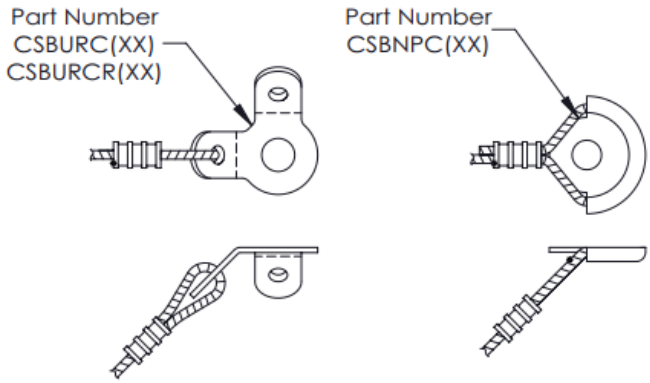
NO PRY CLIP
CSBNPCXX

FIGURE 1: ATTACHMENT FITTINGS (XX = Bolt hole size)

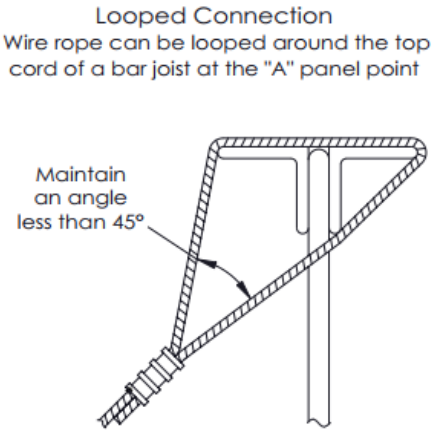
FIGURE 2: OVAL SLEEVES

 BAR JOIST ADAPTER CSBBARJEG	 I-BEAM ADAPTER CSBBC075EG	 MULTI-ATTACHMENT ADAPTER CSBMA050050EG CSBMA050075EG
 SINGLE SIDE FLANGE ADAPTER CSBS1 CSBS2	 DOUBLE SIDE FLANGE ADAPTER CSBS3 CSBS4 CSBS5	 DOUBLE SIDE FLANGE ADAPTER CSBIB075085EG CSBIB075145EG

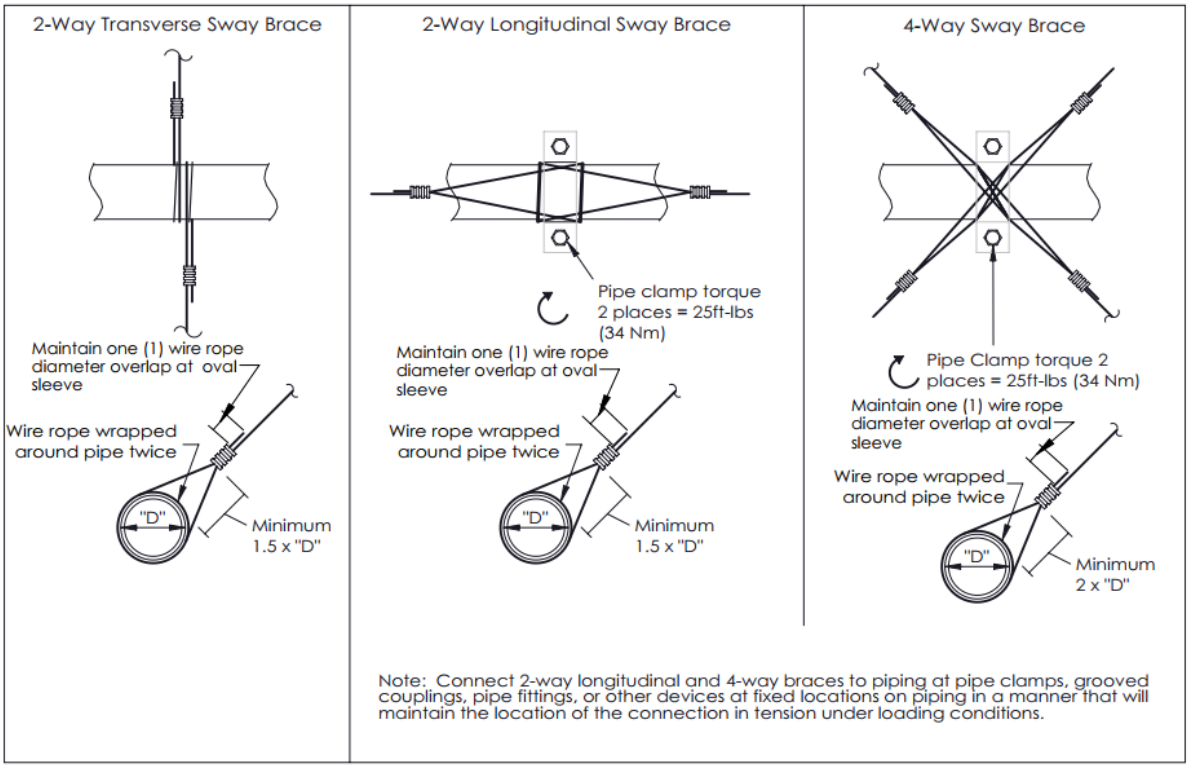
FIGURE 3: STRUCTURAL ADAPTERS



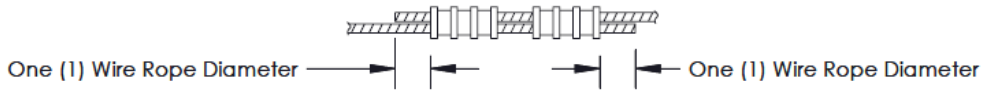
CSBURC AND CSBURCR CONNECTIONS TO STRUCTURE OR COMPONENT



BAR JOIST CABLE LOOP



CABLE WRAPPED PIPE, TUBE OR CONDUIT CONNECTIONS



Step 1 - Slide two sleeves (ferrules) onto overlapping wire ropes.

