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ESR-3445

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

REPORT HOLDER:

MiTek USA, INC.
(FORMERLY USP STRUCTURAL CONNECTORS)

14305 SOUTHCROSS DRIVE, SUITE 200
BURNSVILLE, MINNESOTA 55306

EVALUATION SUBJECT:

MiTek USA, INC.: USP® FACE MOUNT HANGERS



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

REPORT HOLDER:

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EVALUATION SUBJECT:

MiTek USA, INC.: USP® FACE MOUNT HANGERS

1.0 EVALUATION SCOPE

Compliance with the following codes:

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

Property evaluated:

Structural

2.0 USES

The MiTek USA, Inc. USP® structural connectors described in this report (see Table 15 for complete listing) are used for connecting wood framing members in accordance with Section 2304.10.3 of the IBC (Section 2304.9.3 of the 2012, 2009 and 2006 IBC). The connectors may also be used in structures regulated under the IRC when an engineered design is submitted to, and approved by, the code official, in accordance with Section R301.1.3 of the IRC.

3.0 DESCRIPTION

3.1 CLPBF Butterfly Hanger:

The CLPBF Butterfly Hanger is a face-mount hanger with triangular header flanges having prepunched nail holes for joist-to-header or truss-to-truss connections. The CLPBF Butterfly Hanger is cold-formed from No. 18 gage steel and is prepunched for 10d common nails into the header and 10d-by-1¹/₂-inch nails into the joist. See Table 1 and Figure 1 for product dimensions, fastener schedule, allowable loads, and a typical installation detail.

3.2 HD Face Mount Hanger:

The HD Face Mount Hanger is designed to support headers, joists and trusses. The HD Face Mount Hanger is cold-formed from No. 14 gage steel; and is prepunched for 16d common nails into the supporting member, and either 16d common, 10d common or 10d-by-1¹/₂-inch nails into the supported member. See Table 2 and Figure 2 for product dimensions, fastener schedule, allowable loads, and typical installation details. The HD, THD, THF and THFI offer increased allowable download and/or uplift values by installing additional nails into the triangular holes. Minimum ('min') load values require the installation of the specified nails into all round holes of the hanger to support the corresponding allowable loads. Maximum ('max') load values require the installation of the specified nails into all round and all triangular holes of the hanger to support the increased loads. Interpolation is not allowed between the min-max allowable load values and nail count.

3.3 HUS Slant Nail Joist Hanger:

The HUS Slant Nail Joist Hanger is designed to provide double shear nailing for joist/truss-to-beam connections. The HUS Slant Nail Joist Hanger is cold-formed from No. 14 gage or No. 16 gage steel and is prepunched for 16d common nails into both the joist and the header. See Table 3 and Figure 3 for product dimensions, fastener schedule, allowable loads, and typical installation details.

3.4 JL Standard Joist Hangers:

The JL Standard Joist Hangers are designed as face mount hangers for connecting nominal dimension lumber to headers, beams or girders. The JL hangers are cold-formed from No. 20 gage steel. The hangers are prepunched for 16d common or 10d common nails into the header, and 10d-by-1¹/₂-inch nails into the joist. See Table 4 and Figure 4 for product dimensions, fastener schedule, allowable loads, and a typical installation detail.

3.5 JN and JNE Power Nail Hangers:

JN and JNE Joist Hangers are designed to support one- and two-ply nominally 2-by-6 and 2-by-8 dimension lumber joists. The JN joist hangers are cold-formed from No.18 gage steel and have a seat depth of 1⁵/₈ inches (41 mm). The JNE joist hangers are cold-formed from No. 20 gage steel and have a seat depth of 2 inches (51 mm). JN and JNE joist hangers are not prepunched for nails. See Table 5 and Figure 5 for product dimensions, required fastener schedule, allowable loads, and a typical installation detail.

3.6 JUS Slant Nail Joist Hanger:

The JUS Slant Nail Joist Hanger is designed for face-mount applications to provide double shear nailing for joist/truss-to-beam connections. The JUS Slant Nail Joist Hanger is cold-formed from No. 18 gage steel and is prepunched for either 10d common or 16d common nails into both the joist and the header. See Table 6 and Figure 6 for product dimensions, fastener schedule, allowable loads, and a typical installation detail.

3.7 SUH Joist Hanger:

The SUH Joist Hanger is designed as a face-mount hanger to support nominal dimension lumber joists. The SUH Joist Hanger is cold-formed from No. 16 gage steel. The SUH Joist Hanger has prongs in the header flanges to temporarily position the hanger on the header. The hanger is prepunched for 10d common or 16d common nails into the header and 10d-by-1½, 10d common, or 16d common nails into the joist. See Table 7 and Figure 7 for product dimensions, fastener schedule, allowable loads, and a typical installation detail.

3.8 THD Face Mount Hanger:

The THD Face Mount Hanger is designed to support metal-plate-connected wood trusses and can also support LVL, LSL and PSL members. The THD Face Mount Hanger is cold-formed from either No. 12 gage, No. 14 gage, or No. 16 gage steel; and is prepunched for 16d common nails into the header, and either 10d common or 10d-by-1½-inch nails into the joist. See Table 8 and Figure 8 for product dimensions, required fastener schedule, allowable loads, and a typical installation detail.

3.9 THDH Face Mount Hanger:

The THDH Face Mount Hanger is designed as a hanger for metal-plate-connected wood trusses and can also support LVL, LSL and PSL members. The THDH Face Mount Hanger is cold-formed from No. 12 gage steel and is prepunched for 16d common nails. See Table 9 and Figure 9 for product dimensions, fastener schedule, allowable loads, and a typical installation detail.

3.10THF Face Mount Hanger:

The THF Face Mount Hanger is designed to provide lateral top chord support for I-joist-to-header applications. The supporting header may be wood I-joists, LVL, LSL, PSL, or solid sawn lumber. The THF Face Mount Hanger is cold-formed from either No. 18 gage, No. 16 gage, or No. 12 gage steel; and is prepunched for 10d common nails into the header, and either 10d common or 10d-by-1½-inch nails into the joist. See Table 10 and Figure 10 for product dimensions, fastener schedule, allowable loads, and a typical installation detail.

3.11THFI Face Mount Hanger:

The THFI Face Mount Hanger is designed to provide lateral top chord support for I-joist-to-header applications with the added benefit of having six locking prongs in the hanger seat. The supporting header may be wood I-joists, LVL, LSL, PSL, or solid sawn lumber. The locking prongs provide a consistent uplift capacity for I-joists of all bottom flange thicknesses without the need of hanger-to-joist nails. The THFI also has a patented self-supporting top tab that securely grips to the header and holds the hanger in place without needing manual assistance while fasteners are installed. The THFI Face Mount Hanger is cold formed from No. 18 gage steel and is pre-punched for 10d common nails into the header. See Table 11 and Figure 11 for product dimensions, fastener schedule, allowable loads and a typical installation detail.

3.12LGU/MGU/HGU Girder Hanger:

The LGU/MGU/HGU Girder Hangers are designed as face mount hangers for attaching glulam beams to glulam headers. Header fasteners are located high on the side flanges to allow a deeper supported member to be attached top flush to a shallower supporting member. The LGU/MGU/HGU Girder Hangers are cold formed from either No. 10 gage or No. 7 gage steel and are pre-punched for ¼-inch-diameter MiTek Pro Series WS3 (3-inch-length) wood screws. The MiTek Pro Series wood screws are proprietary screws described in [ESR-2761](#) and are shipped with the hangers. The LGU/MGU/HGU Girder Hangers can also be used to attach LVL, LSL and PSL beams and headers together. See Table 12 and Figure 12 for product dimensions, fastener schedule, allowable loads and a typical installation detail.

3.13THDHQ Girder Truss Hanger:

The THDHQ Girder Truss Hangers are designed as face mount hangers for attaching multi-ply metal plated wooded girder trusses together. The THDHQ hangers are cold formed from No. 12 gage steel and are pre-punched for ¼-inch-diameter MiTek Pro Series WS3 (3-inch-length), WS45 (4½-inch-length) or WS6 (6-inch-length) wood screws. The MiTek Pro Series wood screws are proprietary screws described in [ESR-2761](#) and are shipped with the THDHQ hangers. The THDHQ hangers can also be used to connect LVL, LSL and PSL beams and headers together. See Table 13 and Figure 13 for product dimensions, fastener schedule, allowable loads and a typical installation detail.

3.14Materials:

3.14.1 Steel: The specific types of steel and corrosion protection for each product are described in Table 14 of this report. Minimum steel base-steel thicknesses for the different gages are shown in the following table:

GAGE NO.	MINIMUM BASE-STEEL THICKNESS (inch)
20	0.033
18	0.044
16	0.055
14	0.070
12	0.099

For SI: 1 inch = 25.4 mm.

3.14.2 Wood: Wood members must be sawn lumber or structural glued laminated timber with a minimum specific gravity of 0.50, or approved structural engineered lumber (structural composite lumber, alternative strand lumber, or prefabricated wood I-joists) with a minimum equivalent specific gravity of 0.50, unless otherwise noted in the applicable table within this report. Wood members must have a moisture content not exceeding 19 percent (16 percent for engineered wood products, except as noted in Section 4.1. For connectors installed with nails, the thickness of each wood member must be sufficient such that the specified fasteners do not protrude through the opposite side of the member, unless otherwise permitted in the applicable table within this report. Wood members that are structural engineered lumber must be recognized in, and used in accordance with, a current evaluation report. Refer to Section 3.14.4 for issues related to treated wood.

3.14.3 Fasteners: Required fastener types and sizes for use with the MiTek structural connectors described in this report are specified in this section and Tables 1 through 13. Nails used for connectors described in this

report must comply with material requirements, physical properties, tolerances, workmanship, protective coating and finishes, and packaging and package marking requirements specified in ASTM F1667; and must have lengths, diameters and bending yield strengths as shown in the following table:

FASTENER DESIGNATION	FASTENER LENGTH (inches)	SHANK DIAMETER (inch)	MINIMUM REQUIRED F_{yb} (psi)
P-nail ¹	1.375	0.105	100,000
10d x 1 1/2	1.5	0.148	90,000
10d Common	3.0	0.148	90,000
16d Common	3.5	0.162	90,000

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

¹The fastener designation "P-nail" refers to power-driven nails described in [ESR-1539](#). The fastener must have a minimum diameter, length, and bending yield strength as specified in this table.

MiTek Pro Series screws used for LGU/MGU/HGU and THDHQ hangers are described in [ESR-2761](#).

3.14.4 Use in Treated Wood: Connectors and fasteners used in contact with preservative-treated or fire-retardant-treated wood must comply with Section 2304.10.5 of the IBC (Section 2304.9.5 of the 2012, 2009 and 2006 IBC); Section R317.3 of the IRC (Section R319.3 of the 2006 IRC). The lumber treater or the report holder (MiTek), or both, should be contacted for recommendations on the appropriate level of corrosion resistance to specify for the connectors and fasteners as well as the connection capacities of the fasteners used with the specific proprietary preservative-treated or fire-retardant-treated lumber.

4.0 DESIGN AND INSTALLATION

4.1 Design:

The allowable load capacities in Tables 1 through 13 are based on allowable stress design. The use of the allowable load values for the products listed in Table 15 of this report must comply with all applicable requirements and conditions specified in this report. Tabulated allowable loads are for normal load duration and/or short load duration, based on load duration factors, C_D , in accordance with Section 11.3.2 of the *National Design Specification® for Wood Construction* (NDS) (Section 10.3.2 of the NDS for the 2012, 2009 and 2006 IBC and IRC), as indicated in Tables 1 through 13 of this report. No further increases are permitted for load durations other than those specified. Tabulated allowable loads are for connections in wood seasoned to a maximum moisture content of 19 percent (16 percent for engineered wood products) or less, used under continuously dry conditions and where sustained temperatures are limited to 100°F (37.8°C) or less. When connectors are installed in wood having a moisture content greater than 19 percent (16 percent for engineered wood products), or where the in-service moisture content is expected to exceed this value, the applicable wet service factor, C_M , must be applied. Unless otherwise noted in the tables of this report, the applicable wet service factor, C_M , is as specified in the NDS for lateral loading of dowel-type fasteners. When connectors are installed in wood that will experience sustained exposure to temperatures exceeding 100°F (37.8°C), the allowable loads in this evaluation report must be adjusted by the temperature factor, C_t , specified in Section 11.3.4 of the NDS (Section 10.3.4 of the NDS for the 2012, 2009 and 2006 IBC and IRC). Connected wood members must be checked for load-carrying capacity at the connection in accordance

with NDS Section 11.1.2 (Section 10.1.2 of the NDS for the 2012, 2009 and 2006 IBC and IRC).

