Product Evaluation Report

PER-06014

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Progressive Engineering Inc.

Initial Listing	Re-Approved		
September, 2006	February, 2012	58640 State Road 15 Goshen, Indiana 46528	574-533-0337 www.p-e-i.com

Listed Product

VersaPin Gripshank® & Helical® Pneumatic Fasteners

Listed For

Aerosmith Fastening Systems

5621 Dividend Road
Indianapolis, IN 46241

Progressive Engineering Inc. is an accredited Testing Laboratory and Third Party Quality Control Agency. This **Product Evaluation Report** represents a product that *Pei* has a follow-up service agreement with. This **Product Evaluation Report** in no way implies warranty for this product or relieves **Aerosmith Fastening Systems** of their liabilities for this product. *Pei* is accredited to ISO Standard 17020 and 17025. This **PER** is an official document if it is within one year of the initial or renewal date.

Product Manufacturing

The VersaPin Gripshank® and Helical® Fasteners are manufactured by independent companies. Any company manufacturing product for Aerosmith, that is intended to be listed by this Product Evaluation Report, has an agreement in place and has been approved and is audited quarterly by Pei.

Listing Details

VersaPin Gripshank® and Helical® Fasteners are pneumatically driven steel pins used to attach siding and sheathing materials to steel stud framing. The pins pierce the steel framing while the specially designed shank grips the steel framing. The threaded portion of the shank must penetrate completely through the stud steel thickness. Use of the fasteners in contact with preservative treated or fire retardent treated wood is not allowed.

Product Description

The VersaPin Gripshank® Fasteners are manufactured from AISI C 1060 steel, heat treated to a Rockwell C hardness between 52 and 55, have a minimum tensile strength of 240 ksi and a bending yield strength of 250 ksi. The pins are electro-zinc plated with a chromate rinse or are mechanically zinc plated ASTM B633 Type 1 SC or ASTM B695 Type 1 Class 5 or a nickel metal alloy. The plating is a minimum thickness of .0002" thick.

The VersaPin Helical® Fasteners are manufactured from AISI C 1060 steel, heat treated to a Rockwell C hardness between 52 and 55, have a minimum tensile strength of 240 ksi and a bending yield strength of 250 ksi. The pins are electro-zinc plated with a chromate rinse or are mechanically zinc plated per ASTM B633 Type 1 SC, ASTM B695 Type 1 Class 5 or a nickel metal alloy. The plating is a minimum thickness of .0002" thick.

The pins are manufactured with a nominal finished shank dia. of .100" and a nominal head dia. of .250" or .312". The shank has a proprietary thread and the point is ballistic shaped. The pins are identified by the Aerosmith logo head stamp as shown on page 4 of this Product Evaluation Report. The pins are collated for powered gun and air tool applications.

Approved Siding Material

James Hardie Building Products 5/16" Hardipanel® Vertical Siding & 5/16" Hardiplank® Lap Siding or equivalent. See ICC-ES Legacy Report NER-405. The siding is to be installed using the siding manufacturers Installation Instructions and Gripshank® Fasteners. The minimum steel thickness to be used is 20 gage.

Approved Exterior Sheathing

DensGlass Gold Exterior Sheathing 1/2" and 5/8" Fireguard Type X. See ICC-ES Legacy Report ER-4305. The sheathing is to be installed using the sheathing manufacturers Installation Instructions and **Gripshank®** Fasteners. The minimum steel thickness to be used is 22 gage.

The Sure-board Series 200 Structural Panel 5/8" or 1/2" thick Type X gypsum board adhered to 22 ga. steel, listed on ICC ES ER-6151. Aerosmith pins shall be installed in compliance with manufacturers Installation Instructions. The minimum steel thickness to be used is 20 gage.

Approved Plywood Sheathing

Plywood sheathing complying with USDC Product Standard PS-1 or PS2-92 (UBC Standards 23-2 or 23-3) Aerosmith pins shall be installed in compliance with manufacturers Installation Instructions. The minimum steel thickness to be used is 20 gage.

Approved Structural Cement Panel

Fortocrete™ 3/4" Structural Cement Panel reinforced with fiberglass strands. See ICC-ES ESR-1972 Report. The sheathing is to be installed using the sheathing manufacturers Installation Instructions and Gripshank® Fastener 2385A (0.100" x 1-1/2") only. Minimum joist thickness is 16 gage, 50 ksi.

