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ESR-2549

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This report is subject to renewal 01/2019.

DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
SECTION: 06 05 23—WOOD, PLASTIC, AND COMPOSITE FASTENINGS

REPORT HOLDER:

SIMPSON STRONG-TIE COMPANY, INC.

EVALUATION SUBJECT:

SIMPSON STRONG-TIE® FACE-MOUNT HANGERS FOR WOOD FRAMING

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DIVISION: 06 00 00—WOOD, PLASTICS, AND COMPOSITES
Section: 06 05 23—Wood, Plastic, and Composite Fastenings

REPORT HOLDER:

SIMPSON STRONG-TIE COMPANY INC.

EVALUATION SUBJECT:

SIMPSON STRONG-TIE® FACE-MOUNT HANGERS FOR WOOD FRAMING

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2018, 2015, 2012, 2009 and 2006 *International Building Code®* (IBC)
- 2018, 2015, 2012, 2009 and 2006 *International Residential Code®* (IRC)

For evaluation for compliance with codes adopted by the Los Angeles Department of Building and Safety (LADBS), see ESR-2549 LABC and LARC Supplement.

Property evaluated:

Structural

2.0 USES

The Simpson Strong-Tie® face-mount hangers described in this report are used as wood framing connectors in accordance with Section 2304.10.3 of the 2018 and 2015 IBC and Section 2304.9.3 of the 2012, 2009 and 2006 IBC. The products may also be used in structures regulated under the IRC when an engineered design is submitted in accordance with Section R301.1.3 of the IRC.

3.0 DESCRIPTION

3.1 General:

The Simpson Strong-Tie face-mount hangers described in this report are U-shaped hangers that have prepunched holes for the installation of nails into the face of the supporting wood header or beam or ledger.

3.1.1 LU Series Hangers: The LU series hangers are formed from No. 20 gage galvanized steel. See Table 1 for hanger dimensions, required fasteners, and allowable loads; and Figure 1 for a drawing of a typical LU series hanger.

3.1.2 U Series Hangers: The U series hangers are formed from No. 16 gage galvanized steel. See Table 2 for the hanger dimensions, required fasteners, and allowable loads; and Figure 2 for a drawing of a typical U series hanger.

3.1.3 HU and HUC Series Hangers: The HU and HUC series hangers are formed from No. 14 gage galvanized steel. HU hangers having a width equal to or greater than $2^{9}/_{16}$ inches (65 mm) are available with concealed flanges and are specified with the model designation HUC. See Table 3 for the hanger dimensions, required fasteners, and allowable loads; and Figure 3a for a drawing of a typical HU series hanger and Figure 3b for an HUC hanger.

3.1.4 LUS Series Hangers: The LUS series hangers are formed from No. 18 gage galvanized steel. The hangers have prepunched holes for the installation of nails that are driven at a 45-degree angle through the joist and into the header, which is described as double shear nailing in the installation instructions. See Table 4 for the hanger dimensions, required fasteners, and allowable loads; and Figure 4 for a drawing of a typical LUS series hanger.

3.1.5 MUS Joist Hanger: The MUS series hangers are formed from No. 18 gage galvanized steel. The U-shaped portion of the hangers has prepunched holes for the installation of joist nails that are driven at an angle through the joist and into the header, which is described as double shear nailing in the installation instructions. See Table 5 for the hanger dimensions, required fasteners, and allowable loads; Figure 5 for a drawing of a typical MUS series hanger.

3.1.6 HUS and HUSC Series Hangers: The HUS and HUSC series hangers are formed from No. 14 gage galvanized steel with the exception of the HUS26, HUSC26, HUS28, HUSC28, HUS210, and HUSC210 hangers, which are formed from No. 16 gage galvanized steel. The HUS models having a seat width (W) equal to $3^{9}/_{16}$ inches (90 mm) are available with concealed flanges and are specified with the model designation HUSC. The hangers have prepunched holes for the installation of joist nails that are driven at a 45-degree angle through the joist and into the header, which is described as double shear nailing in the installation instructions. See Table 6 for the hanger dimensions, required fasteners, and allowable loads; and Figure 6 for a drawing of a typical HUS series hanger.

3.1.7 HHUS Series Hangers: The HHUS series hangers are formed from No. 14 gage galvanized steel. The hangers have prepunched holes for the installation of joist nails that are driven at a 45-degree angle through the joist and into the header, which is described as double shear nailing in the installation instructions. See Table 7 for the hanger dimensions, required fasteners, and allowable

loads; Figure 7 for a drawing of a typical HHUS series hanger.

3.1.8 SUR/L and SUR/LC Series Hangers: The SUR/L series hangers are formed from No. 16 gage galvanized steel. SUR and SUL are mirror-image identical hangers, skewed at 45 degrees right and left, respectively. The 2-2x and 4x SUR/L models are available with the A_2 flanges concealed and are identified with the model designation SUR/LC. See Table 8 for the hanger dimensions, required fasteners, and allowable loads; and Figure 8 for a drawing of typical SUR/L series hangers.

3.1.9 HSUR/L and HSUR/LC Series Hangers: The HSUR/L series hangers are formed from No. 14 gage galvanized steel. SUR and SUL are mirror-image identical hangers, skewed at 45 degrees right and left, respectively. The 2-2x and 4x HSUR/L models are available with the A_2 flanges concealed and are identified with the model designation HSUR/LC. See Table 9 for the hanger dimensions, required fasteners, and allowable loads; and Figure 9 for a drawing of typical HSUR/L series hangers.

3.1.10 The HTU Series Hangers: The HTU hangers are designed to support trusses installed with full or partial heel heights and gaps between the truss and the supporting girders of up to, but not exceeding, $^1/_2$ inch (12.7 mm), as shown in Tables 10A and 10C, and $^1/_8$ inch (3.2 mm) as shown in Table 10B. Minimum and maximum nailing options are given in Tables 10A, 10B, and 10C to address varying heel heights and support conditions. The HTU hangers are formed from No. 16 gage galvanized steel. See Table 10A and Figures 10A and 10B for hanger dimensions, required fastener schedule, allowable loads and an installation detail for installations in which the gap between the truss and the supporting girders is less than or equal to $^1/_2$ inch (12.7 mm). See Table 10B and Figures 10A and 10B for hanger dimensions, required fastener schedule, allowable loads and an installation detail for installations in which the gap between the truss and the supporting girders is less than or equal to $^1/_8$ inch (3.2 mm). See Table 10C and Figures 10A and 10C for hanger dimensions, required fastener schedule, allowable loads and an installation detail for installations in which the minimum allowable number of nails is driven into the supporting girder, and the gap between the truss and supporting girder is less than or equal to $^1/_2$ inch (12.7 mm).

3.1.11 The LUCZ Series Hangers: The LUCZ hangers have concealed flanges to allow for installation near the end of a supporting member such as a ledger or header. The hangers are formed from No. 18 gage galvanized steel. See Table 11 and Figure 11 for hanger dimensions, required fastener schedule, allowable loads and a typical installation detail.

3.1.12 The HGUS Series Hangers: The HGUS series hangers are formed from No. 12 gage galvanized steel. The hangers have prepunched holes for the installation of nails that are driven at a 45 degree angle through the joist and into the header, which is described as double shear nailing in the installation instructions. See Table 12 for the HGUS series hanger model numbers, hanger dimensions, required fasteners, and allowable loads; and Figure 12 for a drawing of a typical HGS hanger.

3.2 Materials:

3.2.1 Steel: All hangers described in this report, with the exception of the HTU and HGUS series hangers, are manufactured from galvanized steel complying with ASTM A653, SS designation, Grade 33 with a minimum yield strength, F_y, of 33,000 psi (227 MPa) and a minimum tensile strength, F_u, of 45,000 psi (310 MPa). The HTU and HGUS series hangers are manufactured from galvanized steel complying with ASTM A653 SS designation, Grade 40 with a minimum yield strength, F_y, of 40,000 psi (276 MPa) and a minimum tensile strength, F_u, of 55,000 psi (379 MPa). Minimum base-steel thicknesses for the hangers in this report are as follows:

NOMINAL THICKNESS (gage)	MINIMUM BASE-METAL THICKNESS (inch)
No. 12	0.0975
No. 14	0.0685
No. 16	0.0555
No. 18	0.0445
No. 20	0.0335

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

The hangers have a minimum G90 zinc coating specification in accordance with ASTM A653. Some models (designated with a model number ending with Z) are available with a G185 zinc coating specification in accordance with ASTM A653. Some models (designated with a model number ending with HDG) are available with a hot-dip galvanization, also known as "batch" galvanization, in accordance with ASTM A123, with a minimum specified coating weight of 2.0 ounces of zinc per square foot of surface area (600 g/m^2), total for both sides. Model numbers for all hangers in this report, except the LUCZ series hangers, do not include the Z or HDG ending, but the information shown applies. The lumber treater or holder of this report (Simpson Strong-Tie Company) should be contacted for recommendations on minimum corrosion resistance of steel connectors in contact with the specific proprietary preservative treated or fire retardant treated lumber.