4.2 Installation:

Installation of the connectors must be in accordance with this evaluation report and the manufacturer's published installation instructions.

4.3 Special Inspection:

4.3.1 Main Windforce-resisting Systems under the IBC: Periodic special inspection must be conducted for components within the main windforce-resisting system, where required in accordance with Sections 1704.2 and 1705.11 of the IBC, Section 1705.10 of the 2012 IBC, Sections 1704 and 1706 of the 2009 IBC, and Section 1704 of the 2006 IBC.

4.3.2 Seismic Force-resisting Systems under the IBC: Periodic special inspection must be conducted for components within the seismic force-resisting system, where required in accordance with Sections 1704.2 and 1705.12 of the IBC, Section 1705.11 of the 2012 IBC, and Sections 1704 and 1707 of the 2009 and 2006 IBC.

4.3.3 Installations under the IRC: Special inspections are normally not required for connectors used in structures regulated under the IRC. However, for components and systems requiring an engineered design in accordance with IRC Section R301, periodic special inspection requirements and exemptions must be in accordance with Sections 4.3.1 and 4.3.2 of this report.

5.0 CONDITIONS OF USE

The MiTek Structural Connectors 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 manufacturer's published installation instructions must be available at the jobsite at all times during installation. In the event of a conflict between this report and the manufacturer's published installation instructions, this report governs.
- 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.
- Connected wood members and fasteners must comply with Sections 3.14.2 and 3.14.3, respectively.
- Adjustment factors, noted in Section 4.1 of this report and the applicable codes, must be considered where applicable.
- Use of connectors and fasteners with preservative-treated or fire-retardant-treated lumber must be in accordance with Section 3.14.4.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Joist Hangers and Similar Devices (AC13), approved February 2017.

7.0 IDENTIFICATION

The connectors described in this report are identified by the product model (stock) number, the number of the ICC-ES index evaluation report for MiTek ([ESR-2685](#)), and by one or more of the following designations: MiTek USA, Inc.; USP Structural Connectors, a MiTek® Company; USP; or United Steel Products Company.

TABLE 1—CLPBF BUTTERFLY HANGER ALLOWABLE LOADS^{1,2,3,4}

STOCK NO.	JOIST WIDTH (in.)	STEEL GA.	DIMENSIONS			FASTENER SCHEDULE				ALLOWABLE LOADS (lbs)			
			W	H	D	Header		Joist		Download			Uplift
						Qty	Type	Qty	Type	C _D =1.0	C _D =1.15	C _D =1.25	C _D =1.60
CLPBF	1½	18	1 ⁹ / ₁₆	2½	2½	12	10d Common	6	10d x 1½	1340	1340	1340	185

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

¹Allowable loads have been adjusted for load duration factors, C_D, as shown, in accordance with the NDS. The allowable loads do not apply to loads of other durations, and are not permitted to be adjusted for other load durations. See Sections 4.1 and 4.2 for additional design and installation requirements.

²See Section 3.14.3 for required fastener dimensions and mechanical properties.

³Allowable loads shown are for installations in wood members complying with Section 3.14.2. Wood members must also have a reference compression perpendicular to grain design value, F_{c-perp}, of 625 psi (4.31 MPa) or greater.

⁴CLPBF hangers provide torsional resistance, up to a maximum joist depth of 3.5 inches (88.9 mm), where torsional resistance is defined as a moment 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).

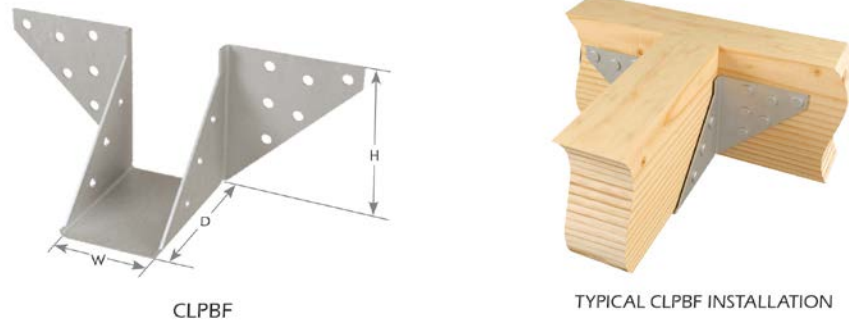


FIGURE 1—CLPBF BUTTERFLY HANGER

TABLE 2—HD FACE MOUNT HANGER ALLOWABLE LOADS^{1,2,3,4,5}

STOCK NO.	STEEL GAGE	HANGER DIMENSIONS (inches)			MIN / MAX	FASTENER SCHEDULE				ALLOWABLE LOADS (lbs)			
						HEADER		JOIST		DOWNLOAD			UPLIFT
		W	H	D		Qty	Type	Qty	Type	C _D = 1.0	C _D = 1.15	C _D = 1.25	C _D = 1.6
HD26	14	1 ⁹ / ₁₆	3 ¹ / ₂	2 ¹ / ₂	min	4	16d Common	2	10d x 1 ¹ / ₂	615	695	745	335
					max	4	16d Common	4	10d x 1 ¹ / ₂	615	695	745	585
HD28	14	1 ⁹ / ₁₆	5 ¹ / ₄	2 ¹ / ₂	min	8	16d Common	4	10d x 1 ¹ / ₂	1230	1390	1490	760
					max	8	16d Common	6	10d x 1 ¹ / ₂	1230	1390	1490	760
HD210	14	1 ⁹ / ₁₆	7 ³ / ₁₆	2 ¹ / ₂	min	10	16d Common	4	10d x 1 ¹ / ₂	1540	1735	1865	760
					max	14	16d Common	6	10d x 1 ¹ / ₂	2155	2430	2610	1170
HD212	14	1 ⁹ / ₁₆	9 ¹³ / ₁₆	2 ¹ / ₂	min	14	16d Common	6	10d x 1 ¹ / ₂	2155	2430	2610	1170
					max	20	16d Common	10	10d x 1 ¹ / ₂	3080	3475	3715	1550
HD214	14	1 ⁹ / ₁₆	10 ¹³ / ₁₆	2 ¹ / ₂	min	16	16d Common	6	10d x 1 ¹ / ₂	2465	2780	2980	1170
					max	22	16d Common	10	10d x 1 ¹ / ₂	3390	3715	3715	1550
HD216	14	1 ⁹ / ₁₆	12 ³ / ₄	2 ¹ / ₂	min	18	16d Common	8	10d x 1 ¹ / ₂	2770	3125	3355	1550
					max	26	16d Common	12	10d x 1 ¹ / ₂	3930	4125	4250	1900
HD24-2	14	3 ¹ / ₈	3 ¹ / ₂	2 ¹ / ₂	--	4	16d Common	2	10d Common	615	695	745	365
HD26-2	14	3 ¹ / ₈	5 ¹ / ₄	2 ¹ / ₂	min	8	16d Common	4	10d Common	1230	1390	1490	760
					max	12	16d Common	6	10d Common	1850	2085	2235	1170
HD28-2	14	3 ¹ / ₈	7 ¹ / ₈	2 ¹ / ₂	min	10	16d Common	4	10d Common	1540	1735	1865	780
					max	14	16d Common	6	10d Common	2155	2430	2610	1170
HD210-2	14	3 ¹ / ₈	9	2 ¹ / ₂	min	14	16d Common	6	10d Common	2155	2430	2610	1170
					max	20	16d Common	10	10d Common	3080	3475	3715	1950
HD212-2	14	3 ¹ / ₈	11	2 ¹ / ₂	min	16	16d Common	8	10d Common	2465	2780	2980	1305
					max	24	16d Common	12	10d Common	3695	4170	4470	2340
HD214-2	14	3 ¹ / ₈	13	2 ¹ / ₂	min	18	16d Common	8	10d Common	2770	3125	3355	1550
					max	26	16d Common	12	10d Common	4005	4515	4845	2340
HD216-2	14	3 ¹ / ₈	14	2 ¹ / ₂	min	20	16d Common	10	10d Common	3080	3475	3715	1950
					max	28	16d Common	14	10d Common	4310	4860	5035	2735
HD26-3	14	4 ⁵ / ₈	4 ¹ / ₂	2 ¹ / ₂	min	8	16d Common	4	10d Common	1230	1390	1490	760
					max	12	16d Common	6	10d Common	1850	2085	2235	1170
HD28-3	14	4 ⁵ / ₈	6 ³ / ₈	2 ¹ / ₂	min	10	16d Common	4	10d Common	1540	1735	1865	780
					max	14	16d Common	6	10d Common	2155	2430	2610	1170
HD210-3	14	4 ⁵ / ₈	8 ¹ / ₄	2 ¹ / ₂	min	14	16d Common	6	10d Common	2155	2430	2610	1170
					max	20	16d Common	10	10d Common	3080	3475	3725	1950
HD212-3	14	4 ⁵ / ₈	10 ¹ / ₄	2 ¹ / ₂	min	16	16d Common	8	10d Common	2465	2780	2980	1305
					max	24	16d Common	12	10d Common	3695	4170	4470	2340
HD214-3	14	4 ⁵ / ₈	12 ¹ / ₄	2 ¹ / ₂	min	18	16d Common	8	10d Common	2770	3125	3355	1550
					max	26	16d Common	12	10d Common	4005	4515	4845	2340
HD216-3	14	4 ⁵ / ₈	13 ¹ / ₄	2 ¹ / ₂	min	20	16d Common	10	10d Common	3080	3475	3725	1950
					max	28	16d Common	14	10d Common	4310	4860	5035	2735
HD28-4	14	6 ¹ / ₈	7	2 ¹ / ₂	min	10	16d Common	4	16d Common	1540	1735	1865	865
					max	14	16d Common	6	16d Common	2155	2430	2610	1305
HD210-4	14	6 ¹ / ₈	9 ¹ / ₄	2 ¹ / ₂	min	14	16d Common	6	16d Common	2155	2430	2610	1305
					max	18	16d Common	8	16d Common	2770	3125	3355	1845
HD34	14	2 ⁹ / ₁₆	3	2 ¹ / ₂	min	4	16d Common	2	10d x 1 ¹ / ₂	615	695	745	335
					max	4	16d Common	4	10d x 1 ¹ / ₂	615	695	745	585
HD36	14	2 ⁹ / ₁₆	4 ³ / ₄	2 ¹ / ₂	min	8	16d Common	4	10d x 1 ¹ / ₂	1230	1390	1490	760
					max	8	16d Common	6	10d x 1 ¹ / ₂	1230	1390	1490	760
HD38	14	2 ⁹ / ₁₆	6 ¹¹ / ₁₆	2 ¹ / ₂	min	10	16d Common	4	10d x 1 ¹ / ₂	1540	1735	1865	760
					max	14	16d Common	6	10d x 1 ¹ / ₂	2155	2430	2610	1170
HD310	14	2 ⁹ / ₁₆	7 ⁷ / ₁₆	2 ¹ / ₂	min	10	16d Common	4	10d x 1 ¹ / ₂	1540	1735	1865	760
					max	14	16d Common	6	10d x 1 ¹ / ₂	2155	2430	2610	1170
HD312	14	2 ⁹ / ₁₆	9 ⁵ / ₁₆	2 ¹ / ₂	min	14	16d Common	6	10d x 1 ¹ / ₂	2155	2430	2610	1170
					max	20	16d Common	10	10d x 1 ¹ / ₂	3080	3475	3715	1550
HD314	14	2 ⁹ / ₁₆	11 ⁵ / ₁₆	2 ¹ / ₂	min	16	16d Common	8	10d x 1 ¹ / ₂	2465	2780	2980	1180
					max	24	16d Common	12	10d x 1 ¹ / ₂	3695	4170	4435	1900
HD316	14	2 ⁹ / ₁₆	13 ⁵ / ₁₆	2 ¹ / ₂	min	18	16d Common	8	10d x 1 ¹ / ₂	2770	3125	3355	1550
					max	26	16d Common	12	10d x 1 ¹ / ₂	4005	4435	4435	1900
HD38-2	14	5 ¹ / ₈	6 ¹ / ₈	2 ¹ / ₂	min	10	16d Common	4	10d Common	1540	1735	1865	780
					max	14	16d Common	6	10d Common	2155	2430	2610	1170
HD310-2	14	5 ¹ / ₈	8	2 ¹ / ₂	min	14	16d Common	6	10d Common	2155	2430	2610	1170
					max	20	16d Common	10	10d Common	3080	3475	3725	1550

TABLE 2—HD FACE MOUNT HANGER ALLOWABLE LOADS^{1,2,3,4,5} (Continued)