Approved Gripshank Pins

2191Z	2381Z	2192Z	2351AG	2382Z	2501SG	2631SG	2635Z	3329R
2251Z	2501Z	2252Z	2352AG	2385AG	2502SG	2632Z	2325Z	2324Z
2351Z	2631Z	2352Z	2359Z	2389Z	2502Z	2635SBG	2325A	2385Z

Tested to

ASTM B 117 - 192 hr. Hour Salt Spray Test *(2325A Only)*
ASTM C 1513 - Specification for Steel Tapping Screws for Cold Formed Steel Framing Applications.(Provisions Apply*)
ASTM D 1037 - Fastener Withdrawal Test
ASTM E 72 - Wall Racking Test
ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Differences
ASTM E 564 - Static Load Test for Shear Resistance of Framed Walls for Buildings
ASTM E 2126-07A **-** Cyclic Load Test for Shear Resistance of Vertical Elements
AISI TS-5-052 - Test Methods for Mechanically Fastened Cold-Formed Steel Connections

Code Compliance

1997 Uniform Building Code
2003 International Residential Code
2003 International Building Code
2006 International Residential Code
2006 International Building Code
ICC-ES Report ESR-3145
2009 International Building Code
2009 International Residential Code
2012 International Building Code
2012 International Residential Code
2004 Florida Product Approval - Application FL#10162
2007 Florida Product Approval - Application FL#14885

2012 IRC

Section 301.3 - The fasteners may be used in Structures regulated under the IRC when an engineered design is submitted in accordance with Section 301.3
Section R603.2.4 - Structural sheathing shall be attached to cold-formed steel studs with a minimum No. 8 self-drilling tapping screws that conform to ASTM C1513.
Table R603.3.2(1) - Refers to No. 8 screws for structural sheathing to steel studs and the screws are to be buglehead, flat head or of a similar head style with a minimum head diameter of 0.29 inch.
Section R603.5 - Method of attachment for exterior wall covering materials to cold-formed steel stud wall framing shall conform to manufacturers installation instructions.
Section 603.9.1 - Refers to structural sheathing to consist of minimum 7/16" OSB or 15/32" Plywood.
Section R603.9.3 - Refers to specifications noted under Table R603.3.2(1) as noted above.
Section R601 - Wood structural panels must be 15/32" Exposure 1 Plywood sheathing with a minimum span rating of 32/16, complying with DOC PS-1 or 7/16" Structural 1 OSB sheathing complying with DOC PS-2 as indicated in Table R602.3(1) or R602.3(3).
Section R702.3.5 - Gypsum sheathing shall be attached to exterior walls in accordance with Table R602.3(1).
Section R703.4 - Unless specified elsewhere all wall coverings shall be securely fastened in accordance with Table R703.4

2012 IBC

Section 1405.16 Fiber Cement Siding - Unless otherwise specified in manufacturers installation instructions fasteners used to faste the siding to wood stud should be corrosion resistant round head smooth shank and long enough to penetrate the metal framing.

Section 1405.17 - Weather boarding and wall coverings to be fastened with aluminum, copper, zinc, zinc coated or *other* approved corrosion resistant fasteners in accordance with Table 2304.9.1.

Section 2505.2 - Gypsum board framed to cold formed steel framed shear walls to be constructed in accordance with Section 2211.6 for resistance to wind and seismic loads.

Section 2211.6 - Light gauge steel framing lateral force design to comply with AISI S213.

2012 IBC cont.

Table 2506.2 - Gypsum board fasteners to comply with ASTM C514, F547 or F1667.
Section 2508.1 - Installation of Gypsum construction to be in accordance with ASTM C 1280.0
Section 2508.4 - Attachment of Gypsum board to a horizontal diaphragm ceiling shall be defined in Table 2508.5.

The VersaPin **Gripshank**® Fasteners are limited to use in resisting wind and Seismic forces in this Product Evaluation Report. Fire Rated assemblies are outside of the scope of this Product Evaluation Report.