3.2.2 Wood: Wood members with which the connectors are used must be either sawn lumber, structural glued laminated timber or other engineered lumber having a minimum specific gravity of 0.50 (minimum equivalent specific gravity of 0.50 for engineered lumber), and having a maximum moisture content of 19 percent (16 percent for structural glued laminated timber and engineered lumber) except as noted in Section 4.1. The thickness of the supporting wood member (header, beam, or ledger) must be equal to or greater than the length of the fasteners specified in the tables in this report, or as required by wood member design, whichever is greater.

3.2.3 Fasteners: Nails used for hangers described in this report must comply with ASTM F1667 and have the following minimum fastener dimensions and bending yield strengths (F_{yb}):

COMMON NAIL SIZE	SHANK DIAMETER (inch)	FASTENER LENGTH (inches)	F_{yb} (psi)
10d × $1^1/_2$	0.148	$1^1/_2$	90,000
10d	0.148	3	90,000
16d × $2^1/_2$	0.162	$2^1/_2$	90,000
16d	0.162	$3^1/_2$	90,000

For **SI:** 1 inch = 25.4 mm, 1 psi = 6.895 kPa.

Fasteners used in contact with preservative treated or fire retardant treated lumber must comply with 2018 and 2015 IBC Section 2304.10.5, 2012, 2009 and 2006 IBC Section 2304.9.5 or 2018, 2015, 2012 and 2009 IRC Section R317.3, or 2006 IRC Section R319.3, as applicable. The lumber treater or this report holder (Simpson Strong-Tie Company) should be contacted for recommendations on minimum corrosion resistance of

fasteners and connection capacities of fasteners used with the specific proprietary preservative treated or fire retardant treated lumber.

4.0 DESIGN AND INSTALLATION

4.1 Design:

The tabulated allowable loads shown in this report are based on allowable stress design (ASD) and include the load duration factor, C_D, corresponding with the applicable loads in accordance with the NDS.

Tabulated allowable loads apply to products connected to wood used under dry conditions and where sustained temperatures are 100ºF (37.8ºC) or less. When products are installed to wood having a moisture content greater than 19 percent (16 percent for engineered wood products), or where wet service is expected, the allowable loads must be adjusted by the wet service factor, C_M, specified in the NDS. When connectors are installed in wood that will experience sustained exposure to temperatures exceeding 100ºF (37.8ºC), the allowable loads in this report must be adjusted by the temperature factor, C_t, specified in the NDS.

Connected wood members must be analyzed for load-carrying capacity at the connection in accordance with the NDS.

4.2 Installation:

Installation of the connectors must be in accordance with this evaluation report and the manufacturer's published installation instructions. In the event of a conflict between this report and the manufacture's published installation instructions, the most restrictive governs.

5.0 CONDITIONS OF USE

The Simpson Strong-Tie face-mount hangers for wood-framed construction described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 The connectors must be manufactured, identified and installed in accordance with this report and the manufacturer's published installation instructions. A copy of the instructions must be available at the jobsite at all times during installation. In the event of conflict between this report and the Simpson Strong-Tie published installation instructions, the more restrictive governs.

5.2 Calculations showing compliance with this report must be submitted to the code official. The calculations must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

5.3 Adjustment factors noted in Section 4.1 and the applicable codes must be considered, where applicable.

5.4 Connected wood members and fasteners must comply, respectively, with Sections 3.2.2 and 3.2.3 of this report.

5.5 Use of connectors with preservative treated or fire retardant treated lumber must be in accordance with Section 3.2.1 of this report. Use of fasteners with preservative treated or fire retardant treated lumber must be in accordance with Section 3.2.3 of this report.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Joist Hangers and Similar Devices (AC13), dated March 2018.

7.0 IDENTIFICATION

7.1 The products described in this report are identified with a die-stamped label or an adhesive label, indicating the name of the manufacturer (Simpson Strong-Tie), the model number, and the number of an index evaluation report (ESR-2523) that is used as an identifier for the products recognized in this report.

7.2 The report holder's contact information is as follows:

SIMPSON STRONG-TIE COMPANY INC.
5956 WEST LAS POSITAS BOULEVARD
PLEASANTON, CALIFORNIA 94588
(800) 925-5099
www.strongtie.com

TABLE 1—ALLOWABLE LOADS FOR THE LU SERIES JOIST HANGERS

MODEL No.	DIMENSIONS[1] (inches)			FASTENERS[2] (Quantity-Type)		ALLOWABLE LOADS[3,4,5] (lbf)						
						Uplift[6]	Download					
							C_D = 1.0		C_D = 1.15		C_D = 1.25	
	W	H	B	Header[5]	Joist	C_D = 1.6	10d	16d	10d	16d	10d	16d
LU24	1 9/16	3 1/8	1 1/2	4	2-10d x 1 1/2	240	465	555	530	630	570	655
LU26	1 9/16	4 3/4	1 1/2	6	4-10d x 1 1/2	540	695	835	800	950	860	1,030
LU28	1 9/16	6 3/8	1 1/2	8	6-10d x 1 1/2	850	930	1,110	1,065	1,180	1,145	1,180
LU210	1 9/16	7 13/16	1 1/2	10	6-10d x 1 1/2	850	1,160	1,390	1,330	1,580	1,430	1,615

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

[1]Refer to Figure 1 for definitions of hanger nomenclature (W, H, B).
[2]Refer to Section 3.2.3 of this report for nail sizes and required minimum physical properties.
[3]Tabulated allowable loads must be selected based on duration of load as permitted by the applicable building code.
[4]LU Series hangers provide torsional resistance, which is defined as a moment of not less than 75 pounds (334 N) times the depth of the joist at which the lateral movement of the top or bottom of the joist with respect to its vertical position is 0.125 inch (3.2 mm). The height, H, of the joist hanger must be at least 60 percent of the height of the joist unless additional lateral restraint is provided, as designed by others.
[5]The quantity of 10d or 16d common nails specified in the "Header" column under "Fasteners" is required to achieve the tabulated allowable loads shown in the Allowable Download "10d" or "16d" columns.
[6]Allowable uplift loads are for hangers installed with either 10d or 16d common nails into the supporting header/beam, and have been increased for wind or earthquake loading with no further increase allowed. The allowable uplift loads must be reduced when other load durations govern.

TABLE 2—ALLOWABLE LOADS FOR THE U SERIES JOIST HANGERS

MODEL No.	DIMENSIONS[1] (inches)			FASTENERS[2] (Quantity-Type)		ALLOWABLE LOADS[3,4,5] (lbf)						
						Uplift [6]	Download					
	W	H	B	Header[5]	Joist	C_D = 1.6	C_D = 1.0		C_D = 1.15		C_D = 1.25	
							10d	16d	10d	16d	10d	16d
U24	1 9/16	3 1/8	2	4	2-10d x 1 1/2	240	490	575	550	650	590	705
U26	1 9/16	4 3/4	2	6	4-10d x 1 1/2	535	730	865	830	980	890	1,055
U210	1 9/16	7 13/16	2	10	6-10d x 1 1/2	990	1,220	1,440	1,380	1,565	1,480	1,565
U214	1 9/16	10	2	12	8-10d x 1 1/2	990	1,465	1,730	1,655	1,955	1775	2,110
U34	2 9/16	3 3/8	2	4	2-10d x 1 1/2	240	490	575	550	650	590	705
U36	2 9/16	5 3/8	2	8	4-10d x 1 1/2	535	975	1,150	1,105	1,305	1,185	1,410
U310	2 9/16	8 7/8	2	14	6-10d x 1 1/2	990	1,710	2,015	1,930	2,280	2,070	2,465
U314	2 9/16	10 1/2	2	16	6-10d x 1 1/2	990	1,950	2,305	2,210	2,610	2,370	2,815
U24-2	3 1/8	3	2	4	2-10d	240	490	575	550	650	590	705
U26-2	3 1/8	5	2	8	4-10d	535	975	1,150	1,105	1,305	1,185	1,410
U210-2	3 1/8	8 1/2	2	14	6-10d	990	1,750	2,015	1,930	2,280	2,070	2,465
U44	3 9/16	2 7/8	2	4	2-10d	240	490	575	550	650	590	705
U46	3 9/16	4 7/8	2	8	4-10d	535	975	1,150	1,105	1,305	1,185	1,410
U410	3 9/16	8 3/8	2	14	6-10d	990	1,710	2,015	1,930	2,280	2,070	2,465
U414	3 9/16	10	2	16	6-10d	990	1,950	2,305	2,210	2,610	2,370	2,815
U26-3	4 5/8	4 1/4	2	8	4-10d	535	975	1,150	1,105	1,305	1,185	1,410
U66	5 1/2	5	2	8	4-10d	535	975	1,150	1,105	1,305	1,185	1,410
U610	5 1/2	8 1/2	2	14	6-10d	990	1,710	2,015	1,930	2,280	2,070	2,465
U210-3	4 5/8	7 3/4	2	14	6-10d	990	1,710	2,015	1,930	2,280	2,070	2,465
U24R	2 1/16	3 5/8	2	4	2-10d x 1 1/2	240	490	575	550	650	590	705
U26R	2 1/16	5 5/8	2	8	4-10d x 1 1/2	535	975	1,150	1,105	1,305	1,185	1,410
U210R	2 1/16	9 1/8	2	14	6-10d x 1 1/2	990	1,710	2,015	1,930	2,280	2,070	2,465
U44R	4 1/16	2 5/8	2	4	2-16d	240	490	575	550	650	590	705
U46R	4 1/16	4 5/8	2	8	4-16d	535	975	1,150	1,105	1,305	1,185	1,410
U410R	4 1/16	8 1/8	2	14	6-16d	990	1,710	2,015	1,930	2,280	2,070	2,465
U66R	6	5	2	8	4-16d	535	975	1,150	1,105	1,305	1,185	1,410
U610R	6	8 1/2	2	14	6-16d	990	1,710	2,015	1,930	2,280	2,070	2,465