STOCK NO.	STEEL GAGE	HANGER DIMENSIONS (inches)			MIN / MAX	FASTENER SCHEDULE				ALLOWABLE LOADS (lbs)			
						HEADER		JOIST		DOWNLOAD			UPLIFT
		W	H	D		Qty	Type	Qty	Type	C _D = 1.0	C _D = 1.15	C _D = 1.25	C _D = 1.6
HD312-2	14	5 ¹ / ₈	10	2 ¹ / ₂	min	16	16d Common	8	10d Common	2465	2780	2980	1305
					max	24	16d Common	12	10d Common	3695	4170	4470	2340
HD44	14	3 ⁹ / ₁₆	3 ⁵ / ₁₆	2 ¹ / ₂	--	4	16d Common	2	10d Common	615	695	745	390
HD46	14	3 ⁹ / ₁₆	5 ¹ / ₁₆	2 ¹ / ₂	min	8	16d Common	4	10d Common	1230	1390	1490	760
					max	12	16d Common	6	10d Common	1850	2085	2235	1170
HD48	14	3 ⁹ / ₁₆	6 ¹⁵ / ₁₆	2 ¹ / ₂	min	10	16d Common	4	10d Common	1540	1735	1865	780
					max	14	16d Common	6	10d Common	2155	2430	2610	1170
HD410	14	3 ⁹ / ₁₆	8 ¹³ / ₁₆	2 ¹ / ₂	min	14	16d Common	6	10d Common	2155	2430	2610	1170
					max	20	16d Common	10	10d Common	3080	3475	3715	1950
HD412	14	3 ⁹ / ₁₆	10 ¹³ / ₁₆	2 ¹ / ₂	min	16	16d Common	8	10d Common	2465	2780	2980	1305
					max	24	16d Common	12	10d Common	3695	4170	4470	2340
HD414	14	3 ⁹ / ₁₆	12 ¹³ / ₁₆	2 ¹ / ₂	min	18	16d Common	8	10d Common	2770	3125	3355	1550
					max	26	16d Common	12	10d Common	4005	4515	4815	2340
HD416	14	3 ⁹ / ₁₆	14 ¹³ / ₁₆	2 ¹ / ₂	min	22	16d Common	10	10d Common	3390	3820	4100	1950
					max	30	16d Common	14	10d Common	4620	4965	4965	2245
HD418	14	3 ⁹ / ₁₆	16 ¹ / ₂	2 ¹ / ₂	--	28	16d Common	8	10d Common	4310	4815	4815	1560
HD66	14	5 ¹ / ₂	4 ¹ / ₁₆	2 ¹ / ₂	min	8	16d Common	4	16d Common	1230	1390	1490	865
					max	12	16d Common	6	16d Common	1850	2085	2235	1305
HD68	14	5 ¹ / ₂	5 ¹⁵ / ₁₆	2 ¹ / ₂	min	10	16d Common	4	16d Common	1540	1735	1865	920
					max	14	16d Common	6	16d Common	2155	2430	2610	1305
HD610	14	5 ¹ / ₂	7 ¹³ / ₁₆	2 ¹ / ₂	min	14	16d Common	6	16d Common	2155	2430	2610	1305
					max	20	16d Common	10	16d Common	3080	3475	3725	2305
HD612	14	5 ¹ / ₂	9 ¹³ / ₁₆	2 ¹ / ₂	min	16	16d Common	8	16d Common	2465	2780	2980	1305
					max	24	16d Common	12	16d Common	3695	4170	4470	2765
HD614	14	5 ¹ / ₂	11 ¹³ / ₁₆	2 ¹ / ₂	min	18	16d Common	8	16d Common	2770	3125	3355	1845
					max	26	16d Common	12	16d Common	4005	4515	4845	2765
HD616	14	5 ¹ / ₂	13 ¹³ / ₁₆	2 ¹ / ₂	min	22	16d Common	10	16d Common	3390	3820	4100	2305
					max	30	16d Common	14	16d Common	4620	4965	4965	3225
HD86	14	7 ¹ / ₂	4 ¹⁵ / ₁₆	2 ¹ / ₂	min	8	16d Common	4	16d Common	1230	1390	1490	865
					max	10	16d Common	4	16d Common	1540	1735	1865	920
HD88	14	7 ¹ / ₂	6 ¹³ / ₁₆	2 ¹ / ₂	min	10	16d Common	4	16d Common	1540	1735	1865	920
					max	14	16d Common	6	16d Common	2155	2430	2610	1305
HD810	14	7 ¹ / ₂	8 ⁹ / ₁₆	2 ¹ / ₂	min	14	16d Common	6	16d Common	2155	2430	2610	1305
					max	18	16d Common	8	16d Common	2770	3125	3355	1845
HD812	14	7 ¹ / ₂	10 ¹ / ₂	2 ¹ / ₂	min	16	16d Common	6	16d Common	2465	2780	2980	1305
					max	22	16d Common	8	16d Common	3390	3820	4100	1845
HD814	14	7 ¹ / ₂	11 ¹³ / ₁₆	2 ¹ / ₂	min	18	16d Common	8	16d Common	2770	3125	3355	1845
					max	24	16d Common	12	16d Common	3695	4170	4435	2765
HD816	14	7 ¹ / ₂	12 ¹³ / ₁₆	2 ¹ / ₂	min	20	16d Common	8	16d Common	3080	3475	3715	1845
					max	26	16d Common	12	16d Common	4005	4435	4435	2765
HD1770	14	1 ¹³ / ₁₆	7 ¹ / ₈	2 ¹ / ₂	min	12	16d Common	4	10d x 1 ¹ / ₂	1850	2085	2235	760
					max	16	16d Common	8	10d x 1 ¹ / ₂	2465	2780	2980	1180
HD17925	14	1 ¹³ / ₁₆	9 ¹ / ₈	2 ¹ / ₂	min	18	16d Common	6	10d x 1 ¹ / ₂	2770	3125	3355	1170
					max	24	16d Common	10	10d x 1 ¹ / ₂	3695	4170	4320	1900
HD17112	14	1 ¹³ / ₁₆	11 ³ / ₈	2 ¹ / ₂	min	22	16d Common	6	10d x 1 ¹ / ₂	3390	3625	3685	1170
					max	30	16d Common	12	10d x 1 ¹ / ₂	4320	4515	4640	1900
HD1714	14	1 ¹³ / ₁₆	13 ⁵ / ₁₆	2 ¹ / ₂	min	28	16d Common	8	10d x 1 ¹ / ₂	3790	3920	4005	1550
					max	36	16d Common	14	10d x 1 ¹ / ₂	4580	4810	4955	1900
HD27925	14	2 ³ / ₄	9 ³ / ₁₆	2 ¹ / ₂	min	14	16d Common	6	10d x 1 ¹ / ₂	2155	2430	2610	1170
					max	20	16d Common	10	10d x 1 ¹ / ₂	3080	3475	3715	1550
HD27112	14	2 ³ / ₄	11 ³ / ₁₆	2 ¹ / ₂	min	16	16d Common	8	10d x 1 ¹ / ₂	2465	2780	2980	1180
					max	24	16d Common	12	10d x 1 ¹ / ₂	3695	4170	4435	1900
HD2714	14	2 ³ / ₄	13 ³ / ₁₆	2 ¹ / ₂	min	18	16d Common	8	10d x 1 ¹ / ₂	2770	3125	3355	1550
					max	26	16d Common	12	10d x 1 ¹ / ₂	4005	4435	4435	1900
HD32105	14	3 ¹ / ₄	9 ¹⁵ / ₁₆	2 ¹ / ₂	min	16	16d Common	6	10d Common	2465	2780	2980	1170
					max	22	16d Common	10	10d Common	3390	3820	4100	1950
HD3212	14	3 ¹ / ₄	11 ⁷ / ₈	2 ¹ / ₂	min	18	16d Common	8	10d Common	2770	3125	3355	1550
					max	26	16d Common	12	10d Common	4005	4515	4845	2340

TABLE 2—HD FACE MOUNT HANGER ALLOWABLE LOADS^{1,2,3,4,5} (Continued)

STOCK NO.	STEEL GAGE	HANGER DIMENSIONS (inches)			MIN /MAX	FASTENER SCHEDULE				ALLOWABLE LOADS (lbs)			
						HEADER		JOIST		DOWNLOAD			UPLIFT
		W	H	D		Qty	Type	Qty	Type	C _D = 1.0	C _D = 1.15	C _D = 1.25	C _D = 1.6
HD5112	14	5 ¹ / ₄	9 ¹⁵ / ₁₆	2 ¹ / ₂	min	16	16d Common	8	16d Common	2465	2780	2980	1305
					max	24	16d Common	12	16d Common	3695	4170	4470	2765
HD51135	14	5 ¹ / ₄	12 ¹⁵ / ₁₆	2 ¹ / ₂	min	20	16d Common	10	16d Common	3080	3475	3715	2305
					max	28	16d Common	14	16d Common	4310	4860	5035	3225
HD5210	14	5 ³ / ₈	7 ⁷ / ₈	2 ¹ / ₂	min	14	16d Common	6	16d Common	2155	2430	2610	1305
					max	20	16d Common	10	16d Common	3080	3475	3725	2305
HD5212	14	5 ³ / ₈	9 ⁷ / ₈	2 ¹ / ₂	min	16	16d Common	8	16d Common	2465	2780	2980	1305
					max	24	16d Common	12	16d Common	3695	4170	4470	2765
HD5214	14	5 ³ / ₈	11 ⁷ / ₈	2 ¹ / ₂	min	18	16d Common	8	16d Common	2770	3125	3355	1845
					max	26	16d Common	12	16d Common	4005	4515	4845	2765
HD5216	14	5 ³ / ₈	13 ⁷ / ₈	2 ¹ / ₂	min	22	16d Common	10	16d Common	3390	3820	4100	2305
					max	30	16d Common	14	16d Common	4620	4965	4965	3225
HD62117	14	6 ¹ / ₄	11 ³ / ₄	2 ¹ / ₂	--	24	16d Common	6	10d Common	3695	4170	4435	1170
Hd71117	14	7 ¹ / ₈	11 ³ / ₄	2 ¹ / ₂	--	26	16d Common	6	10d Common	4005	4435	4435	1170
HD7100	14	7 ¹ / ₈	9	2 ¹ / ₂	min	14	16d Common	6	16d Common	2155	2430	2610	1305
					max	18	16d Common	8	16d Common	2770	3125	3355	1845
HD7120	14	7 ¹ / ₈	10 ¹¹ / ₁₆	2 ¹ / ₂	min	16	16d Common	6	16d Common	2465	2780	2980	1305
					max	22	16d Common	8	16d Common	3390	3820	4100	1845
HD7140	14	7 ¹ / ₈	13	2 ¹ / ₂	min	20	16d Common	8	16d Common	3080	3475	3715	1845
					max	26	16d Common	12	16d Common	4005	4435	4435	2765
HD7160	14	7 ¹ / ₈	15 ⁵ / ₈	2 ¹ / ₂	--	24	16d Common	8	10d Common	3695	4170	4435	1560
HD7180	14	7 ¹ / ₈	17 ³ / ₄	2 ¹ / ₂	--	28	16d Common	8	10d Common	4310	4815	4815	1560
HD77117	14	7 ¹ / ₈	11 ³ / ₄	2 ¹ / ₂	--	26	16d Common	6	10d Common	4005	4435	4435	1170
HD83117	14	8 ⁵ / ₁₆	11 ³ / ₄	2 ¹ / ₂	--	26	16d Common	6	10d Common	4005	4435	4435	1170
HD95117	14	9 ¹ / ₂	11 ³ / ₄	2 ¹ / ₂	--	30	16d Common	6	10d Common	4620	4965	4965	1170

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 6.895 kPa.

¹Allowable loads have been adjusted for load duration factors, C_D, as shown, in accordance with the NDS. The allowable loads do not apply to loads of other durations, and are not permitted to be adjusted for other load durations. See Sections 4.1 and 4.2 for additional design and installations requirements.

²See Section 3.14.3 for required fastener dimensions and mechanical properties.

³Allowable loads shown are for installations in wood members complying with Section 3.14.2. Wood members must also have a minimum reference compression perpendicular to grain design value, F_{c-perp}, 625 psi (4.31 MPa).

⁴HD hangers provide torsional resistance, up to a maximum joist depth of H + 1.0 inch (H + 25.4 mm), where torsional resistance is defined as a moment not less than 75 pounds (335 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).

⁵HDIF inverted flange hangers are available in widths of 2.25 inches (57.2 mm) or greater at the same design loads as a corresponding HD models.