Product Documentation

VersaPin Gripshank® Fastening Guidelines for Cement Fiber Board dated August,2006
Aerosmith Installation Instructions for DensGlass Sheathing not dated
Hardie Plank & HardiPanel Installation Instructions dated December, 2005
Sure-Board Installation guide for Aerosmith pins
Densglass Gold Installation Recommendations dated 2006
A Quality Control Manual for Aerosmith Fastening Systems Dated 4/1/2011
A Quality Control Manual from each Approved Manufacturer
An agreement between Product Evaluation Report owner (Aerosmith) & each Approved Manufacturer
A follow-up Listing & Inspection agreement between ***PEI*** and **Aerosmith Fastening Systems**
A ***Pei*** test report No. 2003-784 - Fastener Withdrawal Test using **Gripshank** and **Helical** Shank Fasteners - Dated 6/9/2003 - Stamped by a professional engineer.
A ***Pei*** test report No. 2007-1149 - ASTM E72 Wall Racking Test with 19/32" APA Rated Sheathing and Aerosmith Gripshank Pins with Studs Spaced 4" o.c. - Dated 8/15/2007.
A ***Pei*** test report No. 2007-985(A) - ASTM E330 Test with 5/8" DensGlass Gold FireGuard Type X and Aerosmith Gripshank Pins with Studs Spaced 16" o.c. - Dated 9/06/07 - Stamped by a professional engineer.
A ***Pei*** test report No. 2007-985(B) - ASTM E330 Test with 5/8" DensGlass Gold FireGuard Type X and Aerosmith Gripshank Pins with Studs Spaced 16" o.c. - Dated 9/06/07 - Stamped by a professional engineer.
A ***Pei*** test report No. 2006-349(A) - ASTM E330 Test with Hardipanel® and Aerosmith Gripshank Pins with Studs Spaced 16" o.c. - Dated 2/28/2006 - Stamped by a professional engineer.
A ***Pei*** test report No. 2006-349(B) - ASTM E330 Test with Hardipanel® and Aerosmith Gripshank Pins with Studs Spaced 24" o.c. - Dated 3/1/2006 - Stamped by a professional engineer.
A ***Pei*** test report No. 2006-349(C) - ASTM E330 Test with 6-1/4" Wide Hardiplank® Face Nailed using Aerosmith Gripshank Pins - Dated 2/28/2006 - Stamped by a professional engineer.
A ***Pei*** test report No. 2006-349(D) - ASTM E330 Test with 7-1/4" Wide Hardiplank® Face Nailed using Aerosmith Gripshank Pins - Dated 2/28/2006 - Stamped by a professional engineer.
A ***Pei*** test report No. 2006-349(E) - ASTM E330 Test with 8-1/4" Wide Hardiplank® Face Nailed using Aerosmith Gripshank Pins - Dated 3/1/2006 - Stamped by a professional engineer.
A ***Pei*** test report No. 2006-349(F) - ASTM E330 Test with 6-1/4" Wide Hardiplank® Blind Nailed using Aerosmith Gripshank Pins - Dated 2/27/2006 - Stamped by a professional engineer.
A ***Pei*** test report No. 2006-349(G) - ASTM E330 Test with 7-1/4" Wide Hardiplank® Blind Nailed using Aerosmith Gripshank Pins - Dated 2/28/2006 - Stamped by a professional engineer.
A ***Pei*** test report No. 2006-349(H) - ASTM E330 Test with 8-1/4" Wide Hardiplank® Blind Nailed using Aerosmith Gripshank Pins - Dated 3/1/2006 - Stamped by a professional engineer.
A ***Pei*** test report No. 2006-349(I) - ASTM E330 Test with 6-1/4" Wide Hardiplank® Blind Nailed Over 15/32" Plywood using Aerosmith Gripshank Pins - Dated 5/10/2006 - Stamped by a professional engineer.
A ***Pei*** Allowable Wind Speed Calculation, project No. 2006-1268, for Hardipanel® & Hardiplank® using Aerosmith Gripshank Pins - Dated 8/8/2006 - Stamped by a professional engineer.
A ***Pei*** test report No.2003-509(A) - ASTM E330 Test with 5/8" DensGlass and 18 Gauge Steel framing Gripshank Fasteners @ 8"o.c. - Dated 5/2/2003 - Stamped by a professional engineer.
A ***Pei*** test report No.2003-509(B) - ASTM E330 Test with 5/8" DensGlass and 22 Gauge Steel framing Gripshank Fasteners @ 8"o.c. - Dated 5/5/2003 - Stamped by a professional engineer.
A ***Pei*** test report No.2003-509(D) - ASTM E330 Test with 1/2" DensGlass and 22 Gauge Steel framing Gripshank Fasteners @ 8"o.c. - Dated 5/6/2003 - Stamped by a professional engineer.
ICC-ES Legacy Report ER-5667 - Reissued December 1, 2002
DH Brown Associates Test Report No. B95-216 - Not Dated
A DH Brown Associates test report No. B95-216 Wood Structural Panel Diaphragms and shear walls fastened with Aerosmith Pins (Tables ONLY)
A DH Brown Associates test report No. B95-216 Wood Structural Panel Diaphragms and shear walls fastened with Aerosmith Pins
A Specialized Testing report No.- STQA50095 Sure-Board Series 200 Structural Panels racking shear tests and shear walls. Dated 11/21/2006

Product Documentation cont.

