

# ICC-ES Evaluation Report

**ESR-2615**

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**DIVISION: 06 00 00—WOOD, PLASTIC, AND COMPOSITES**
**Section: 06 05 23—Wood, Plastic, and Composite Fastenings**
**REPORT HOLDER:**

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**EVALUATION SUBJECT:**

**SIMPSON STRONG-TIE® TOP-FLANGE HANGERS FOR ENGINEERED WOOD PRODUCTS (EWP) AND GLULAM BEAMS**

**1.0 EVALUATION SCOPE**
**Compliance with the following codes:**

- 2012, 2009 and 2006 *International Building Code*® (IBC)
- \* ■ 2012, 2009 and ~~2006~~ *International Residential Code*® (IRC)

**Properties evaluated:**

Structural

**2.0 USES**

The Simpson Strong-Tie® EWP top-flange hangers described in this report are used as wood framing connectors in accordance with Section [2304.9.3](#) of the 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 EWP top-flange hangers recognized in this report have a U-shaped stirrup that is designed to support wood beams or joists and a top flange angle that is designed to bear onto a supporting wood or steel member. Descriptions of each series recognized in this report are given in Sections 3.1.1 through 3.1.10. A complete list of model numbers recognized within each series is given in [ESR-2523](#). For each specific model number, the dimensions of the intended joist width, height and number of face-to-face joist plies (where applicable) are indicated

within the model numbers themselves, using one of the following numbering schemes:

- SERIES W/H or SERIES WH; where “SERIES” is the series designation, “W” is the joist width qualifier, and “H” is the height qualifier.
- SERIES WH-N; where “SERIES” is the series designation, “W” is the width qualifier for each joist ply, “H” is the height qualifier, and “N” is the number of joist plies.
- SERIES W; where “SERIES” is the series designation, and “W” is the joist width qualifier.

**3.1.1 GLTV and HGLTV Series Hangers:** The GLTV and HGLTV series hangers have a No. 7 gage U-shaped steel stirrup that is factory-welded to a No. 3 gage steel angle that acts as the top flange of the hanger. The HGLTV is similar to the GLTV except that the top flange dimension, nailing schedule and welds are increased. See [Table 1](#) for hanger model numbers, hanger seat width ranges, hanger height ranges, fastener schedules, and allowable loads. See [Figure 1](#) for the dimensions of the welded top flange angle and a drawing of a typical GLTV installation.

**3.1.2 HHB, GB, HGB, and HHBD Series Hangers:** The HHB, GB and HGB series hangers have a No. 7 gage U-shaped steel stirrup that is formed with two flanges that extend over the top of the carrying beam/header. Series HHBD hangers consist of two HHB hangers with their header flanges trimmed and factory-welded together, which saddles over the carrying beam and the welded hangers support wood purlins occurring on opposite sides of the carrying beam. The hangers can be welded to steel beams with two <sup>3</sup>/<sub>16</sub>-inch-thick (root) by 2-inch-long (4.8 by 51 mm) fillet welds on each side of each hanger flange. See [Table 2](#) for hanger model numbers, hanger seat width ranges, hanger height ranges, required fastener schedules, and allowable loads. See [Figure 2a](#) for HHB, GB, and HGB hanger dimensions. See [Figure 2b](#) for a drawing of a welded hanger installation. See [Figure 2c](#) for a drawing of an HHBD hanger installation.

**3.1.3 W, WP, WPU, WNP, WNPU, HW, and HWU Series Hangers:** The W series hangers have a No. 12 gage steel angle top flange and a No. 12 gage steel U-shaped stirrup. The WP, WNP, WPU and WNPU series hangers have a No. 7 gage steel angle top flange and a No. 12 gage steel U-shaped stirrup. The HW series hangers have a No. 3 gage steel angle top flange and a No. 11 gage steel U-shaped stirrup. The HWU series hangers have a No. 3 gage steel angle top flange and a No. 10 gage steel U-shaped stirrup. See [Table 3](#) for hanger model numbers, hanger seat width ranges, hanger height ranges, required

fastener schedules and allowable loads. See [Figure 3](#) for drawings of typical WP and HW hangers and a drawing of a typical installation of a HWU hanger. The WI, WPI and HWI series are identical to the W, WP and HW series, respectively, except that they have heights that are designed for use with I-joists rather than nominal sawn lumber joists.

**3.1.4 GLT and HGLT Series Hangers:** The GLT and HGLT series hangers have a No. 7 gage steel U-shaped stirrup that is factory-welded to a No. 3 gage steel angle. See [Table 4](#) for hanger model numbers, hanger seat width ranges, hanger height ranges, required fastener schedules and allowable loads. See [Figure 4](#) for a drawing of a GLT hanger.

**3.1.5 GLS and HGLS Series Hangers:** The GLS and HGLS series hangers are saddle hangers that have a No. 7 gage steel U-shaped stirrup welded to each side of a No. 3 gage steel channel. The top channel bears onto a carrying beam and the two opposing stirrups support carried beams. The HGLS series hangers also have a steel plate welded to the lower portion of the U-shaped stirrup for additional fasteners installed into the supporting beam. See [Table 5](#) for hanger model numbers, hanger seat width ranges, hanger height ranges, channel width ranges, required fastener schedules, and allowable loads. See [Figure 5](#) for a drawing of a typical HGLS.

**3.1.6 EG, MEG, and LEG Series Hangers:** The EG, MEG, and LEG series hangers have a No. 7 gage steel U-shaped stirrup factory-welded to a No. 3 gage steel angle for the EG model, and to a No. 7 gage steel angle for the MEG and LEG models. See [Table 6](#) for the hanger model numbers, hanger seat width ranges, hanger height ranges, required fastener schedules, and allowable loads. See [Figure 6](#) for a drawing of an EG hanger and MEG and LEG hangers.

**3.1.7 MSC Series Hangers:** The MSC1.81 and MSC2 hangers have three No. 11 gage steel U-shaped stirrups that are factory-welded to a single No. 3 gage steel angle. The MSC4 and MSC5 hangers have three No. 7 gage steel U-shaped stirrups that are factory-welded to a single No. 3 gage steel angle. The hangers are designed to support three wood members intersecting at one point: a non-skewed center member and two skewed members with one on each side of the center member. See [Table 7](#) for hanger model numbers, hanger dimensions, required fasteners, and allowable loads. See [Figure 7](#) for drawings of a typical MSC hanger installation.

**3.1.8 ITS, MIT, and HIT Series Joist Hangers:** The ITS, MIT and HIT series joist hangers are used to connect prefabricated wood I-joists to a supporting wood beam. The ITS series joist hangers are die-formed from 18 gage galvanized steel, and have two large prongs at the seat that are used to resist uplift forces. The MIT and HIT series joist hangers are die-formed from No. 16 gage galvanized steel, and include 45-degree-angle nail openings, for attachment of the joist flange to the hanger. See [Table 8](#) for model numbers, hanger seat width ranges, hanger height ranges, required fastener schedules and allowable loads. See [Figure 8](#) for drawings of typical ITS, MIT and HIT hangers.

**3.1.9 LBV, B, HB and BA Series Hangers:** The LBV and BA series joist hangers are formed from No. 14 gage galvanized steel. The B series joist hangers are formed from No. 12 gage galvanized steel. The HB series joist hangers are formed from No. 10 gage galvanized steel. See [Table 9](#) for model numbers, hanger seat width ranges, hanger height ranges, required fastener schedules, and allowable loads. See [Figure 9](#) for drawings of LBV, B, HB

and BA series hangers and typical installations.

**3.1.10 EGQ Series Hangers:** The EGQ series hangers have a No. 7 gage steel U-shaped stirrup that is factory-welded to a No. 3 gage steel angle that acts as the top flange of the hanger. The hangers are installed using Simpson Strong-Drive SDS series wood screws (SDS), which are recognized under [ESR-2236](#). See [Table 10](#) for model numbers, hanger dimensions, fastener schedules, and allowable loads. See [Figure 10](#) for a drawing of the EGQ hanger and a typical installation.