Step 2 - The sleeve (ferrule) has to be swaged by using a swaging tool (CSB3346SB, CSB13SBHS, CSB48 or CSBHS02). Refer to the manufacturers instructions for the number of swages needed per wire rope size.

CABLE SPLICE

FIGURE 4: ADDITIONAL CONNECTION CONFIGURATIONS

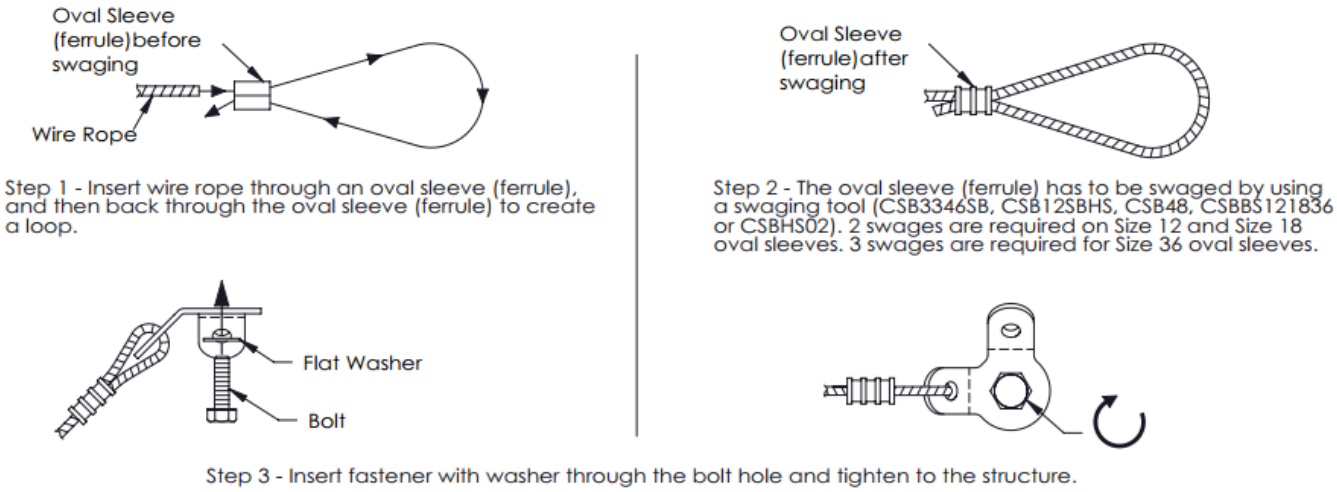


FIGURE 5: TYPICAL INSTALLATION INSTRUCTIONS

TABLE 1: nVent CADDY SEISMIC CABLE SPECIFICATIONS

Model	**CSB12CBL**	**CSB18CBL**	**CSB36CBL**
Size	12	18	36
Nominal Diameter (in)	3/32	1/8	3/16
Color Code	Red	White	Blue
Material Specification	ASTM A1023 Gr. IPS	ASTM A1023 Gr. IPS	ASTM A1023 Gr. IPS
Classification	Commercial	Commercial	Commercial
Construction	7x7	7x7	7x19
Wire Finishes	Drawn Galvanized	Drawn Galvanized	Drawn Galvanized
Core Type	Wire Strand Core	Wire Strand Core	Wire Strand Core
Direction and Type of Rope Lay	Right Hand Regular Lay	Right Hand Regular Lay	Right Hand Regular Lay
Specified Nominal Cable Strength[1] (lbs)	920	1700	4200
Minimum Specified Prestretching Force[2]	60%	60%	60%
Minimum Specified modulus of Elasticity (psi)	17.5×10^6	17.5×10^6	17.5×10^6

For **SI:** 1 inch = 25.4 mm; 1 psi = 6895 MPa; 1 lb = 4.45 N.
[1]Minimum Breaking Force per ASTM A1023 Table 7
[2]Approximate percentage of minimum breaking force as basis for ASCE/SEI 19 E7.3.1 MOE test method.

TABLE 2: nVent CADDY SEISMIC CABLE LOADS

Model	**Cable Size**	**Color Code**	**Description**	**Specified Breaking Force[1] lbs. (N)**
CSB12CBL	12	RED	7 x 7 Drawn Galvanized Cable	920 (4092)
CSB18CBL	18	WHITE	7 x 7 Drawn Galvanized Cable	1700 (7561)
CSB36CBL	36	BLUE	7 x 19 Drawn Galvanized Cable	4200 (18681)

[1] Specified Breaking Force of the cable from ASTM A1023 Table 7.