A PEI Opinion Letter dated September 2009 sealed by a professional engineer.
Test Report 2008030126A dated 3/24/2008, Salt Spray Test in Accordance with ASTM B117
A *Pei* test report No.2010-1023 - Fastener Lateral Load Test on a Steel Pin P/N 2385A thru 3/4" Fortocrete™ into a 16 Gauge Steel Joist - Dated 9/13/2010.
A *Pei* test report No.2011-427 - ASTM E330 Test with 5/8" Securock and 18 Gauge Steel framing & Gripshank Fasteners @ 6"o.c. - Dated 3/22/2011.
A Opinion letter for equivalency interpretation of Pin Fastening dated October, 13, 2010.
ICC-ES Evaluation Report ESR-1792 - Reissued June 1, 2009
A *Pei* test report No.2010-765A - ASTM E 2126-07A Test with 15/32" Plywood on 16 Gauge Steel framing & Gripshank Fasteners at 2"o.c. Perimeter & 12" o.c. Field Studs - Dated 7/20/2011.
A *Pei* test report No.2010-765B - ASTM E 2126-07A Test with 15/32" Plywood on 16 Gauge Steel framing & Gripshank Fasteners at 6"o.c. Perimeter & 12" o.c. Field Studs - Dated 7/20/2011.
A *Pei* test report No.2010-765C - ASTM E 2126-07A Test with 7/16" OSB Structure 1 on 16 Gauge Steel framing & Gripshank Fasteners at 2"o.c. Perimeter & 12" o.c. Field Studs - Dated 7/20/2011.
A *Pei* test report No.2010-765D - ASTM E 2126-07A Test with 7/16" OSB Structure 1 on 16 Gauge Steel framing & Gripshank Fasteners at 6"o.c. Perimeter & 12" o.c. Field Studs - Dated 7/20/2011.
A *Pei* test report No.2010-765E - ASTM E 2126-07A Test with 7/16" OSB Structure 1 on 18 Gauge Steel framing & Gripshank Fasteners at 4"o.c. Perimeter & 12" o.c. Field Studs - Dated 7/20/2011.
A *Pei* test report No.2010-765G - ASTM E 2126-07A Test with 7/16" OSB Structure 1 on 14 Gauge Steel framing & Gripshank Fasteners at 2"o.c. Perimeter & 12" o.c. Field Studs - Dated 7/20/2011.
A *Pei* test report No.2010-766A - ASTM E 564-06 Test with 7/16" OSB Structure 1 on 14 Gauge Steel framing & Aerosmith Gripshank Pins at 6"o.c. Perimeter & 12" o.c. Field Studs - Dated 2/16/2011.
A *Pei* test report No.2010-766B - ASTM E 564-06 Test with 15/32" Plywood on 16 Gauge Steel framing & Aerosmith Gripshank Pins at 6"o.c. Perimeter & 12" o.c. Field Studs - Dated 2/16/2011.
A *Pei* test report No.2010-766C - ASTM E 564-06 Test with 15/32" Plywood on 16 Gauge Steel framing & Aerosmith Gripshank Pins at 2"o.c. Perimeter & 12" o.c. Field Studs - Dated 2/16/2011.
Test Report RAD-3766 dated 11/15/2005, Negatuve Structural Performance Tests on 1/2" and 5/8" GLASROC SHEATHING using Aerosmith Fasteners in Accordance with ASTM E330-02.
A *Pei* test report No.2010-766D - ASTM E 564-06 Test with OSB, Structure 1 on 18 Gauge Steel framing & Aerosmith Gripshank Pins at 4"o.c. Perimeter & 12" o.c. Field Studs - Dated 2/17/2011.
A *Pei* test report No.2010-766E - ASTM E 564-06 Test with OSB, Structure 1 on 16 Gauge Steel framing & Aerosmith Gripshank Pins at 6"o.c. Perimeter & 12" o.c. Field Studs - Dated 8/31/2010.

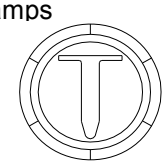
Product Labeling

Each Box of fasteners shipped, that are covered by this Product Evaluation Report, must have a label attached with at least the following information:

1. Aerosmith Fastening Systems name, address or website.
2. Fastener designation
3. This Product Evaluation Report number & Pei's logo
4. The catalog number
5. A lot number & Mfg. Plant Identification/Traceability
6. A Trademark head stamp by Aerosmith as shown

Head Stamps

.250" Dia. Head



.312" Dia. Head

Gripshank

Maximum Allowable Wind Speed (mph-3 second gust) Based on **2006 & 2009 IBC** section 1609.1.1(ASCE 7 - 05)

Siding Type & Dimensions	Nominal Head Diameter	Nailing Method	Stud Spacing	Zone	Exposure B	C 15'	C 30'	D 15'	D 30'
48" x 96" Hardipanel Vertical Siding	.250"	Face	16"	4	120	110	100	100	100
				5	110	100	90	90	90
48" x 96" Hardipanel Vertical Siding	.250"	Face	24"	4	110	100	90	90	90
				5	100	90	85	85	-
5/16" tk. x 6-1/4" wide Hardiplank Lap Siding	.250"	Face	24"	4	170	150	150	140	130
				5	150	140	130	130	120
5/16" tk. x 7-1/4" wide Hardiplank Lap Siding	.250"	Face	24"	4	150	140	130	120	120
				5	130	120	110	110	100
5/16" tk. x 8-1/4" wide Hardiplank Lap Siding	.250"	Face	24"	4	130	120	110	110	100
				5	120	110	100	100	90
5/16" tk. x 5-1/4" wide Hardiplank Lap Siding	.312"	Blind	24"	4	140	-	-	-	-
				5	125	-	-	-	-
5/16" tk. x 6-1/4" wide Hardiplank Lap Siding	.312"	Blind	24"	4	120	110	100	100	90
				5	110	100	90	90	85
5/16" tk. x 7-1/4" wide Hardiplank Lap Siding	.312"	Blind	24"	4	90	85	-	-	-
				5	85	-	-	-	-
5/16" tk. x 8-1/4" wide Hardiplank Lap Siding	.312"	Blind	24"	4	85	-	-	-	-
				5	-	-	-	-	-
5/16" tk. x 6-1/4" wide Hardiplank Lap Siding with 15/32" Plywood Underlayment	.312"	Blind	24"	4	120	110	100	100	100
				5	110	100	90	90	90