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

[1]Refer to Figure 2 (this page) for definitions of hanger nomenclature (W, H, B).
[2]Refer to Section 3.2.3 of this report for nail sizes and required minimum physical properties.
[3]Tabulated allowable loads must be selected based on duration of load as permitted by the applicable building code.
[4]U Series hangers provide torsional resistance, which is defined as a moment of not less than 75 pounds (334 N) times the depth of the joist at which the lateral movement of the top or bottom of the joist with respect to the vertical position of the joist is 0.125 inch (3.2 mm). The height, H, of the joist hanger must be at least 60 percent of the height of the joist unless additional lateral restraint is provided, as designed by others.
[5]The quantity of 10d or 16d common nails specified in the "Header" column under "Fasteners" is required to achieve the tabulated allowable loads shown in the Allowable Download "10d" or "16d" columns.
[6]Allowable uplift loads are for hangers installed with either 10d or 16d common nails into the supporting header/beam, and have been increased for wind or earthquake loading with no further increase allowed. The allowable uplift loads must be reduced when other load durations govern.

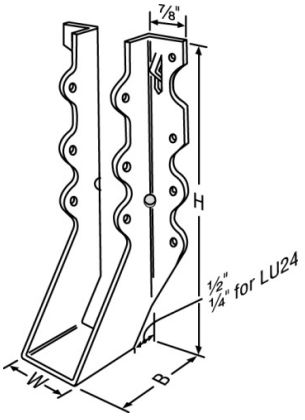

FIGURE 1—LU SERIES HANGER
(See Table 1—Page 3)

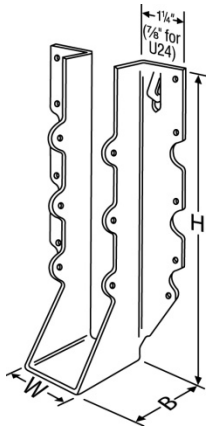

FIGURE 2—U SERIES HANGER
(See Table 2—above)

TABLE 3—ALLOWABLE LOADS FOR THE HU/HUC SERIES JOIST HANGERS

MODEL NO.	HANGER DIMENSIONS[1] (inches)			FASTENERS[2] (Quantity-Type)		ALLOWABLE LOADS (lbf)[3,4,5]			
	W	H	B	Header	Joist	Uplift[6]	Download		
						C_D = 1.6	C_D = 1.0	C_D = 1.15	C_D = 1.25
HU26	1 9/16	3 1/16	2 1/4	4-16d	2-10d x 1 1/2	305	595	670	720
HU28	1 9/16	5 1/4	2 1/4	6-16d	4-10d x 1 1/2	605	895	1,010	1,080
HU210	1 9/16	7 1/8	2 1/4	8-16d	4-10d x 1 1/2	605	1,190	1,345	1,440
HU212	1 9/16	9	2 1/4	10-16d	6-10d x 1 1/2	1,135	1,490	1,680	1,800
HU214	1 9/16	10 1/8	2 1/4	12-16d	6-10d x 1 1/2	1,135	1,790	2,015	2,160
HU216	1 9/16	12 15/16	2 1/4	18-16d	8-10d x 1 1/2	1,510	2,680	3,025	3,240
HU34	2 9/16	3 3/8	2 1/2	4-16d	2-10d x 1 1/2	380	595	670	720
HU36	2 9/16	5 3/8	2 1/2	8-16d	4-10d x 1 1/2	605	1,190	1,345	1,440
HU38	2 9/16	7 1/8	2 1/2	10-16d	4-10d x 1 1/2	605	1,490	1,680	1,800
HU310	2 9/16	8 7/8	2 1/2	14-16d	6-10d x 1 1/2	905	2,085	2,350	2,520
HU312	2 9/16	10 5/8	2 1/2	16-16d	6-10d x 1 1/2	905	2,385	2,690	2,880
HU314	2 9/16	12 3/8	2 1/2	18-16d	8-10d x 1 1/2	1,510	2,680	3,025	3,240
HU316	2 9/16	14 1/8	2 1/2	20-16d	8-10d x 1 1/2	1,510	2,980	3,360	3,600
HU44	3 9/16	2 7/8	2 1/2	4-16d	2-10d	380	595	670	720
HU46	3 9/16	5 3/16	2 1/2	8-16d	4-10d	755	1,190	1,345	1,440
HU48	3 9/16	6 13/16	2 1/2	10-16d	4-10d	755	1,490	1,680	1,800
HU410	3 9/16	8 5/8	2 1/2	14-16d	6-10d	1,135	2,085	2,350	2,520
HU412	3 9/16	10 5/16	2 1/2	16-16d	6-10d	1,135	2,385	2,690	2,880
HU414	3 9/16	12 5/8	2 1/2	18-16d	8-10d	1,510	2,680	3,025	3,240
HU416	3 9/16	13 5/8	2 1/2	20-16d	8-10d	1,510	2,980	3,360	3,600
HU66	5 1/2	4 3/16	2 1/2	8-16d	4-16d	895	1,190	1,345	1,440
HU68	5 1/2	5 13/16	2 1/2	10-16d	4-16d	895	1,490	1,680	1,800
HU610	5 1/2	7 5/8	2 1/2	14-16d	6-16d	1,345	2,085	2,350	2,520
HU612	5 1/2	9 3/8	2 1/2	16-16d	6-16d	1,345	2,385	2,690	2,880
HU614	5 1/2	11 5/8	2 1/2	18-16d	8-16d	1,780	2,680	3,025	3,240
HU616	5 1/2	12 11/16	2 1/2	20-16d	8-16d	1,780	2,980	3,360	3,600
HU24-2	3 1/8	3 1/16	2 1/2	4-16d	2-10d	380	595	670	720
HU26-2	3 1/8	5 3/8	2 1/2	8-16d	4-10d	755	1,190	1,345	1,440
HU28-2	3 1/8	7	2 1/2	10-16d	4-10d	755	1,490	1,680	1,800
HU210-2	3 1/8	8 13/16	2 1/2	14-16d	6-10d	1,135	2,085	2,350	2,520
HU212-2	3 1/8	10 9/16	2 1/2	16-16d	6-10d	1,135	2,385	2,690	2,880
HU214-2	3 1/8	12 13/16	2 1/2	18-16d	8-10d	1,510	2,680	3,025	3,240
HU216-2	3 1/8	13 7/8	2 1/2	20-16d	8-10d	1,510	2,980	3,360	3,600
HU310-2	5 1/8	8 7/8	2 1/2	14-16d	6-10d	1,135	2,085	2,350	2,520
HU312-2	5 1/8	10 5/8	2 1/2	16-16d	6-10d	1,135	2,385	2,690	2,880
HU314-2	5 1/8	12 5/8	2 1/2	18-16d	8-10d	1,510	2,680	3,025	3,240
HU26-3	4 11/16	5 1/2	2 1/2	8-16d	4-10d	755	1,190	1,345	1,440
HU210-3	4 11/16	8 9/16	2 1/2	14-16d	6-10d	1,135	2,085	2,350	2,520
HU212-3	4 11/16	10 5/16	2 1/2	16-16d	6-10d	1,135	2,385	2,690	2,880
HU214-3	4 11/16	12 1/16	2 1/2	18-16d	8-10d	1,510	2,680	3,025	3,240
HU216-3	4 11/16	13 7/8	2 1/2	20-16d	8-10d	1,510	2,980	3,360	3,600
HU210-4	6 1/8	8 3/8	2 1/2	14-16d	6-16d	1,345	2,085	2,350	2,520
HU88	7 1/2	6 5/8	2 1/2	10-16d	4-16d	895	1,490	1,680	1,800
HU810	7 1/2	8 3/8	2 1/2	14-16d	6-16d	1,345	2,085	2,350	2,520
HU812	7 1/2	10 1/8	2 1/2	16-16d	6-16d	1,345	2,385	2,690	2,880
HU814	7 1/2	11 7/8	2 1/2	18-16d	8-16d	1,780	2,680	3,025	3,240
HU816	7 1/2	13 5/8	2 1/2	20-16d	8-16d	1,780	2,680	3,360	3,600

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

[1]Refer to Figures 3a and 3b (page 6) for definitions of hanger nomenclature (W, H, B).
[2]Refer to Section 3.2.3 of this report for nail sizes and required minimum physical properties.
[3]HU series hangers with widths (W) equal to or greater than 2 9/16 inches (65 mm) are available with header flanges turned in (concealed) and are identified with the model designation HUC#. See Figure 3b (page 6).
[4]Tabulated allowable loads must be selected based on duration of load as permitted by the applicable building code.
[5]HU Series hangers provide torsional resistance, which is defined as a moment of not less than 75 pounds (334 N) times the depth of the joist at which the lateral movement of the top or bottom of the joist with respect to the vertical position of the joist is 0.125 inch (3.2 mm). The height, H, of the joist hanger must be at least 60 percent of the height of the joist unless additional lateral restraint is provided, as designed by others.
[6]Allowable uplift loads have been increased for wind or earthquake loading with no further increase allowed. The allowable uplift loads must be reduced when other load durations govern.

