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GRIPPLE, INC. 1611 Emily Lane Aurora, IL 60502 (901) 417-3048 www.gripple.com

# **GRIPPLE SEISMIC BRACING SYSTEMS**

CSI Section: 05 15 00 Wire Rope Assemblies

### **1.0 RECOGNITION**

Gripple Seismic Bracing Systems recognized in this report have been evaluated for use in tension only seismic cable restraints for nonstructural components and systems. The structural performance properties of the Gripple Seismic Bracing Systems comply with the intent of the provisions of the following codes, standards, and regulations:

- 2021, 2018, 2015, 2012, and 2009 International Building Code<sup>®</sup> (IBC)
- 2021, 2018, 2015, 2012, and 2009 International Residential Code<sup>®</sup> (IRC)
- 2021, 2018, 2015, 2012, and 2009 International Fire Code<sup>®</sup> (IFC)
- 2022 and 2019 California Building Code (CBC) For DSA and OSHPD recognition refer to attached Supplement
- 2022 and 2019 California Residential Code (CRC) –For DSA and OSHPD recognition refer to attached Supplement
- 2023 City of Los Angeles Building Code (LABC) attached Supplement
- 2023 City of Los Angeles Residential Code (LARC) attached Supplement
- 2020 Florida Building Code, Building (FBC, Building) attached Supplement
- 2020 Florida Residential Code, Residential (FBC, Residential) attached Supplement
- 2022 and 2014 New York City Building Code (NYCBC) – attached Supplement
- 2020 Building Code of New York State attached Supplement
- 2019 Chicago Building Code (Title 14B) attached Supplement
- 2020 St. Louis County Building Code attached Supplement
- 2018 Missouri Building Code attached Supplement
- NFPA 13-19, -16, -13, -10, -07, as applicable: Standard for the Installation of Sprinkler Systems
- ASCE/SEI 19-16: Structural Applications of Steel Cables for Buildings

### 2.0 LIMITATIONS

Use of the Gripple Seismic Bracing Systems recognized in this report is subject to the following limitations:

**2.1** The Gripple Seismic Bracing Systems shall be installed in accordance with the applicable code, the manufacturer's published installation instructions, and this report. Where there is a conflict, the more restrictive requirements shall govern.

**2.2** The use of seismic cable restraints for resisting loads other than earthquake-induced loads is beyond the scope of this report.

**2.3** Design calculations shall be submitted to the building official for approval at the time of permit application. Calculations shall demonstrate that the seismic demands determined in accordance with Chapter 13 of ASCE 7 do not exceed the substantiated seismic capacities provided in this report. Calculations shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

**2.4** The design of attachments, except those included in the testing of assemblies, is beyond the scope of this report.

**2.5** Use of seismic cable restraints where ambient temperatures exceed 200°F (93°C) as set forth in Section E3.3.1.1 of ASCE/SEI 19 is beyond the scope of this report, unless the design for such conditions is addressed. In accordance with Section 2.5 of ASCE/SEI 7, design for exposure to extraordinary events need not be considered.

**2.6** Use in areas where weather protection is not provided and areas where a corrosive atmosphere exists is beyond the scope of this report.

**2.7** Special inspections for the installation of the seismic cable restraints shall be provided in accordance with Section 3.4 of this report.

**2.8** The Gripple Seismic Bracing Systems recognized in this report are produced by Gripple, Inc. in Aurora, IL.

**2.9** The Gripple Fast Trak Seismic Bracket Accessory recognized in this report is produced in South Yorkshire, England.

### 3.0 PRODUCT USE

**3.1 General:** The Gripple Seismic Bracing Systems are used in seismic bracing cable restraints as the support of non-structural components for resisting tensile earthquake-induced loads only.



The product described in this Uniform Evaluation Service (UES) Report has been evaluated as an alternative material, design or method of construction in order to satisfy and comply with the intent of the provision of the code, as noted in this report, and for at least equivalence to that prescribed in the code in quality, strength, effectiveness, fire resistance, durability and safety, as applicable, in accordance with IBC Section 104.11. This document shall only be reproduced in its entirety.

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**3.2 Design:** The design of Gripple Seismic Bracing Systems shall comply with Sections 903, 1603, and 1613 of the IBC, Section 903 of the IFC, Chapter 13 of ASCE/SEI 7, Appendix E of ASCE/SEI 19, and for support of fire protection sprinkler systems, Section 18.5 of NFPA 13.

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**3.3 Installation:** Installation of the Gripple Seismic Bracing Systems shall be in accordance with the applicable code, the manufacturer's published installation instructions, and this report. A copy of this evaluation report shall be available on the job site for quality control purposes during construction.

**3.3.1** The following installation parameters are required for the Gripple Seismic Bracing System.:

**3.3.1.1** The Gripple Seismic Cable Bracing Systems are confined to the component combinations as described in Tables 1 through 5 of this report.

**3.3.1.2** The Gripple Seismic Cable Brace Kit is installed at an angle to the horizontal between 30 and 60 degrees, with 45 degrees being the ideal orientation to coincide with the 45-degree angle of the eyelet and bracket fittings.

**3.3.1.3** The Gripple Seismic Cable Bracing System shall be attached to the nonstructural component with either the Standard Gripple Seismic Eyelet (GSE), Gripple Seismic Standard (GSS) bracket, or Gripple Seismic Retrofit (GSR) bracket. Installing the cable system via looping through the trapeze support strut holes is not allowed.