Maximum Allowable Wind Speed (mph-fastest mile) Based on **1997 UBC**

Siding Type & Dimensions	Nominal Head Diameter	Nailing Method	Stud Spacing	Zone	Exposure B	C 15'	C 30'	D 15'	D 30'
48" x 96" Hardipanel Vertical Siding	.250"	Face	16"	4	110	100	90	80	80
				5	100	80	80	70	70
48" x 96" Hardipanel Vertical Siding	.250"	Face	24"	4	100	90	80	70	70
				5	90	80	70	70	-
5/16" tk. x 6-1/4" wide Hardiplank Lap Siding	.250"	Face	24"	4	130	130	120	120	110
				5	130	120	110	100	100
5/16" tk. x 7-1/4" wide Hardiplank Lap Siding	.250"	Face	24"	4	130	110	110	100	90
				5	120	100	90	90	80
5/16" tk. x 8-1/4" wide Hardiplank Lap Siding	.250"	Face	24"	4	120	100	90	90	80
				5	110	90	80	80	70
5/16" tk. x 6-1/4" wide Hardiplank Lap Siding	.312"	Blind	24"	4	110	90	90	80	80
				5	100	80	80	70	70
5/16" tk. x 7-1/4" wide Hardiplank Lap Siding	.312"	Blind	24"	4	80	70	-	-	-
				5	70	-	-	-	-
5/16" tk. x 8-1/4" wide Hardiplank Lap Siding	.312"	Blind	24"	4	70	-	-	-	-
				5	-	-	-	-	-
5/16" tk. x 6-1/4" wide Hardiplank Lap Siding with 15/32" Plywood Underlayment	.312"	Blind	24"	4	110	100	90	80	80
				5	100	80	80	70	70

1. For Vertical Siding, pins were set 8" o.c. in the field, 4" o.c. around the perimeter, 3/8" from panel edge & 2" from corners.
2. For Lap siding, butt joints were placed at 1/3 and 2/3 of wall height, siding was overlapped 1-1/4", and pins were set at 3/8" form siding end and 3/4" up from bottom edge.
3. All siding used Gripshank fasteners, 20ga x 33ksi CWN C-studs (depth = 1-3/8", flange = 3-5/8", and a return = 3/8"), wall heights for the above values = 30ft or less.
4. Zone 4 is the interior section of the wall between Zone 5s & Zone 5 is the section within a minimum of 3 ft. of all corners.

Tested Design Values						
Siding Type & Dimensions	Nominal Head Diameter	Fastener Spacing	Gage - Tensile Strength	Stud Size	Stud Spacing	Design Load
5/8" Densglass Fireguard Gold Type X	.312"	8" o.c. Perimeter 8" o.c. Field	16 ga. - 50 KSI	1-3/8" x 3-5/8"	16"	38.1 psf
5/8" Densglass Fireguard Gold Type X	.312"	8" o.c. Perimeter 8" o.c. Field	16 ga. - 33 KSI	1-3/8" x 3-5/8"	16"	40.3 psf
5/8" Densglass Fireguard Gold Type X	.312"	8" o.c. Perimeter 8" o.c. Field	18 ga. - 33 KSI	1-3/8" x 3-5/8"	24"	25.5 psf
5/8" Densglass Fireguard Gold Type X	.312"	8" o.c. Perimeter 8" o.c. Field	22 ga. - 33 KSI	1-3/8" x 3-5/8"	24"	24.7 psf
5/8" GlasRoc Sheathing Panels	.312"	8" o.c. Perimeter	22 ga.	--	24"	21.6 psf
5/8" GlasRoc Sheathing Panels	.312"	8" o.c. Perimeter	18 ga.	--	24"	21.8 psf
5/8" GlasRoc Sheathing Panels	.312"	8" o.c. Perimeter	16 ga.	--	24"	21.5 psf
5/8" GlasRoc Sheathing Panels	.312"	8" o.c. Perimeter	16 ga.	--	16"	34.2 psf
5/8" GlasRoc Sheathing Panels	.312"	6" o.c. Perimeter	16 ga.	--	24"	25.6 psf
5/8" USG Sheetrock Type X Gypsum	.312"	8" o.c. Perimeter 8" o.c. Field	22 ga. - 33 KSI	1-3/8" x 3-5/8"	24"	22.9 psf
5/8" USG **Securock** Glas-Mat Sheathing	.312"	6" o.c. Perimeter 6" o.c. Field	18 ga. - 33 KSI	1-1/2" x 5-3/4"	24"	32.7 psf
5/8" USG **Securock** Glas-Mat Sheathing	.312"	6" o.c. Perimeter 6" o.c. Field	16 ga. - 50 KSI	1-1/2" x 5-3/4"	24"	35.0 psf
1/2" Densglass Gold	.312"	8" o.c. Perimeter 8" o.c. Field	22 ga. - 33 KSI	1-3/8" x 3-5/8"	16"	23.3 psf
1/2" GlasRoc Sheathing Panels	.312"	8" o.c. Perimeter	22 ga.	--	16"	21.7 psf