TABLE 4—ALLOWABLE LOADS FOR THE LUS SERIES JOIST HANGERS

MODEL NO.	DIMENSIONS[1] (inches)			COMMON NAILS[2] (Quantity-Type)		ALLOWABLE LOADS[3,4] (lbf)			
	W	H	B	Header	Joist[5]	Uplift[6]	Download		
						C_D = 1.6	C_D = 1.0	C_D = 1.15	C_D = 1.25
LUS24	1 9/16	3 1/8	1 3/4	4-10d	2-10d	435	670	765	820
LUS26	1 9/16	4 3/4	1 3/4	4-10d	4-10d	1,165	865	990	1,060
LUS28	1 9/16	6 5/8	1 3/4	6-10d	4-10d	1,165	1,100	1,260	1,350
LUS210	1 9/16	7 13/16	1 3/4	8-10d	4-10d	1,165	1,335	1,530	1,640
LUS24-2	3 1/8	3 1/8	2	4-16d	2-16d	410	800	905	980
LUS26-2	3 1/8	4 15/16	2	4-16d	4-16d	1,060	1,030	1,170	1,265
LUS28-2	3 1/8	7	2	6-16d	4-16d	1,060	1,315	1,490	1,610
LUS210-2	3 1/8	8 15/16	2	8-16d	6-16d	1,445	1,830	2,075	2,245
LUS214-2	3 1/8	10 15/16	2	10-16d	6-16d	1,445	2,110	2,395	2,590
LUS26-3	4 5/8	4 1/8	2	4-16d	4-16d	1,060	1,030	1,170	1,265
LUS28-3	4 5/8	6 1/4	2	6-16d	4-16d	1,060	1,315	1,490	1,610
LUS210-3	4 5/8	8 13/16	2	8-16d	6-16d	1,445	1,830	2,075	2,245
LUS36	2 9/16	5 1/4	2	4-16d	4-16d	1,060	1,030	1,170	1,265
LUS44	3 9/16	3	2	4-16d	2-16d	410	800	905	980
LUS46	3 9/16	4 3/4	2	4-16d	4-16d	1,060	1,030	1,170	1,265
LUS48	3 9/16	6 3/4	2	6-16d	4-16d	1,060	1,315	1,490	1,610
LUS410	3 9/16	8 3/4	2	8-16d	6-16d	1,445	1,830	2,075	2,245
LUS414	3 9/16	10 3/4	2	10-16d	6-16d	1,445	2,110	2,395	2,590

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

[1]Refer to Figure 4 (this page) for definitions of hanger nomenclature (W, H, B).
[2]Refer to Section 3.2.3 of this report for nail sizes and required minimum physical properties.
[3]Tabulated allowable loads must be selected based on duration of load as permitted by the applicable building code.
[4]LUS Series hangers provide torsional resistance, which is defined as a moment of not less than 75 pounds (334 N) times the depth of the joist at which the lateral movement of the top or bottom of the joist with respect to the vertical position of the joist is 0.125 inch (3.2 mm). The height, H, of the joist hanger must be at least 60 percent of the height of the joist unless additional lateral restraint is provided, as designed by others.
[5]Joist nails must be driven at a 45 degree angle through the joist into the header/beam (double shear nailing) to achieve the tabulated loads.
[6]Allowable uplift loads have been increased for wind or earthquake loading with no further increase is allowed. The allowable uplift loads must be reduced when other load durations govern.

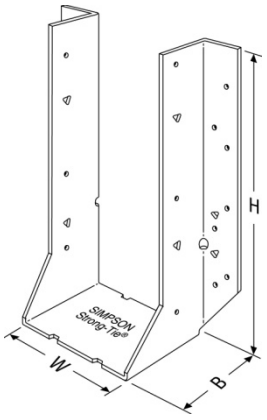

FIGURE 3a—HU SERIES HANGER (See Table 3—Page 5)

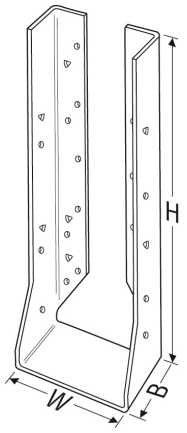

FIGURE 3b—HUC SERIES HANGER (See Table 3, Footnote 3—Page 5)

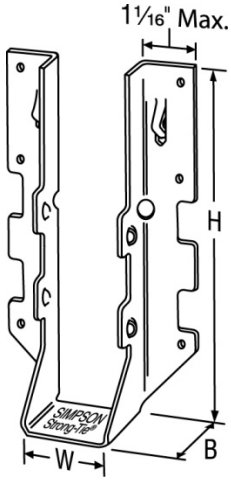

FIGURE 4—LUS SERIES HANGER (See Table 4 above)

TABLE 5—ALLOWABLE LOADS FOR THE MUS SERIES HANGERS

MODEL NO.	DIMENSIONS[1] (inches)			COMMON NAILS[2] (Quantity-Type)		ALLOWABLE LOADS[3,4] (lbf)			
	W	H	B	Header	Joist[5]	Uplift[6]	Download		
						C_D = 1.6	C_D = 1.0	C_D = 1.15	C_D = 1.25
MUS26	$1^{9}/_{16}$	$5^{3}/_{16}$	2	6–10d	6–10d	930	1,295	1,480	1,560
MUS28	$1^{9}/_{16}$	$6^{3}/_{4}$	2	8–10d	8–10d	1,320	1,730	1,975	2,125

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

[1]Refer to Figure 5 (this page) for definitions of hanger nomenclature (W, H, B).
[2]Refer to Section 3.2.3 of this report for nail sizes and required minimum physical properties.
[3]Tabulated allowable loads must be selected based on duration of load as permitted by the applicable building code.
[4]MUS series hangers provide torsional resistance, which is defined as a moment of not less than 75 pounds (334 N) times the depth of the joist at which the lateral movement of the top or bottom of the joist with respect to the vertical position of the joist is 0.125 inch (3.2 mm). The height, H, of the joist hanger must be at least 60 percent of the height of the joist unless additional lateral restraint is provided, as designed by others.
[5]Joist nails must be driven at a 45 degree angle through the joist into the header/beam (double shear nailing) to achieve the tabulated loads.
[6]Allowable uplift loads have been increased for wind or earthquake loading with no further increase is allowed. The allowable uplift loads must be reduced when other load durations govern.

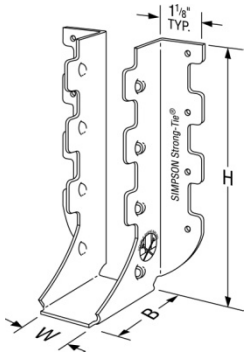

FIGURE 5—MUS HANGER (see Table 5)

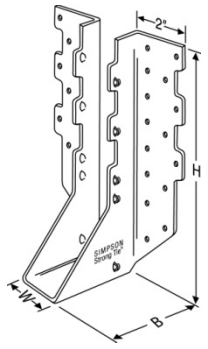

FIGURE 6—HUS SERIES HANGER (see Table 6)

TABLE 6—ALLOWABLE LOADS FOR THE HUS AND HUSC SERIES HANGERS

MODEL NO.	DIMENSIONS[1] (inches)			COMMON NAILS[2] (Quantity-Type)		ALLOWABLE LOADS[3,4,7] (lbf)			
	W	H	B	Header	Joist[5]	Uplift[6]	Download		
						C_D = 1.6	C_D = 1.0	C_D = 1.15	C_D = 1.25
HUS26	$1^{5}/_{8}$	$5^{3}/_{8}$	3	14-16d	6-16d	1,320	2,735	2,845	2,845
HUS28	$1^{5}/_{8}$	$7^{1}/_{16}$	3	22-16d	8-16d	1,760	3,695	3,695	3,695
HUS210	$1^{5}/_{8}$	$9^{1}/_{16}$	3	30-16d	10-16d	2,635	5,450	5,795	5,830
HUS46	$3^{9}/_{16}$	$4^{5}/_{16}$	2	4-16d	4-16d	1,165	1,055	1,195	1,290
HUS48	$3^{9}/_{16}$	$6^{15}/_{16}$	2	6-16d	6-16d	1,320	1,580	1,790	1,930
HUS410	$3^{9}/_{16}$	$8^{15}/_{16}$	2	8-16d	8-16d	3,220	2,110	2,385	2,575
HUS412	$3^{9}/_{16}$	$10^{3}/_{4}$	2	10-16d	10-16d	3,435	2,635	2,985	3,220
HUS26-2	$3^{1}/_{8}$	$5^{3}/_{16}$	2	4-16d	4-16d	1,165	1,055	1,195	1,290
HUS28-2	$3^{1}/_{8}$	$7^{3}/_{16}$	2	6-16d	6-16d	1,320	1,580	1,790	1,930
HUS210-2	$3^{1}/_{8}$	$9^{3}/_{16}$	2	8-16d	8-16d	3,220	2,110	2,385	2,575
HUS212-2	$3^{1}/_{8}$	11	2	10-16d	10-16d	3,435	2,635	2,985	3,220

For **SI:** 1 inch = 25.4 mm, 1 pound = 4.45 N.