~~**3.1.11 HWP and HWPH Series Hangers:** The HWP series hangers have a No. 7 gage steel angle top flange and a No. 12 gage steel U-shaped stirrup welded to the top flange. The HWPH series hanger have a No. 3 gage steel angle top flange and a No. 7 gage steel U-shaped stirrup welded to the top flange. See [Table 11](#) for hanger model number, hanger seat width ranges, hanger height ranges, required fastener schedules and allowable loads. See [Figure 11](#) for typical HWP and HWPH hangers and a drawing of a typical installation of an HWPH hanger.~~

**Materials:**

**3.1.12 Steel:** The ITS, MIT, HIT, LBV, BA, B and HB series hangers described in this report 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 ultimate tensile strength,  $F_u$ , of 45,000 psi (310 MPa). The remaining hangers described in this report are manufactured from ungalvanized steel complying with [ASTM A1011](#), 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 52,000 psi (359 MPa). The minimum base-metal thicknesses for the hangers in this report are as follows:

NOMINAL THICKNESS (gage)	MINIMUM BASE-METAL THICKNESS (inch)
No. 3	0.2285
No. 7	0.1705
No. 10	0.1275
No. 11	0.1105
No. 12	0.0975
No. 14	0.0685
No. 16	0.0555
No. 18	0.0445

For SI: 1 inch = 25.4 mm.

The hangers manufactured from galvanized steel have a minimum G90 zinc coating specification in accordance with [ASTM A924](#) and ASTM A653. The hangers manufactured from ungalvanized steel have either a painted or powder coated finish. 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 batch hot-dipped galvanized coating with a minimum specified coating weight of 2.0 ounces of zinc per square foot of surface area (600 g/m<sup>2</sup>), total for both sides, in accordance with [ASTM A123](#). Model numbers in this report do not include the Z or HDG ending, but the information shown applies. The lumber treatment manufacturer or the report holder (Simpson Strong-Tie Company) should be contacted for recommendations on minimum corrosion resistance protection of steel connectors in contact with the specific

proprietary preservative-treated or fire-retardant treated lumber.

**3.1.13 Wood:** Wood members with which the connectors are used must be either sawn lumber or 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 engineered lumber) except as noted in Section 4.1. The thickness of the supporting wood member (header) 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.

**3.1.14 Fasteners:** The type, size and number of fasteners used to install the hangers described in this report must comply with the fastener schedules specified in [Tables 1](#) through 10. Simpson Strong-Drive SDS screws used for hangers described in this report must comply with [ESR-2236](#). Bolts used for hangers described in this report, at a minimum, must comply with [ASTM A36](#) or [ASTM A307](#) and must have a minimum bending yield strength ( $F_y$ ) of 45,000 psi. Common nails used for hangers described in this report must comply with [ASTM F1667](#) and have the following minimum fastener dimensions and bending yield strengths ( $F_y$ ):

FASTENER	SHANK DIAMETER (inches)	FASTENER LENGTH (inches)	$F_y$ (psi)
10d × 1½	0.148	1½	90,000
10d	0.148	3	90,000
16d × 2½	0.162	2½	90,000
16d	0.162	3½	90,000
N54A <sup>1</sup>	0.250	2½	70,000

For SI: 1 inch = 25.4 mm, 1 psi = 6.89 kPa.

<sup>1</sup>N54A is a designation for proprietary annular ring shank nails supplied by Simpson Strong-Tie Company with the hangers described in [Tables 2, 4](#), and [5](#) of this report.

Fasteners used in contact with preservative treated or fire retardant treated lumber must comply with Section [2304.9.5](#) of the IBC, Section [R317.3](#) of the 2012 and 2009 IRC, ~~Section [R319.3](#) of the 2006 IRC~~, or [ESR-2236](#), as applicable. The lumber treatment manufacturer or this report holder (Simpson Strong-Tie Company) should be contacted for recommendations on minimum corrosion resistance protection 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 100°F (37.8°C) 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 100°F (37.8°C), 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 manufacturer's published installation instructions, this report governs.

### 4.3 Special Inspection:

**4.3.1 Main Wind-force-resisting Systems Under the IBC:** Periodic special inspection must be conducted in accordance with the applicable sections of 2012 IBC Section [1705.10](#), 2009 IBC Section [1706](#) or 2006 IBC Section [1704](#) when the connectors described in this report are used as components of the main wind-force-resisting system on structures in areas listed in Section 1705.10 of the 2012 IBC, Section [1706.1](#) of the 2009 IBC or Section [1705.4](#) of the 2006 IBC. Special inspection requirements do not apply to structures, or portions thereof, that qualify for the exceptions under Section [1704.2](#), [1705.10.1](#) or [1705.10.2](#) of the 2012 IBC; Section [1704.1](#), [1706.2](#) or [1706.3](#) of the 2009 IBC; or Section [1704.1](#) of the 2006 IBC.

**4.3.2 Seismic-force-resisting Systems Under the IBC:** Periodic special inspection must be conducted in accordance with the applicable parts of Section [1705.11](#) of the 2012 IBC, or Section [1707](#) of the 2009 and 2006 IBC, when the connectors described in this report are used as components of a seismic-force-resisting system for a structure in Seismic Design Category C, D, E or F. Special inspection requirements do not apply to structures, or portions thereof, that qualify for the exceptions under Section 1704.2 or 1705.11 of the 2012 IBC; Section 1704.1, [1707.3](#) or [1707.4](#) of the 2009 IBC; or Section 1704.1 or [1707.3](#) of the 2006 IBC.

**4.3.3 Installations Under the IRC:** For installations under the IRC, special inspections are normally not required. However, for an engineered design where calculations are required to be signed by a registered design professional, periodic special inspection requirements and exemptions are as stated in Sections 4.3.1 and 4.3.2 of this report, as applicable, for installations under the IRC.

## 5.0 CONDITIONS OF USE

The Simpson Strong-Tie EWP top-flange hangers 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:

- 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.
- 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.
- Adjustment factors noted in Section 4.1 and the applicable codes must be considered, where applicable.
- 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- or fire retardant-treated lumber must be in accordance with Section 3.2.1 of this report. Use of fasteners with preservative- or fire retardant-treated lumber must be in accordance with Section 3.2.3 of this report.

5.6 Factory welded hangers are manufactured under a quality-control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Joist Hangers and Similar Devices (AC13), dated October 2010 (editorially revised December 2011).

7.0 IDENTIFICATION

The products described in this report are identified with a die-stamped or 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.

TABLE 1—ALLOWABLE LOADS FOR THE GLTV/HGLTV SERIES HANGERS

SERIES <sup>1</sup>	HANGER DIMENSIONS <sup>1</sup> (inches)			FASTENERS (Quantity-Type)			ALLOWABLE LOADS <sup>2,3</sup> (lbs)			
				Header		Joist	Uplift <sup>4</sup> C <sub>D</sub> = 1.6	Download		
	W	H	B	Top	Face			C <sub>D</sub> = 1.0	C <sub>D</sub> = 1.15	C <sub>D</sub> = 1.25
GLTV	3 <sup>1</sup> / <sub>4</sub> - 7 <sup>1</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub> - 33	5	4-16d	6-16d	6-16d	1,295	7,200	7,200	7,200
HGLTV	3 <sup>1</sup> / <sub>4</sub> - 7 <sup>1</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub> - 33	6	6-16d	12-16d	6-16d	1,295	8,835	8,835	8,835

For SI: 1 inch = 25.4 mm, 1 lbs = 4.45 N, 1 psi = 6.89 kPa.

<sup>1</sup>Refer to Figure 1 for definitions of hanger dimension nomenclature (W, H). The “B” dimension is the length of the hanger seat, measured perpendicular to the “W” dimension. Refer to [ESR-2523](#) for a complete list of all GLTV and HGLTV model numbers. See Section 3.1 for a description of model numbering schemes, as they relate to intended joist dimensions and number of joist plies.

<sup>2</sup>Tabulated allowable load capacities must be selected based on duration of load as permitted by the applicable building code. The 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.

<sup>3</sup>The allowable loads are based on the use of Douglas fir-larch header members with an allowable compression perpendicular-to-grain, F<sub>c⊥</sub>, of 625 psi, and structural composite lumber joists with an F<sub>c⊥</sub> of 750 psi. When the hangers are supported by header members having an F<sub>c⊥</sub> of less than 625 psi and/or are used to support joists having an F<sub>c⊥</sub> of less than 750 psi, it must be verified that the combination of bearing capacity and joist nail capacity is adequate.

<sup>4</sup>Uplift loads are not applicable to hanger heights, H, greater than 32 inches.