TABLE 3: nVent CADDY SEISMIC WIRE ROPE/CABLE FITTINGS AND CONNECTIONS

Model	For Cable Size	Description	Tested Breaking Force lbs. (N)	LRFD Strength[2] lbs. (N)	ASD Strength[1] lbs. (N)
UNIVERSAL RESTRAINT CLIP (CSBURC)					
CSBURC14EG	12, 18, 36	CSBURC w/ 1/4" or M6 diameter fastener	4200	2673	1909
			(18681)	(11887)	(8491)
CSBURC38EG	12, 18, 36	CSBURC w/ 3/8" or M10 diameter fastener	4200	2673	1909
			(18681)	(11887)	(8491)
CSBURC12EG	12, 18, 36	CSBURC w/ 1/2" or M12 diameter fastener	4200	2673	1909
			(18681)	(11887)	(8491)
CSBURC58EG	12, 18, 36	CSBURC w/ 5/8" or M16 diameter fastener	4200	2673	1909
			(18681)	(11887)	(8491)
CSBURC34EG	12, 18, 36	CSBURC w/ 3/4" or M20 diameter fastener	4200	2673	1909
			(18681)	(11887)	(8491)
CSBURC78EG	12, 18, 36	CSBURC w/ 7/8" or M22 diameter fastener	4200	2673	1909
			(18681)	(11887)	(8491)
UNIVERSAL RETROFIT RESTRAINT CLIP (CSBURCR)					
CSBURCR38EG	12, 18	CSBURCR w/ 3/8" or M10 diameter fastener	1700	1081	772
			(7561)	(4806)	(3433)
CSBURCR12EG	12, 18	CSBURCR w/ 1/2" or M12 diameter fastener	1700	1081	772
			(7561)	(4806)	(3433)
CSBURCR58EG	12, 18	CSBURCR w/ 5/8" or M16 diameter fastener	1700	1081	772
			(7561)	(4806)	(3433)
NO PRY CLIP (CSBNPC)					
CSBNPC38EG	12, 18, 36	CSBNPC w/ 3/8" or M10 diameter fastener	4200	2673	1909
			(18681)	(11887)	(8491)
CSBNPC12EG	12, 18, 36	CSBNPC w/ 1/2" or M12 diameter fastener	4200	2673	1909
			(18681)	(11887)	(8491)
CSBNPC58EG	12, 18, 36	CSBNPC w/ 5/8" or M16 diameter fastener	4200	2673	1909
			(18681)	(11887)	(8491)
OVAL SLEEVE					
CSB12SLVB	12	For swaged cable termination fittings on Size 12 Cable	920	585	418
			(4092)	(2603)	(1859)
CSB18SLVB	18	For swaged cable termination fittings on Size 18 Cable	1700	1081	772
			(7561)	(4806)	(3433)
CSB36SLVB	36	For swaged cable termination fittings on Size 36 Cable	4200	2673	1909
			(18681)	(11887)	(8491)

For **SI:** 1 inch = 25.4 mm

[1] Tabulated ASD strength values are determined by dividing the tested breaking force by a Factor of Safety of 2.2.

[2] Tabulated LRFD strength values are determined by multiplying the ASD strength values by 1.4, determined as the conversion from an ASD load combination with 0.7E, to a LRFD load combination with 1.0E.

TABLE 4: ADDITIONAL ATTACHMENT CONFIGURATIONS

Model	For Cable Size	Description	Tested Breaking Force lbs. (N)	LRFD Strength[2] lbs. (N)	ASD Strength[1] lbs. (N)
Cable Wrap Pipe Conn.	12	Size 12 cable wrapped 1 1/2 times around pipe and secured with oval sleeve	920	585	418
			(4092)	(2603)	(1859)
Cable Wrap Pipe Conn.	18	Size 18 cable wrapped 1 1/2 times around pipe and secured with oval sleeve	1700	1081	772
			(7561)	(4806)	(3433)
Cable Wrap Pipe Conn.	36	Size 36 cable wrapped 1 1/2 times around pipe and secured with oval sleeve	4200	2673	1909
			(18681)	(11887)	(8491)
Bar Joist Cable Loop	12	Size 12 cable loop secured to top chord of bar joist at "A" panel point	920	585	418
			(4092)	(2603)	(1859)
Bar Joist Cable Loop	18	Size 18 cable loop secured to top chord of bar joist at "A" panel point	1700	1081	772
			(7561)	(4806)	(3433)
Bar Joist Cable Loop	36	Size 36 cable loop secured to top chord of bar joist at "A" panel point	3080	1960	1400
			(13699)	(8718)	(6227)
Cable Lap Splice	12	Size 12 cable lap splice secured with two oval sleeves	920	585	418
			(4092)	(2603)	(1859)
Cable Lap Splice	18	Size 18 cable lap splice secured with two oval sleeves	1700	1081	772
			(7561)	(4806)	(3433)

[1] Tabulated ASD strength values are determined by dividing the tested breaking force by a Factor of Safety of 2.2.

[2] Tabulated LRFD strength values are determined by multiplying the ASD strength values by 1.4, determined as the conversion from an ASD load combination with 0.7E, to a LRFD load combination with 1.0E.