1. Pins were installed 3/8" from panel edge & 2" from corners.

2. The values in this table are based on testing per ASTM E330, and represent the capacity of the sheathing to resist flexural failure or fastener pull-through using a 2.5 Safety Factor. Framing design is the responsibility of the Designer of record.

Gripshank

Maximum Allowable Shear for Plywood Shear Walls using **.100"** Pins (lbs. per foot)								
Plywood Grade	Framing Spacing	Minimum Steel Gauge	Minimum Panel Thickness	Pin Spacing				
				6" on Edge 6" in Field	4" on Edge 6" in Field	3" on Edge 6" in Field	2" on Edge 6" in Field	4" on Edge 8" in Field
Structural I	24"	**20 ga., 33 mils**	3/8"	155	235	310	395	---
	24"	**20 ga., 33 mils**	7/16"	170	255	340	435	---
	24"	**20 ga., 33 mils**	15/32"	205	305	410	520	---
Grades other than Structural I	24"	**20 ga., 33 mils**	3/8"	140	210	280	360	---
	24"	**20 ga., 33 mils**	7/16"	155	230	310	390	---
	24"	**20 ga., 33 mils**	15/32"	185	275	370	470	---
APA Rated Sheathing	16"	**16 ga., 54 mils**	19/32"	---	---	---	---	**551.9** using 3x safety factor

1. Values listed are test values and have not been changed by wind or seismic adjustment factors.
2. The minimum panel edge distance for pin placement is 3/8 inch
3. The track-to-stud connection is permitted to be any means of one **.100"** diameter by 3/4" long Aerosmith pin at each track-to stud connection, for a total of two at each end to each stud.
4. Nominal head diameter is .250".

The following Chart shows Seismic and Wind Shear Wall values using Aerosmith Brand Pin Fasteners in Cold Formed Steel Framing. The maximum aspect ratio considered is 2:1. A Simpson Strong-Tie, model HTT4 Tension Tie, is required at both ends of the wall and must be installed per manufacturer's installation instructions. All steel must be a minimum of 50 ksi.

Sheathing	Minimum Sheathing Thickness	Framing Spacing	Minimum Steel Thickness	Minimum Head Diameter	Pin Spacing	Seismic Design Loads				
							Unit Shear			
						Occupancy Category	v'_{ASD} Seismic	v'_{ASD} Wind	v'_{LRFD} Seismic	v'_{LRFD} Wind
(4 ply) Plywood **"Rated Sheathing"**	15/32"	24"	16 ga., 54 mils	.305"	**2"** around Perimeter **12"** in Field	I or II	602.0 plf	819.0 plf	903.0 plf	1065.0 plf
						III	655.0 plf		982.0 plf	
						IV	661.0 plf		991.0 plf	
(4 ply) Plywood **"Rated Sheathing"**	15/32"	24"	16 ga., 54 mils	.305"	**4"** around Perimeter **12"** in Field	I or II	462.0 plf	623.0 plf	693.0 plf	809.5 plf
						III	498.0 plf		747.0 plf	
						IV	501.0 plf		751.5 plf	
(4 ply) Plywood **"Rated Sheathing"**	15/32"	24"	16 ga., 54 mils	.305"	**6"** around Perimeter **12"** in Field	I or II	322.0 plf	427.0 plf	483.0 plf	554.0 plf
						III	341.0 plf		512.0 plf	
						IV	341.0 plf		512.0 plf	
APA Rated OSB **"Structural 1"**	7/16"	24"	16 ga., 54 mils	.305"	**2"** around Perimeter **12"** in Field	I or II	611.0 plf	804.0 plf	916.0 plf	1045.0 plf
						III	643.0 plf		964.0 plf	
						IV	643.0 plf		964.0 plf	
APA Rated OSB **"Structural 1"**	7/16"	24"	16 ga., 54 mils	.305"	**4"** around Perimeter **12"** in Field	I or II	464.0 plf	604.5 plf	696.0 plf	786.0 plf
						III	483.5 plf		725.0 plf	
						IV	483.5 plf		725.0 plf	
APA Rated OSB **"Structural 1"**	7/16"	24"	16 ga., 54 mils	.305"	**6"** around Perimeter **12"** in Field	I or II	317.0 plf	405.0 plf	476.0 plf	527.0 plf
						III	324.0 plf		486.0 plf	
						IV	324.0 plf		486.0 plf	
APA Rated OSB **"Structural 1"**	7/16"	24"	18 ga., 43 mils	.305"	**4"** around Perimeter **12"** in Field	I or II	405.0 plf	506.0 plf	607.0 plf	657.0 plf
						III	405.0 plf		607.0 plf	
						III or IV	405.0 plf		607.0 plf	
APA Rated OSB **"Structural 1"**	7/16"	24"	14 ga., 68 mils	.305"	**2"** around Perimeter **12"** in Field	I or II	765.0 plf	956.0 plf	1147.0 plf	1243.0 plf
						III	765.0 plf		1147.0 plf	
						III or IV	765.0 plf		1147.0 plf	