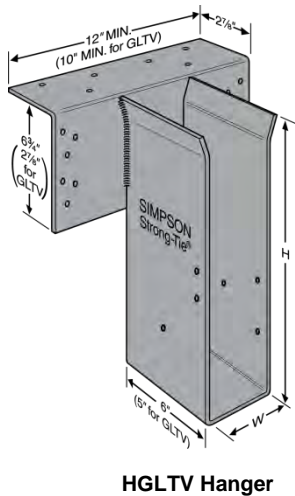


FIGURE 1—HGLTV AND GLTV SERIES HANGERS



TABLE 2—ALLOWABLE LOADS FOR THE HHB, GB AND HGB SERIES HANGERS

SERIES <sup>1</sup>	HANGER DIMENSIONS <sup>1</sup> (inches)			FASTENERS <sup>2</sup> (Quantity-Type)			ALLOWABLE LOADS <sup>3,4,5,6</sup> (lbs)			
	W	H	B	Header		Joist	Uplift <sup>7</sup> C <sub>D</sub> = 1.6	Download		
				Top	Face			C <sub>D</sub> = 1.0	C <sub>D</sub> = 1.15	C <sub>D</sub> = 1.25
HHB	3 <sup>9</sup> / <sub>16</sub> - 5 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub> - 11	3	2-N54A	2-N54A	2-N54A	650	4,185	4,185	4,185
	3 <sup>9</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>2</sub> - 32	3	2-N54A	4-N54A	4-N54A	1300	5,135	5,135	5,135
	3 <sup>1</sup> / <sub>4</sub> - 7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>2</sub> - 32	3	4-N54A	6-N54A	6-N54A	1950	6,085	6,225	6,235
GB	3 <sup>1</sup> / <sub>4</sub> - 6 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub> - 32	3 <sup>1</sup> / <sub>2</sub>	4-N54A	10-N54A	6-N54A	1950	7,795	8,030	8,185
HGB	5 <sup>1</sup> / <sub>4</sub> - 6 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub> - 32	4	4-N54A	10-N54A	6-N54A	1950	8,580	8,815	8,970

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

<sup>1</sup>Refer to Figure 2a for definitions of hanger dimension nomenclature (W, H, B). Refer to [ESR-2523](#) for a complete list of all HHB, GB and HGB model numbers. See Section 3.1 for a description of model numbering schemes, as they relate to intended joist dimensions and number of joist plies.

<sup>2</sup>N54A fasteners are annular ring shank nails (0.250-inch dia. x 2<sup>1</sup>/<sub>2</sub>-inch long) and are supplied with the hangers.

<sup>3</sup>Tabulated allowable loads must be selected based on duration of load as permitted by applicable building code.

<sup>4</sup>HHB, GB, and HGB hangers may be welded to steel headers with 2-inch-long fillet welds having a root thickness of <sup>3</sup>/<sub>16</sub> inch on each side of each top flange tab. The welds must be distributed equally on both top flanges. See Figure 2b. Welding cancels the top and face nailing requirements and the torsional resistance indicated in footnote 5.

<sup>5</sup>HHB/GB/HGB hangers provide a torsional resistance up to a maximum joist depth of 27 inches when nailed into the carrying member (header), where torsional resistance 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).

<sup>6</sup>The allowable loads are based on the use of Douglas fir-larch header members with an allowable compression perpendicular-to-grain, F<sub>c⊥</sub>, of 625 psi, and Douglas fir-larch glulam joists with an F<sub>c⊥</sub> of 650 psi. When the hangers are supported by header members having an F<sub>c⊥</sub> of less than 625 psi and/or are used to support joists having an F<sub>c⊥</sub> of less than 650 psi, it must be verified that the combination of bearing capacity and joist nail capacity is adequate.

<sup>7</sup>The uplift loads have been increased for wind or earthquake loading with no further increase allowed. Reduce loads when other load durations govern.

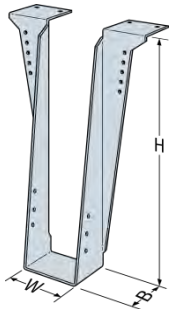


Figure 2a—HHB, GB, and HGB Hanger Dimensions

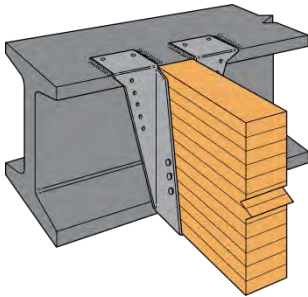


Figure 2b—Welded Hanger Installation (See footnote 4)

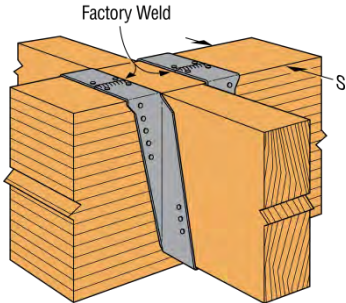


Figure 2c—HHBD Hanger Installation

FIGURE 2—HHB, GB, HGB AND HHBD SERIES HANGERS

TABLE 3—ALLOWABLE LOADS FOR THE W, WP, WNP, WNPU, HW AND HWU SERIES HANGERS

SERIES <sup>1</sup>	HANGER DIMENSIONS <sup>1</sup> (inches)			FASTENERS (Quantity-Type)			ALLOWABLE LOADS <sup>2,4,5,6</sup> (lbs)	
							Uplift <sup>3</sup>	Download
	W	H	B	Top	Face	Joist	C <sub>D</sub> =1.60	C <sub>D</sub> =1.00/ 1.15/1.25
W/WI <sup>7</sup>	1 <sup>9</sup> / <sub>16</sub> - 5 <sup>5</sup> / <sub>16</sub>	5 - 32	2 - 2 <sup>1</sup> / <sub>2</sub>	2-10d	—	2-10d x 1 <sup>1</sup> / <sub>2</sub>	—	2,200
WP/WPI/ WNP <sup>7</sup>	1 <sup>13</sup> / <sub>16</sub> - 5 <sup>1</sup> / <sub>2</sub>	5 - 32	2 <sup>1</sup> / <sub>2</sub> - 6	2-10d	—	2-10d x 1 <sup>1</sup> / <sub>2</sub>	—	3,255
	3 <sup>11</sup> / <sub>16</sub> - 7 <sup>1</sup> / <sub>8</sub>	5 - 32	2 <sup>1</sup> / <sub>2</sub> - 6	3-10d	—	2-10d x 1 <sup>1</sup> / <sub>2</sub>	—	3,255
WPU/ WNPU	1 <sup>13</sup> / <sub>16</sub> - 5 <sup>5</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>4</sub> - 18	3 - 5	3-16d	4-16d	6-10d x 1 <sup>1</sup> / <sub>2</sub>	1,095	4,165
		18 <sup>1</sup> / <sub>2</sub> - 28	3 - 5	3-16d	4-16d	6-10d x 1 <sup>1</sup> / <sub>2</sub>	390	4,165
HW/HWI <sup>7</sup>	1 <sup>9</sup> / <sub>16</sub> - 7 <sup>1</sup> / <sub>2</sub>	5 - 32	2 <sup>1</sup> / <sub>2</sub> - 5 <sup>1</sup> / <sub>4</sub>	4-10d	—	2-10d x 1 <sup>1</sup> / <sub>2</sub>	—	5,285
		5 - 32	2 <sup>1</sup> / <sub>2</sub> - 4	4-10d	—	4-10d x 1 <sup>1</sup> / <sub>2</sub>	—	5,285
		7 <sup>1</sup> / <sub>2</sub> - 32	2 <sup>1</sup> / <sub>2</sub>	4-10d	—	6-10d x 1 <sup>1</sup> / <sub>2</sub>	—	5,285
HWU	1 <sup>13</sup> / <sub>16</sub> - 3 <sup>9</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>4</sub> - 18	3 <sup>1</sup> / <sub>4</sub> - 6 <sup>1</sup> / <sub>4</sub>	4-16d	4-16d	6-10d x 1 <sup>1</sup> / <sub>2</sub>	1,160	6,335
		18 <sup>1</sup> / <sub>2</sub> - 28	3 <sup>1</sup> / <sub>4</sub> - 6 <sup>1</sup> / <sub>4</sub>	4-16d	4-16d	6-10d x 1 <sup>1</sup> / <sub>2</sub>	965	6,335
		28 <sup>1</sup> / <sub>2</sub> - 32	3 <sup>1</sup> / <sub>4</sub> - 4	4-16d	4-16d	8-10d x 1 <sup>1</sup> / <sub>2</sub>	985	6,335
	3 <sup>5</sup> / <sub>8</sub> - 7 <sup>1</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>4</sub> - 18	3 <sup>1</sup> / <sub>4</sub>	4-16d	4-16d	6-10d x 1 <sup>1</sup> / <sub>2</sub>	1,160	6,000
		18 <sup>1</sup> / <sub>2</sub> - 28	3 <sup>1</sup> / <sub>4</sub>	4-16d	4-16d	6-10d x 1 <sup>1</sup> / <sub>2</sub>	965	6,000
		28 <sup>1</sup> / <sub>2</sub> - 32	3 <sup>1</sup> / <sub>4</sub>	4-16d	4-16d	8-10d x 1 <sup>1</sup> / <sub>2</sub>	985	6,000

