

# ICC-ES Evaluation Report

**ESR-1077**

Reissued February 1, 2010

This report is subject to re-examination in one year.

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**DIVISION: 06—WOOD AND PLASTICS**  
**Section: 06170—Prefabricated Structural Wood**

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**EVALUATION SUBJECT:**
**WOOD I-JOISTS AND MULTI-WEBBED HEADERS:**

- **SERIES 24, 34 AND 44 SWI-T WOOD I-JOISTS**
- **SERIES 42 AND 62 SWII HEADERS**
- **SERIES 44 AND 64 SWII-T HEADERS**
- **SERIES 64 SWIII-T HEADERS**

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

- 2006 *International Building Code*® (IBC)
- 2006 *International Residential Code*® (IRC)

**Property evaluated:**

Structural

**2.0 USES**

Series 24, 34 and 44 SWI-T Wood I-Joists, Series 42 and 62 SWII Headers, Series 44 and 64 SWII-T Headers and Series 64 SWIII-T Headers are used as joists and headers. Prefabricated wood I-joists described in this report comply with Section 2303.1.2 of the IBC, for allowable stress design and Section R502.1.4 of the IRC.

**3.0 DESCRIPTION**
**3.1 SWI-T Wood I-Joists:**

**3.1.1 General:** The prefabricated wood I-joists described in this report have solid-sawn wood flanges and oriented strand board (OSB) webs. The top and bottom flanges are parallel, creating a constant-depth I-joist. The web panel face grain is oriented vertically, and the web-to-web connection of adjacent panels is butt-jointed and glued to form a continuous web. The web-to-flange connection is a proprietary, glued, tongue-and-groove joint. Joist depths vary from 9<sup>1</sup>/<sub>2</sub> inches to 20 inches (241 mm to 508 mm). See Table 1 for I-joist descriptions.

**3.1.2 Materials:**

**3.1.2.1 Flanges:** Flange material is 2100f-1.8E machine-stress-rated (MSR) SPF lumber with a minimum modulus of elasticity (E) of 1.8 x 10<sup>6</sup> psi (12.4 x 10<sup>3</sup> MPa). The nominal 2-inch-by-2-inch flange material is ripped from nominal 2-inch-by-4-inch MSR material, and the nominal 2-inch-by-3-inch flange material is ripped from nominal 2-inch-by-6-inch MSR material in accordance with the approved quality control manual. See the notes to Table 1 of this report for actual dimensions. Flange members are continuous, with tension-tested finger joints at splices meeting the requirements noted in the approved quality control manual.

**3.1.3 Webs:** Webs are 3/8-inch-thick (9.5 mm) OSB panels conforming with Structural 1, Exposure 1, performance-rated panel requirements as noted in DOC Voluntary Product Standard PS-2 and the approved manufacturer's quality control manual.

**3.1.4 Adhesive:** Exterior-type, heat-durable adhesives used in I-joist fabrication comply with ASTM D 5055, have been tested in accordance with ASTM D 7247-07a, and are as specified in the approved quality control manual.

**3.1.5 Series 42 and 62 SWII Headers:**

**3.1.6 General:** The SWII headers are double-webbed wood headers composed of flanges and webs, and are produced in 14-foot-long (4267 mm) sections in depths of 7<sup>1</sup>/<sub>4</sub> (184mm), 9<sup>1</sup>/<sub>4</sub> (235 mm) and 11<sup>1</sup>/<sub>4</sub> inches (286 mm), although continuous fabrication can produce longer sections. Various combinations of flange and web materials are noted in Table 4. Web butt joints are square and an OSB gusset plate is stapled and glued over each joint. The web-to-flange connection is a proprietary, glued, tongue-and-groove joint. See Figure 1 of this report for typical installation details.

**3.1.7 Materials:**

**3.1.7.1 Flanges:** Flange material is 1650f-1.5 E MSR SPF lumber with a minimum modulus of elasticity (E) of 1.5 x 10<sup>6</sup> psi (10.3 x 10<sup>3</sup> MPa) in nominally 2-inch-by-4-inch and nominally 2-inch-by-6-inch sizes. See Table 4 of this report for actual dimensions. Flange members are continuous, with tension-tested finger joints at splices meeting the requirements noted in the approved quality control manual.

**3.1.7.2 Webs:** Webs are 7/16-inch-thick (11.1 mm) OSB panels conforming with Structural 1, Exposure 1, performance-rated panel requirements as noted in the ICC-ES Acceptance Criteria for Wood Structural Panels (AC182) and the approved manufacturer's quality control manual.

**3.1.7.3 Adhesive:** Exterior-type, heat-durable adhesives used in I-joint header fabrication comply with ASTM D 5055, have been tested in accordance with ASTM D 7247-07a, and are as specified in the approved quality control manual.