**3.3.1.4** The Gripple Seismic Cable Bracing System may be anchored to the structural system with anchors compliant with an approved evaluation report, or in compliance with the applicable building codes and designed by the Registered Design Professional addressing the nonstructural component, through the GSE or GSS and GSR Brackets, or looped around a structural member (i.e., bar joist or structural beam, etc.) and fastened with a Gripple Seismic (GS) Fastener. The seismic load effects shall include overstrength in accordance with ASCE/SEI 7-10 with Supplement 1 or ASCE/SEI 7-16.

**3.3.1.5** The tail of the cable shall extend a minimum of 2 inches (51 mm) beyond the GS fastener. This is to account for the small displacement the cable experiences when loaded as it seats against the internal mechanism of the GS fastener, as well as to accommodate any future adjustment.

**3.3.1.6** Nuts and washers are required at all bracket connections that are at the structure or to the component. Standard round washers shall be installed at all the bracket attachments.

**3.3.2** Figures 1, 7, and 8 of this report provide additional installation details.

**3.3.3** Installation of the Gripple Fast Trak Seismic Bracket shall be in accordance with the applicable code, the manufacturer's published installation instructions, and this

report. A copy of this evaluation report shall be available on the job site for quality control purposes during construction.

**3.3.3.1** Figures 9, 10, 11, and 12, and Table 8 of this report provide additional installation details.

**3.4 Special Inspection:** Periodic Special Inspections for the installation of all seismic cable restraints used for seismic resistance shall comply with the applicable requirements in Section 1705.1 of the IBC and either Section 1705.13.6 of the 2021 IBC, Section 1705.12.6 of the 2018, 2015, and 2012 IBC, or Section 1707.7 of the 2009 IBC. Certificates of compliance for the seismic qualification shall be submitted to the building official as specified in Section 1708.4 of the 2009 IBC, Section 1705.14.2 of the 2021 IBC, Section 1705.13.2 of the 2018, 2015, and 2012 IBC, or Section 1707.1 of the 2009 IBC.

### 4.0 PRODUCT DESCRIPTION

**4.1 General:** The Gripple Seismic Bracing System is comprised of tension-only seismic restraints made from steel wire ropes or cables and fittings, as permitted by Appendix E of ASCE/SEI 19. The Gripple Seismic Cable Bracing Systems described in this report are available in four different component combinations.

**4.1.1 GS10:** The GS10 Gripple Seismic Cable Kit consists of a device constructed from a  ${}^{5}/{}_{64}$ -inch (1.9 mm) diameter cable and GS10 fastener sized to match the  ${}^{5}/{}_{64}$ -inch (1.9 mm) diameter cable. The cables are available in lengths of 10 feet (3.05 m), 15 feet (4.6 m), and 20 feet (6.1 m). The design strength of the kit is provided in Table 1 of this report.

The cable is attached to the structure using either a GSE4 Eyelet for <sup>3</sup>/<sub>8</sub>-inch (10 mm) rods or anchors, or GSS4 & GSS5 Standard Brackets. Nuts and washers are required at bracket connection.

The cable is attached to the equipment or struts using either a GSE4 Eyelet for <sup>3</sup>/<sub>8</sub>-inch (10 mm) rods or anchors, or GSS4 & GSS5 Standard Brackets (or GSR4 & GSR5 Retrofit Brackets). Nuts and washers are required at bracket connection.

A pre-assembled colored tag shall be included as described in Section 4.2.6 of this report. Figure 1 of this report illustrates the GS10 Gripple Seismic Cable Kit.

**4.1.2 GS12:** The GS12 Gripple Seismic Cable Kit consists of a device constructed from a  $\frac{1}{8}$ -inch (3.2 mm) diameter cable and GS12 fasteners sized to match the  $\frac{1}{8}$ -inch (3.2 mm) diameter cable. The cables are available in lengths of 10 feet (3.05 m), 15 feet (4.6 m), and 20 feet (6.1 m). The design strength of the kit is provided in Table 1 of this report.

The cable is attached to the structure using a GSE4 Eyelet for  $\frac{3}{8}$ -inch (10 mm) rod or anchors, or GSS4 & GSS5 Standard



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Brackets. Nuts and washers are required at bracket connection.

The cable is attached to the equipment or struts using either a GSE4 Eyelet for <sup>3</sup>/<sub>8</sub>-inch (10 mm) rods or anchors, or GSS4 & GSS5 Standard Brackets (or GSR4 & GSR5 Retrofit Bracket). Nuts and washers are required at bracket connection.

A pre-assembled colored tag shall be included as described in Section 4.2.6 of this report. Figure 1 of this report illustrates the GS12 Gripple Seismic Cable Kit.

**4.1.3 GS19:** The GS19 Gripple Seismic Cable Kit consists of a device constructed from a  ${}^{3}/{}_{16}$ -inch (4.8 mm) diameter cable and GS19 fastener sized to match the  ${}^{3}/{}_{16}$ -inch (4.8 mm) diameter cable. The cables are available in lengths of 10 feet (3.05 m), 15 feet (4.6 m), and 20 feet (6.1 m). The design strength of the kit is provided in Table 1 of this report.

The cable is attached to the structure using GSS4, GSS5, GSS6, GSS8 Standard Brackets. Nuts and washers are required at bracket connection.

The cable is attached to equipment or strut using either GSS4, GSS5, GSS6, GSS8 Standard Brackets (or GSR4, GSR5, GSR6, and GSR8 Retrofit Brackets). Nuts and washers are required at the bracket connection.

A pre-assembled colored tag shall be included as described in Section 4.2.6 of this report. Figure 1 of this report illustrates the GS19 Gripple Seismic Cable Kit.