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

<sup>1</sup>Refer to Figure 3 for definitions of hanger dimension nomenclature (W, H, B). Refer to [ESR-2523](#) for a complete list of all W, WP, WNP, WPU, WNPU, HW and HWU model numbers. See Section 3.1 for a description of model numbering schemes, as they relate to intended joist dimensions and number of joist plies.

<sup>2</sup>Tabulated allowable loads must be selected based on duration of load as permitted by the applicable building code.

<sup>3</sup>The uplift loads have been increased for wind or earthquake loading with no further increase allowed. Reduce loads when other load durations govern.

<sup>4</sup>The allowable loads are based on the use of Douglas fir-larch header members with an allowable compression perpendicular-to-grain,  $F_{c\perp}$ , of 625 psi, and structural composite lumber joists with an  $F_{c\perp}$  of 750 psi. When the hangers are supported by header members having an  $F_{c\perp}$  of less than 625 psi and/or are used to support joists having an  $F_{c\perp}$  of less than 750 psi, it must be verified that the combination of bearing capacity and joist nail capacity is adequate.

<sup>5</sup>For welding to steel headers use <sup>1</sup>/<sub>8</sub>-inch thick (root) by <sup>1</sup>/<sub>2</sub>-inch long fillet welds at each end of the top flange of W models, <sup>3</sup>/<sub>16</sub>-inch-thick (root) by <sup>1</sup>/<sub>2</sub>-inch-long fillet welds for WP and WNP models, and <sup>1</sup>/<sub>4</sub>-inch-thick (root) by <sup>1</sup>/<sub>2</sub>-inch-long fillet welds for HW models.

<sup>6</sup>The W, WNP and HW hangers provide a torsional resistance up to a maximum joist depth of 16 inches for the W/WNP series and 22 inches for the HW series, where torsional resistance 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).

<sup>7</sup>The WI, WPI and HWI series are identical to the W, WP and HW series, respectively, except that they have heights that are designed for use with I-joists rather than nominal sawn lumber joists.

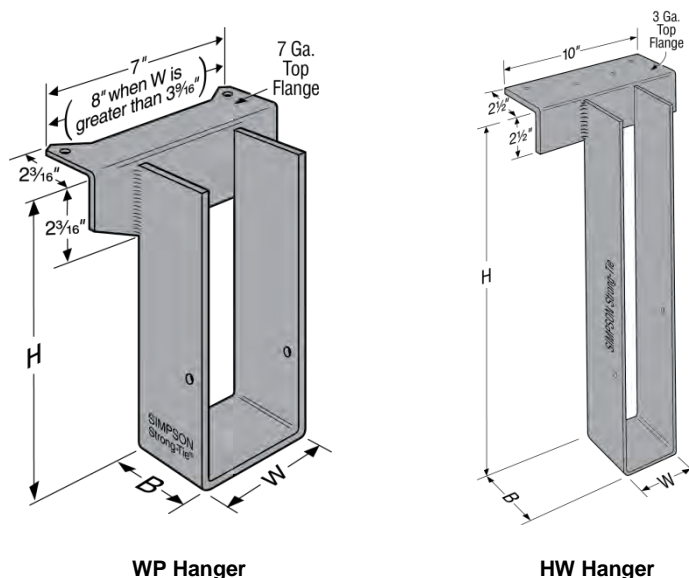


FIGURE 3—WP, HWU AND HW HANGERS

TABLE 4—ALLOWABLE LOADS FOR THE GLT AND HGLT SERIES HANGERS

SERIES <sup>1</sup>	HANGER DIMENSIONS <sup>1</sup> (inches)				FASTENERS <sup>3</sup> (Quantity-Type)			ALLOWABLE LOADS <sup>4,6,7,8</sup> (lbs)			
								Uplift <sup>2,5</sup>	Download		
	W	H <sup>2</sup>	B	L	Header		Joist	C <sub>D</sub> =1.60	C <sub>D</sub> =1.00	C <sub>D</sub> =1.15	C <sub>D</sub> =1.25
					Top	Face					
GLT	3 <sup>1</sup> / <sub>4</sub> – 6 <sup>7</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub> - 32	5	10 - 12	4-N54A	6-N54A	6-N54A	1,865	8,165	8,165	8,165
HGLT	3 <sup>1</sup> / <sub>4</sub> – 8 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>2</sub> - 32	6	12	6-N54A	12-N54A	6-N54A	1,865	12,265	12,685	12,750
	3 <sup>1</sup> / <sub>4</sub> – 8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub> - 32	6	14	6-N54A	12-N54A	6-N54A	1,865	12,750	12,750	12,750

For **SI**: 1 inch = 25.4 mm, 1 lbs = 4.45 N, 1 psi = 6.89 kPa.

<sup>1</sup>Refer to Figure 4 for definitions of hanger dimension nomenclature (W, H, B, L). Refer to [ESR-2523](#) for a complete list of all GLT and HGLT model numbers. See Section 3.1 for a description of model numbering schemes, as they relate to intended joist dimensions and number of joist plies.

<sup>2</sup>The H dimension must be specified. Tabulated uplift values are applicable to a maximum H of 28<sup>1</sup>/<sub>2</sub>".

<sup>3</sup>N54A fasteners are annular ring shank nails (0.250-inch dia. x 2<sup>1</sup>/<sub>2</sub>-inch long) and are supplied with the hangers.

<sup>4</sup>Tabulated allowable loads must be selected based on duration of load as permitted by the applicable building code.

<sup>5</sup>The 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.

<sup>6</sup>The allowable loads are based on the use of Douglas fir-Larch header material with an allowable F<sub>cL</sub> of 625 psi and Douglas fir-Larch glulam joist material with an allowable F<sub>cL</sub> of 650 psi. For alternate joist material, verify that the combination of bearing capacity and joist nails is adequate.

<sup>7</sup>The connectors provide a torsional resistance up to a maximum joist depth of 32 inches, where torsional resistance 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).

<sup>8</sup>The GLT series are permitted to be attached to steel headers by <sup>3</sup>/<sub>16</sub>-inch-thick (root) by 2<sup>1</sup>/<sub>2</sub>-inch-long welds located at each end of the header angle to obtain the values tabulated above. The HGLT may be attached to steel headers by <sup>1</sup>/<sub>4</sub>-inch-thick (root) by 2<sup>1</sup>/<sub>2</sub>-inch-long fillet welds located at each end of the header angle to obtain the lesser of the values tabulated for the HGLT or 12,000 pounds maximum.