FIGURE 2—HD FACE MOUNT HANGER

TABLE 3—HUS SLANT NAIL JOIST HANGER ALLOWABLE LOADS^{1,2,3,4,6}

STOCKNO.	STEEL GAGE	DIMENSIONS (in.)				FASTENER SCHEDULE				ALLOWABLE DESIGN LOADS (lbs)			
		W	H	D	A	Header		Joist ⁵		Download			Uplift
						Qty	Type	Qty	Type	C _D = 1.0	C _D = 1.15	C _D = 1.25	C _D = 1.6
HUS26	16	1 ⁵ / ₈	5 ⁷ / ₁₆	3	2	14	16d Common	6	16d Common	2760	3140	3400	2035
HUS28	16	1 ⁵ / ₈	7 ³ / ₁₆	3	2	22	16d Common	8	16d Common	4170	4745	5090	2950
HUS210	16	1 ⁵ / ₈	9 ³ / ₁₆	3	2	30	16d Common	10	16d Common	5455	5825	6040	4110
HUS175	16	1 ¹³ / ₁₆	5 ³ / ₈	3	2	14	16d Common	6	16d Common	2760	3140	3400	2035
HUS177	16	1 ¹³ / ₁₆	7 ¹ / ₈	3	2	22	16d Common	8	16d Common	4170	4745	5090	2950
HUS179	16	1 ¹³ / ₁₆	9 ¹ / ₈	3	2	30	16d Common	10	16d Common	5580	6040	6040	4110
HUS24-2	14	3 ¹ / ₈	3 ⁷ / ₁₆	2	1	4	16d Common	2	16d Common	850	965	1035	760
HUS26-2	14	3 ¹ / ₈	5 ¹ / ₄	2	1	4	16d Common	4	16d Common	1085	1235	1330	1070
HUS28-2	14	3 ¹ / ₈	7 ¹ / ₈	2	1	6	16d Common	6	16d Common	1625	1850	1865	2390
HUS210-2	14	3 ¹ / ₈	9 ¹ / ₈	2	1	8	16d Common	8	16d Common	2170	2465	2660	2390
HUS212-2	14	3 ¹ / ₈	11 ¹ / ₈	2	1	10	16d Common	10	16d Common	2710	3080	3325	3825
HUS46	14	3 ⁵ / ₈	5	2	1	4	16d Common	4	16d Common	1085	1235	1330	1070
HUS48	14	3 ⁵ / ₈	7	2	1	6	16d Common	6	16d Common	1625	1850	1865	2390
HUS410	14	3 ⁵ / ₈	8 ⁷ / ₈	2	1	8	16d Common	8	16d Common	2170	2465	2660	2390
HUS412	14	3 ⁵ / ₈	10 ⁷ / ₈	2	1	10	16d Common	10	16d Common	2710	3080	3325	3825

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

¹Allowable loads have been adjusted for load duration factors, C_D, as shown, in accordance with the NDS. The allowable loads do not apply to loads of other durations, and are not permitted to be adjusted for other load durations. See Sections 4.1 and 4.2 for additional design and installation requirements.

²Allowable loads shown are for installations in wood members complying with Section 3.14.2. Wood members must also have a reference compression perpendicular to grain design value, F_{c-perp.}, of 625 psi (4.31 MPa) or greater.

³See Section 3.14.3 for required fastener dimensions and mechanical properties.

⁴HUS hangers provide torsional resistance, where torsional resistance is defined as a moment 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).

⁵Joist nails must be driven horizontally into the joist at an angle of 30- to 45-degrees from normal, such that they penetrate through the joist and into the header.

⁶HUS-IF inverted flange hangers are available in widths of 2¹/₄ inches or greater at the same design loads as corresponding HUS models.

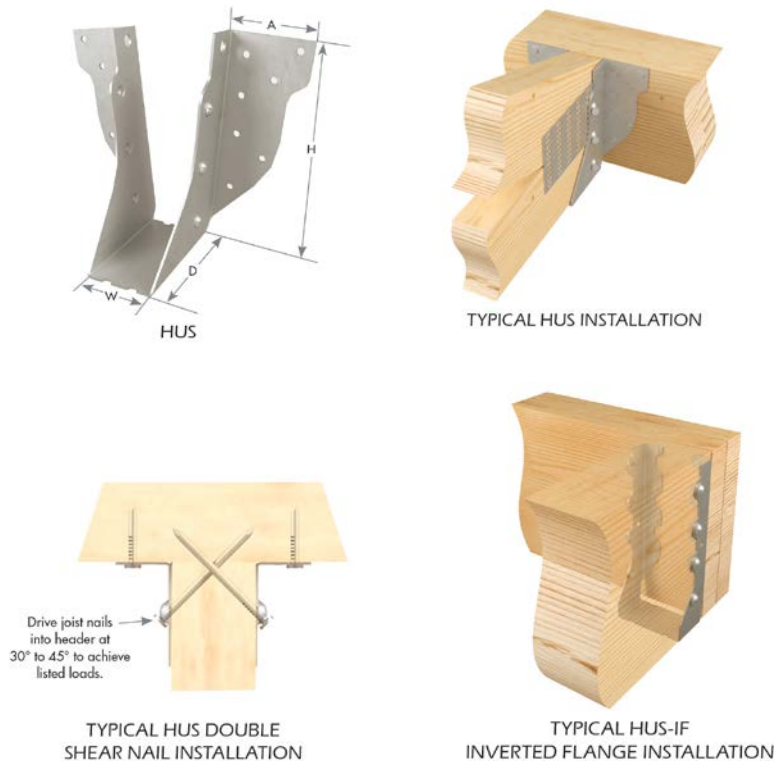


FIGURE 3—HUS SLANT NAIL JOIST HANGER

TABLE 4—JL STANDARD JOIST HANGER ALLOWABLE LOADS^{1,2,3,4}

STOCK NO.	STEEL GAGE	DIMENSIONS (inches)			FASTENER SCHEDULE				ALLOWABLE LOADS (lbs)			
					Header		Joist		Download			Uplift
		W	H	D	Qty	Type	Qty	Type	$C_D = 1.0$	$C_D = 1.15$	$C_D = 1.25$	$C_D = 1.6$
JL24	20	1 ⁹ / ₁₆	3	1 ¹ / ₂	4	10d Common	2	10dx1 ¹ / ₂	470	540	580	295
					4	16d Common	2	10dx1 ¹ / ₂	560	640	675	295
JL26	20	1 ⁹ / ₁₆	4 ³ / ₄	1 ¹ / ₂	6	10d Common	4	10dx1 ¹ / ₂	710	805	870	600
					6	16d Common	4	10dx1 ¹ / ₂	840	960	1045	600
JL28	20	1 ⁹ / ₁₆	6 ³ / ₈	1 ¹ / ₂	10	10d Common	6	10dx1 ¹ / ₂	1180	1345	1450	795
					10	16d Common	6	10dx1 ¹ / ₂	1400	1600	1740	795
JL210	20	1 ⁹ / ₁₆	8 ¹ / ₄	1 ¹ / ₂	14	10d Common	8	10dx1 ¹ / ₂	1650	1885	1930	1005
					14	16d Common	8	10dx1 ¹ / ₂	1930	1930	1930	1005

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 6.895 kPa.

¹Allowable loads have been adjusted for load duration factors, C_D , as shown, in accordance with the NDS. The allowable loads do not apply to loads of other durations, and are not permitted to be adjusted for other load durations. See Sections 4.1 and 4.2 for additional design and installations requirements.

²See Section 3.14.3 for required fastener dimensions and mechanical properties.

³Allowable loads shown are for installations in wood members complying with Section 3.14.2. Wood members must also have a minimum reference compression perpendicular to grain design value, F_{c-perp} , of 625 psi (3.17 MPa).

⁴JL hangers provide torsional resistance, up to a maximum joist depth of $H + 1.0$ inch ($H + 25.4$ mm), where torsional resistance is defined as a moment 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).



FIGURE 4—JL STANDARD JOIST HANGERS

TABLE 5—JN AND JNE POWER NAIL HANGER ALLOWABLE LOADS^{1,2}

STOCK NO.	JOIST WIDTH	STEEL GAGE	Dimensions (in.)			Fastener Schedule ^{3,4,5}				Allowable Loads (lbs) ⁶			
			W	H	D	Header		Joist		Download			Uplift
						Qty	Type	Qty	Type	C _D =1.0	C _D =1.15	C _D =1.25	C _D =1.6
JN26-2 JN28-2	(2) 1 1/2	18	3 1/16	5 3/8	1 5/8	8	P-nail	6	P-nail	490	560	610	585
						10	P-nail	6	P-nail	610	700	765	585
						12	P-nail	6	P-nail	730	840	915	585
						14	P-nail	6	P-nail	855	980	1070	585
						16	P-nail	6	P-nail	975	1120	1220	585
						18	P-nail	6	P-nail	1100	1265	1375	585
						20	P-nail	6	P-nail	1220	1405	1525	585
						22	P-nail	6	P-nail	1340	1545	1680	585
JN26E JN28E JN210E	1 1/2	20	1 9/16	5 1/4	2	8	P-nail	4	P-nail	480	550	600	305
						10	P-nail	4	P-nail	600	690	750	305
						12	P-nail	4	P-nail	720	830	900	305
						14	P-nail	4	P-nail	840	965	1050	305
						16	P-nail	4	P-nail	960	1105	1200	305
						18	P-nail	4	P-nail	1080	1240	1310	305
						20	P-nail	4	P-nail	1325	1325	1325	305

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

¹Allowable loads have been adjusted for load duration factors, C_D, as shown, in accordance with the NDS. The allowable loads do not apply to loads of other durations, and are not permitted to be adjusted for other load durations. See Sections 4.1 and 4.2 for additional design and installation requirements.

²Allowable loads shown are for installations in wood members complying with Section 3.14.2.

³The fastener designation "P-nail" refers to power-driven nails described in ESR-1539, and must have a minimum diameter, length, and bending yield strength as specified in Section 3.14.3 of this report.

⁴Fasteners must be driven in such a way as firmly seats the nail head against the hanger steel, without embedding the nail head through the plane of the metal surface, or otherwise punching through.

⁵The quantity of nails installed must be equally distributed to both sides of the hanger. The nails must be located within designated prepunched nailing areas at one inch (25.4 mm) spacing in a row, with the vertical rows spaced at 3/8 inch (9.53 mm); also, nails must be no less than 5/16 inch (7.94 mm) from any hanger edge.

⁶JN and JNE hangers provide torsional resistance, up to a maximum joist depth of 10 inches (254 mm), where torsional resistance is defined as a moment 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).