1. The .100" dia. pins were installed 3/8" from panel edge & 2" from corners.

2. Values based on wall testing per ASTM E 2126-07a, Method C and ASTM E 564-06.

3. ASD and LRFD calculations based on AISI S213-07-S1-09, Section C.

4. CFSF shall comply with ICC AC 230, Nov. 1, 2010; Section 3.3 for grades, dim, yield & tensile strength.

5. The 4"/12" spacing values are interpolated from the actual tested values for 2"/12" and 6"/12" results.

6. The sheathing is to be installed vertically with a double stud at each sheathing seam. (48"o.c.)

Aerosmith .100" Dia. VersaPins Withdrawal Values

Shear Application / Walls	Layers	(Gauge)/ Inches / ksi Top Layer	(Gauge)/ Inches / ksi Bott. Layer	# of Tests (A)*	Coupon Size (B)	Average Load (lbs.)	Knurled Pin	Fastener Point
Stud-to-Track	2	(16).060/50	(15).068/50			1,129.7	Helical	Balistic
Pack Studs	2	(15).068/50	(15).068/50			1,345.1	Helical	Balistic
Built-Up Headers	2	(18).046/33	(16).057/50			920.5	Helical	Balistic
Walls w/Strapping	2	(18).045/33	(18).046/33			571.5	Helical	Balistic
	2	(19).041/50	(19).041/50			202.7	Helical	Balistic
	2	(19).041/50	(16).060/50			508.7	Helical	Balistic
	2	(18).047/33	(18).046/33			331.8	Helical	Balistic
	2	(14).073/50	(16).058/50			778.0	Helical	Balistic
	2	(14).071/50	(16).058/50			777.9	Helical	Balistic
	2	(16).058/50	(16).058/50			828.3	Helical	Balistic
	2	(16).059/50	(16).057/50			828.3	Helical	Balistic
	2	(15).071/50	(16).057/50		Steel Stud	1,088.5	Helical	Balistic
	2	(15).072/50	(16).057/50		Steel Stud	1,097.1	Helical	Balistic
	2	(15).072/50	(16).057/50		Steel Stud	1,079.3	Helical	Balistic
	1	(20).036/50		20	Hat-Section	331.0	Gripshank	Super Sharp
	1	(20).036/50		10	Hat-Section	329.6	Gripshank	Super Sharp
	1	(18).0428/43		10	Steel Channel	512.0	Gripshank	Super Sharp

(A) Three (3) tests were recorded for each coupon combination unless otherwise noted.

(B) Coupon Sizes are 4" x 8" unless otherwise noted.

(C) All tests were conducted by Progressive Engineering Inc.*

Ultimate Test Values from ASTM E 2126-07a Testing using Aerosmith Brand pin Fasteners in Cold Formed Steel Framing.

Sheathing	Framing Spacing	Minimum Steel Thickness	Nomimal Pin Dia. & Min. Head Dia.	Pin Spacing	Ultimate Load
15/32" (4 ply) Plywood **"Rated Sheathing"**	24" o.c.	16 ga., 54 mils	.100" dia. x .305" dia. head	**2"** around Perimeter **12"** in Field	1721.0 plf
				4" around Perimeter **12"** in Field	*1304.9 plf
				6" around Perimeter **12"** in Field	888.9 plf
7/16" APA Rated OSB **"Structural 1"**	24" o.c.	14 ga., 68 mils	.144" dia. x .295" dia. head	**2"** around Perimeter **12"** in Field	1911.5 plf
		16 ga., 54 mils	.100" dia. x .305" dia. head	**2"** around Perimeter **12"** in Field	1674.9 plf
		16 ga., 54 mils	.100" dia. x .305" dia. head	**4"** around Perimeter **12"** in Field	*1259.9 plf
		16 ga., 54 mils	.100" dia. x .305" dia. head	**6"** around Perimeter **12"** in Field	844.9 plf
		18 ga., 43 mils	.100" dia. x .305" dia. head	**4"** around Perimeter **12"** in Field	1011.4 plf