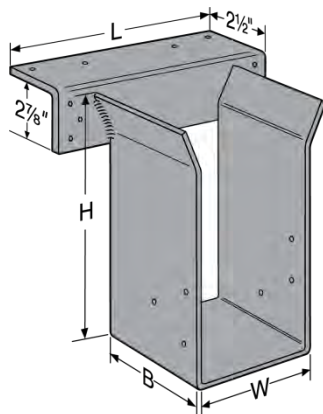


FIGURE 4—GLT AND HGLT SERIES HANGERS

TABLE 5—ALLOWABLE LOADS FOR THE GLS AND HGLS SERIES HANGERS

SERIES <sup>1</sup>	HANGER DIMENSIONS <sup>1</sup> (inches)					FASTENERS <sup>4</sup> (Quantity-Type)		ALLOWABLE LOADS <sup>5,7,8</sup> (lbs)			
								Uplift <sup>6</sup>	Download		
	W <sub>1</sub> , W <sub>2</sub>	H <sub>1</sub> , H <sub>2</sub> <sup>2</sup>	B	L	S <sup>3</sup>	Face	Joist	C <sub>D</sub> = 1.60	C <sub>D</sub> = 1.00	C <sub>D</sub> = 1.15	C <sub>D</sub> = 1.25
GLS	3 <sup>1</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>2</sub> - 28	5	9	5 <sup>1</sup> / <sub>8</sub> - 8 <sup>3</sup> / <sub>4</sub>	6-N54A	6-N54A	1,865	11,555	11,695	11,785
GLS	5 <sup>1</sup> / <sub>4</sub> - 6 <sup>7</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub> - 28	5	9	5 <sup>1</sup> / <sub>8</sub> - 8 <sup>3</sup> / <sub>4</sub>	6-N54A	6-N54A	1,865	14,685	14,685	14,685
HGLS	5 <sup>1</sup> / <sub>4</sub> - 8 <sup>7</sup> / <sub>8</sub>	10 <sup>1</sup> / <sub>2</sub> - 28	6	12	SPEC	14-N54A	8-N54A	2,500	16,835	16,835	16,835

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

<sup>1</sup>Refer to Figure 5 for definitions of hanger dimension nomenclature (W, H, B, L, S). Refer to [ESR-2523](#) for a complete list of all GLS and HGLS model numbers. See Section 3.1 for a description of model numbering schemes, as they relate to intended joist dimensions and number of joist plies.

<sup>2</sup>The H dimension must be specified.

<sup>3</sup>SPEC = The header (carrying beam) dimensions must be specified by the registered design professional.

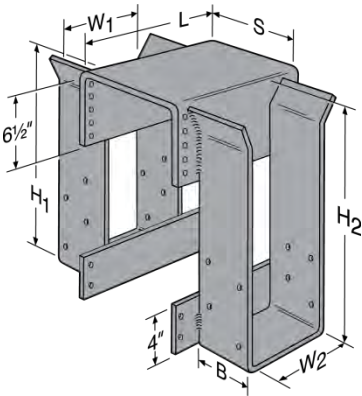
<sup>4</sup>N54A fasteners are annular ring shank nails (0.250-inch dia. x 2<sup>1</sup>/<sub>2</sub>-inch long) and are supplied with the hangers. Tabulated fastener quantities reflect the number of fasteners that must be used on each side of the header (carrying beam).

<sup>5</sup>Tabulated allowable loads must be selected based on duration of load as permitted by the applicable building code.

<sup>6</sup>The 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.

<sup>7</sup>The allowable loads are based on the use of Douglas fir glued-laminated material with an allowable compression perpendicular-to-grain stress, F<sub>c⊥</sub>, of 650 psi. For alternate joist material, verify that the combination of bearing capacity and joist nails is adequate.

<sup>8</sup>Allowable loads are per supported member (carried beam).



HGLS Beam Saddle Hanger

FIGURE 5—GLS AND HGLS SERIES HANGERS



TABLE 6—ALLOWABLE LOADS FOR THE EG, MEG AND LEG SERIES HANGERS

SERIES <sup>1</sup>	HANGER DIMENSIONS <sup>1</sup> (inches)					FASTENERS (Quantity-Bolt Diameter)		ALLOWABLE LOADS <sup>2,3,4,5</sup> (lbs)		
	W	H	B	L	TF	Face	Joist	Download		
LEG	3 <sup>1</sup> / <sub>4</sub> – 6 <sup>7</sup> / <sub>8</sub>	9 - 32	6	12	2 <sup>1</sup> / <sub>2</sub>	4- <sup>3</sup> / <sub>4</sub> " Bolt	2- <sup>3</sup> / <sub>4</sub> " Bolt	13,040	13,535	13,865
MEG	5 <sup>1</sup> / <sub>4</sub> – 6 <sup>7</sup> / <sub>8</sub>	9 - 32	6	12	2 <sup>1</sup> / <sub>2</sub>	6- <sup>3</sup> / <sub>4</sub> " Bolt	2- <sup>3</sup> / <sub>4</sub> " Bolt	14,835	15,570	16,060
EG5	5 <sup>1</sup> / <sub>4</sub>	11 - 32	6	11 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>2</sub>	8-1" Bolt	2-1" Bolt	17,885	19,075	19,865
EG7	6 <sup>7</sup> / <sub>8</sub>	11 - 32	6	13 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>2</sub>	8-1" Bolt	2-1" Bolt	19,290	20,480	21,275
EG9	8 <sup>7</sup> / <sub>8</sub>	11 - 32	6	15 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>2</sub>	8-1" Bolt	2-1" Bolt	20,880	22,075	22,875

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

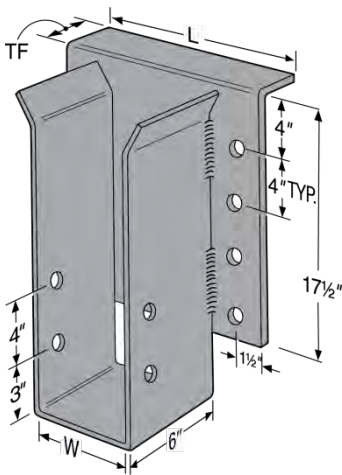
<sup>1</sup>Refer to Figure 6 for definitions of hanger dimension nomenclature (W, H, B, L, TF). Refer to [ESR-2523](#) for a complete list of all EG, MEG and LEG model numbers. See Section 3.1 for a description of model numbering schemes, as they relate to intended joist dimensions and number of joist plies.

<sup>2</sup>Tabulated loads require the use of a minimum 5<sup>1</sup>/<sub>2</sub>-inch-wide header (carrying member).

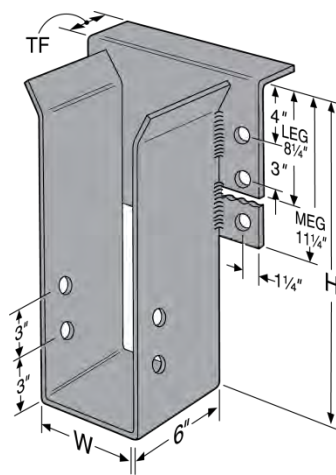
<sup>3</sup>Tabulated allowable loads must be selected based on duration of load as permitted by the applicable building code.

<sup>4</sup>The allowable loads are based on the use of Douglas fir-Larch header material with an allowable  $F_{c\perp}$  of 625 psi and Douglas fir-Larch glulam joist material with an allowable  $F_{c\perp}$  of 650 psi. For alternate joist material, verify that the combination of bearing capacity and joist nails is adequate.

<sup>5</sup>Uplift loads for these hangers are beyond the scope of this report.



EG Beam Hanger



LEG and MEG Beam Hanger

FIGURE 6—EG, MEG AND LEG SERIES HANGERS

TABLE 7—ALLOWABLE LOADS FOR THE MSC SERIES MULTIPLE TRUSS SERIES HANGERS

MODEL NO.	HANGER DIMENSIONS <sup>1,2</sup> (inches)				FASTENERS (Quantity-Type)			VALLEY		ALLOWABLE DOWNLOADS <sup>3,4,5,6,7,8</sup> (lbs)		
	W1, W2	H1, H2	TF	L	Header	Valley (Each)	Ridge	Max Skew	Max Slope	C <sub>D</sub> = 1.0 C <sub>D</sub> = 1.15 C <sub>D</sub> = 1.25		
										Valley (Each)	Ridge	Total
MSC2	1 <sup>9</sup> / <sub>16</sub>	5 <sup>1</sup> / <sub>2</sub> to 30	2 <sup>7</sup> / <sub>8</sub>	12	10-16d	6-10dx1 <sup>1</sup> / <sub>2</sub>	6-10dx1 <sup>1</sup> / <sub>2</sub>	45°	0°	2,535	1,265	6,335
					10-16d	10-10dx1 <sup>1</sup> / <sub>2</sub>	6-10dx1 <sup>1</sup> / <sub>2</sub>		45°	2,010	1,005	5,025
MSC1.81	1 <sup>13</sup> / <sub>16</sub>	5 <sup>1</sup> / <sub>2</sub> to 30	2 <sup>7</sup> / <sub>8</sub>	12	10-16d	6-10dx1 <sup>1</sup> / <sub>2</sub>	6-10dx1 <sup>1</sup> / <sub>2</sub>	45°	0°	2,535	1,265	6,335
					10-16d	10-10dx1 <sup>1</sup> / <sub>2</sub>	6-10dx1 <sup>1</sup> / <sub>2</sub>		45°	2,010	1,005	5,025
MSC4	3 <sup>9</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>2</sub> to 30	2 <sup>7</sup> / <sub>8</sub>	18	10-16d	6-10d	6-10d	45°	0°	3,335	1,665	8,335
					10-16d	10-10d	6-10d		45°	3,335	1,665	8,335
MSC5	5 <sup>1</sup> / <sub>4</sub>	9 <sup>1</sup> / <sub>2</sub> to 30	2 <sup>7</sup> / <sub>8</sub>	26	13-16d	6-16d	6-16d	45°	0°	6,450	3,225	16,125
					13-16d	10-16d	6-16d		45°	6,290	3,145	15,725