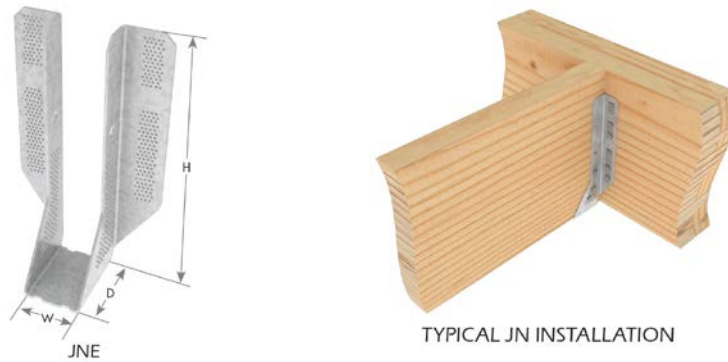


FIGURE 5—JN AND JNE POWER NAIL HANGERS

TABLE 6—JUS SLANT NAIL JOIST HANGER ALLOWABLE LOADS^{1,2,3,4}

STOCK NO.	STEEL GAGE	DIMENSIONS (in.)				FASTENER SCHEDULE				ALLOWABLE DESIGN LOADS (lbs)			
		W	H	D	A	Header		Joist		Download			Uplift
						Qty	Type	Qty	Type	C _D = 1.0	C _D = 1.15	C _D = 1.25	C _D = 1.6
JUS24	18	1 ⁹ / ₁₆	3 ¹ / ₈	1 ³ / ₄	1	4	10d Common	2	10d Common	675	775	835	630
JUS26	18	1 ⁹ / ₁₆	4 ¹³ / ₁₆	1 ³ / ₄	1	4	10d Common	4	10d Common	870	1000	1080	1000
JUS28	18	1 ⁹ / ₁₆	6 ⁵ / ₈	1 ³ / ₄	1	6	10d Common	4	10d Common	1110	1270	1375	1000
JUS210	18	1 ⁹ / ₁₆	7 ³ / ₄	1 ³ / ₄	1	8	10d Common	4	10d Common	1350	1545	1670	1000
JUS36	18	2 ⁹ / ₁₆	5 ¹ / ₄	2	1	4	16d Common	4	16d Common	1040	1185	1290	1255
JUS38	18	2 ⁹ / ₁₆	6 ³ / ₄	2	1	6	16d Common	4	16d Common	1325	1510	1645	1255
JUS310	18	2 ⁹ / ₁₆	9 ¹ / ₈	2	1	8	16d Common	6	16d Common	1845	2105	2290	2335
JUS24-2	18	3 ¹ / ₈	3 ⁷ / ₁₆	2	1	4	16d Common	2	16d Common	805	900	900	630
JUS26-2	18	3 ¹ / ₈	5 ¹ / ₄	2	1	4	16d Common	4	16d Common	1040	1185	1290	1255
JUS28-2	18	3 ¹ / ₈	7 ¹ / ₈	2	1	6	16d Common	4	16d Common	1325	1510	1645	1255
JUS210-2	18	3 ¹ / ₈	9 ¹ / ₈	2	1	8	16d Common	6	16d Common	1845	2105	2290	2335
JUS214-2	18	3 ¹ / ₈	13 ¹ / ₈	2	1	12	16d Common	6	16d Common	2420	2755	2830	2335
JUS44	18	3 ⁵ / ₈	3 ¹ / ₄	2	1	4	16d Common	2	16d Common	780	780	780	630
JUS46	18	3 ⁵ / ₈	5	2	1	4	16d Common	4	16d Common	1040	1185	1290	1255
JUS48	18	3 ⁵ / ₈	6 ⁷ / ₈	2	1	6	16d Common	4	16d Common	1325	1510	1645	1255
JUS410	18	3 ⁵ / ₈	8 ⁷ / ₈	2	1	8	16d Common	6	16d Common	1845	2105	2290	2335
JUS412	18	3 ⁵ / ₈	10 ⁷ / ₈	2	1	10	16d Common	6	16d Common	2130	2390	2390	2335
JUS414	18	3 ⁵ / ₈	12 ⁷ / ₈	2	1	12	16d Common	6	16d Common	2390	2390	2390	2335
JUS26-3	18	4 ⁵ / ₈	4 ¹ / ₂	2	1	4	16d Common	4	16d Common	1040	1185	1290	1255
JUS28-3	18	4 ⁵ / ₈	6 ³ / ₈	2	1	6	16d Common	4	16d Common	1325	1510	1645	1255
JUS210-3	18	4 ⁵ / ₈	8 ³ / ₈	2	1	8	16d Common	6	16d Common	1845	2105	2290	2335
JUS212-3	18	4 ⁵ / ₈	10 ³ / ₈	2	1	10	16d Common	6	16d Common	2130	2390	2390	2335
JUS214-3	18	4 ⁵ / ₈	12 ³ / ₈	2	1	12	16d Common	6	16d Common	2390	2390	2390	2335

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

¹Allowable loads have been adjusted for load duration factors, C_D, as shown, in accordance with the NDS. The allowable loads do not apply to loads of other durations, and are not permitted to be adjusted for other load durations. See Sections 4.1 and 4.2 for additional design and installation requirements.

²Allowable loads shown are for installations in wood members complying with Section 3.14.2. Wood members must also have a reference compression perpendicular to grain design value, F_{C-perp}, of 625 psi (4.31 MPa) or greater.

³See Section 3.14.3 for required fastener dimensions and mechanical properties.

⁴JUS hangers provide torsional resistance, up to a maximum joist depth of H + 1.0 inch (H + 25.4 mm) where torsional resistance is defined as a moment 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).

⁵Joist nails must be driven horizontally into the joist at an angle of 30- to 45-degrees from normal, such that they penetrate through the joist and into the header.



FIGURE 6—JUS SLANT NAIL JOIST HANGER

TABLE 7—SUH JOIST HANGER ALLOWABLE LOADS^{1,2,3}

STOCK NO.	STEEL GAGE	DIMENSIONS (in)				FASTENER SCHEDULE			ALLOWABLE LOADS (lbs)						
									Download						Uplift
		W	H	D	A	Header	Joist		16d Common Nails Into Header			10d Common Nails Into Header			
						Qty	Qty	Type	C _D = 1.0	C _D = 1.15	C _D = 1.25	C _D = 1.0	C _D = 1.15	C _D = 1.25	C _D = 1.6
SUH24	16	1 ⁹ / ₁₆	3 ¹ / ₄	2	1 ³ / ₁₆	4	2	10dx1 ¹ / ₂	590	665	720	500	560	605	380
SUH26	16	1 ⁹ / ₁₆	5 ¹ / ₈	2	1 ³ / ₁₆	6	4	10dx1 ¹ / ₂	880	1000	1080	750	840	910	755
SUH28	16	1 ⁹ / ₁₆	6 ⁵ / ₈	2	1 ³ / ₁₆	8	6	10dx1 ¹ / ₂	1175	1335	1440	1000	1120	1210	830
SUH210	16	1 ⁹ / ₁₆	8	2	1 ³ / ₁₆	10	6	10dx1 ¹ / ₂	1470	1670	1800	1250	1405	1515	1135
SUH214	16	1 ⁹ / ₁₆	10	2	1 ³ / ₁₆	12	8	10dx1 ¹ / ₂	1765	2000	2160	1500	1685	1815	1510
SUH1710	16	1 ¹³ / ₁₆	7 ⁷ / ₈	2	1 ³ / ₁₆	10	6	10dx1 ¹ / ₂	1470	1670	1800	1250	1405	1515	1135
SUH1714	16	1 ¹³ / ₁₆	9 ⁷ / ₈	2	1 ³ / ₁₆	12	8	10dx1 ¹ / ₂	1765	2000	2000	1500	1685	1815	1510
SUH24R	16	2	3 ¹ / ₁₆	2	1 ¹ / ₈	4	2	10dx1 ¹ / ₂	590	665	720	500	560	605	380
SUH26R	16	2	4 ¹⁵ / ₁₆	2	1 ³ / ₁₆	6	4	10dx1 ¹ / ₂	880	1000	1080	750	840	910	755
SUH28R	16	2	6 ⁷ / ₁₆	2	1 ¹ / ₈	8	6	10dx1 ¹ / ₂	1175	1335	1440	1000	1120	1210	830
SUH210R	16	2	7 ¹³ / ₁₆	2	1 ¹ / ₈	10	6	10dx1 ¹ / ₂	1470	1670	1800	1250	1405	1515	1135
SUH214R	16	2	9 ¹³ / ₁₆	2	1 ¹ / ₈	12	8	10dx1 ¹ / ₂	1765	2000	2160	1500	1685	1815	1510
SUH2310	16	2 ³ / ₈	8 ¹⁵ / ₁₆	2	1 ³ / ₁₆	16	6	10dx1 ¹ / ₂	2350	2670	2850	2000	2245	2420	1135
SUH2314	16	2 ³ / ₈	10 ⁵ / ₈	2	1 ³ / ₁₆	18	6	10dx1 ¹ / ₂	2645	2850	2850	2250	2525	2725	1135
SUH34	16	2 ⁹ / ₁₆	3 ³ / ₈	2	1 ¹ / ₈	6	2	10dx1 ¹ / ₂	880	1000	1080	750	840	910	380
SUH36	16	2 ⁹ / ₁₆	5 ⁵ / ₁₆	2	1 ¹ / ₈	10	4	10dx1 ¹ / ₂	1470	1670	1800	1250	1405	1515	755
SUH310	16	2 ⁹ / ₁₆	8 ⁷ / ₈	2	1 ¹ / ₈	16	6	10dx1 ¹ / ₂	2350	2670	2715	2000	2245	2420	1135
SUH314	16	2 ⁹ / ₁₆	10 ⁹ / ₁₆	2	1 ¹ / ₈	18	6	10dx1 ¹ / ₂	2645	3000	3240	2250	2525	2725	1135
SUH2610	16	2 ¹¹ / ₁₆	8 ¹³ / ₁₆	2	1 ³ / ₁₆	16	6	10dx1 ¹ / ₂	2350	2670	2880	2000	2245	2420	1135
SUH2614	16	2 ¹¹ / ₁₆	10 ¹ / ₂	2	1 ³ / ₈	18	6	10dx1 ¹ / ₂	2645	3000	3240	2250	2525	2725	1135
SUH24-2	16	3 ¹ / ₈	3 ¹ / ₈	2	1 ¹ / ₈	6	2	10dC	880	1000	1080	750	840	910	380
SUH26-2	16	3 ¹ / ₈	5 ¹ / ₁₆	2	1 ¹ / ₈	10	4	10dC	1470	1670	1800	1250	1405	1515	755
SUH28-2	16	3 ¹ / ₈	6 ¹ / ₄	2	1 ¹ / ₈	12	4	10dC	1765	1995	1995	1500	1685	1815	755
SUH210-2	16	3 ¹ / ₈	8 ⁹ / ₁₆	2	1 ¹ / ₈	16	6	10dC	2350	2670	2880	2000	2245	2420	1135
SUH214-2	16	3 ¹ / ₈	10 ¹ / ₄	2	1 ¹ / ₈	18	6	10dC	2645	3000	3240	2250	2525	2725	1135
SUH44	16	3 ⁹ / ₁₆	2 ⁷ / ₈	2	1 ¹ / ₈	6	2	10dC	880	1000	1080	750	840	910	380
SUH46	16	3 ⁹ / ₁₆	4 ¹³ / ₁₆	2	1 ¹ / ₈	10	4	10dC	1470	1670	1800	1250	1405	1515	755
SUH48	16	3 ⁹ / ₁₆	6 ¹ / ₁₆	2	1 ¹ / ₈	12	4	10Dc	1765	2000	2000	1500	1685	1815	755
SUH410	16	3 ⁹ / ₁₆	8 ³ / ₈	2	1 ¹ / ₈	16	6	10dC	2350	2670	2880	2000	2245	2420	1135
SUH414	16	3 ⁹ / ₁₆	10 ¹ / ₁₆	2	1 ¹ / ₈	18	6	10dC	2645	3000	3240	2250	2525	2725	1135
SUH44R	16	4	2 ¹¹ / ₁₆	2	1 ¹ / ₈	6	2	16dC	880	1000	1080	750	840	910	445
SUH46R	16	4	4 ¹¹ / ₁₆	2	1 ¹ / ₈	8	4	16dC	1175	1335	1440	1000	1120	1210	830
SUH410R	16	4	8 ³ / ₁₆	2	2	14	6	16dC	2060	2335	2520	1750	1965	2120	1220
SUH26-3	16	4 ⁵ / ₈	5 ¹ / ₄	2	1	8	2	10dC	1175	1335	1440	1000	1120	1210	380
SUH28-3	16	4 ⁵ / ₈	7 ¹ / ₈	2 ³ / ₄	1	10	6	10Dc	1470	1670	1800	1250	1405	1515	1135
SUH210-3	16	4 ⁵ / ₈	8 ³ / ₈	2	1	14	6	10dC	1995	1995	1995	1750	1965	1995	1135
SUH2310-2	16	4 ³ / ₄	8 ³ / ₈	2	1 ³ / ₁₆	14	6	10dC	2060	2335	2520	1750	1965	2120	1135
SUH2314-2	16	4 ³ / ₄	10	2	1 ³ / ₁₆	16	6	10dC	2350	2670	2880	2000	2245	2420	1135
SUH310-2	16	5 ¹ / ₈	9	2	1 ⁵ / ₈	14	6	10dC	2060	2335	2520	1750	1965	2120	1135
SUH66	16	5 ¹ / ₂	5	2	1	8	4	10dC	1175	1335	1440	1000	1120	1210	755
SUH610	16	5 ¹ / ₂	9	2	1	14	6	10dC	2060	2335	2520	1750	1965	2120	1135
SUH66R	16	6	5	2	1	8	4	16dC	1175	1335	1440	1000	1120	1210	830
SUH610R	16	6	9	2	1	14	6	16dC	2060	2335	2520	1750	1965	2120	1220

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

¹Allowable loads have been adjusted for load duration factors, C_D, as shown, in accordance with the NDS. The allowable loads do not apply to loads of other durations, and are not permitted to be adjusted for other load durations. See Sections 4.1 and 4.2 for additional design and installation requirements.

²Allowable loads shown are for installations in wood members complying with Section 3.14.2. Wood members must also have a reference compression perpendicular to grain design value, F_{c-perp}, of 625 psi (4.31 MPa) or greater.

³See Section 3.14.3 for required fastener dimensions and mechanical properties. 10dC refers to 10d Common and 16dC refers to 16d Common nails.