**4.1.4 GS25:** The GS25 Gripple Seismic Cable Kit consists of a device constructed from a  $\frac{1}{4}$ -inch (6.4 mm) diameter cable and GS25 fastener sized to match the  $\frac{1}{4}$ -inch (6.4 mm) diameter cable. The cables are available in lengths of 10 feet (3.05 m), 15 feet (4.6 m), and 20 feet (6.1 m). The design strength of the kit is provided in Table 1 of this report.

The cable is attached to the structure using double-stacked GSS6, GSS8, GSS10 Standard Brackets. Nuts and washers are required at bracket connection.

The cable is attached to the equipment or strut using either double-stacked GSS6, GSS8, GSS10 Standard Brackets (or double-stacked GSR6, GSR8, and GSR10 Retrofit Brackets). Nuts and washers are required at bracket connection.

A pre-assembled colored tag shall be included as described in Section 4.2.6 of this report. Figure 1 of this report illustrates the GS25 Gripple Seismic Cable Kit.

#### 4.2 Materials

**4.2.1** Cable: Steel cable and wire rope have steel cores that conform with Table 7 of ASTM A1023 or EN12385-4 and all applicable requirements in Appendix E of ASCE 19. Wire

shall be galvanized in accordance with ASTM A1007 or EN 10244-2.

**4.2.2 End Fittings and Intermediate Fittings:** Fittings and cable assemblies were tested in accordance with Section 5.3 of IAPMO UES EC-037. End fittings are composed of either Gripple Seismic Eyelets (GSE) or Gripple Seismic Standard (GSS) Brackets.

**4.2.2.1 The Gripple Seismic Eyelets (GSE) Bracket Fitting:** The GSE bracket fitting is formed from mild steel that has zinc electrodeposited complying with ASTM B633 SC1. Table 2 and Figure 2 of this report provide dimensions and illustration details.

**4.2.2.2** The Gripple Seismic Standard (GSS) Bracket Fitting: The GSS bracket fitting is pre-attached to the cable via a zinc-plated copper ferrule and conforms to AISI 1050 steel minimum UTS 725 MPA. Table 3 and Figure 3 of this report provide dimensions and illustration details.

**4.2.3 Standard Loose Brackets:** The standard brackets are formed from mild steel that has zinc electrodeposited complying with ASTM B633 SC1. Table 3 and Figure 3 of this report provide dimensions and illustration details.

**4.2.4 Retrofit Loose Brackets:** The retrofit brackets are formed from mild steel that has zinc electrodeposited complying with ASTM B633 SC1. Table 4 and Figure 4 of this report provide dimensions and illustration details.

**4.2.5** Seismic Fasteners: The seismic fasteners are made from Type ZA2 zinc alloy. Table 5 and Figure 5 of this report provide dimensions and illustration details.

**4.2.6** Color-Coded Tags: The color-coded tags are preassembled for attaching to each length of the cable and field verification of cable diameter: GS10=Red; GS12=Green; GS19=Yellow and GS25=Purple. Figure 6 of this report provides an illustration detail.

**4.2.7 Bolts/Rods:** At a minimum, bolts or rods shall comply with ASTM A325 steel. Bolt or rod diameters are specified in Table 1 of this report.

**4.2.8 Gripple Fast Trak Seismic Bracket Accessory:** The Gripple Fast Trak Seismic Bracket Accessory and components are made from the materials described in Table 6 of this report. The bracket is made specifically for seismically bracing the installations using the Gripple Fast Trak Suspension System as recognized in ESR-4622 and <u>UEL-5030</u>. Figures 9, 10, and 11 of this report show illustrations for seismic bracing of the Gripple Fast Trak

Suspension System using the bracket accessory and the Gripple GS Seismic Bracing Kits described in Sections 4.1.1 through 4.1.4 of this report. Table 6 and Figure 12 of this report show the dimensions and material specifications of the

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bracket and components. LRFD Strengths of the Gripple Fast Trak Seismic Bracket are shown in Table 7 of this report.

### **5.0 IDENTIFICATION**

Gripple Seismic Bracing Systems are packaged to include labels with the necessary provisions to ensure the correct field identification of wire rope size and seismic cable restraint assembly design strength associated with that model. Gripple Seismic kits include identification tags that shall be attached to the cable. These tags are color-coded to the design strength of that specific seismic bracing kit. The identification marks, the evaluation report number (ER-577), and other identification methods shall be included in the product labels. The IAPMO Uniform Evaluation Service Mark of Conformity may also be used as shown below:



**IAPMO UES ER-577** 

### 6.0 SUBSTANTIATING DATA

**6.1** Data in accordance with the IAPMO Uniform Evaluation Service Evaluation Criteria EC 037, Evaluation Criteria for Seismic Cable Restraints, editorially revised July 2021.

**6.2** Test reports are from laboratories in compliance with ISO/IEC 17025.

### 7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research completed by IAPMO Uniform Evaluation Service on Gripple Seismic Bracing Systems to assess conformance to the codes shown in Section 1.0 of this report and serves as documentation of the product certification. Gripple Seismic Bracing and Gripple Fast Track Seismic Brackets are manufactured at the locations noted in Sections 2.8 and 2.9 of this report under a quality control program with periodic inspection under the supervision of IAPMO UES.