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

<sup>1</sup>Refer to Figure 7 for definitions of hanger dimension nomenclature (W, H, B, L, TF).  
<sup>2</sup>W1 equals W2 unless specified otherwise.  
<sup>3</sup>Tabulated allowable loads must be selected based on duration of load as permitted by the applicable building code.  
<sup>4</sup>Uplift loads for these hangers are beyond the scope of this report.  
<sup>5</sup>For valleys with slope angles greater than 0°, use 45° max slope load values.  
<sup>6</sup>Total load must be used for cases when there is no ridge member.  
<sup>7</sup>Valley loads must be equal to avoid eccentric loading.  
<sup>8</sup>The allowable loads are based on the use of Douglas fir-Larch header material with an allowable F<sub>cL</sub> of 625 psi and Douglas fir-Larch glulam joist material with an allowable F<sub>cL</sub> of 650 psi. For alternate joist material, verify that the combination of bearing capacity and joist nails is adequate.

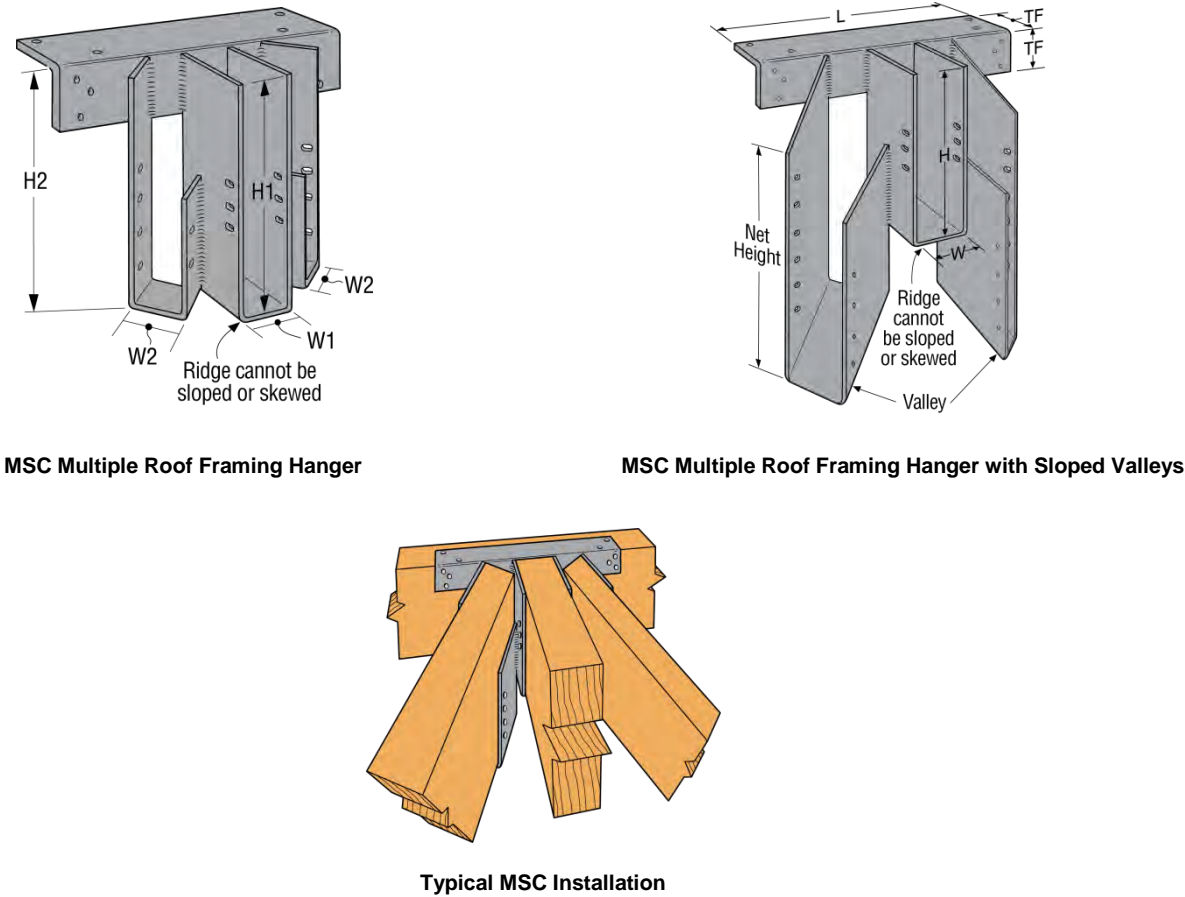


FIGURE 7—MSC MULTIPLE TRUSS SERIES HANGERS

TABLE 8—ALLOWABLE LOADS FOR THE ITS, MIT AND HIT HANGER SERIES MODELS

SERIES <sup>1</sup>	HANGER DIMENSIONS <sup>1</sup> (inches)				FASTENERS (Quantity-Type)			ALLOWABLE LOADS <sup>2,4</sup> (lbs)			
								Uplift <sup>3</sup>	Download		
	W	H	B	TF	Top	Face	Joist	C <sub>D</sub> = 1.60	C <sub>D</sub> = 1.00	C <sub>D</sub> = 1.15	C <sub>D</sub> = 1.25
ITS	1 <sup>9</sup> / <sub>16</sub> to 3 <sup>5</sup> / <sub>8</sub>	9 <sup>1</sup> / <sub>8</sub> to 16	2	1 <sup>7</sup> / <sub>16</sub>	4-10d x 1 <sup>1</sup> / <sub>2</sub>	2-10d x 1 <sup>1</sup> / <sub>2</sub>	—	105	1,440	1,440	1,440
					4-10d	2-10d	—	105	1,520	1,520	1,520
					4-16d	2-16d	—	105	1,635	1,635	1,635
MIT	1 <sup>9</sup> / <sub>16</sub> to 5 <sup>1</sup> / <sub>8</sub>	9 <sup>1</sup> / <sub>4</sub> to 24	2 <sup>1</sup> / <sub>2</sub>	2 <sup>5</sup> / <sub>16</sub>	4-10d x 1 <sup>1</sup> / <sub>2</sub>	4-10d x 1 <sup>1</sup> / <sub>2</sub>	2-10d x 1 <sup>1</sup> / <sub>2</sub>	215	2,035	2,035	2,035
					4-10d	4-10d	2-10d x 1 <sup>1</sup> / <sub>2</sub>	215	2,245	2,245	2,245
					4-16d	4-16d	2-10d x 1 <sup>1</sup> / <sub>2</sub>	215	2,305	2,305	2,305
HIT	2 <sup>5</sup> / <sub>16</sub> to 3 <sup>9</sup> / <sub>16</sub>	18 to 26	3	2 <sup>3</sup> / <sub>8</sub> to 3	4-16d	6-16d	2-10d x 1 <sup>1</sup> / <sub>2</sub>	315	2,875	2,875	2,875

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

<sup>1</sup>Refer to Figure 8 (this page) for definitions of hanger nomenclature (W, H, B, TF). Refer to [ESR-2523](#) for a complete list of all ITS, MIT and HIT model numbers. See Section 3.1 for a description of model numbering schemes, as they relate to intended joist dimensions and number of joist plies.

<sup>2</sup>Tabulated allowable loads must be selected based on duration of load as permitted by the applicable building code.

<sup>3</sup>The 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, except for those associated with the ITS which need not be reduced when other load durations govern.