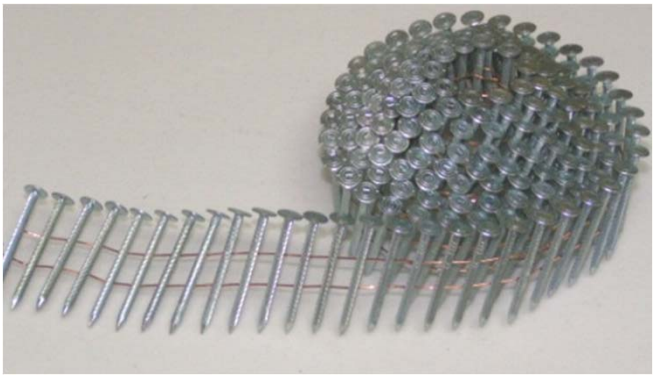
1. A Simpson Strong-Tie, model HTT4 Tension Tie, is required at both ends of the wall and must be installed per manufacturer's installation instructions.
2. CFSF shall comply with ICC AC 230, Nov. 1, 2010; Section 3.3 for grades, dim, yield & tensile strength. 50 ksi minimum steel.
3. *The 4"/12" spacing value using Plywood or OSB was interpolated from the actual tested values for 2"/12" and 6"/12" results.
4. The maximum aspect ratio is 2:1.
5. The sheathing is to be installed vertically with a double stud at each sheathing seam. (48"o.c.)
6. ASTM E2126 under ICC-ES AC230 standard deviation +/- 10% before additional testing.

Ultimate Test Values from ASTM E 564-06 Testing using Aerosmith Brand pin Fasteners in Cold Formed Steel Framing.

Sheathing	Framing Spacing	Minimum Steel Thickness	Nomimal Pin Dia. & Min. Head Dia.	Pin Spacing	Ultimate Load
15/32" (4 ply) Plywood **"Rated Sheathing"**	24" o.c.	16 ga., 54 mils	.100" dia. x .305" dia. head	**2"** around Perimeter **12"** in Field	2193 plf
				4" around Perimeter **12"** in Field	*1597 plf
				6" around Perimeter **12"** in Field	1002 plf
7/16" APA Rated OSB **"Structural 1"**	24" o.c.	14 ga., 68 mils	.144" dia. x .295" dia. head	**6"** around Perimeter **12"** in Field	1007 plf
		16 ga., 54 mils	.100" dia. x .305" dia. head	**6"** around Perimeter **12"** in Field	997 plf
		18 ga., 43 mils	.100" dia. x .305" dia. head	**4"** around Perimeter **12"** in Field	1327 plf

1. A Simpson Strong-Tie, model HTT4 Tension Tie, is required at both ends of the wall and must be installed per manufacturer's installation instructions.
2. CFSF shall comply with ICC AC 230, Nov. 1, 2010; Section 3.3 for grades, dim, yield & tensile strength. 50 ksi minimum steel.
3. *The 4"/12" spacing value using 15/32" Plywood was interpolated from the actual tested values for 2"/12" and 6"/12" results.
4. The maximum aspect ratio is 2:1.
5. The sheathing is to be installed vertically with a double stud at each sheathing seam. (48"o.c.)
6. ASTM E564 standard deviation +/- 15% before additional testing.

Gripshank® Pins						
Sure-Board Series 200 Structural Panel Racking Resistance						
Fasteners	Spacing	Studs	Sheathing	Hold Downs	Peak Force	Mean Drift (In.)
Screw = No. 8 x 1-3/4" / Aerosmith 1-3/8" x 1/4-in. diameter head.	*See Note Below	16 ga., 54 mils / 16" o.c.	4ft. X 9ft. Sure-Board Series 200 - 1/4" Magnesium Board	SHD15	9981 lbs.	1.238"
Screw = No. 8 x 1-3/4" / Aerosmith 1-3/8" x 1/4-in. diameter head.	*See Note Below	18 ga., 43 mils / 16" o.c.	4ft. X 9ft. Sure-Board Series 200 - 1/4" Magnesium Board	SHD15	8803 lbs.	1.196"
Screw = No. 8 x 1-3/4" / Aerosmith 1-1/4" x 5/16-in. diameter head.	*See Note Below	16 ga., 54 mils / 16" o.c.	4ft. X 9ft. Sure-Board Series 200 - 5/8" Densglass Gold	(2)SHD10 (1) SHD15	11301 lbs.	1.606"
Screw = No. 8 x 1-3/4" / Aerosmith 1-1/4" x 5/16-in. diameter head.	*See Note Below	18 ga., 43 mils / 16" o.c.	4ft. X 9ft. Sure-Board Series 200 - 5/8" Densglass Gold	(2)SHD10 (1) SHD15	9797 lbs.	1.505"
* The spacing for the Grabber Screws and Aerosmith pins are as follows: Vertical Perimeter Fasteners Screws are 12" on-center (o.c.); five(5) Aerosmith pins installed between screws at approximately 2" o.c. Vertical Field Fasteners Screws were 12" o.c.; Aerosmith Pins 12" o.c. (installed between self drilling screws) Horizontal Perimeter Fasteners Screws 2" o.c. in top and bottom plate members; no pins.						



Gripshank Pins in collated form

Boxes of Gripshank Pins as shipped