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TABLE 1 – Gripple Seismic Cable Bracing System						
Gripple Seismic Kit	Cable Orientation <sup>1</sup>	Gripple Seismic Bracket	Bolt/Rod/ Structural Attachment Diameter Size (inch) <sup>3,4</sup>	Minimum Washer Requirements	ASD (lbs.) <sup>6,7</sup>	LRFD (lbs.) <sup>6,7</sup>
		GSE4	3/8	Standard		
	20.60	GSS4	3⁄8	Standard		
GS10	30-00	GSS5	1/2	Standard	270	400
	degrees	GSR4	3⁄8	Standard		
		GSR5	1/2	Standard		
		GSE4	3⁄8	Standard		945
	30-60 degrees	GSS4	3⁄8	Standard	630	
GS 12		GSS5	1/2	Standard		
		GSR4	3/8	Standard		
		GSR5	1/2	Standard		
	30-60	GSS4	3/8	Standard	-	2.265
		GSS5	1/2	Standard		
		GSS6	5/8	Standard		
CS10		GSS8	3⁄4	Standard	1 5 1 5	
0519	degrees	GSR4	3/8	Standard	1,313	2,203
		GSR5	1/2	Standard		
		GSR6	5/8	Standard		
		GSR8	3⁄4	Standard		
		GSS6	5/8	Standard		
		GSS8	3/4	Standard		
	30-60	GSS10	1	Standard		
GS25	Degrees	GSR6	5/8	Standard	2,390	3,570
		GSR8	3/4	Standard	7	
		GSR10	1	Standard		

For SI: 1 inch = 25.4 mm, 1lbf=4.45 N

<sup>1</sup> Orientation is the brace angle, as measured from the horizontal. The permitted installation angle for the Gripple Seismic Brace System ranges from 30° to 60°.

<sup>2</sup> Seismic brackets are named using the following conventions: E=eyelet, S=standard bracket, R=retrofit bracket.

<sup>3</sup> The capacity of the vertical rod or component attachment shall be designed by the applicable nonstructural component registered design professional.

<sup>4</sup> The capacity of the structural attachment may be used with anchors compliant with an approved evaluation report, or in compliance with the applicable building codes and shall be designed by the applicable nonstructural component registered design professional.

<sup>5</sup> The Gripple Seismic Bracing System for allowable stress design (ASD) or load resistance factor design (LRFD) represents the lowest capacity based on established deformation and force requirements for all Gripple Seismic components (cable, brackets, fittings, and fasteners) based on testing in accordance with Sections 5.3 and 5.4 of EC 037.

<sup>6</sup> The Gripple Seismic Bracing System capacity for allowable stress design (ASD) or load resistance factor design (LRFD) is to be used with the seismic demands using the applicable code provisions of IBC, IRC, and ASCE/SEI 7.

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FIGURE 1: Gripple Seismic Kit Typical Installation



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TABLE 2: Gripple Seismic Eyelet Component Details					
Eyelet Size	Dimensions				
	Α	В	С	D	Е
GSE4	1 in	$1^{29}/_{32}$ in	<sup>53</sup> / <sub>64</sub> in	<sup>7</sup> / <sub>16</sub> in	1/8 in

For SI: 1 inch = 25.4 mm



FIGURE 2: Gripple Seismic Eyelet Detail

TABLE 3: Gripple Seismic Standard Loose Bracket Component Details						
Standard Bracket Size		Dimensions				
	Α	В	С	D	Е	
GSS4	<sup>25</sup> / <sub>32</sub> in	1 <sup>9</sup> / <sub>16</sub> in	$1^{9}/_{16}$ in	<sup>7</sup> / <sub>16</sub> in	<sup>5</sup> / <sub>32</sub> in	
GSS5	<sup>13</sup> / <sub>16</sub> in	1 <sup>9</sup> / <sub>16</sub> in	$1^{21}/_{32}$ in	<sup>9</sup> / <sub>16</sub> in	<sup>5</sup> / <sub>32</sub> in	
GSS6	<sup>13</sup> / <sub>16</sub> in	1 <sup>9</sup> / <sub>16</sub> in	$1^{21}/_{32}$ in	<sup>11</sup> / <sub>16</sub> in	<sup>5</sup> / <sub>32</sub> in	
GSS8	1 in	$1^{31}/_{32}$ in	$1^{31}/_{32}$ in	<sup>13</sup> / <sub>16</sub> in	<sup>5</sup> / <sub>32</sub> in	
GSS10	$1^{1}/_{16}$ in	$1^{31}/_{32}$ in	$1^{31}/_{32}$ in	11/8 in	<sup>5</sup> / <sub>32</sub> in	

For SI: 1 inch = 25.4 mm; Tolerance = +/-0.2 in (5 mm)



FIGURE 3: Gripple Seismic Standard Loose Bracket Detail



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TABLE 4: Gripple Seismic Retrofit Bracket Component Details							
Standard Bracket Size		Dimensions					
	А	В	С	D	Е	F	G
GSR4	$3-^{45}/_{64}$ in	$2-9/_{16}$ in	$1 - \frac{31}{32}$ in	<sup>7</sup> / <sub>16</sub> in	$1 - \frac{1}{16}$ in	<sup>45</sup> / <sub>64</sub> in	1⁄4 in
GSR5	3-3/4 in	4-5/8 in	$1 - \frac{31}{32}$ in	<sup>9</sup> / <sub>16</sub> in	$1 - \frac{5}{16}$ in	<sup>45</sup> / <sub>64</sub> in	1⁄4 in
GSR6	3-3/4 in	4-5/8 in	$1 - \frac{31}{32}$ in	$^{11}/_{16}$ in	$1 - \frac{3}{16}$ in	<sup>45</sup> / <sub>64</sub> in	1⁄4 in
GSR8	$4^{-9}_{64}$ in	$3 - \frac{1}{16}$ in	2-1/4 in	<sup>13</sup> / <sub>16</sub> in	$1 - \frac{13}{32}$ in	<sup>55</sup> / <sub>64</sub> in	1⁄4 in
GSR10	$4^{-9}/_{16}$ in	$3-5/_{16}$ in	$2^{-7}/_{16}$ in	1-1/8 in	$1 - \frac{17}{32}$ in	<sup>29</sup> / <sub>32</sub> in	1/4 in