<sup>4</sup>The allowable loads are based on the use of Douglas fir-Larch material with an allowable F<sub>c⊥</sub> of 625 psi. For alternate joist material, verify that the combination of bearing capacity and joist nails (MIT and HIT only) is adequate.

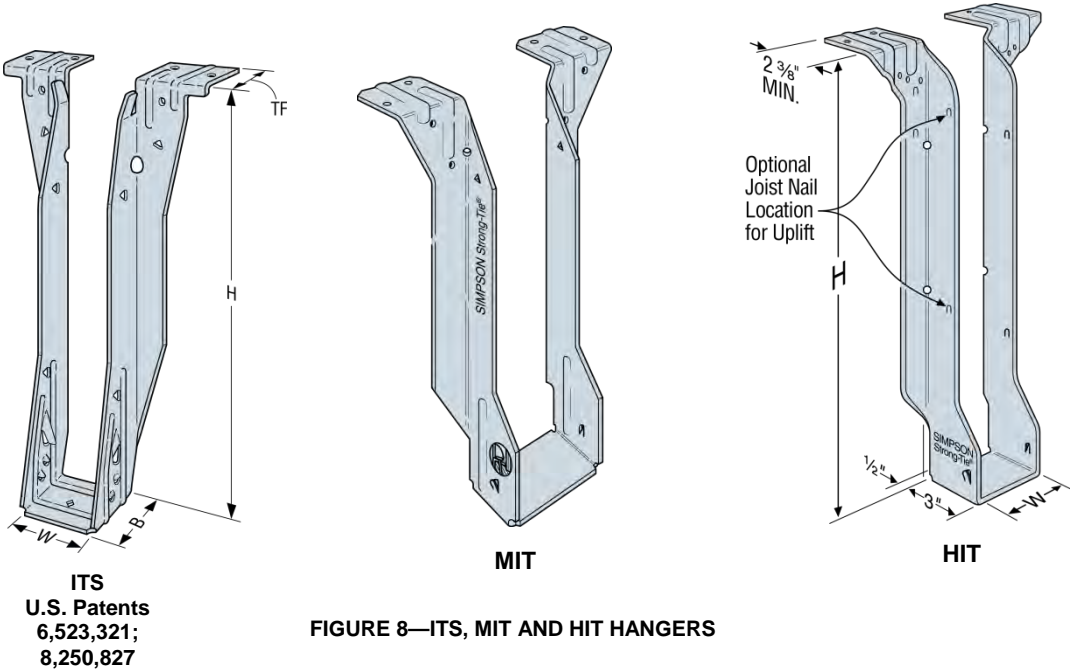


TABLE 9—ALLOWABLE LOADS FOR LBV, BA, B, AND HB SERIES JOIST HANGERS

SERIES <sup>1</sup>	HANGER DIMENSIONS <sup>1</sup> (inches)				FASTENERS (Quantity-Type)			ALLOWABLE LOADS <sup>2,4</sup> (lbs)			
								Uplift <sup>3,5</sup>	Download		
	W	H	B	TF	Top	Face	Joist <sup>5</sup>	C <sub>D</sub> = 1.60	C <sub>D</sub> = 1.00	C <sub>D</sub> = 1.15	C <sub>D</sub> = 1.25
LBV	1 <sup>9</sup> / <sub>16</sub> - 5 <sup>7</sup> / <sub>16</sub>	6 - 30	2 <sup>1</sup> / <sub>2</sub> - 3	2 <sup>1</sup> / <sub>2</sub>	6-16d	4-16d	2-10d x 1 <sup>1</sup> / <sub>2</sub>	265	2,590	2,590	2,590
	1 <sup>9</sup> / <sub>16</sub> - 5 <sup>7</sup> / <sub>16</sub>	6 - 30	2 <sup>1</sup> / <sub>2</sub> - 3	2 <sup>1</sup> / <sub>2</sub>	6-16d	4-16d	6-10d x 1 <sup>1</sup> / <sub>2</sub>	895	2,590	2,590	2,590
BA	1 <sup>13</sup> / <sub>16</sub> - 5 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>4</sub> - 30	3	2 <sup>7</sup> / <sub>16</sub>	6-16d	10-16d	2-10d x 1 <sup>1</sup> / <sub>2</sub>	265	3,435	3,435	3,435
	1 <sup>13</sup> / <sub>16</sub> - 5 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>4</sub> - 30	3	2 <sup>7</sup> / <sub>16</sub>	6-16d	10-16d	8-10d x 1 <sup>1</sup> / <sub>2</sub>	1,170	3,800	3,800	3,800
B	1 <sup>9</sup> / <sub>16</sub> - 2 <sup>1</sup> / <sub>2</sub>	6 - 30	2 <sup>1</sup> / <sub>2</sub> - 3 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>2</sub>	6-16d	8-16d	6-10d x 1 <sup>1</sup> / <sub>2</sub>	990	3,640	3,640	3,640
	2 <sup>9</sup> / <sub>16</sub> - 7 <sup>1</sup> / <sub>2</sub>	6 - 30	2 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>2</sub>	6-16d	8-16d	6-16d x 2 <sup>1</sup> / <sub>2</sub>	1,010	3,890	3,890	3,890
HB	1 <sup>9</sup> / <sub>16</sub> - 2 <sup>1</sup> / <sub>2</sub>	8 - 30	3 <sup>1</sup> / <sub>2</sub> - 5	3	6-16d	16-16d	10-10d x 1 <sup>1</sup> / <sub>2</sub>	1,745	5,300	5,300	5,300
	2 <sup>9</sup> / <sub>16</sub> - 3 <sup>1</sup> / <sub>2</sub>	8 - 30	3 <sup>1</sup> / <sub>2</sub>	3	6-16d	16-16d	10-16d x 2 <sup>1</sup> / <sub>2</sub>	2,610	5,735	5,735	5,735
	3 <sup>9</sup> / <sub>16</sub> - 7 <sup>1</sup> / <sub>2</sub>	8 - 30	3 <sup>1</sup> / <sub>2</sub>	3	6-16d	16-16d	10-16d	2,610	5,650	5,650	5,650

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

<sup>1</sup>Refer to Figure 9 (this page) for definitions of hanger nomenclature (W, H, B, TF). Refer to [ESR-2523](#) for a complete list of all LBV, BA, B and HB model numbers. See Section 3.1 for a description of model numbering schemes, as they relate to intended joist dimensions and number of joist plies.

<sup>2</sup>Tabulated allowable loads must be selected based on duration of load as permitted by the applicable building code.

<sup>3</sup>The 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.

<sup>4</sup>The allowable loads are based on the use of Douglas fir-Larch material with an allowable F<sub>c⊥</sub> of 625 psi. For alternate joist material, verify that the combination of bearing capacity and joist nails is adequate.

<sup>5</sup>Web stiffeners are required when more than two joist nails are used.