[1]Refer to Figure 6 (this page) for definitions of hanger nomenclature (W, H, B).
[2]Refer to Section 3.2.3 of this report for nail sizes and required minimum physical properties.
[3]Tabulated allowable loads must be selected based on duration of load as permitted by the applicable building code.
[4]HUS series hangers provide torsional resistance, which is defined as a moment of not less than 75 pounds (334 N) times the depth of the joist at which the lateral movement of the top or bottom of the joist with respect to the vertical position of the joist is 0.125 inch (3.2 mm). The height, H, of the joist hanger must be at least 60 percent of the height of the joist unless additional lateral restraint is provided, as designed by others.
[5]Joist nails must be driven at a 45 degree angle through the joist into the header/beam (double shear nailing) to achieve the tabulated loads.
[6]Allowable uplift loads have been increased for wind or earthquake loading with no further increase is allowed. The allowable uplift loads must be reduced when other load durations govern.
[7]HUS series hangers with widths (W) equal to or greater than $3^{9}/_{16}$ inches (90 mm) are available with header flanges turned in (concealed) and are identified with the model designation HUSC#.

TABLE 7—ALLOWABLE LOADS FOR THE HHUS SERIES HANGERS

MODEL NO.	DIMENSIONS[1] (inches)			COMMON NAILS[2] (Quantity-Type)		ALLOWABLE LOADS[3,4] (lbf)			
	W	H	B	Header	Joist[5]	Uplift[6]	Download		
						C_D = 1.6	C_D = 1.0	C_D = 1.15	C_D = 1.25
HHUS26-2	$3^5/_{16}$	$5^7/_{16}$	3	14-16d	6-16d	1,320	2,830	3,190	3,415
HHUS28-2	$3^5/_{16}$	$7^1/_2$	3	22-16d	8-16d	1,760	4,265	4,810	5,155
HHUS210-2	$3^5/_{16}$	$9^1/_8$	3	30-16d	10-16d	3,550	5,705	6,435	6,485
HHUS46	$3^5/_8$	$5^1/_4$	3	14-16d	6-16d	1,320	2,830	3,190	3,415
HHUS48	$3^5/_8$	$7^1/_8$	3	22-16d	8-16d	1,760	4,265	4,810	5,155
HHUS410	$3^5/_8$	9	3	30-16d	10-16d	3,550	5,705	6,435	6,485

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

[1]Refer to Figure 7 (this page) for definitions of hanger nomenclature (W, H, B).
[2]Refer to Section 3.2.3 of this report for nail sizes and required minimum physical properties.
[3]Tabulated allowable loads must be selected based on duration of load as permitted by the applicable building code.
[4]HUS series hangers provide torsional resistance, which is defined as a moment of not less than 75 pounds (334 N) times the depth of the joist at which the lateral movement of the top or bottom of the joist with respect to the vertical position of the joist is 0.125 inch (3.2 mm). The height, H, of the joist hanger must be at least 60 percent of the height of the joist unless additional lateral restraint is provided, as designed by others.
[5]Joist nails must be driven at a 45 degree angle through the joist into the header/beam to achieve the tabulated loads.
[6]Allowable uplift loads have been increased for wind or earthquake loading with no further increase is allowed. The allowable uplift loads must be reduced when other load durations govern.

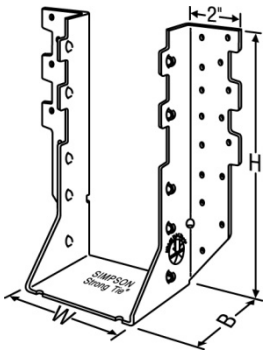

FIGURE 7—HHUS SERIES HANGER (see Table 7)

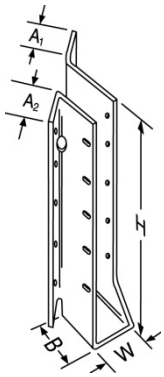

FIGURE 8—SUR/L SERIES HANGER (see Table 8)

TABLE 8—ALLOWABLE LOADS FOR THE SUR/L AND SUR/LC SERIES JOIST HANGERS

MODEL NO.	DIMENSIONS[1] (inches)					FASTENERS[2] (Quantity-Type)		ALLOWABLE LOADS[3,4,6] (lbf)			
	W	H	B	A1	A2	Header	Joist	Uplift[5]	Download		
								C_D = 1.6	C_D = 1.0	C_D = 1.15	C_D = 1.25
SUR/L24	$1^9/_{16}$	$3^1/_{16}$	2	$1^1/_8$	1¼	4-16d	4-10d x $1^1/_2$	395	575	650	705
SUR/L26	$1^9/_{16}$	5	2	$1^1/_8$	$1^1/_4$	6-16d	6-10d x $1^1/_2$	675	865	980	1,055
SUR/L26-2	$3^1/_8$	$4^{15}/_{16}$	$2^5/_8$	$1^1/_2$	$2^3/_8$	8-16d	4-16d x1 $^1/_2$	725	1,150	1,305	1,325
SUR/L210	$1^9/_{16}$	$8^3/_{16}$	2	$1^1/_8$	$1^1/_4$	10-16d	10-10d x $1^1/_2$	1,250	1,440	1,630	1,760
SUR/L214	$1^9/_{16}$	10	2	$1^1/_8$	$1^1/_4$	12-16d	12-10d x $1^1/_2$	1,890	1,730	1,955	2,110
SUR/L210-2	$3^1/_8$	$8^{11}/_{16}$	$2^5/_8$	$1^1/_2$	$2^3/_8$	14-16d	6-16d x $2^1/_2$	1,150	2,015	2,280	2,345
SUR/L2.56/9	$2^9/_{16}$	$8^{13}/_{16}$	$3^3/_{16}$	$1^1/_8$	$2^1/_8$	14-16d	2-10d x $1^1/_2$	210	2,015	2,280	2,465
SUR/L2.56/11	$2^9/_{16}$	$11^3/_{16}$	$3^3/_{16}$	$1^1/_8$	$2^1/_8$	16-16d	2-10d x $1^1/_2$	210	2,305	2,610	2,665
SUR/L414	$3^9/_{16}$	$12^1/_2$	$2^5/_8$	1	$2^3/_8$	18-16d	8-16d x $2^1/_2$	1,490	2,400	2,400	2,400

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

[1]Refer to Figure 8 (this page) for definitions of hanger nomenclature (W, H, B). These hangers have a 45° skew.
[2]Refer to Section 3.2.3 of this report for nail sizes and required minimum physical properties.
[3]Tabulated allowable loads must be selected based on duration of load as permitted by the applicable building code.
[4]SUR/L series hangers provide torsional resistance, which is defined as a moment of not less than 75 pounds (334 N) times the depth of the joist at which the lateral movement of the top or bottom of the joist with respect to the vertical position of the joist is 0.125 inch (3.2 mm). The height, H, of the joist hanger must be at least 60 percent of the height of the joist unless additional lateral restraint is provided, as designed by others.
[5]Allowable uplift loads have been increased for wind or earthquake loading with no further increase is allowed. The allowable uplift loads must be reduced when other load durations govern.
[6]The 2-2x and 4x SUR/L models are available with the A2 flanges concealed and are specified with the model designation SUR/LC.

TABLE 9—ALLOWABLE LOADS FOR THE HSUR/L AND HSUR/LC SERIES JOIST HANGERS

MODEL NO.	DIMENSIONS[1] (inches)					FASTENERS[2] (Quantity-Type)		ALLOWABLE LOADS[3,4,6] (lbf)			
	W	H	B	A1	A2	Header	Joist	Uplift[5]	Download		
								C_D = 1.6	C_D = 1.0	C_D = 1.15	C_D = 1.25
HSUR/L26-2	$3^1/_8$	$4^{15}/_{16}$	$2^7/_{16}$	1¼	$2^3/_{16}$	12-16d	4-16dx$2^1/_2$	725	1,790	1,795	1,795
HSUR/L210-2	$3^1/_8$	$8^{11}/_{16}$	$2^7/_{16}$	1¼	$2^3/_{16}$	20-16d	6-16dx$2^1/_2$	1,150	2,980	3,360	3,410
HSUR/L214-2	$3^1/_8$	$12^{11}/_{16}$	$2^7/_{16}$	1¼	$2^3/_{16}$	26-16d	8-16dx$2^1/_2$	1,490	3,875	4,370	4,680
HSUR/L46	$3^9/_{16}$	$4^3/_4$	$2^7/_{16}$	1	$2^3/_{16}$	12-16d	4-16d	725	1,790	1,795	1,795
HSUR/L410	$3^9/_{16}$	$8^1/_2$	$2^7/_{16}$	1	$2^3/_{16}$	20-16d	6-16d	1,150	2,980	3,360	3,410
HSUR/L414	$3^9/_{16}$	$12^1/_2$	$2^7/_{16}$	1	$2^3/_{16}$	26-16d	8-16d	1,490	3,875	4,370	4,680

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

[1]Refer to Figure 9 (this page) for definitions of hanger nomenclature (W, H, B). These hangers have a 45° skew.
[2]Refer to Section 3.2.3 of this report for nail sizes and required minimum physical properties.
[3]Tabulated allowable loads must be selected based on duration of load as permitted by the applicable building code.
[4]HSUR/L series hangers provide torsional resistance, which is defined as a moment of not less than 75 pounds (334 N) times the depth of the joist at which the lateral movement of the top or bottom of the joist with respect to the vertical position of the joist is 0.125 inch (3.2 mm). The height, H, of the joist hanger must be at least 60 percent of the height of the joist unless additional lateral restraint is provided, as designed by others.
[5]Allowable uplift loads have been increased for wind or earthquake loading with no further increase is allowed. The allowable uplift loads must be reduced when other load durations govern.
[6]The 2-2x and 4x HSUR/L models are available with the A2 flanges concealed and are specified with the model designation HSUR/LC.