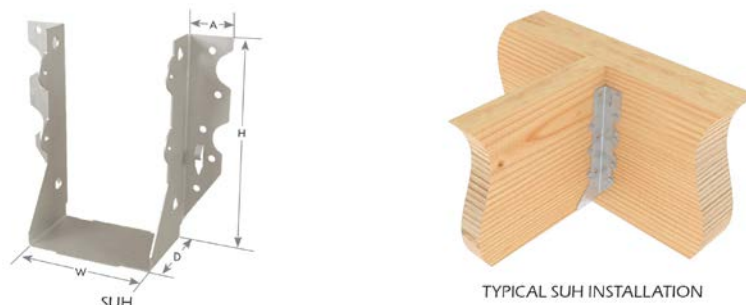


FIGURE 7—SUH JOIST HANGER

TABLE 8—THD FACE MOUNT HANGER ALLOWABLE LOADS^{1,2,3,4,5}

STOCK NO.	STEEL GAGE	DIMENSIONS (in.)			FASTENER SCHEDULE				ALLOWABLE LOADS (lbs)			
					Header		Joist		Download			Uplift
		W	H	D	Qty	Type	Qty	Type	C _D = 1.0	C _D = 1.15	C _D = 1.25	C _D = 1.60
THD26	16	1 ⁵ / ₈	5 ¹ / ₁₆	3	18	16d Common	12	10dx1 ¹ / ₂	2645	3000	3240	2265
THD26max	16	1 ⁵ / ₈	5 ¹ / ₁₆	3	20	16d Common	20	10dx1 ¹ / ₂	2940	3260	3260	2315
THD28	16	1 ⁵ / ₈	7	3	28	16d Common	16	10dx1 ¹ / ₂	4115	4195	4195	2315
THD28max	16	1 ⁵ / ₈	7	3	28	16d Common	26	10dx1 ¹ / ₂	4115	4670	5040	2315
THD210	16	1 ⁵ / ₈	9	3	38	16d Common	20	10dx1 ¹ / ₂	5315	5590	5590	3775
THD210max	16	1 ⁵ / ₈	9	3	38	16d Common	32	10dx1 ¹ / ₂	5585	5990	5990	4010
THD175	14	1 ⁷ / ₈	5	3	18	16d Common	12	10dx1 ¹ / ₂	2770	3125	3355	2315
THD177	14	1 ⁷ / ₈	6 ⁷ / ₈	3	28	16d Common	16	10dx1 ¹ / ₂	4310	4860	5005	2315
THD179	14	1 ⁷ / ₈	8 ⁷ / ₈	3	38	16d Common	20	10dx1 ¹ / ₂	5850	6250	6455	3905
THD26-2	14	3 ⁷ / ₁₆	5 ⁵ / ₈	3	18	16d Common	12	10d Common	2770	3125	3355	2340
THD28-2	14	3 ⁷ / ₁₆	7 ⁷ / ₈	3	28	16d Common	16	10d Common	4310	4860	5005	2595
THD210-2	14	3 ⁷ / ₁₆	9 ⁷ / ₈	3	38	16d Common	20	10d Common	5850	6600	7045	3905
THD210-3	12	5 ¹ / ₈	9	3	38	16d Common	20	10d Common	6535	7255	7745	4010
THD210-4	12	6 ³ / ₄	9	3	38	16d Common	20	10d Common	6535	7255	7745	4010
THD46	14	3 ⁵ / ₈	5 ⁵ / ₁₆	3	18	16d Common	12	10d Common	2770	3125	3355	2340
THD48	14	3 ⁵ / ₈	7 ¹ / ₁₆	3	28	16d Common	16	10d Common	4310	4860	5005	2595
THD410	14	3 ⁵ / ₈	9 ¹ / ₁₆	3	38	16d Common	20	10d Common	5850	6600	7045	3905
THD412	14	3 ⁵ / ₈	11	3	48	16d Common	20	10d Common	7045	7045	7045	3905
THD414	14	3 ⁵ / ₈	12 ⁷ / ₈	3	58	16d Common	20	10d Common	7045	7045	7045	3905
THD610	12	5 ¹ / ₂	9	3	38	16d Common	20	10d Common	6535	7255	7745	4010
THD612	12	5 ¹ / ₂	11	3	48	16d Common	20	10d Common	8255	8860	8860	4010
THD614	12	5 ¹ / ₂	12 ⁷ / ₈	3	58	16d Common	20	10d Common	8860	8860	8860	4010
THD7210	12	7 ¹ / ₄	9	3	38	16d Common	20	10d Common	6535	7255	7745	4010

For **SI**: 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 6.895 kPa.

¹Allowable loads have been adjusted for load duration factors, C_D, as shown, in accordance with the NDS. The allowable loads do not apply to loads of other durations, and are not permitted to be adjusted for other load durations. See Sections 4.1 and 4.2 for additional design and installations requirements.

²See Section 3.14.3 for required fastener dimensions and mechanical properties.

³Allowable loads shown are for installations in wood members complying with Section 3.14.2. Wood members must also have a minimum reference compression perpendicular to grain design value, F_{c-perp}, of 625 psi.

⁴THD hangers provide torsional resistance, up to a maximum joist depth of H + 1.0 inch (H + 25.4 mm), where torsional resistance is defined as a moment 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).

⁵Some THD models feature nail holes along the bend line that must be filled with nails, driven into the header at a 45° angle, to achieve the tabulated allowable loads.



FIGURE 8—THD FACE MOUNT HANGER

TABLE 9—THDH FACE MOUNT HANGER ALLOWABLE LOADS^{1,2,3,4}

STOCK NO.	STEEL GAGE	DIMENSIONS (in.)			FASTENER SCHEDULE				ALLOWABLE LOADS (lbs)			
		W	H	D	Header		Joist		Download			Uplift
					Qty	Type	Qty	Type	C _D = 1.0	C _D = 1.15	C _D = 1.25	C _D = 1.6
THDH26	12	1 ⁵ / ₈	5 ⁷ / ₁₆	5	20	16d Common	8	16d Common	4375	4895	5245	2865
THDH28	12	1 ⁵ / ₈	7 ³ / ₁₆	5	36	16d Common	12	16d Common	7595	8130	8130	4445
THDH210	12	1 ⁵ / ₈	9 ³ / ₁₆	5	46	16d Common	16	16d Common	9310	9710	9710	5260
THDH27925	12	2 ³ / ₄	9 ¹ / ₈	4	46	16d Common	12	16d Common	9020	9020	9020	4445
THDH27112	12	2 ³ / ₄	10 ⁷ / ₈	4	56	16d Common	14	16d Common	9710	9710	9710	4445
THDH2714	12	2 ³ / ₄	12 ¹ / ₄	4	66	16d Common	16	16d Common	11185	11760	11760	5260
THDH26-2	12	3 ⁷ / ₁₆	5 ³ / ₈	4	20	16d Common	8	16d Common	4375	4895	5245	2865
THDH28-2	12	3 ⁷ / ₁₆	7 ¹ / ₈	4	36	16d Common	10	16d Common	7360	8130	8130	3165
THDH210-2	12	3 ⁷ / ₁₆	9 ¹ / ₈	4	46	16d Common	12	16d Common	9020	9020	9020	4445
THDH212-2	12	3 ³ / ₈	10 ¹ / ₂	4	56	16d Common	14	16d Common	9710	9710	9710	4445
THDH214-2	12	3 ³ / ₈	12 ¹ / ₄	4	66	16d Common	16	16d Common	11760	11760	11760	5260
THDH3210	12	3 ³ / ₁₆	9 ³ / ₈	4	46	16d Common	12	16d Common	9020	9020	9020	4445
THDH3212	12	3 ³ / ₁₆	10 ⁵ / ₈	4	56	16d Common	14	16d Common	9710	9710	9710	5260
THDH46	12	3 ⁹ / ₁₆	5 ³ / ₈	4	20	16d Common	8	16d Common	4375	4895	5245	2865
THDH48	12	3 ⁹ / ₁₆	7 ¹ / ₈	4	36	16d Common	10	16d Common	7360	8130	8130	3165
THDH410	12	3 ⁹ / ₁₆	9 ¹ / ₈	4	46	16d Common	12	16d Common	9020	9020	9020	4445
THDH412	12	3 ⁹ / ₁₆	10 ¹ / ₂	4	56	16d Common	14	16d Common	9710	9710	9710	5260
THDH414	12	3 ⁹ / ₁₆	13 ¹ / ₁₆	4	66	16d Common	16	16d Common	11760	11760	11760	5655
THDH26-3	12	5 ¹ / ₈	5 ⁷ / ₁₆	4	20	16d Common	8	16d Common	4375	4895	5245	2865
THDH28-3	12	5 ¹ / ₈	7 ³ / ₁₆	4	36	16d Common	12	16d Common	7595	8130	8130	4445
THDH210-3	12	5 ¹ / ₈	9 ³ / ₁₆	4	46	16d Common	16	16d Common	9710	9710	9710	5260
THDH212-3	12	5 ¹ / ₈	11 ³ / ₁₆	4	56	16d Common	20	16d Common	9740	9740	9740	5260
THDH214-3	12	5 ¹ / ₈	13 ³ / ₁₆	4	66	16d Common	22	16d Common	11760	11760	11760	5655
THDH5210	12	5 ³ / ₈	9 ¹ / ₈	4	46	16d Common	16	16d Common	9710	9710	9710	5260
THDH5212	12	5 ³ / ₈	11 ¹ / ₈	4	56	16d Common	20	16d Common	9740	9740	9740	5260
THDH5214	12	5 ³ / ₈	13 ¹ / ₈	4	66	16d Common	22	16d Common	11760	11760	11760	5655
THDH610	12	5 ¹ / ₂	9	4	46	16d Common	16	16d Common	9020	9020	9020	5260
THDH612	12	5 ¹ / ₂	11	4	56	16d Common	20	16d Common	9740	9740	9740	5260
THDH614	12	5 ¹ / ₂	13	4	66	16d Common	22	16d Common	11760	11760	11760	5655
THDH26-4	12	6 ⁹ / ₁₆	5 ⁷ / ₁₆	4	20	16d Common	8	16d Common	4375	4895	5245	2865
THDH28-4	12	6 ⁷ / ₁₆	7 ⁹ / ₁₆	4	36	16d Common	12	16d Common	7595	8130	8130	4445
THDH6710	12	6 ⁷ / ₈	8 ¹³ / ₁₆	4	46	16d Common	12	16d Common	9020	9020	9020	4445
THDH6712	12	6 ⁷ / ₈	10 ¹³ / ₁₆	4	56	16d Common	14	16d Common	9020	9020	9020	5260
THDH6714	12	6 ⁷ / ₈	12 ¹³ / ₁₆	4	66	16d Common	16	16d Common	11760	11760	11760	5655
THDH7210	12	7 ¹ / ₄	9	4	46	16d Common	12	16d Common	9020	9020	9020	4445
THDH7212	12	7 ¹ / ₄	10 ¹ / ₂	4	56	16d Common	14	16d Common	9020	9020	9020	5260
THDH7214	12	7 ¹ / ₄	12 ¹ / ₄	4	66	16d Common	16	16d Common	11760	11760	11760	5655

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

¹Allowable loads have been adjusted for load duration factors, C_D, as shown, in accordance with the NDS. The allowable loads do not apply to loads of other durations, and are not permitted to be adjusted for other load durations. See Sections 4.1 and 4.2 for additional design and installation requirements.

²Allowable loads shown are for installations in wood members complying with Section 3.14.2.

³See Section 3.14.3 for required fastener dimensions and mechanical properties.

⁴THDH hangers provide torsional resistance, up to a maximum joist depth of H + 1.0 inch (H + 25.4 mm) where torsional resistance is defined as a moment 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).

⁵Allowable loads shown are for installations in wood members complying with Section 3.11.2.

⁶Wood members must also have a minimum reference compression perpendicular to grain design value, F_{c-perp}, of 625 psi.

⁷Joist nails must be driven horizontally into the joist at an angle of 30- to 45-degrees from normal, such that they penetrate through the joist, and into the header.