TABLE 5: nVent CADDY STRUCTURAL ADAPTERS

Model	For Cable Size	Description	Tested Breaking Force lbs. (N)	LRFD Strength[2] lbs. (N)	ASD Strength[1] lbs. (N)
CSBBARJEG w/ URC	12,18,36	Bar Joist Adapter with CSB**URC12**EG	2420 (10764)	1540 (6849)	1100 (4892)
CSBBC075EG w/ URC	12,18,36	I-Beam Adapter with CSB**URC**12EG	1760 (7828)	1120 (4981)	800 (3558)
CSBBC075EG w/ NPC	12,18,36	I-Beam Adapter with CSB**NPC**12EG	1760 (7828)	1120 (4981)	800 (3558)
CSBIB075085EG w/ URC	12,18,36	Double Side Flange Adapter with CSB**URC**12EG	2420 (10764)	1540 (6849)	1100 (4892)
CSBIB075085EG w/ NPC	12,18,36	Double Side Flange Adapter with CSB**NPC**12EG	3080 (13699)	1960 (8718)	1400 (6227)
CSBIB075145EG w/ URC	12,18,36	Double Side Flange Adapter with CSB**URC**12EG	2420 (10764)	1540 (6849)	1100 (4892)
CSBIB075145EG w/ NPC	12,18,36	Double Side Flange Adapter with CSB**NPC**12EG	3080 (13699)	1960 (8718)	1400 (6227)
CSBMA050050EG w/ NPC	12,18,36	Multi-Attachment Adapter - (2) 1/2" or (2) M12 diameter fasteners for structure anchorage and (1) 1/2" or M12 diameter fastener for CSB**NPC**12EG	2860 (12721)	1820 (8095)	1300 (5782)
CSBMA050075EG w/NPC	12,18,36	Multi-Attachment Adapter - (2) 3/4" or (2) M20 diameter fasteners for structure attachment and (1) 1/2" or M12 diameter fastener for CSB**NPC**12EG	2860 (12721)	1820 (8095)	1300 (5782)
CSBMA050050EG w/ URC	12,18,36	Multi-Attachment Adapter - (2) 1/2" or (2) M12 diameter fasteners for structure attachment and (1) 1/2" or M12 diameter fastener for CSB**URC**12EG	2420 (10764)	1540 (6849)	1100 (4892)
CSBMA050075EG w/ URC	12,18,36	Multi-Attachment Adapter - (2) 3/4" or M20 diameter fastener for structure attachment and (1) 1/2" or M12 diameter fastener CSB**URC**12EG	2420 (10764)	1540 (6849)	1100 (4892)
CSBS1 w/ URC	12,18,36	Single Side Flange Adapter with CSB**URC**12EG	2420 (10764)	1540 (6849)	1100 (4892)
CSBS2 w/ URC	12,18,36	Single Side Flange Adapter with CSB**URC**12EG	2420 (10764)	1540 (6849)	1100 (4892)
CSBS3 w/ URC	12,18,36	Double Side Flange Adapter with CSB**URC**12EG	2420 (10764)	1540 (6849)	1100 (4892)
CSBS4 w/ URC	12,18,36	Double Side Flange Adapter with CSB**URC**12EG	2420 (10764)	1540 (6849)	1100 (4892)
CSBS5 w/ URC	12,18,36	Double Side Flange Adapter with CSB**URC**12EG	2420 (10764)	1540 (6849)	1100 (4892)

For **SI:** 1 inch = 25.4 mm

[1] Tabulated ASD strength values are determined by dividing the tested breaking force by a Factor of Safety of 2.2.

[2] Tabulated LRFD strength values are determined by multiplying the ASD strength values by 1.4, determined as the conversion from an ASD load combination with 0.7E, to a LRFD load combination with 1.0E.