For SI: 1 inch = 25.4 mm; Tolerance = +/-0.2 in (5 mm)



### FIGURE 4: Gripple Seismic Retrofit Loose Bracket Detail

TABLE 5: Gripple Cable Fastener Component Details					
<b>D</b> C:		Cable			
Brace Size	A B		С	Construction	
GS10 ( <sup>1</sup> / <sub>16</sub> -inch cable)	1 <sup>9</sup> / <sub>64</sub> in	$2^{15}/_{16}$ in	<sup>33</sup> / <sub>64</sub> in	7 x 7	
GS12 ( <sup>1</sup> / <sub>8</sub> -inch cable)	1 <sup>9</sup> / <sub>64</sub> in	3¼ in	<sup>35</sup> / <sub>64</sub> in	7 x 7	
GS19 ( $^{3}/_{16}$ -inch cable	1 <sup>11</sup> / <sub>32</sub> in	3¾ in	<sup>9</sup> / <sub>16</sub> in	7 x 19	
GS25 (¼-inch cable)	$1^{23}/_{32}$ in	$4^{21}/_{32}$ in	<sup>11</sup> / <sub>16</sub> in	7 x 19	

For SI: 1 inch = 25.4 mm; Tolerance = +/-0.2 in (5 mm)



FIGURE 5: Gripple Cable Fastener Detail





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Kit				
	GS10	GS12	GS19	GS25
Tag Color	Red	Green	Yellow	Purple
Design Strength (LRFD*)	400 lbf	945 lbf	2,265 lbf	3,570 lbf

FIGURE 6: Color-Coded Tag Detail

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spring isolated equipment, leave 1/8" visible sag

in the cable.

FIGURE 7: Gripple Seismic Fastener Installation Details





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FIGURE 8: Gripple Seismic Retrofit Bracket (GSR) Installation



FIGURE 9: Transverse Seismic Bracing of Gripple Fast Trak using Fast Trak-Seismic Bracket Accessory



FIGURE 10: Longitudinal Seismic Bracing of Gripple Fast Trak using Fast Trak-Seismic Bracket Accessory



FIGURE 11: 4-Way Transverse + Longitudinal Seismic Bracing of Gripple Fast Trak using Fast Trak-Seismic Bracket Accessory



FIGURE 12: Gripple Fast Trak-Seismic Bracket Accessory Components



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TABLE 6: Gripple Fast Trak Seismic Bracket Description and Material Properties					
Part No. Size (inches) Description		Material Properties			
1	3/8" – 16	Nyloc Lock Nut	ASME B18.16.6 Grade N2		
2	3/8" – 16	Channel Nut	ASTM A576 Grade 1015		
3	0.154" thick	FT3 Seismic Bracket	Low Carbon Steel BS EN 10025-2 S275		
4	3/8" – 16 x 1"	Hex Bolts	SAE 1035 Grade 5		
5	3/8" – 16 x 3"	Carriage Bolt	ASTM A307 Grade A		

For SI: 1 inch = 25.4 mm

TABLE 7: LRFD Strengths for Gripple Fast Trak Seismic Bracket Accessory						
Brace Angle <sup>1</sup> (degree)	Bracket LRFD Strength in the Direction of Brace <sup>2,3</sup> (lbf)	Bracket LRFD Strength Expressed as Lateral Seismic Force Fp <sup>2,4</sup> (lbf)	Minimum Required Column Loading Capacity of Strut (LRFD) (lbf) <sup>2,5</sup>			
30	1,517	1,314	759			
45	1,782	1,260	1,260			
60	1,698	849	1,471			

For **SI**: 1 lbf = 4.45 N

Notes:

1. Orientation is the brace angle, as measured from the horizontal as shown in Figure 1 of this report.

2. Divide the LRFD strength values by 1.5 to convert them into ASD.

3. Bracket Strengths are based on a reduction factor of (  $\phi$ = 0.7) as prescribed by the ANSI/FM 1950 Standard.

4. The registered design professional shall verify the capacity of the horizontal member connection with the Fast Trak Seismic Bracket Accessory meets or exceeds the lateral seismic load (F<sub>p</sub>).

5. The registered design professional shall select an appropriate strut channel that meets the minimum required column loading capacity depending on the length of the strut channel used.



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	TABLE 8: Installation Instructions for Fast Trak Seismic Bracket Accessory					
Step No.	(conti Description	nued on next two pages) Illustration				
1	Install Gripple Fast Trak Suspension System according to the manufacturer's published installation instructions and ESR-4622 and <u>UEL-</u> <u>5030</u> .					
2	Insert the Fast Trak Seismic Bracket Accessory on the Fast Trak Bracket and secure using carriage bolts.					