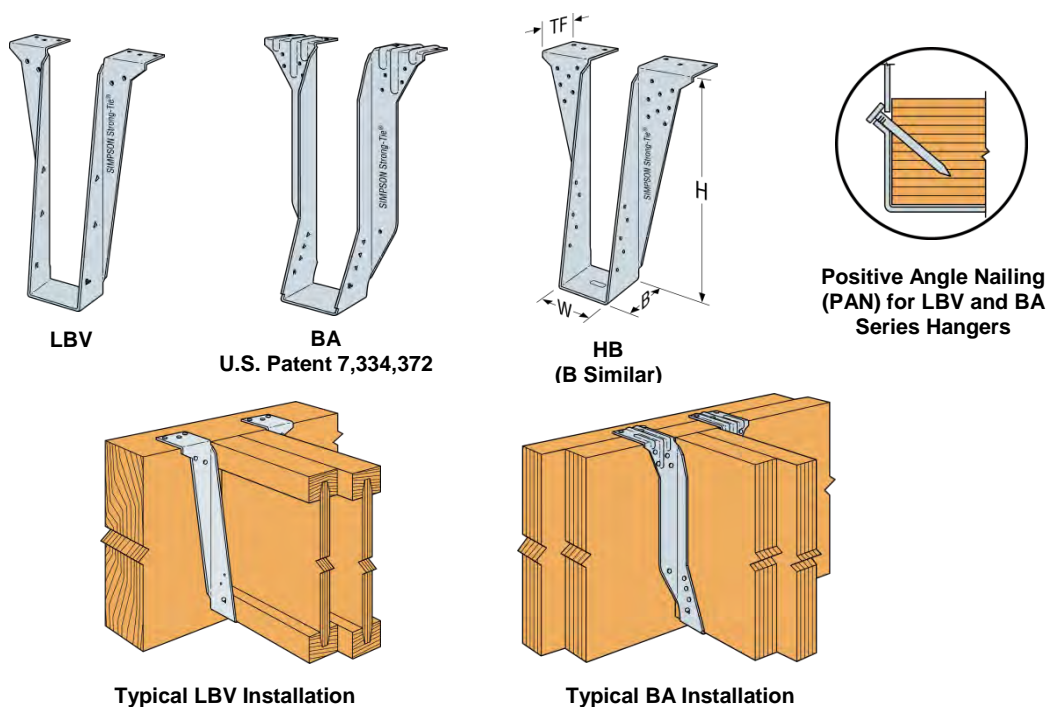


FIGURE 9—LBV, BA, B AND HB SERIES HANGERS

TABLE 10—ALLOWABLE LOADS FOR EGQ SERIES GIRDER HANGERS

MODEL NUMBER	HANGER DIMENSIONS <sup>1</sup> (inches)				FASTENERS (Quantity-Type)		ALLOWABLE LOADS <sup>2,6</sup> (lbs)			
							Uplift <sup>5</sup>	Download		
	W	H <sup>4</sup>	B	TF	Face	Joist	C <sub>D</sub> = 1.60	C <sub>D</sub> = 1.00	C <sub>D</sub> = 1.15	C <sub>D</sub> = 1.25
EGQ3.62 - SDS3	3 <sup>5</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>4</sub> - 32	6	3	28-SDS <sup>1</sup> / <sub>4</sub> x 3	12-SDS <sup>1</sup> / <sub>4</sub> x 3	6,860	20,790	21,350	21,350
EGQ5.50 - SDS3	5 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>4</sub> - 32	6	3	28-SDS <sup>1</sup> / <sub>4</sub> x 3	12-SDS <sup>1</sup> / <sub>4</sub> x 3	6,860	21,350	21,350	21,350
EGQ7.25 - SDS3	7 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>4</sub> - 32	6	3	28-SDS <sup>1</sup> / <sub>4</sub> x 3	12-SDS <sup>1</sup> / <sub>4</sub> x 3	6,860	21,350	21,350	21,350

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

<sup>1</sup>Refer to Figure 10 (this page) for definitions of hanger nomenclature (W, H, B, TF).

<sup>2</sup>Tabulated allowable loads must be selected based on duration of load as permitted by the applicable building code.

<sup>3</sup>Header height must be at least 11<sup>7</sup>/<sub>8</sub>".

<sup>4</sup>The "H" dimension must be specified.

<sup>5</sup>The 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.

<sup>6</sup>The allowable loads are based on the use of Douglas fir-Larch header material with an allowable F<sub>cL</sub> of 625 psi and structural composite lumber joists with an allowable F<sub>cL</sub> of 750 psi. For alternate joist material, verify that the combination of bearing capacity and joist nails is adequate.

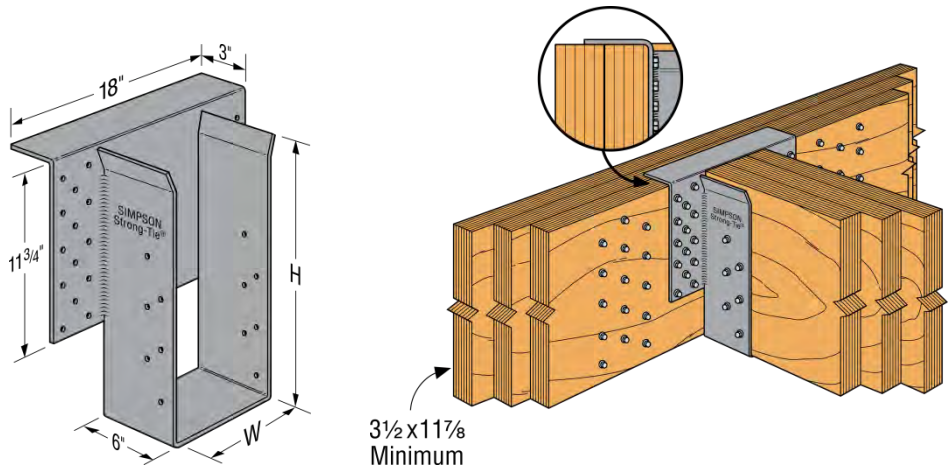


FIGURE 10—EGQ SERIES HANGERS



TABLE 11—ALLOWABLE LOADS FOR HWP AND HWPB SERIES HANGERS

Model Number	HANGER DIMENSIONS <sup>1</sup> (inches)			FASTENERS (Quantity-Type)			ALLOWABLE LOADS <sup>2,3,4,5,6</sup> (lbs)	
							Uplift	Download
	W	H	B	Top	Face	Joist	C <sub>D</sub> =1.60	C <sub>D</sub> =1.00/1.15/1.25
HWP	1 9/16 - 5 5/8	5 3/8 - 15 11/16	3 - 5	3-16d	6-16d	10-10d x 1 1/2	1,535	3,955
		15 3/4 - 28		3-16d	6-16d	12-10d x 1 1/2	1,560	3,955
HWPB	1 9/16 - 7 1/8	5 3/8 - 15 11/16	3 1/4 - 6 1/4	4-16d	8-16d	10-10d x 1 1/2	1,685	5,920
		15 3/4 - 32		4-16d	8-16d	12-10d x 1 1/2	2,075	5,920

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

<sup>1</sup>Refer to Figure 11 for definitions of hanger dimension nomenclature (W, H, B). Refer to [ESR-2523](#) for a complete list of all HWP and HWPB model numbers. See Section 3.1 for a description of model numbering schemes, as they relate to intended joist dimensions and number of joist plies.

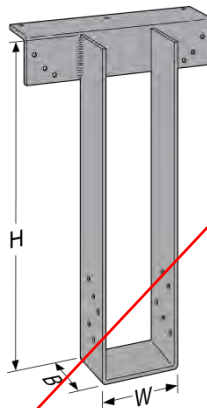
<sup>2</sup>Tabulated allowable loads must be selected based on duration of load as permitted by the applicable building code.

<sup>3</sup>The uplift loads have been increased for wind or earthquake loading with no further increase allowed. Reduce loads when other load durations govern.

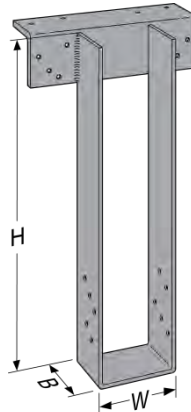
<sup>4</sup>The allowable loads are based on the use of Douglas fir-larch header members with an allowable compression perpendicular-to-grain,  $F_{c\perp}$ , of 625 psi, and structural composite lumber joists with an  $F_{c\perp}$  of 750 psi. When the hangers are supported by header members having an  $F_{c\perp}$  of less than 625 psi and/or are used to support joists having an  $F_{c\perp}$  of less than 750 psi, it must be verified that the combination of bearing capacity and joist nail capacity is adequate.

<sup>5</sup>For welding to steel headers use  $\frac{3}{16}$ -inch-thick (root) by  $1\frac{1}{2}$ -inch-long fillet welds for HWP models, and  $\frac{1}{4}$ -inch-thick (root) by  $1\frac{1}{2}$ -inch-long fillet welds for HWPB models.

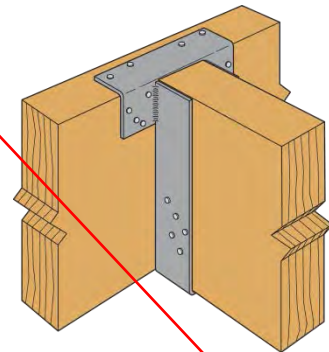
<sup>6</sup>The HWP and HWPB hangers provide a torsional resistance up to a maximum joist depth of 16 inches for the HWP series and 22 inches for the HWPB series, where torsional resistance is defined as a moment of not less than 75 pounds (334 N) times the depth of the joist at which the lateral movement of the top or bottom of the joist with respect to the vertical position of the joist is 0.125 inch (3.2 mm).



HWP



HWPB



Typical HWPB Installed

FIGURE 11—HWP AND HWPB SERIES HANGERS