FIGURE 9—THDH FACE MOUNT HANGER

TABLE 10–THF FACE MOUNT HANGER ALLOWABLE LOADS^{1,2,3,4}

STOCK NO.	STEEL GAGE	DIMENSIONS (in.)			FASTENER SCHEDULE ⁵					ALLOWABLE LOADS (lbs)			
					Nail Conf.	Header		Joist		Download			Uplift
		W	H	D		Qty	Type	Qty	Type	C _D = 1.0	C _D = 1.15	C _D = 1.25	C _D = 1.60
THF15925	18	1 1/2	9 1/16	2	MIN	8	10d Common	2	10dx1 1/2	930	1065	1160	255
					MAX	12	10d Common	2	10dx1 1/2	1390	1600	1740	255
THF15112	18	1 1/2	11 1/16	2	MIN	8	10d Common	2	10dx1 1/2	930	1065	1160	255
					MAX	16	10d Common	2	10dx1 1/2	1855	2135	2165	255
THF15140	18	1 1/2	13 1/2	2	MIN	12	10d Common	2	10dx1 1/2	1390	1600	1740	255
					MAX	20	10d Common	2	10dx1 1/2	2105	2140	2165	255
THF16925	18	1 5/8	9	2	MIN	8	10d Common	2	10dx1 1/2	930	1065	1160	255
					MAX	12	10d Common	2	10dx1 1/2	1390	1600	1740	255
THF16112	18	1 5/8	11	2	MIN	8	10d Common	2	10dx1 1/2	930	1065	1160	255
					MAX	16	10d Common	2	10dx1 1/2	1855	2135	2320	255
THF16140	18	1 5/8	13 7/16	2	MIN	12	10d Common	2	10dx1 1/2	1390	1600	1740	255
					MAX	20	10d Common	2	10dx1 1/2	2265	2300	2320	255
THF17925	18	1 3/4	8 15/16	2	MIN	8	10d Common	2	10dx1 1/2	930	1065	1160	255
					MAX	12	10d Common	2	10dx1 1/2	1390	1600	1740	255
THF17112	18	1 3/4	10 15/16	2	MIN	8	10d Common	2	10dx1 1/2	930	1065	1160	255
					MAX	16	10d Common	2	10dx1 1/2	1855	2135	2320	255
THF17140	18	1 3/4	13 3/8	2	MIN	12	10d Common	2	10dx1 1/2	1390	1600	1740	255
					MAX	20	10d Common	2	10dx1 1/2	2320	2455	2480	255
THF20925	18	2 1/8	8 7/8	2	MIN	8	10d Common	2	10dx1 1/2	930	1065	1160	255
					MAX	12	10d Common	2	10dx1 1/2	1390	1600	1740	255
THF20112	18	2 1/8	11 3/16	2	MIN	8	10d Common	2	10dx1 1/2	930	1065	1160	255
					MAX	16	10d Common	2	10dx1 1/2	1855	2135	2320	255
THF20140	18	2 1/8	13 1/4	2	MIN	12	10d Common	2	10dx1 1/2	1390	1600	1740	255
					MAX	20	10d Common	2	10dx1 1/2	2320	2670	2790	255
THF15925-2	16	3 1/8	9 3/16	2 1/2	-	12	10d Common	6	10d Common	1415	1630	1770	1135
THF15112-2	16	3 1/8	10 13/16	2 1/2	-	14	10d Common	6	10d Common	1650	1900	2065	1135
THF15140-2	12	3 1/8	12 3/4	2 1/2	-	18	10d Common	6	10d Common	2395	2755	2995	1275
THF16925-2	16	3 3/8	9 1/16	2 1/2	-	12	10d Common	6	10d Common	1415	1630	1770	1135
THF16112-2	16	3 3/8	10 3/4	2 1/2	-	14	10d Common	6	10d Common	1650	1900	2065	1135
THF16140-2	12	3 3/8	12 5/8	2 1/2	-	18	10d Common	6	10d Common	2395	2755	2995	1275
THF17157	18	1 13/16	15 3/4	3 1/2	-	24	10d Common	2	10dx1 1/2	2785	3200	3480	255
THF20157	18	2 1/8	15 3/4	3 3/8	-	24	10d Common	2	10dx1 1/2	2785	3200	3480	255
THF17157-2	12	3 5/8	15 3/4	2 1/2	-	22	10d Common	6	10d Common	2925	3365	3660	1275
THF20925-2	16	4 3/16	8 11/16	2 1/2	-	12	10d Common	6	10d Common	1415	1630	1770	1135
THF20112-2	16	4 3/16	11	2 1/2	-	16	10d Common	6	10d Common	1890	2170	2360	1135
THF20140-2	16	4 3/16	13 5/8	2 1/2	-	20	10d Common	6	10d Common	2360	2715	2950	1135
THF23925	18	2 5/16	9 3/16	2 1/2	-	12	10d Common	2	10dx1 1/2	1390	1600	1740	160
THF23100	18	2 5/16	9 3/16	2 1/2	-	12	10d Common	2	10dx1 1/2	1390	1600	1740	330
THF23118	18	2 5/16	11 3/16	2 1/2	-	14	10d Common	2	10dx1 1/2	1625	1870	2030	330
THF23140	16	2 5/16	13 1/2	2 1/2	-	18	10d Common	2	10dx1 1/2	2125	2445	2655	330
THF23160	16	2 5/16	15 9/16	2 1/2	-	22	10d Common	2	10dx1 1/2	2595	2905	2905	330
THF23180	16	2 5/16	17 1/8	2 1/2	-	24	10d Common	8	10dx1 1/2	2830	3255	3540	1235
THF23925-2	16	4 3/4	8 3/8	2 1/2	-	12	10d Common	6	10d Common	1415	1630	1770	1135
THF23100-2	16	4 3/4	10	2 1/2	-	14	10d Common	6	10d Common	1650	1900	2065	1135
THF23112-2	16	4 3/4	10 11/16	2 1/2	-	16	10d Common	6	10d Common	1890	2170	2360	1135
THF23118-2	16	4 3/4	10 11/16	2 1/2	-	16	10d Common	6	10d Common	1890	2170	2360	1135
THF23140-2	12	4 3/4	13 5/16	2 1/2	-	20	10d Common	6	10d Common	2660	3060	3325	1275
THF23160-2	12	4 3/4	15 15/16	2 1/2	-	24	10d Common	6	10d Common	3190	3670	3790	1275
THF25925	18	2 1/2	9 1/8	2 1/2	-	12	10d Common	2	10dx1 1/2	1390	1600	1740	160
THF25112	18	2 1/2	11 1/8	2 1/2	-	14	10d Common	2	10dx1 1/2	1625	1870	2030	330
THF25120	18	2 1/2	11 1/8	2 1/2	-	14	10d Common	2	10dx1 1/2	1625	1870	2030	330
THF25130	16	2 1/2	12 1/4	2 1/2	-	18	10d Common	2	10dx1 1/2	2125	2445	2655	330
THF25140	16	2 1/2	13 7/16	2 1/2	-	18	10d Common	2	10dx1 1/2	2125	2445	2655	330
THF25160	16	2 1/2	15 1/2	2 1/2	-	22	10d Common	2	10dx1 1/2	2595	2905	2905	330
THF25925-2	16	5 1/8	8 3/16	2 1/2	-	12	10d Common	6	10d Common	1415	1630	1770	1135

TABLE 10—THF FACE MOUNT HANGER ALLOWABLE LOADS^{1,2,3,4} (Continued)

STOCK NO.	STEEL GAGE	DIMENSIONS (in.)			FASTENER SCHEDULE ⁵				ALLOWABLE LOADS (lbs)				
					Nail Conf.	Header		Joist		Download			Uplift
		W	H	D		Qty	Type	Qty	Type	C _D = 1.0	C _D = 1.15	C _D = 1.25	C _D = 1.60
THF25112-2	16	5 ¹ / ₈	10 ⁷ / ₁₆	2 ¹ / ₂	-	16	10d Common	6	10d Common	1890	2170	2360	1135
THF25140-2	12	5 ¹ / ₈	13 ¹ / ₈	2 ¹ / ₂	-	20	10d Common	6	10d Common	2660	3060	3325	1275
THF25160-2	12	5 ¹ / ₈	15 ⁵ / ₄	2 ¹ / ₂	-	24	10d Common	6	10d Common	3190	3670	3790	1235
THF26925	18	2 ⁵ / ₈	9 ¹ / ₁₆	2 ¹ / ₂	-	12	10d Common	2	10dx1 ¹ / ₂	1390	1600	1740	160
THF26112	18	2 ⁵ / ₈	11 ¹ / ₁₆	2 ¹ / ₂	-	14	10d Common	2	10dx1 ¹ / ₂	1625	1870	2030	330
THF26140	16	2 ⁵ / ₈	13 ³ / ₈	2 ¹ / ₂	-	18	10d Common	2	10dx1 ¹ / ₂	2125	2445	2655	330
THF26160	16	2 ⁵ / ₈	15 ⁷ / ₁₆	2 ¹ / ₂	-	22	10d Common	2	10dx1 ¹ / ₂	2595	2905	2905	330
THF35925	18	3 ¹ / ₂	8 ⁵ / ₈	2 ¹ / ₂	-	12	10d Common	2	10dx1 ¹ / ₂	1390	1600	1740	225
THF35112	18	3 ¹ / ₂	10 ⁵ / ₈	2 ¹ / ₂	-	16	10d Common	2	10dx1 ¹ / ₂	1855	2135	2320	225
THF35140	16	3 ¹ / ₂	12 ¹⁵ / ₁₆	2 ¹ / ₂	-	20	10d Common	2	10dx1 ¹ / ₂	2360	2715	2950	225
THF35157	16	3 ¹ / ₂	15	2 ¹ / ₂	-	22	10d Common	2	10dx1 ¹ / ₂	2595	2985	3245	225
THF35165	16	3 ¹ / ₂	16 ⁹ / ₁₆	2 ¹ / ₂	-	24	10d Common	8	10dx1 ¹ / ₂	2830	3255	3540	1235

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 6.895 kPa.

¹Allowable loads have been adjusted for load duration factors, C_D, as shown, in accordance with the NDS. The allowable loads do not apply to loads of other durations, and are not permitted to be adjusted for other load durations. See Sections 4.1 and 4.2 for additional design and installations requirements.

²See Section 3.14.3 for required fastener dimensions and mechanical properties.

³Allowable loads shown are for installations in wood members complying with Section 3.14.2. Wood members must also have a minimum reference compression perpendicular to grain design value, F_{c-perp}, of 625 psi (4.31 MPa).

⁴For minimum nailing configuration, all round nail holes must be filled with nails. For maximum nailing configuration, all round and diamond holes must be filled with nails.

⁵Reinforce supported and supporting I-joists as required per manufacturer's instructions.



FIGURE 10—THF FACE MOUNT HANGER

TABLE 11—THFI FACE MOUNT HANGER ALLOWABLE LOADS ^{1,2,3,4}

STOCK NO.	STEEL GAGE	HANGER DIMENSIONS (in.)			MIN/MAX	FASTENING SCHEDULE				ALLOWABLE LOADS (lbs)			
		W	H	D		Header ⁵		Joist ⁵		Download			Uplift
						Qty	Type	Qty	Type	C _D = 1.0	C _D = 1.15	C _D = 1.25	C _D = 1.6
THFI1795	18	1 ⁷ / ₈	9 ¹ / ₂	2	-	8	10d Common	-	-	960	1095	1180	120
THFI17118	18	1 ⁷ / ₈	11 ⁷ / ₈	2	-	10	10d Common	-	-	1200	1210	1210	120
THFI1714	18	1 ⁷ / ₈	14	2	Min	12	10d Common	-	-	1440	1640	1770	120
THFI1714	18	1 ⁷ / ₈	14	2	Max	14	10d Common	-	-	1680	1915	2065	120
THFI1716	18	1 ⁷ / ₈	16	2	Min	14	10d Common	-	-	1680	1915	2065	120
THFI1716	18	1 ⁷ / ₈	16	2	Max	16	10d Common	-	-	1920	2190	2190	120
THFI2095	18	2 ¹ / ₈	9 ¹ / ₂	2	-	8	10d Common	-	-	960	1095	1180	120
THFI20118	18	2 ¹ / ₈	11 ⁷ / ₈	2	-	10	10d Common	-	-	1200	1210	1210	120
THFI2014	18	2 ¹ / ₈	14	2	Min	12	10d Common	-	-	1440	1640	1770	120
THFI2014	18	2 ¹ / ₈	14	2	Max	14	10d Common	-	-	1680	1915	2065	120
THFI2016	18	2 ¹ / ₈	16	2	Min	14	10d Common	-	-	1680	1915	2065	120
THFI2016	18	2 ¹ / ₈	16	2	Max	16	10d Common	-	-	1920	2190	2265	120
THFI2395	18	2 ³ / ₈	9 ¹ / ₂	2	-	8	10d Common	-	-	960	1095	1180	120
THFI23118	18	2 ³ / ₈	11 ⁷ / ₈	2	-	10	10d Common	-	-	1200	1210	1210	120
THFI2314	18	2 ³ / ₈	14	2	Min	12	10d Common	-	-	1440	1640	1770	120
THFI2314	18	2 ³ / ₈	14	2	Max	14	10d Common	-	-	1680	1915	2065	120
THFI2316	18	2 ³ / ₈	16	2	Min	14	10d Common	-	-	1680	1915	2065	120
THFI2316	18	2 ³ / ₈	16	2	Max	16	10d Common	-	-	1920	2190	2265	120
THFI25925	18	2 ⁵ / ₈	9 ¹ / ₄	2	-	8	10d Common	-	-	960	1095	1180	120
THFI2595	18	2 ⁵ / ₈	9 ¹ / ₂	2	-	8	10d Common	-	-	960	1095	1180	120
THFI25118	18	2 ⁵ / ₈	11 ⁷ / ₈	2	-	10	10d Common	-	-	1200	1210	1210	120
THFI2514	18	2 ⁵ / ₈	14	2	Min	12	10d Common	-	-	1440	1640	1770	120
THFI2514	18	2 ⁵ / ₈	14	2	Max	14	10d Common	-	-	1680	1915	2065	120
THFI2516	18	2 ⁵ / ₈	16	2	Min	14	10d Common	-	-	1680	1915	2065	120
THFI2516	18	2 ⁵ / ₈	16	2	Max	16	10d Common	-	-	1920	2190	2265	120
THFI3595	18	3 ⁵ / ₈	9 ¹ / ₂	2	-	10	10d Common	-	-	1200	1210	1210	120
THFI35118	18	3 ⁵ / ₈	11 ⁷ / ₈	2	-	12	10d Common	-	-	1440	1640	1770	120
THFI3514	18	3 ⁵ / ₈	14	2	Min	12	10d Common	-	-	1440	1640	1770	120
THFI3514	18	3 ⁵ / ₈	14	2	Max	14	10d Common	-	-	1680	1915	2065	120
THFI3516	18	3 ⁵ / ₈	16	2	Min	14	10d Common	-	-	1680	1915	2065	120
THFI3516	18	3 ⁵ / ₈	16	2	Max	16	10d Common	-	-	1920	2190	2265	120

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 6.895 kPa.