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3	Insert the cold-formed channel (Unistrut P1000, Cooper B-Line B22 or equivalent), inside the Fast Trak Seismic Bracket Accessory as shown.	
4	Align the channel with the structural support where the Gripple Fast Trak Suspension System is anchored, and secure the channel using the provided 3/8-inch Hex Bolts and Channel Nuts With a tightening torque of 36 lb-ft (50 N-m.)	to Nm

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# **CALIFORNIA SUPPLEMENT**

GRIPPLE, INC. 1611 Emily Lane Aurora, IL 60502 (901) 417-3048 www.gripple.com

### **GRIPPLE SEISMIC BRACING SYSTEMS**

**CSI Section:** 

05 15 00 Wire Rope Assemblies

### 1.0 RECOGNITION

Gripple Seismic Bracing Systems described in ER-577 and this supplemental report have been evaluated for use in tension-only seismic cable restraints for nonstructural components and systems. Gripple Seismic Bracing Systems have been evaluated for structural performance properties, subject to the requirements in ER-577 and this supplemental report. Gripple Seismic Bracing Systems were evaluated for compliance with the following codes and regulations:

- 2022 and 2019 California Building Code (CBC)
- 2022 and 2019 California Residential Code (CRC)

#### **2.0 LIMITATIONS**

Use of the Gripple Seismic Bracing Systems recognized in this supplement is subject to the following limitations in addition to the limitations shown in ER-577:

**2.1** The design and installation of the Gripple Seismic Bracing Systems shall be in accordance with the 2021 or 2018 International Building Codes, and 2021 or 2018 International Residential Codes as noted in ER-577.

**2.2** Use and installation shall be in accordance with ER-577, the manufacturer's published installation instructions, and the California Building Code and Residential Code, as applicable. A copy of the manufacturer's installation instructions shall be available on-site for the building official. Where conflicts occur, the more restrictive shall govern.

**2.3** Prior to installation, calculations and details demonstrating compliance with ER-577 and the 2022 or 2019 CBC or 2022 or 2019 CRC shall be submitted to the plan check engineer for review and approval. The calculations and details shall be prepared by a registered design professional, licensed by the State of California.

**2.4** Periodic Special Inspections for the installation of all seismic cable restraints used for seismic resistance shall comply with the applicable requirements in Section 1705.1 of the 2022 or 2019 CBC, and either Section 1705.13.6 of the 2022 CBC, or Section 1705.12.6 of the 2019 CBC and shall be conducted by the building official. Certificates of compliance for the seismic qualification shall be submitted to the building official as specified in Section 1704.5 of the 2022 CBC, or Section 1705.13.2 of the 2019 CBC. A statement of special inspections shall be prepared by the registered design professional in responsible charge and submitted to the building official as set forth in Sections 1704.3.1 and 1704.3.2 of the CBC.

**2.5** For applications regulated by DSA or OSHPD, The Gripple Seismic Bracing Systems shall comply with the Periodic Special Inspections Sections 1704A.5, 1705A.1 of the 2022 or 2019 CBC, and either Section 1705A.14.2 of the 2022 CBC, or Section 1705A.13.2 of the 2019 CBC.

**2.6** For applications regulated by DSA or OSHPD, the Gripple Seismic Bracing Systems shall comply with the modifications to ASCE 7 in Sections 1613.1, 1613A.1, 1617.11.15, 1617.11.19, 1617A.1.17, 1617A.1.18, and 1617A.1.26 of the CBC.

**2.7** For application regulated by OSHPD, the Gripple Seismic Bracing Systems shall comply with Section 1613.4 of the CBC.

2.8 This supplement expires concurrently with ER-577.



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# CITY OF LOS ANGELES SUPPLEMENT

GRIPPLE, INC. 1611 Emily Lane Aurora, IL 60502 (901) 417-3048 www.gripple.com

# **GRIPPLE SEISMIC BRACING SYSTEMS**

**CSI Section:** 

### 05 15 00 Wire Rope Assemblies

### 1.0 RECOGNITION

Gripple Seismic Bracing Systems described in ER-577 and this supplemental report have been evaluated for use in tension-only seismic cable restraints for nonstructural components and systems. Gripple Seismic Bracing Systems have been evaluated for structural performance properties, subject to the requirements in ER-577 and this supplemental report. Gripple Seismic Bracing Systems were evaluated for compliance with the following codes and regulations:

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

### 2.0 LIMITATIONS

Use of the Gripple Seismic Bracing Systems recognized in this supplement is subject to the following limitations in addition to the limitations shown in ER-577:

**2.1** Use and installation shall be in accordance with ER-577, the manufacturer's published installation instructions, and the City of Los Angeles Building Code and Residential Code, as applicable. A copy of the manufacturer's installation instructions shall be available on-site for Registered Deputy Inspectors. Where conflicts occur, the more restrictive shall govern.

**2.2** The Gripple Seismic Bracing Systems shall comply with the provisions in the California Supplement of ER-577 applicable to the 2022 CBC and CRC for use under the 2023 LABC and LARC, respectively.

**2.3** Prior to installation, calculations, and details demonstrating compliance with ER-577 and the 2023 LABC or 2023 LARC shall be submitted to the structural plan check section for review and approval. The calculations and details shall be prepared, stamped, and signed by a California registered design professional.

**2.4** The design, installation, and inspection of the Gripple Seismic Bracing Systems shall be in accordance with Chapters 16 and 17 of the LABC, as applicable, due to local amendments to these chapters.

**2.5** Periodic Special Inspections for the installation of all seismic cable restraints used for seismic resistance shall comply with the applicable requirements in Sections 1705.1 and 1705.13.6 of the 2023 LABC and shall be conducted by a Registered Deputy Inspector. Certificates of compliance for the seismic qualification shall be submitted to the building official as specified in Sections 1704.5 and 1705.14.2 of the 2023 LABC. A statement of special inspections shall be prepared by the registered design professional in responsible charge and submitted to the building official as set forth in Sections 1704.3.1 and 1704.3.2 of the 2023 LABC.