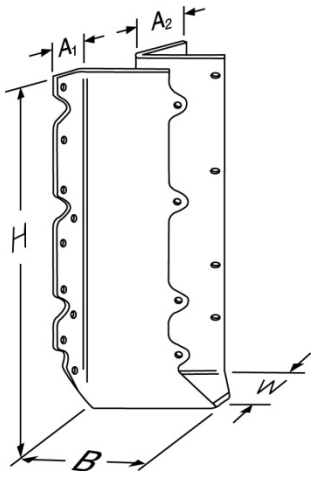

FIGURE 9—HSUR/L SERIES HANGER

TABLE 10A—DIMENSIONS, NAILING SCHEDULES AND DESIGN VALUES FOR HTU SERIES HANGERS ($^1/_2$ Inch Maximum Gap between Supporting Member and Supported Member – Maximum Number of Nails into Supporting Member)

MODEL No.	DIMENSIONS [3] (inches)			FASTENERS [4] (Quantity-Type)		ALLOWABLE LOADS [5, 6, 7] (lbf)					
	W	H	B	Into Supporting Member	Into Supported Member	Uplift [8]	Download				
						C_D=1.6	C_D=0.9	C_D=1.0	C_D=1.15	C_D=1.25	C_D=1.6
Single 2X Sizes											
HTU26 ($^1/_2$" Gap – Min Nail)[1]	$1^5/_8$	$5^7/_{16}$	$3^1/_2$	20-16d	11-10dx$1^1/_2$	635	2,395	2,395	2,395	2,395	2,395
	$1^5/_8$	$5^7/_{16}$	$3^1/_2$	20-16d	14-10dx$1^1/_2$	1,175	2,640	2,940	3,100	3,100	3,100
HTU26 ($^1/_2$" Gap – Max Nail)[2]	$1^5/_8$	$5^7/_{16}$	$3^1/_2$	20-16d	20-10dx$1^1/_2$	1,215	2,640	2,940	3,320	3,580	3,630
HTU28 ($^1/_2$" Gap – Min Nail)[1]	$1^5/_8$	$7^1/_{16}$	$3^1/_2$	26-16d	14-10dx$1^1/_2$	1,110	3,430	3,770	3,770	3,770	3,770
HTU28 ($^1/_2$" Gap – Max Nail)[2]	$1^5/_8$	$7^1/_{16}$	$3^1/_2$	26-16d	26-10dx$1^1/_2$	1,920	3,430	3,820	4,315	4,655	5,015
HTU210 ($^1/_2$" Gap – Min Nail)[1]	$1^5/_8$	$9^1/_{16}$	$3^1/_2$	32-16d	14-10dx$1^1/_2$	1250	3,600	3,600	3,600	3,600	3,600
HTU210 ($^1/_2$" Gap – Max Nail)[2]	$1^5/_8$	$9^1/_{16}$	$3^1/_2$	32-16d	32-10dx$1^1/_2$	3255	4,225	4,705	5,020	5,020	5,020
Double 2X Sizes											
HTU26-2 ($^1/_2$" Gap – Min Nail)[1]	$3^5/_{16}$	$5^7/_{16}$	$3^1/_2$	20-16d	14-10d	1,515	2,640	2,940	3,320	3,500	3,500
HTU26-2 ($^1/_2$" Gap – Max Nail)[2]	$3^5/_{16}$	$5^7/_{16}$	$3^1/_2$	20-16d	20-10d	1,910	2,640	2,940	3,320	3,500	3,500
HTU28-2 ($^1/_2$" Gap – Min Nail)[1]	$3^5/_{16}$	$7^1/_{16}$	$3^1/_2$	26-16d	14-10d	1,490	3,430	3,820	3,980	3,980	3,980
HTU28-2 ($^1/_2$" Gap – Max Nail)[2]	$3^5/_{16}$	$7^1/_{16}$	$3^1/_2$	26-16d	26-10d	3,035	3,430	3,820	4,315	4,655	5,520
HTU210-2 ($^1/_2$" Gap – Min Nail)[1]	$3^5/_{16}$	$9^1/_{16}$	$3^1/_2$	32-16d	14-10d	1,755	4,225	4,255	4,255	4,255	4,255
HTU210-2 ($^1/_2$" Gap – Max Nail)[2]	$3^5/_{16}$	$9^1/_{16}$	$3^1/_2$	32-16d	32-10d	3,855	4,225	4,705	5,310	5,730	6,470

For **SI:** 1 inch = 25.4 mm, 1 pound = 4.45 N.

[1]The suffix '($^1/_2$" Gap – Min Nail)' corresponds to installed conditions where the gap between the supporting member and supported member is more than $^1/_8$ inch (3.2 mm) and less than or equal to $^1/_2$ inch (12.7 mm), and, at a minimum, the number of nails specified in the table above are installed into the supported wood truss. Refer to Figure 10B on page 11 for a typical installation detail.

[2]The suffix '($^1/_2$" Gap – Max Nail)' corresponds to installed conditions where the gap between the supporting member and supported member is more than $^1/_8$ inch (3.2 mm) and less than or equal to $^1/_2$ inch (12.7 mm), and all of the pre-punched nail holes in the U-shaped portion of the hanger supporting the truss (joist) are filled with nails. This is designated in the table as "Max Nail" and is shown in Figure 10B on page 11.

[3]Refer to Figure 10A for definitions of hanger nomenclature (W, H, B).

[4]Allowable loads correspond to installations where the maximum possible number of nails is driven into the supporting member. Refer to Section 3.2.3 of this report for nail sizes and required minimum physical properties.

[5]Tabulated allowable loads are for installations in wood members complying with Section 3.2.2 of this report.

[6]Tabulated loads must be selected based on the applicable load duration factor, C_D, as permitted by the applicable building code. See Sections 4.1 and 4.2 for design and installation requirements.

[7]HTU series hangers provide torsional resistance, which is defined as a moment of not less than 75 pounds (334 N) times the depth of the joist at which the lateral movement of the top or bottom of the joist with respect to its vertical position is 0.125 inch (3.2 mm), for joists having a height no greater than the height (H) of the hanger.

[8]Allowable uplift loads have been increased for wind or earthquake loading with no further increase allowed. The tabulated allowable uplift loads must be reduced proportionally when other load durations govern.

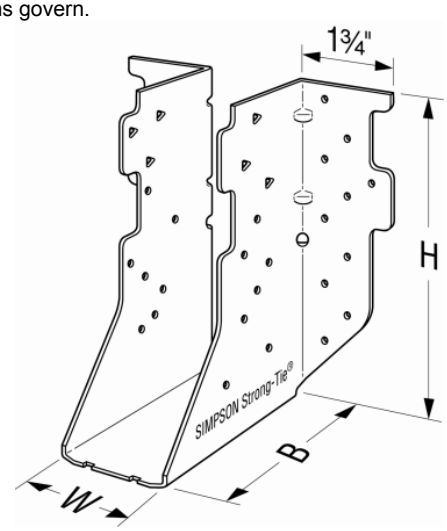

FIGURE 10A—HTU SERIES HANGER

TABLE 10B—DIMENSIONS, NAILING SCHEDULES AND DESIGN VALUES FOR HTU SERIES HANGERS
(1/8 Inch Maximum Gap between Supporting Member and Supported Member – Maximum Number of Nails into Supporting Member)