### 3.2 Series 44 and 64 SWII-T and Series 64 SWIII-T Headers:

**3.2.1 General:** The SWII-T and SWIII-T headers are double-webbed and triple-webbed wood headers composed of flanges and webs, are produced in 14-foot-long (4267 mm) and 16-foot-long (4877 mm) sections, and are 1 1/8 inches (302 mm) deep. Webstock is 3/8-inch-thick OSB that is purchased in 4-foot-by-14-foot or 4-foot-by-16-foot units. The webstock is ripped from the long side, which produces a full-length web with no butt joints. The web-to-flange connection is a proprietary, glued, tongue-and-groove joint. See Figure 1 for typical installation details.

#### 3.2.2 Materials:

**3.2.2.1 Flanges:** Flange material is 2100f-1.8 E MSR SPF lumber with a minimum modulus of elasticity (E) of  $1.8 \times 10^6$  psi ( $12.4 \times 10^3$  MPa) in nominally 2-inch-by-4-inch and nominally 2-inch-by-6-inch sizes. See Table 4 of this report for actual dimensions. Flange members are continuous, with tension-tested finger joints at splices meeting the requirements noted in the approved quality control manual.

**3.2.2.2 Webs:** Webs are 3/8-inch-thick (9.5 mm) OSB panels conforming with Structural 1, Exposure 1, performance-rated panel requirements as noted in the ICC-ES Acceptance Criteria for Wood Structural Panels (AC182) and the approved manufacturer's quality control manual.

**3.2.2.3 Adhesive:** Exterior-type, heat-durable adhesives used in I-joint header fabrication comply with ASTM D 5055, have been tested in accordance with ASTM D 7247-07a, and are as specified in the approved quality control manual.

## 4.0 DESIGN AND INSTALLATION

### 4.1 I-Joists:

Design and installation of the wood I-joists must comply with the following conditions:

**4.1.1 Allowable Capacity:** Design loads must not exceed the allowable moments, shears and reactions noted in Table 1. Maximum allowable shear capacity is based on a minimum bearing length of 2 inches (51 mm) for SWI-T 24 series joists and 2 1/2 inches (64 mm) for SWI-T 34 and 44 series joists. Maximum end reaction capacities are based on minimum bearing lengths of 2 inches (51 mm) for SWI-T 24 series joists, and 2 1/2 inches (64 mm) for SWI-T 34 and 44 series joists.

**4.1.2 Fasteners:** Allowable capacities and the spacing of fasteners installed in the flanges must comply with the applicable code.

**4.1.3 Web Stiffeners:** Web stiffener requirements for reactions and concentrated loads are noted in Table 3 and Figure 2.

**4.1.4 Lateral Support:** The compression flange requires continuous lateral support, and the joist ends require restraint to prevent rollover. Code-approved methods specified for solid-sawn lumber are acceptable.

**4.1.5** Allowable round and square hole sizes and locations in joist webs are specified in Tables 2A, 2B and 2C.

**4.1.6 Duration of Load:** Adjustments for duration of load in accordance with Part 2.3.2 of the National Design Specification for Wood Construction (NDS), 2005 edition, apply to the I-joists and their fastenings.

**4.1.7 In-service Moisture Conditions:** The joist properties and allowable loads in this report are based on covered installations with dry conditions of use. Dry conditions of use are those environmental conditions represented by sawn lumber in which the moisture content is less than 16 percent. Use of the I-joists in covered installations where the moisture content exceeds 16 percent is beyond the scope of this evaluation report.

**4.1.8 Repetitive-member Use:** The repetitive-member use factor applicable to the allowable moment capacities listed in Table 1 is limited to 1.0.

**4.1.9 Member Span:** I-joint span must be determined in accordance with Part 3.2.1 of the NDS. Vertical shear calculations must include all loads within the span between support faces.

**4.1.10 Deflections:** Deflection of uniformly loaded or center-point loaded, simple-span joists must be determined using the values in Table 1.

**4.1.11 Blocking Panels:** I-joists under perpendicular bearing walls require full-depth blocking. Joists used as blocking panels have the maximum compressive load capacity shown in Table 6.

**4.1.12 Cantilevered Joists:** I-joists are permitted to be installed with cantilevers if the cantilevers have a maximum length equal to one third of the adjacent span and support uniform loads only, unless designed by a design professional.

### 4.2 Headers:

Table 5 specifies allowable design values for headers. Holes are not permitted in the web or flange of the header. Flanges must not be cut for any reason. Maximum end reaction capacity is based on a minimum 3-inch (76.2 mm) bearing length unless otherwise noted.