2.6 This supplement expires concurrently with ER-577.



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# **FLORIDA SUPPLEMENT**

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### **GRIPPLE SEISMIC BRACING SYSTEMS**

**CSI Section:** 05 15 00 Wire Rope Assemblies

### **1.0 RECOGNITION**

Gripple Seismic Bracing Systems described in ER-577 and this supplemental report have been evaluated for use in tension-only seismic cable restraints for nonstructural components and systems. The structural performance properties of the Gripple Seismic Bracing Systems were evaluated for compliance with the following codes and regulations:

- 2020 Florida Building Code, Building (FBC-Building)
- 2020 Florida Residential Code, Residential (FBC-Residential)

#### LIMITATIONS 2.0

Use of the Gripple Seismic Bracing Systems recognized in this supplement is subject to the following limitations in addition to the limitations shown in ER-577:

2.1 The design and installation of the Gripple Seismic Bracing Systems shall be in accordance with the 2018 International Building Code and 2018 International Residential Code as noted in ER-577.

2.2 The use of the Gripple Seismic Bracing Systems recognized with the High-velocity Hurricane Zone (HVHZ) is beyond the scope of this report.

2.3 Use and installation shall be in accordance with ER-577, the manufacturer's published installation instructions, and the Florida Building Code, Building and Residential Codes, as applicable. A copy of the manufacturer's installation instructions shall be available on-site during installation. Where conflicts occur, the more restrictive shall govern.

2.4 For products falling under Section (5)(d) of Florida Rule 61G20-3.008, verification is required that the report holder's quality assurance program is audited by a quality assurance entity, approved by the Florida Building Commission (or the building official when the report holder does not possess an approval by the Commission) is required to provide oversight and determine that the products are being manufactured as described in this evaluation report to establish continual product performance.

**2.5** This supplement expires concurrently with ER-577.



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# **CITY OF NEW YORK SUPPLEMENT**

GRIPPLE, INC. 1611 Emily Lane Aurora, IL 60502 (901) 417-3048 www.gripple.com

# **GRIPPLE SEISMIC BRACING SYSTEMS**

CSI Section: 05 15 00 Wire Rope Assemblies

### **1.0 RECOGNITION**

Gripple Seismic Bracing Systems described in ER-577 and this supplemental report have been evaluated for use in tension-only seismic cable restraints for nonstructural components and systems. The structural performance properties of the Gripple Seismic Bracing Systems were evaluated for compliance with the following codes and regulations:

• 2022 and 2014 New York City Building Code (NYCBC)

#### 2.0 LIMITATIONS

Use of the Gripple Seismic Bracing Systems recognized in this supplement is subject to the following limitations in addition to the limitations shown in ER-577:

**2.1** The design and installation of the Gripple Seismic Bracing Systems shall be in accordance with the 2015 or 2009 International Building Code as noted in ER-577.

**2.2** Use and installation shall be in accordance with ER-577, the manufacturer's published installation instructions, and the New York City Building Code, as applicable. A copy of the manufacturer's installation instructions shall be available onsite during installation. Where conflicts occur, the more restrictive shall govern.

**2.3** Special Inspections are required in accordance with Section 1705.1 of the 2022 New York City Building Code. Certificates of compliance for the seismic qualification shall be submitted to the building official as specified in Section 1705.13.2 of the 2022 New York City Building Code.

2.4 This supplement expires concurrently with ER-577.



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# **NEW YORK STATE SUPPLEMENT**

**GRIPPLE, INC.** 1611 Emily Lane Aurora, IL 60502 (901) 417-3048 www.gripple.com

# **GRIPPLE SEISMIC BRACING SYSTEMS**

**CSI Section:** 

05 15 00 Wire Rope Assemblies

### **1.0 RECOGNITION**

Gripple Seismic Bracing Systems described in ER-577 and this supplemental report have been evaluated for use in tension-only seismic cable restraints for nonstructural components and systems. The structural performance properties of the Gripple Seismic Bracing Systems were evaluated for compliance with the following codes and regulations:

• 2020 Building Code of New York State

#### 2.0 LIMITATIONS

Use of the Gripple Seismic Bracing Systems recognized in this supplement is subject to the following limitations in addition to the limitations shown in ER-577:

2.1 The design and installation of the Gripple Seismic Bracing Systems shall be in accordance with the 2018 International Building Code as noted in ER-577.

**2.2** Use and installation shall be in accordance with ER-577, the manufacturer's published installation instructions, and the Building Code of New York State, as applicable. A copy of the manufacturer's installation instructions shall be available on-site during installation. Where conflicts occur, the more restrictive shall govern.

2.3 Special Inspections are required in accordance with Section 1705.1 of the Building Code of New York State. Certificates of compliance for the seismic qualification shall be submitted to the building official as specified in Section 1705.13.2 of the Building Code of New York State. A statement of special inspections shall be prepared by the registered design professional in responsible charge and submitted to the building official as set forth in Sections 1704.3.1 and 1704.3.2 of the Building Code of New York State.

**2.4** This supplement expires concurrently with ER-577.

For additional information about this evaluation report please visit www.uniform-es.org or email at info@uniform-es.org



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# CITY OF CHICAGO SUPPLEMENT

GRIPPLE, INC. 1611 Emily Lane Aurora, IL 60502 (901) 417-3048 www.gripple.com

# **GRIPPLE SEISMIC BRACING SYSTEMS**

CSI Section: 05 15 00 W

05 15 00 Wire Rope Assemblies

### **1.0 RECOGNITION**

Gripple Seismic Bracing Systems described in ER-577 and this supplemental report have been evaluated for use in tension-only seismic cable restraints for nonstructural components and systems. The structural performance properties of the Gripple Seismic Bracing Systems were evaluated for compliance with the following codes and regulations:

• 2019 Chicago Building Code (Title 14B)

### 2.0 LIMITATIONS

Use of the Gripple Seismic Bracing Systems recognized in this supplement is subject to the following limitations in addition to the limitations shown in ER-577:

**2.1** The design, installation, and inspection of the Gripple Seismic Bracing Systems shall be in accordance with the 2018 International Building Code, as noted in ER-577.