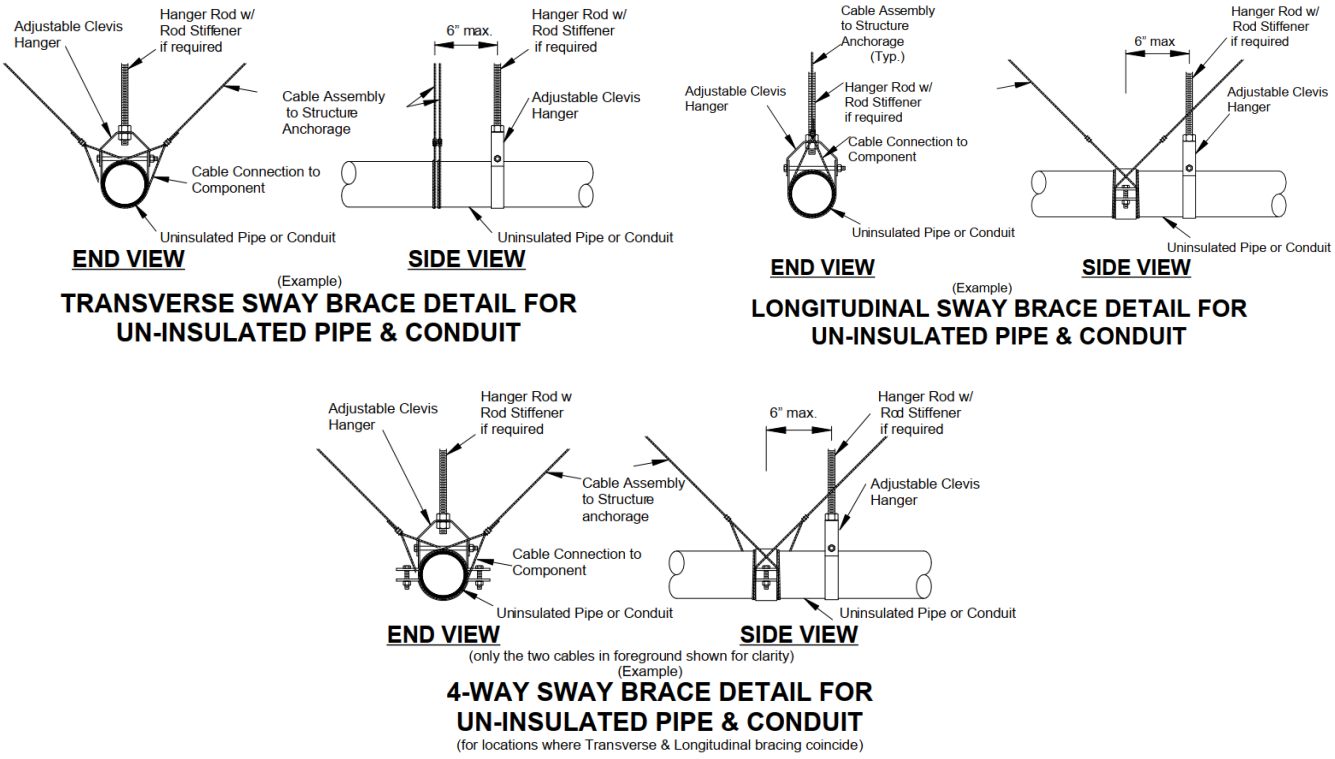


FIGURE 6: SWAY BRACE DETAILS FOR UN-INSULATED PIPE AND CONDUIT

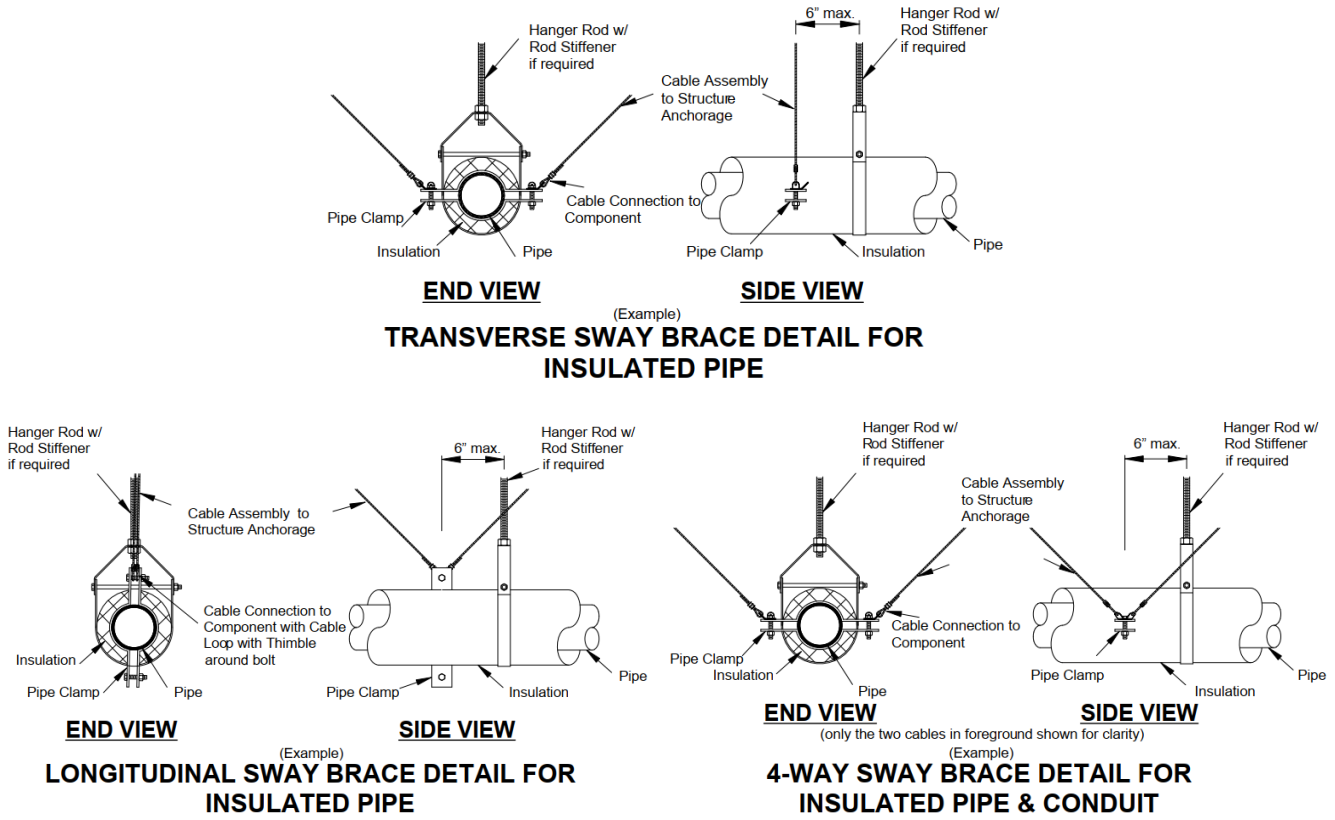
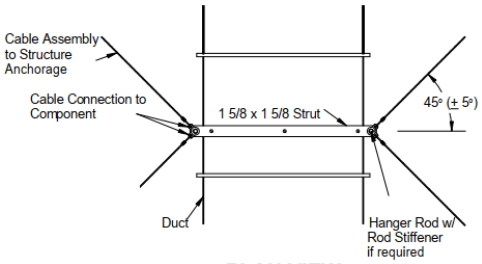
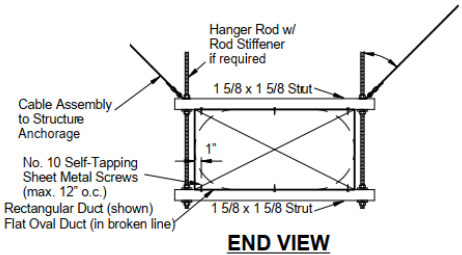