MODEL No.	DIMENSIONS [3] (inches)			FASTENERS [4] (Quantity-Type)		ALLOWABLE LOADS [5, 6, 7] (lbf)					
	W	H	B	Into Supporting Member	Into Supported Member	Uplift [8]	Download				
						C_D=1.6	C_D=0.9	C_D=1.0	C_D=1.15	C_D=1.25	C_D=1.6
Single 2X Sizes											
HTU26 (1/8" Gap – Min Nail)[1]	1 5/8	5 7/16	3 1/2	20-16d	11-10dx1 1/2	640	2,640	2,670	2,670	2,670	2,670
	1 5/8	5 7/16	3 1/2	20-16d	14-10dx1 1/2	1,250	2,640	2,940	3,200	3,200	3,200
HTU26 (1/8" Gap – Max Nail)[2]	1 5/8	5 7/16	3 1/2	20-16d	20-10dx1 1/2	1,555	2,640	2,940	3,320	3,580	4,010
HTU28 (1/8" Gap – Min Nail)[1]	1 5/8	7 1/16	3 1/2	26-16d	14-10dx1 1/2	1,235	3,430	3,820	3,895	3,895	3,895
HTU28 (1/8" Gap – Max Nail)[2]	1 5/8	7 1/16	3 1/2	26-16d	26-10dx1 1/2	2,020	3,430	3,820	4,315	4,655	5,435
HTU210 (1/8" Gap – Min Nail)[1]	1 5/8	9 1/16	3 1/2	32-16d	14-10dx1 1/2	1,330	4,225	4,300	4,300	4,300	4,300
HTU210 (1/8" Gap – Max Nail)[2]	1 5/8	9 1/16	3 1/2	32-16d	32-10dx1 1/2	3,315	4,225	4,705	5,310	5,730	5,995
Double 2X Sizes											
HTU26-2 (1/8" Gap – Min Heel)[1]	3 5/16	5 7/16	3 1/2	20-16d	14-10d	1,515	2,640	2,940	3,320	3,580	3,910
HTU26-2 (1/8" Gap – Max Nail)[2]	3 5/16	5 7/16	3 1/2	20-16d	20-10d	2,175	2,640	2,940	3,320	3,580	4,480
HTU28-2 (1/8" Gap – Min Nail)[1]	3 5/16	7 1/16	3 1/2	26-16d	14-10d	1,530	3,430	3,820	4,310	4,310	4,310
HTU28-2 (1/8" Gap – Max Nail)[2]	3 5/16	7 1/16	3 1/2	26-16d	26-10d	3,485	3,430	3,820	4,315	4,655	5,825
HTU210-2 (1/8" Gap – Min Nail)[1]	3 5/16	9 1/16	3 1/2	32-16d	14-10d	1,755	4,225	4,705	4,815	4,815	4,815
HTU210-2 (1/8" Gap – Max Nail)[2]	3 5/16	9 1/16	3 1/2	32-16d	32-10d	4,110	4,225	4,705	5,310	5,730	6,515

For **SI:** 1 inch = 25.4 mm, 1 pound = 4.45 N.

[1]The suffix '(1/8" Gap – Min Nail)' corresponds to installed conditions where the gap between the supporting member and supported wood truss is 1/8 inch (3.2 mm) or less, and at a minimum, the number of nails specified in the table above are installed into the supported wood truss. Refer to Figure 10B for a typical installation detail.

[2]The suffix '(1/8" Gap – Max Nail)' corresponds to installed conditions where the gap between the supporting member and supported wood truss is 1/8 inch (3.2 mm) or less, and the all of the pre-punched nail holes in the U-shaped portion of the hanger supporting the truss (joist) are filled with nails. This is designated in the table as "Max Nail" and is shown in Figure 10B on this page.

[3]Refer to Figure 10A for definitions of hanger nomenclature (W, H, B).

[4]Allowable loads correspond to installations where the maximum possible number of nails is installed into the supporting member. Refer to Section 3.2.3 of this report for nail sizes and required minimum physical properties.

[5]Tabulated allowable loads are for installations in wood members complying with Section 3.2.2 of this report.

[6]Tabulated loads must be selected based on the applicable load duration factor, C_D, as permitted by the applicable building code. See Sections 4.1 and 4.2 for design and installation requirements.

[7]HTU series hangers provide torsional resistance, which is defined as a moment of not less than 75 pounds (334 N) times the depth of the joist at which the lateral movement of the top or bottom of the joist with respect to its vertical position is 0.125 inch (3.2 mm), for joists having a height no greater than the height (H) of the hanger.

[8]Allowable uplift loads have been increased for wind or earthquake loading with no further increase allowed. The tabulated allowable uplift loads must be reduced proportionally when other load durations govern.

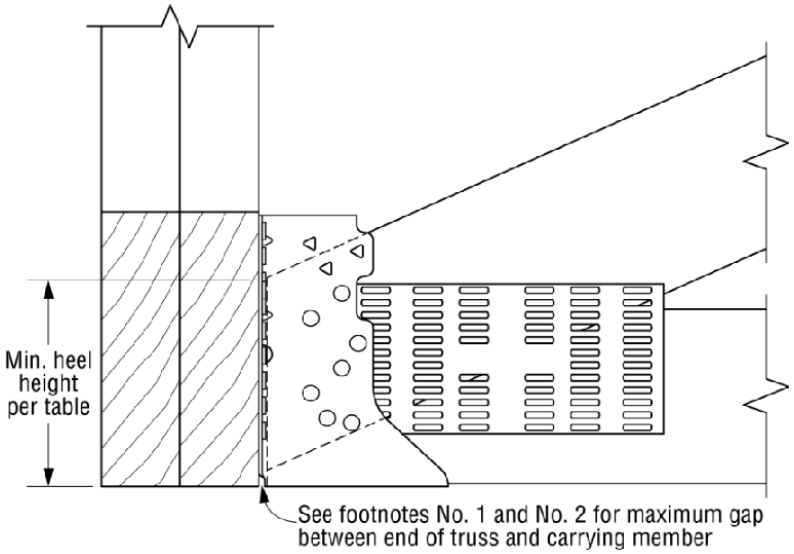

FIGURE 10B—TYPICAL HTU INSTALLATION

TABLE 10C—DIMENSIONS, NAILING SCHEDULES AND DESIGN VALUES FOR HTU SERIES HANGERS – ALTERNATE INSTALLATION ($^1/_2$ Inch Maximum Gap between Supporting Member and Supported Member - Minimum Number of Nails into Supporting Member)

MODEL No. [1, 2]	DIMENSIONS [3] (inches)			FASTENERS [4] (Quantity-Type)		ALLOWABLE LOADS [5, 6, 7] (lbf)					
	W	H	B	Into Supporting Member	Into Supported Member	Uplift [8]	Download				
						C_D=1.6	C_D=0.9	C_D=1.0	C_D=1.15	C_D=1.25	C_D=1.6
HTU26 ($^1/_2$" Gap – Min Nail)[1]	$1^5/_8$	$5^7/_{16}$	$3^1/_2$	10-16d	14-10dx$1^1/_2$	845	1,320	1,470	1,660	1,790	1,875
HTU26 ($^1/_2$" Gap – Max Nail)[2]	$1^5/_8$	$5^7/_{16}$	$3^1/_2$	10-16d	20-10dx$1^1/_2$	1,240	1,320	1,470	1,660	1,790	2,220
HTU28 ($^1/_2$" Gap – Max Nail)[2]	$1^5/_8$	$7^1/_{16}$	$3^1/_2$	20-16d	26-10dx$1^1/_2$	1,920	2,640	2,940	3,320	3,580	3,905
HTU210 ($^1/_2$" Gap – Max Nail)[2]	$1^5/_8$	$9^1/_{16}$	$3^1/_2$	20-16d	32-10dx$1^1/_2$	2,880	2,640	2,940	3,320	3,580	3,905

For **SI:** 1 inch = 25.4 mm, 1 pound = 4.45 N.

[1]The suffix '($^1/_2$" Gap – Min Nail)' corresponds to installed conditions where the gap between the supporting member and supported member is more than $^1/_8$ inch (3.2 mm) and less than or equal to $^1/_2$ inch (12.7 mm), and at a minimum, the number of nails specified in the table above are installed into the supported wood truss. Refer to Figure 10C for an alternate installation detail.

[2]The suffix '($^1/_2$" Gap – Max Nail)' corresponds to installed conditions where the gap between the supporting member and supported member is more than $^1/_8$ inch (3.2 mm) and less than or equal to $^1/_2$ inch (12.7 mm), and the all of the pre-punched nail holes in the U-shaped portion of the hanger supporting the truss (joist) are filled with nails. This is designated in the table as "Max Nail" and is shown in Figure 10C.

[3]Refer to Figure 10A for definitions of hanger nomenclature (W, H, B).

[4]Allowable loads correspond to installations where the minimum allowable number of nails is installed into the supporting member. Refer to Section 3.2.3 of this report for nail sizes and required minimum physical properties.

[5]Tabulated allowable loads are for installations in wood members complying with Section 3.2.2 of this report.

[6]Tabulated loads must be selected based on the applicable load duration factor, C_D, as permitted by the applicable building code. See Sections 4.1 and 4.2 for design and installation requirements.

[7]HTU series hangers provide torsional resistance, which is defined as a moment of not less than 75 pounds (334 N) times the depth of the joist at which the lateral movement of the top or bottom of the joist with respect to its vertical position is 0.125 inch (3.2 mm), for joists having a height no greater than the height (H) of the hanger.

[8]Allowable uplift loads have been increased for wind or earthquake loading with no further increase allowed. The tabulated allowable uplift loads must be reduced proportionally when other load durations govern.