**2.2** Use and installation shall be in accordance with ER-577, the manufacturer's published installation instructions, and the Chicago Building Code, as applicable. A copy of the manufacturer's installation instructions shall be available onsite during installation. Where conflicts occur, the more restrictive shall govern.

**2.3** Special Inspections are required in accordance with Section 1705.1 of the Chicago Building Code. Certificates of compliance for the seismic qualification shall be submitted to the building official as specified in Section 1705.13.2 of the Chicago Building Code. A statement of special inspections shall be prepared by the registered design professional in responsible charge and submitted to the building official as set forth in Sections 1704.3.1 and 1704.3.2 of the Chicago Building Code.

2.4 This supplement expires concurrently with ER-577.



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# **ST. LOUIS COUNTY SUPPLEMENT**

**GRIPPLE, INC.** 1611 Emily Lane Aurora, IL 60502 (901) 417-3048 www.gripple.com

# **GRIPPLE SEISMIC BRACING SYSTEMS**

**CSI Section:** 

05 15 00 Wire Rope Assemblies

### **1.0 RECOGNITION**

Gripple Seismic Bracing Systems described in ER-577 and this supplemental report have been evaluated for use in tension-only seismic cable restraints for nonstructural components and systems. Gripple Seismic Bracing Systems have been evaluated for structural performance properties, subject to the requirements in ER-577 and this supplemental report. Gripple Seismic Bracing Systems were evaluated for compliance with the following codes and regulations:

2020 St. Louis County Building Code ٠

#### 2.0 LIMITATIONS

Use of the Gripple Seismic Bracing Systems recognized in this supplement is subject to the following limitations in addition to the limitations shown in ER-577:

2.1 The design, installation, and inspection of the Gripple Seismic Bracing Systems shall be in accordance with the 2015 International Building Code, as noted in ER-577.

2.2 Use and installation shall be in accordance with ER-577, the manufacturer's published installation instructions, and the St. Louis County Building Code, as applicable. A copy of the manufacturer's installation instructions shall be available on-site during installation. Where conflicts occur, the more restrictive shall govern.

2.3 Anchorage and sway bracing of the Gripple Seismic Bracing Systems shall not be installed until the St. Louis County has approved the subsequent submissions of the sway bracing and anchorage details as set forth in Section 3.1 of the St. Louis County Building Code.

**2.4** The earthquake spectral response acceleration parameters for Section 4.1 of the St. Louis County are: earthquake spectral response acceleration at short periods Ss=0.48 and earthquake spectral response acceleration at 1-second periods  $S_1=0.18$  regardless of the locations of the project within the county.

2.5 The design of the Gripple Seismic Bracing Systems shall be used using the design tables in Section 4.2 of the St. Louis County Building Code, as applicable.

**2.6** Installation requirements of the Gripple Seismic Bracing Systems shall adhere to Section 5.1 of the St. Louis County Building Code, as applicable.

2.7 The location and spacing of the Gripple Seismic Bracing Systems shall adhere to Section 5.2 of the St. Louis County Building Code, as applicable.

2.8 This supplement expires concurrently with ER-577.



EVALUATION REPORT

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# **MISSOURI STATE SUPPLEMENT**

**GRIPPLE, INC.** 1611 Emily Lane Aurora, IL 60502 (901) 417-3048 www.gripple.com

## **GRIPPLE SEISMIC BRACING SYSTEMS**

**CSI Section:** 05 15 00 Wire Rope Assemblies

### **1.0 RECOGNITION**

Gripple Seismic Bracing Systems described in ER-577 and this supplemental report have been evaluated for use in tension-only seismic cable restraints for nonstructural components and systems. Gripple Seismic Bracing Systems have been evaluated for structural performance properties, subject to the requirements in ER-577 and this supplemental report. Gripple Seismic Bracing Systems were evaluated for compliance with the following codes and regulations:

2018 Missouri Building Code

#### 2.0 LIMITATIONS

Use of the Gripple Seismic Bracing Systems recognized in this supplement is subject to the following limitations in addition to the limitations shown in ER-577:

2.1 The design, installation, and inspection of the Gripple Seismic Bracing Systems shall be in accordance with the 2018 International Building Code, as noted in ER-577.

**2.2** Use and installation shall be in accordance with ER-577, the manufacturer's published installation instructions, and the Missouri Building Code, as applicable. A copy of the manufacturer's installation instructions shall be available onsite during installation. Where conflicts occur, the more restrictive shall govern.

2.3 Periodic Special Inspections for the installation of all seismic cable restraints used for seismic resistance shall comply with the applicable requirements in Sections 1705.1 and 1705.12.6 of the 2018 Missouri Building Code and shall be conducted by the building official. Certificates of compliance for the seismic qualification shall be submitted to the building official as specified in Sections 1704.5 and 1705.13.2 of the 2018 Missouri Building Code. A statement of special inspections shall be prepared by the registered design professional in responsible charge and submitted to the building official as set forth in Sections 1704.3.1 and 1704.3.2 of the 2018 Missouri Building Code.

2.4 This supplement expires concurrently with ER-577.