FIGURE 7: SWAY BRACE DETAILS FOR INSULATED PIPE AND CONDUIT



PLAN VIEW

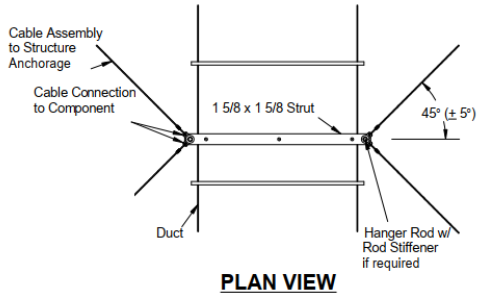


END VIEW

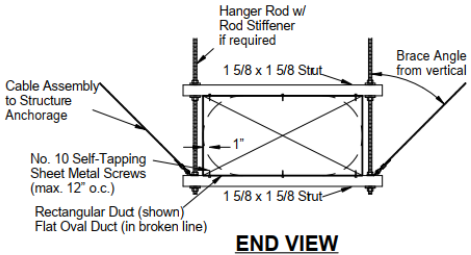
(only the two cables in foreground shown for clarity)

(Example)

4-WAY SWAY BRACE DETAIL FOR RECTANGULAR & FLAT OVAL DUCTS (Braced at Top of Duct)



PLAN VIEW

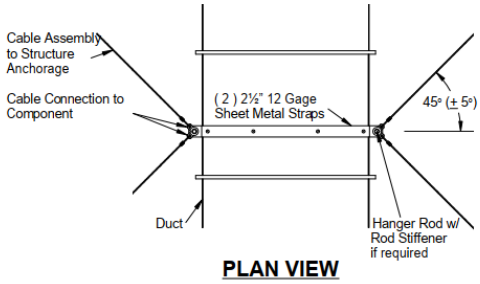


END VIEW

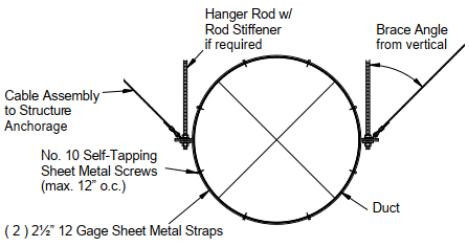
(only the two cables in foreground shown for clarity)

(Example)

4-WAY SWAY BRACE DETAIL FOR RECTANGULAR & FLAT OVAL DUCTS (Braced at Bottom of Duct)



PLAN VIEW



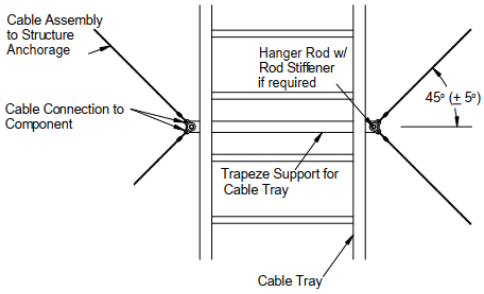
END VIEW

(only the two cables in foreground shown for clarity)

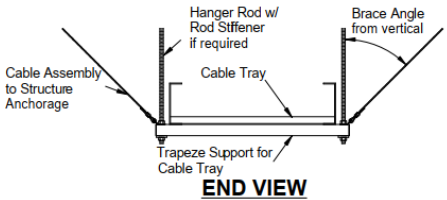
(Example)