¹Allowable loads have been adjusted for load duration factors, C_D, as shown, in accordance with the NDS. The allowable loads do not apply to loads of other durations, and are not permitted to be adjusted for other load durations. See Sections 4.1 and 4.2 for additional design and installations requirements.

²See Section 3.14.3 for required fastener dimensions and mechanical properties.

³Allowable loads shown are for installations in wood members complying with Section 3.14.2. Wood members must also have a minimum reference compression perpendicular to grain design value, F_{c-perp}, of 625 psi (4.31 MPa).

⁴For minimum nailing configuration, all round nail holes must be filled with nails. For maximum nailing configuration, all round and diamond holes must be filled with nails.

⁵Joists are held in hangers using seat cleats.

⁶Reinforce supporting I-joist headers as required per manufacturer's instructions



FIGURE 11—THFI FACE MOUNT HANGER

TABLE 12—LGU / MGU / HGU GIRDER HANGER ALLOWABLE LOADS

STOCK NO.	STEEL GAGE	DIMENSIONS (in.)				FASTENER SCHEDULE				ALLOWABLE LOADS ^{2,4} (lbs)			
		W	H ¹	H ₁	D	Header		Joist		Download			Uplift
						Qty	Type ³	Qty	Type	C _D = 1.0	C _D = 1.15	C _D = 1.25	
LGU325	10	3 ¹ / ₄	Specify	7 ³ / ₈	4 ¹ / ₂	18	WS3	12	WS3	7135	7410	7410	4160
LGU363	10	3 ⁵ / ₈	Specify	7 ³ / ₈	4 ¹ / ₂	18	WS3	12	WS3	7135	7410	7410	4160
LGU525	10	5 ¹ / ₄	Specify	7 ³ / ₈	4 ¹ / ₂	18	WS3	12	WS3	7135	7410	7410	4160
MGU363	10	3 ⁵ / ₈	Specify	8 ⁵ / ₈	4 ¹ / ₂	24	WS3	16	WS3	9515	10940	11890	5100
MGU525	10	5 ¹ / ₄	Specify	8 ⁵ / ₈	4 ¹ / ₂	24	WS3	16	WS3	9515	10940	11890	5100
MGU550	10	5 ¹ / ₂	Specify	8 ⁵ / ₈	4 ¹ / ₂	24	WS3	16	WS3	9515	10940	11890	5100
MGU562	10	5 ⁵ / ₈	Specify	8 ⁵ / ₈	4 ¹ / ₂	24	WS3	16	WS3	9515	10940	11890	5100
MGU700	10	7	Specify	8 ⁵ / ₈	4 ¹ / ₂	24	WS3	16	WS3	9515	10940	11890	5100
HGU363	7	3 ⁵ / ₈	Specify	10 ³ / ₈	5 ¹ / ₄	38	WS3	24	WS3	14705	14990	14990	7375
HGU525	7	5 ¹ / ₄	Specify	10 ³ / ₈	5 ¹ / ₄	38	WS3	24	WS3	14705	14990	14990	7375
HGU550	7	5 ¹ / ₂	Specify	10 ³ / ₈	5 ¹ / ₄	38	WS3	24	WS3	14705	14990	14990	7375
HGU562	7	5 ⁵ / ₈	Specify	10 ³ / ₈	5 ¹ / ₄	38	WS3	24	WS3	14705	14990	14990	7375
HGU700	7	7	Specify	10 ³ / ₈	5 ¹ / ₄	38	WS3	24	WS3	14705	14990	14990	7375
HGU725	7	7 ¹ / ₄	Specify	10 ³ / ₈	5 ¹ / ₄	38	WS3	24	WS3	14705	14990	14990	7375
HGU900	7	9	Specify	10 ³ / ₈	5 ¹ / ₄	38	WS3	24	WS3	14705	14990	14990	7375

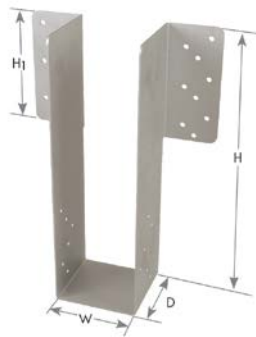
For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 6.895 kPa.

¹The minimum supported member heights, H, for the LGU, MGU, and HGU are 8", 9¹/₄", and 11", respectively.

²Allowable loads have been adjusted for load duration factors, C_D, as shown, in accordance with the NDS. The allowable loads do not apply to loads of other durations, and are not permitted to be adjusted for other load durations. See Sections 4.1 and 4.2 for additional design and installations requirements.

³The WS3 is a ¼" x 3" self-drilling screw described in ESR-2761 and are included with the hangers.

⁴Allowable loads shown are for installations in wood members complying with Section 3.14.2. Wood members must also have a minimum reference compression perpendicular to grain design value, F_{c-perp}, of 625 psi (4.31 MPa).



LGU/MGU/HGU



TYPICAL LGU/MGU/HGU INSTALLATION

FIGURE 12—LGU / MGU / HGU GIRDER HANGER

TABLE 13—THDHQ GIRDER TRUSS HANGER ALLOWABLE LOADS^{1,2,3}

STOCK NO.	STEEL GAGE	DIMENSIONS (in.)			FASTENER SCHEDULE				ALLOWABLE LOADS (lbs)			
		W	H	D	Header		Joist		Download			Uplift
					Qty	Type	Qty	Type	C _D = 1.0	C _D = 1.15	C _D = 1.25	C _D = 1.6
THDHQ26-2	12	3 ⁵ / ₁₆	5 ⁷ / ₁₆	4	12	WS3	4	WS3	5015	5745	5745	2015
THDHQ26-3	12	4 ¹⁵ / ₁₆	5 ⁷ / ₁₆	4	12	WS3	4	WS3	5015	5745	5745	2015
THDHQ26-4	12	6 ⁹ / ₁₆	5 ⁷ / ₁₆	4	12	WS45	4	WS6	5015	5745	5745	2600
THDHQ28-2	12	3 ⁵ / ₁₆	7 ³ / ₁₆	4	20	WS3	8	WS3	8355	9610	10165	3645
THDHQ28-3	12	4 ¹⁵ / ₁₆	7 ³ / ₁₆	4	20	WS3	8	WS3	8355	9610	10165	3645
THDHQ28-4	12	6 ⁹ / ₁₆	7 ³ / ₁₆	4	20	WS45	8	WS6	8355	9610	10165	4830
THDHQ210-2	12	3 ⁵ / ₁₆	9 ³ / ₁₆	4	28	WS3	8	WS3	10840	10880	10880	5345
THDHQ210-3	12	4 ¹⁵ / ₁₆	9 ³ / ₁₆	4	28	WS3	8	WS3	10880	10880	10880	5345
THDHQ210-4	12	6 ⁹ / ₁₆	9 ³ / ₁₆	4	28	WS45	8	WS6	10880	10880	10880	4440
THDHQ46	12	3 ⁵ / ₈	5 ⁷ / ₁₆	4	12	WS3	8	WS3	5015	5745	5745	2015
THDHQ48	12	3 ⁵ / ₈	7 ³ / ₁₆	4	20	WS3	8	WS3	8355	9610	10165	3645
THDHQ410	12	3 ⁵ / ₈	9 ³ / ₁₆	4	28	WS3	8	WS3	10880	10880	10880	5345

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 6.895 kPa.

¹Allowable loads have been adjusted for load duration factors, C_D, as shown, in accordance with the NDS. The allowable loads do not apply to loads of other durations, and are not permitted to be adjusted for other load durations. See Sections 4.1 and 4.2 for additional design and installations requirements.

²Wood screws (WS) used for THDHQ hangers are described in ESR-2761 and are included with the hangers.

³Allowable loads shown are for installations in wood members complying with Section 3.14.2. Wood members must also have a minimum reference compression perpendicular to grain design value, F_{c-perp}, of 625 psi (4.31 MPa).

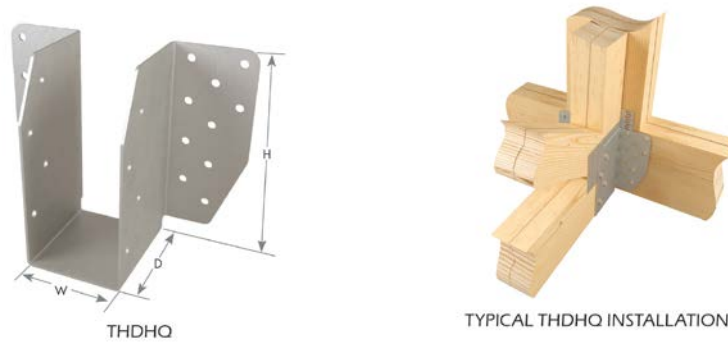


FIGURE 13—THDHQ GIRDER TRUSS HANGER

TABLE 14—STEEL TYPE, STRENGTH AND CORROSION RESISTANCE

Product	Steel	Coating ¹
CLPBF Butterfly Hanger	ASTM A653, SS designation, Grade 40	G90
HD Face Mount Hanger	ASTM A653, SS designation, Grade 40	G90
HUS Slant Nail Joist Hanger	ASTM A653, SS designation, Grade 40	G90, G185
JL Standard Joist Hanger	ASTM A653, SS designation, Grade 40	G90
JN Power Nail Hanger	ASTM A653, SS designation, Grade 40	G90
JNE Power Nail Hanger	ASTM A653, SS designation, Grade 40	G90
JUS Slant Nail Joist Hanger	ASTM A653, SS designation, Grade 40	G90, G185
SUH Joist Hanger	ASTM A653, SS designation, Grade 40	G90
THD Face Mount Hanger	ASTM A653, SS designation, Grade 40	G90, G185
THDH Face Mount Hanger	ASTM A653, SS designation, Grade 40	G90, G185
THF Face Mount Hanger	ASTM A653, SS designation, Grade 40	G90
THFI Face Mount Hanger	ASTM A653, SS designation, Grade 40	G90
LGU/MGU/HGU Girder Hanger	ASTM A653, SS designation, Grade 40	G90
THDHQ Girder Truss Hanger	ASTM A653, SS designation, Grade 40	G90

¹Corrosion protection is a zinc coating in accordance with ASTM A653.

TABLE 15—CROSS-REFERENCE OF PRODUCT NAMES WITH APPLICABLE REPORT SECTIONS, TABLES AND FIGURES

PRODUCT NAME	SECTION	TABLE NO.	FIGURE NO.
CLPBF Butterfly Hanger	3.1	1	1
HD Face Mount Hanger	3.2	2	2
HUS Slant Nail Joist Hanger	3.3	3	3
JL Standard Joist Hangers	3.4	4	4
JN Power Nail Hanger	3.5	5	5
JNE Power Nail Hanger	3.5	5	5
JUS Slant Nail Joist Hanger	3.6	6	6
SUH Joist Hanger	3.7	7	7
THD Face Mount Hanger	3.8	8	8
THDH Face Mount Hanger	3.9	9	9
THF Face Mount Hanger	3.10	10	10
THFI Face Mount Hanger	3.11	11	11
LGU/MGU/HGU Girder Hanger	3.12	12	12
THDHQ Girder Truss Hanger	3.13	13	13