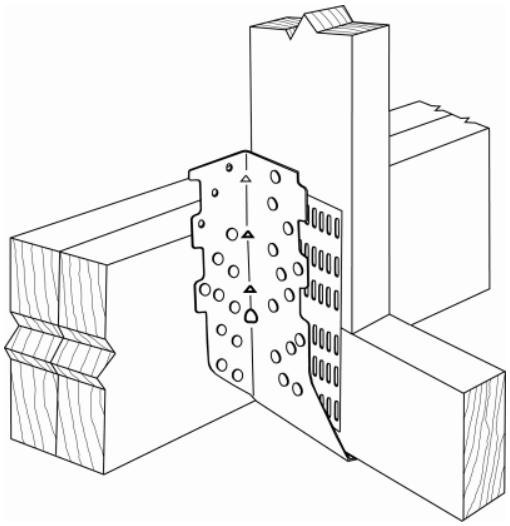

FIGURE 10C—ALTERNATE HTU INSTALLATION

TABLE 11—DIMENSIONS, NAILING SCHEDULES AND DESIGN VALUES FOR LUCZ SERIES HANGERS

MODEL No.	DIMENSIONS (inches)		FASTENERS [1] (Quantity-Type)		ALLOWABLE LOADS [2, 3, 4, 5] (lbf)					
	W	H	Into Supporting Member	Into Supported Member	Uplift [6]	Download				
					C_D=1.60	C_D =0.9	C_D =1.0	C_D =1.15	C_D =1.25	C_D =1.60
LUC26Z	$1^9/_{16}$	$4^3/_4$	6 - 10dx$1^1/_2$	4 - 10d x $1^1/_2$	730	640	710	810	875	1,100
			6 - 10d		730	640	710	810	875	1,100
			6 - 16d		730	760	845	965	1,040	1,315
LUC210Z	$1^9/_{16}$	$7^3/_4$	10 - 10d x $1^1/_2$	6 - 10d x $1^1/_2$	985	1,065	1,185	1,345	1,455	1,830
			10 - 10d		985	1,065	1,185	1,345	1,455	1,830
			10 - 16d		985	1,270	1,410	1,605	1,735	2,180

For **SI:** 1 inch = 25.4 mm, 1 pound = 4.45 N.

[1]Allowable loads correspond to installations where all pre-punched nail holes in the hanger are filled with nails. Refer to Section 3.2.3 of this report for nail sizes and required minimum physical properties.
[2]Tabulated allowable loads are for installations in wood members complying with Section 3.2.2 of this report.
[3]Tabulated loads must be selected based on the applicable load duration factor, C_D, as permitted by the applicable building code. See Sections 4.1 and 4.2 for design and installation requirements.
[4]The maximum allowable gap between the joist end and the supporting member is $^1/_8$ inch (3.2 mm).
[5]LUCZ series hangers provide torsional resistance, which is defined as a moment of not less than 75 pounds (334 N) times the depth of the joist at which the lateral movement of the top or bottom of the joist with respect to its vertical position is 0.125 inch (3.2 mm), for nominal 2x6 joists supported by the LUC26Z and nominal 2x10 joists supported by the LUC210Z.
[6]Allowable uplift loads have been increased for wind or earthquake loading with no further increase allowed. The tabulated allowable uplift loads must be reduced proportionally when other load durations govern.

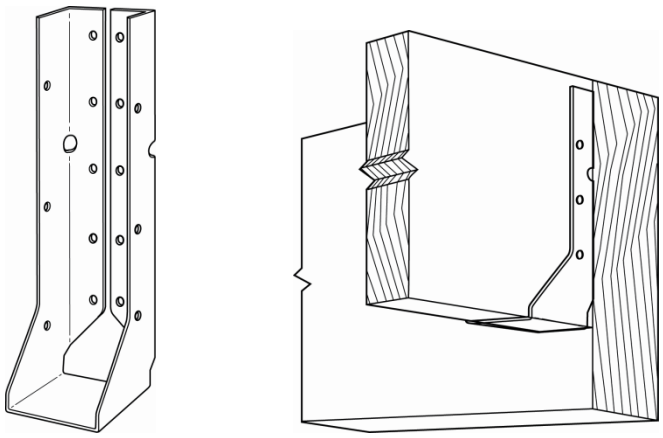

FIGURE 11—LUCZ SERIES HANGER AND INSTALLATION DETAIL

TABLE 12—ALLOWABLE LOADS FOR THE HGUS SERIES JOIST HANGERS[6]

Model No.	DIMENSIONS[1]			FASTENERS[2]		ALLOWABLE LOADS[3]			
						Uplift[5]	Download		
	W	H	B	Header	Joist[4]	C_D = 1.6	C_D = 1.0	C_D = 1.15	C_D = 1.25
HGUS26	1 5/8	5 3/8	5	20-16d	8-16d	875	4,340	4,850	5,170
HGUS28	1 5/8	7 1/8	5	36-16d	12-16d	1,650	7,275	7,275	7,275
HGUS210	1 5/8	9 1/8	5	46-16d	16-16d	2,090	9,100	9,100	9,100
HGUS26-2	3 7/16	5 7/16	4	20-16d	8-16d	2,155	4,340	4,850	5,170
HGUS28-2	3 7/16	7 3/16	4	36-16d	12-16d	3,235	7,460	7,460	7,460
HGUS210-2	3 7/16	9 3/16	4	46-16d	16-16d	4,095	9,100	9,100	9,100
HGUS46	3 5/8	5 1/4	4	20-16d	8-16d	2,155	4,340	4,850	5,170
HGUS48	3 5/8	7	4	36-16d	12-16d	3,235	7,460	7,460	7,460
HGUS410	3 5/8	9	4	46-16d	16-16d	4,095	9,100	9,100	9,100
HGUS412	3 5/8	10 7/16	4	56-16d	20-16d	4,085	9,045	9,045	9,045
HGUS414	3 5/8	12 7/16	4	66-16d	22-16d	4,580	9,525	9,525	9,525
HGUS26-3	4 15/16	5 7/16	4	20-16d	8-16d	2,155	4,340	4,850	5,170
HGUS28-3	4 15/16	7 3/16	4	36-16d	12-16d	3,235	7,460	7,460	7,460
HGUS210-3	4 15/16	9 3/16	4	46-16d	16-16d	4,095	9,100	9,100	9,100
HGUS212-3	4 15/16	10 3/4	4	56-16d	20-16d	4,085	9,045	9,045	9,045
HGUS214-3	4 15/16	12 3/4	4	66-16d	22-16d	4,580	9,525	9,525	9,525
HGUS26-4	6 9/16	5 7/16	4	20-16d	8-16d	2,155	4,340	4,850	5,170
HGUS28-4	6 9/16	7 3/16	4	36-16d	12-16d	3,235	7,460	7,460	7,460
HGUS210-4	6 9/16	9 3/16	4	46-16d	16-16d	4,095	9,100	9,100	9,100
HGUS212-4	6 9/16	10 9/16	4	56-16d	20-16d	4,085	9,045	9,045	9,045
HGUS214-4	6 9/16	12 9/16	4	66-16d	22-16d	4,580	9,525	9,525	9,525

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

[1]Refer to Figure 12 (this page) for definitions of hanger nomenclature (W, H, B).
[2]Refer to Section 3.2.3 of this report for nail sizes and required minimum physical properties.
[3]Tabulated allowable loads must be selected based on duration of load as permitted by the applicable building code.
[4]Joist nails must be driven at a 45 degree angle through the joist into the header/beam (double shear nailing) to achieve tabulated loads.
[5]Allowable uplift loads have been increased for wind or earthquake loading with no further increase allowed. The allowable uplift loads must be reduced when other load durations govern.
[6]HGUS series hangers provide torsional resistance, which is defined as the moment of not less than 75 pounds (334 N) times the depth of the joist at which the lateral movement of the top or bottom of the joist with respect to the vertical position of the joist is 0.125" (3.2 mm). The height, H, of the joist hanger must be at least 60 percent of the height of the joist unless additional lateral restraint is provided, as designed by others.

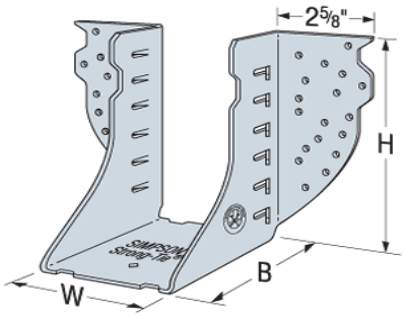

FIGURE 12—HGUS SERIES JOIST HANGER

ICC-ES Evaluation Report

ESR-2549 LABC and LARC Supplement

Issued July 2018

This report is subject to renewal January 2019.

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Section: 06 05 23—Wood, Plastics, and Composite Fastenings

REPORT HOLDER:

SIMPSON STRONG-TIE COMPANY INC.
5956 WEST LAS POSITAS BOULEVARD
PLEASANTON, CALIFORNIA 94588
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www.strongtie.com

EVALUATION SUBJECT:

SIMPSON STRONG-TIE® FACE-MOUNT HANGERS FOR WOOD FRAMING

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Simpson Strong-Tie® face-mount hangers used as wood framing connectors, described in ICC-ES master evaluation report ESR-2549, have 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:

- 2017 *City of Los Angeles Building Code* (LABC)
- 2017 *City of Los Angeles Residential Code* (LARC)

2.0 CONCLUSIONS

The Simpson Strong-Tie® face-mount hangers used as wood framing connectors, described in Sections 2.0 through 7.0 of the master evaluation report ESR-2549, comply with the LABC Chapter 23, and the LARC, and are subjected to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The Simpson Strong-Tie face-mount hangers used as wood framing connectors, described in this evaluation report must comply with all of the following conditions:

- All applicable sections in the master evaluation report ESR-2549.
- The design, installation, conditions of use and labeling are in accordance with the 2015 *International Building Code®* (2015 IBC) provisions noted in the master evaluation report ESR-2549.
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16 and 17, as applicable.
- Under the LARC, an engineered design in accordance with LARC Section R301.1.3 must be submitted.

This supplement expires concurrently with the master report, issued January 2018, revised July 2018.