4-WAY SWAY BRACE DETAIL FOR ROUND DUCTS

FIGURE 8: SWAY BRACE DETAILS FOR INSULATED PIPE AND CONDUIT



PLAN VIEW

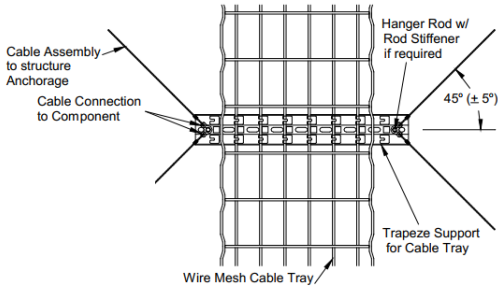


END VIEW

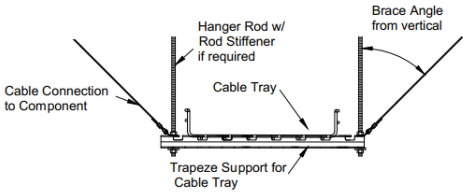
(only the two cables in foreground shown for clarity)

(Example)

4-WAY SWAY BRACE DETAIL FOR CABLE TRAY



PLAN VIEW



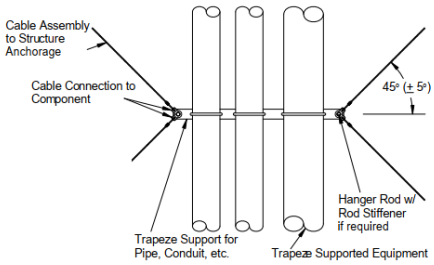
END VIEW

(only the two cables in foreground shown for clarity)

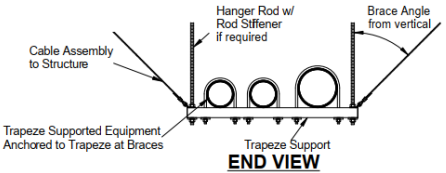
(Example)

4-WAY SWAY BRACE DETAIL FOR WIRE MESH CABLE TRAY

(for locations where Transverse & Longitudinal bracing coincide)



PLAN VIEW



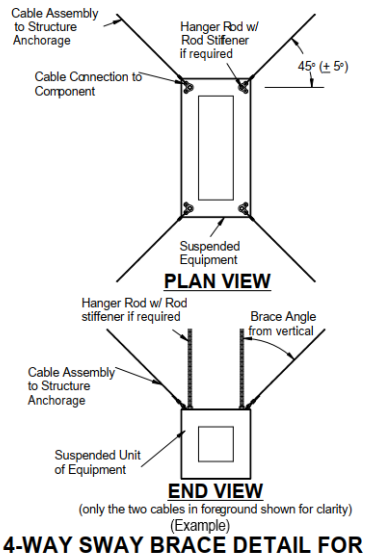
END VIEW

(only the two cables in foreground shown for clarity)

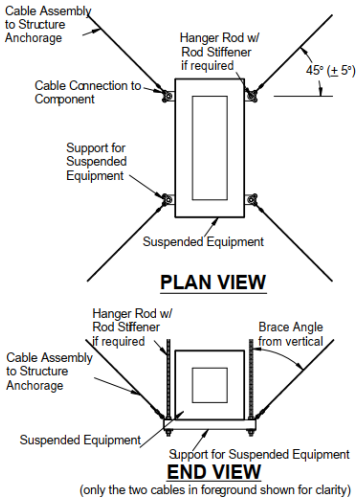
(Exampe)

4-WAY SWAY BRACE DETAIL FOR TRAPEZE SUPPORTED EQUIPMENT

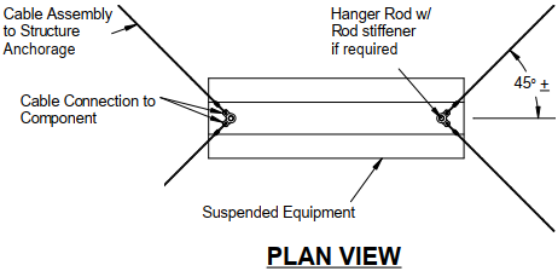
FIGURE 9: SWAY BRACE DETAILS FOR INSULATED PIPE AND CONDUIT

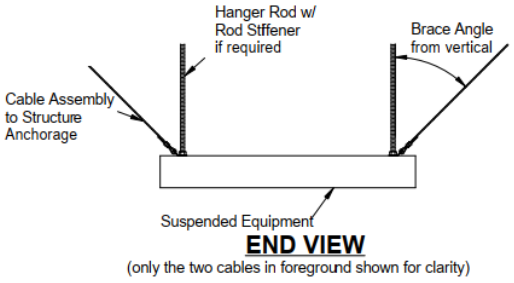


4-WAY SWAY BRACE DETAIL FOR RECTANGULAR UNITS OF EQUIPMENT (Braced at Top of Unit)
(AHU, VAV Box, Transformer, etc.)



4-WAY SWAY BRACE DETAIL FOR RECTANGULAR UNITS OF EQUIPMENT (Braced at Bottom of Unit)
(AHU, VAV Box, Transformer, etc.)





4-WAY SWAY BRACE DETAIL FOR LINEAR UNITS OF EQUIPMENT
(Light Fixtures, etc.)

FIGURE 10: SWAY BRACE DETAILS FOR INSULATED PIPE AND CONDUIT

DIVISION: 21 00 00—FIRE SUPPRESSION
Section: 21 05 48—Vibration and Seismic Controls for Fire-suppression Piping and Equipment

DIVISION: 22 00 00—PLUMBING
Section: 22 05 48—Vibration and Seismic Controls for Plumbing Piping and Equipment

DIVISION: 23 00 00—HEATIHG, VENTILATING, AND AIR-CONDITIONING (HVAC)
Section: 23 05 48—Vibration and Seismic Controls for HVAC

DIVISION: 26 00 00—ELECTRICAL
Section: 26 05 48—Vibration and Seismic Controls for Electrical Systems

DIVISION: 27 00 00—COMMUNICATIONS
Section: 27 05 48—Vibration and Seismic Controls for Communications Systems

REPORT HOLDER:

ERICO INTERNATIONAL CORPORATION, A DIVISION OF NVENT

EVALUATION SUBJECT:

NVENT CADDY STEEL CABLE AND FITTING ASSEMBLIES FOR SEISMIC SWAY BRACING OF NONSTRUCTURAL COMPONENTS

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the nVent Caddy steel cable and fitting assemblies (SCFAs), described in ICC-ES evaluation report ESR-4567, 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)

2.0 CONCLUSIONS

The nVent Caddy steel cable and fitting assemblies (SCFAs), described in Sections 2.0 through 7.0 of the evaluation report ESR-4567, complies with the LABC Chapter 22 and is subject to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The nVent Caddy steel cable and fitting assemblies (SCFAs) described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report ESR-4567.
- The design, installation, conditions of use and identification of the nVent Caddy steel cable and fitting assemblies (SCFAs) are in accordance with the 2021 *International Building Code®* (IBC) provisions noted in the evaluation report ESR-4567.
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16, 17 and 22, as applicable.

This supplement expires concurrently with the evaluation report, reissued June 2024 and revised January 2025.

ICC-ES Evaluation Report ESR-4567 CA Supplement w/ DSA and OSHPD

Reissued June 2024
Revised January 2025
This report is subject to renewal June 2026.

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DIVISION: 21 00 00—FIRE SUPPRESSION
Section: 21 05 48—Vibration and Seismic Controls for Fire-suppression Piping and Equipment

DIVISION: 22 00 00—PLUMBING
Section: 22 05 48—Vibration and Seismic Controls for Plumbing Piping and Equipment

DIVISION: 23 00 00—HEATIHG, VENTILATING, AND AIR-CONDITIONING (HVAC)
Section: 23 05 48—Vibration and Seismic Controls for HVAC

DIVISION: 26 00 00—ELECTRICAL
Section: 26 05 48—Vibration and Seismic Controls for Electrical Systems

DIVISION: 27 00 00—COMMUNICATIONS
Section: 27 05 48—Vibration and Seismic Controls for Communications Systems

REPORT HOLDER:

ERICO INTERNATIONAL CORPORATION, A DIVISION OF NVENT

EVALUATION SUBJECT:

NVENT CADDY STEEL CABLE AND FITTING ASSEMBLIES FOR SEISMIC SWAY BRACING OF NONSTRUCTURAL COMPONENTS

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the nVent Caddy steel cable and fitting assemblies (SCFAs), described in ICC-ES evaluation report ESR-4567, have also been evaluated for compliance with the code*(s)* noted below.

Applicable code edition*(s)*:

- 2022 *California Building Code* (CBC)

For evaluation of applicable Chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) AKA: California Department of Health Care Access and Information (HCAI) and the Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

2.0 CONCLUSIONS

2.1 CBC:

The nVent Caddy steel cable and fitting assemblies (SCFAs), described in Sections 2.0 through 7.0 of the evaluation report ESR-4567, complies with CBC Chapter, provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 16, 17 and 22 as applicable.

2.1.1 OSHPD:

The nVent Caddy steel cable and fitting assemblies (SCFAs), described in Sections 2.0 through 7.0 of the evaluation report ESR-4567, complies with CBC amended Chapter 22, and Chapter 22A, provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements in Sections 2.1.1.1 and 2.1.1.3 of this supplement:

2.1.1.1 Conditions of Use: All loads applied shall be determined by a registered structural engineer and comply with applicable loads from Chapter 16 [OSHPD 3] and its applicable amendments [OSHPD 1R, 2 and 5] and Chapter 16A [OSHPD 1 and 4].

2.1.1.2 Special Inspection Requirements: Special inspection shall be in accordance with Section 1704, 1705.13.4 and 1705.13.6 [OSHPD 1R, 2 and 5] and Section 1704A, 1705A.13.4 and 1705A.13.6 [OSHPD 1 and 4], as applicable.

2.1.2 DSA:

The nVent Caddy steel cable and fitting assemblies (SCFAs), described in Sections 2.0 through 7.0 of the evaluation report ESR-4567, complies with CBC amended Chapter 22, and Chapter 22A, provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements in Sections 2.1.2.1 and 2.1.2.3 of this supplement:

2.1.2.1 Conditions of Use: All loads applied shall be determined by a registered structural engineer and comply with applicable loads from Chapter 16 and its applicable amendments [DSA-SS/CC] and Chapter 16A [DSA-SS].

2.1.2.2 Special Inspection Requirements: Special inspection shall be in accordance with Section 1704A, 1705A.13.4 and 1705A.13.6 [DSA-SS/CC], as applicable.

This supplement expires concurrently with the evaluation report, reissued June 2024 and revised January 2025.