## 5.0 CONDITIONS OF USE

The Series 24, 34 and 44 SWI-T Wood I-Joists, Series 42 and 62 SWII Headers, Series 44 and 64 SWII-T Headers and Series 64 SWIII-T Headers described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

**5.1** Installation must comply with this report, the manufacturer's published installation instructions and the applicable code. If there is a conflict between the installation instructions and this report, this report governs.

**5.2** Design calculations must be submitted to the building official for approval. The design calculations must be consistent with this report and prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

**5.3** Size and location of holes in the web of SWI-T I-joists must comply with this report.

**5.4** Holes are not permitted in the web or flange of SWII, SWII-T and SWIII-T headers.

**5.5** Flanges of I-joists and headers must not be cut or notched.

**5.6** I-joists and headers must be identified in accordance with this report.

5.7 Superior Wood Systems, Inc. manufactures the I-joists and headers at its facility in Superior, Wisconsin, under a quality control program with inspections by PFS Corporation (AA-652).

**6.0 EVIDENCE SUBMITTED**

- 6.1 Manufacturer’s installation instructions.
- 6.2 Data in accordance with the ICC-ES Acceptance Criteria for Prefabricated Wood I-joists (AC14), dated October 2007 (editorially revised December 2008).

6.3 A quality control manual.

**7.0 IDENTIFICATION**

Each I-joist and header must be stamped with the Superior Wood Systems, name, product name and series, date of manufacture, and the name or logo of the inspection agency (PFS Corporation) and the evaluation report number (ESR-1077).

**TABLE 1—ALLOWABLE DESIGN PROPERTIES: SWI-T 24, 34 AND 44 SERIES WOOD I-JOISTS**

SERIES <sup>1</sup>	DEPTH (in.)	WEIGHT (plf)	ALLOWABLE MOMENT <sup>2</sup> (ft.-lb.)	ALLOWABLE SHEAR <sup>2</sup> (lb.)	MAXIMUM END REACTION <sup>2,4</sup> (lb.)	DEFLECTION	
						EI x 10 <sup>6</sup> (in. <sup>2</sup> - lb.)	GA x 10 <sup>5</sup> (lb.)
SWI-T 24 without stiffeners	9 <sup>1</sup> / <sub>2</sub>	1.8	2416	900	900	135	5.7
	11 <sup>1</sup> / <sub>4</sub>	2.1	2940	1000	1000	199	7.0
	11 <sup>7</sup> / <sub>8</sub>	2.2	3128	1000	1000	225	7.5
	14	2.3	3764	1000	1000	326	9.2
SWI-T 24S <sup>3</sup> with stiffeners	14	2.3	3764	1300	1300	326	9.2
SWI-T 34 without stiffeners	9 <sup>1</sup> / <sub>2</sub>	2.5	3991	1000	1000	223	5.7
	11 <sup>1</sup> / <sub>4</sub>	2.8	4860	1200	1200	329	7.0
	11 <sup>7</sup> / <sub>8</sub>	2.9	5170	1200	1200	372	7.5
	14	3.0	6225	1200	1200	538	9.2
SWI-T 34S <sup>3</sup> with stiffeners	16	3.2	7218	1100	1100	722	10.7
	14	3.0	6225	1500	1500	538	9.2
SWI-T 44S <sup>3</sup> with stiffeners	16	3.2	7218	1700	1700	722	10.7
	18	4.1	10,984	1900	1900	1256	12.3
SWI-T 44S <sup>3</sup> with stiffeners	20	4.3	12,159	2100	2100	1578	13.9

**Notes to Table 1:**

- <sup>1</sup>Series SWI-T 24 flanges are nominally 2-by-2, Series SWI-T 34 flanges are nominally 2-by-3, Series SWI-T 44 flanges are nominally 2-by-4.
- <sup>2</sup>Moment and shear values and end reactions are for normal duration of load and spacing. Adjustments for duration of load factors must be in accordance with the NDS.
- <sup>3</sup>The suffix “S” indicates a web stiffener is required. For the minimum material specification and installation requirements for web stiffeners, see Table 3 and Figure 2 of this report.
- <sup>4</sup>Maximum end reaction is based on a minimum 2-inch (51 mm) bearing length for SWI-T 24 series joists, and a minimum 2<sup>1</sup>/<sub>2</sub>-inch (64 mm) bearing length for SWI-T 34 and 44 series joists.
- <sup>5</sup>Deflection calculations must include both bending and shear deformation. Deflection must be calculated utilizing the allowable properties given in Table 1 of this report, and must indicate the following:
  - Load duration factor used in accordance with AFPA NDS-05
  - Required design capacities of SWI-T I-Joists under design loads
  - Allowable design capacities of SWI-T I-joists
  - Allowable deflection of SWI-T I-Joists consistent with this report
  - Calculated deflection of the SWI-T I-joists under design load, utilizing deflection formulas listed below. Maximum deflection of I-joists under design loads in accordance with the applicable code:

For a simple span joist with uniformly distributed load along entire length:

$$\Delta = \frac{22.5WL^4}{EI} + \frac{1.5WL^2}{GA}$$

For a simple span joist with concentrated load at center span:

$$\Delta = \frac{36PL^3}{EI} + \frac{3PL}{GA}$$

where:

- W = Uniform loads in pounds per lineal foot.
- L = Centerline-to-centerline (clear) span in feet.
- EI = Product of the moment of inertia and modulus of elasticity. (See Table 1 for this value) (x 10<sup>6</sup> - in<sup>2</sup> - lbs).
- P = Concentrated load (lbf).
- GA = Product of shear modulus of web material and web area between joist flanges (x 10<sup>5</sup> lb).
- Δ = Calculated deflection, in inches.

**TABLE 2A—ROUND HOLES—MINIMUM DISTANCE FROM SUPPORT (L) (feet)**

JOIST DEPTH	JOIST SERIES	HOLE DIAMETER (D) (inches)													
		2	3	4	5	6	6 <sup>1</sup> / <sub>2</sub>	7	8	8 <sup>1</sup> / <sub>2</sub>	9	10	10 <sup>1</sup> / <sub>2</sub>	11	12
9 <sup>1</sup> / <sub>2</sub> "	SWI-T 24	1.0	2.0	3.0	4.0	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
	SWI-T 34	1.0	2.0	3.0	4.0	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
11 <sup>1</sup> / <sub>4</sub> "	SWI-T 24	1.0	2.0	3.0	3.5	4.5	5.0	NP	NP	NP	NP	NP	NP	NP	NP
	SWI-T 34	1.0	2.0	3.0	3.5	4.5	5.0	NP	NP	NP	NP	NP	NP	NP	NP
11 <sup>7</sup> / <sub>8</sub> "	SWI-T 24	1.0	2.0	3.0	3.5	4.5	5.0	NP	NP	NP	NP	NP	NP	NP	NP
	SWI-T 34	1.0	2.0	3.0	3.5	4.5	5.0	NP	NP	NP	NP	NP	NP	NP	NP
14"	SWI-T 24	1.0	2.0	3.0	4.5	5.5	6.0	7.0	8.0	9.0	NP	NP	NP	NP	NP
	SWI-T 34	1.0	2.0	3.0	4.5	5.5	6.0	7.0	8.0	9.0	NP	NP	NP	NP	NP
16"	SWI-T 34	1.0	2.0	3.0	4.5	5.5	6.0	7.0	8.0	9.0	9.5	10.0	11.0	NP	NP
18"	SWI-T 44	1.5	2.0	3.0	4.5	5.5	6.0	7.0	8.0	9.0	9.0	10.0	11.0	12.0	13.0
20"	SWI-T 44	1.5	2.0	3.0	4.5	5.5	6.0	7.0	8.0	9.0	9.0	10.5	11.0	12.0	13.0

**Notes to Table 2A:**

<sup>1</sup>Openings must be centered vertically at mid-height of joist.

<sup>2</sup>Maximum of three holes per span.

<sup>3</sup>Spacing center-to-center of adjacent holes must be at least three times diameter (d) or width (w) of largest hole.

<sup>4</sup>Flanges must not be cut or notched.

<sup>5</sup>NP = Not permitted.

**TABLE 2B—SQUARE AND RECTANGULAR HOLES—MINIMUM DISTANCE FROM SUPPORT (L) (feet)**

JOIST DEPTH	JOIST SERIES	SQUARE AND RECTANGULAR HOLES (W) "W" = LENGTH OF LONG SIDE FOR RECTANGLE											
		2"	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"	
9 <sup>1</sup> / <sub>2</sub> "	SWI-T 24	2.0	3.5	5.0	6.0	NP	NP	NP	NP	NP	NP	NP	NP
	SWI-T 34	2.0	3.5	5.0	6.0	NP	NP	NP	NP	NP	NP	NP	NP
11 <sup>1</sup> / <sub>4</sub> "	SWI-T 24	1.5	2.5	4.5	6.5	8.5	NP	NP	NP	NP	NP	NP	NP
	SWI-T 34	1.5	2.5	4.5	6.5	8.5	NP	NP	NP	NP	NP	NP	NP
11 <sup>7</sup> / <sub>8</sub> "	SWI-T 24	1.5	2.5	4.5	6.5	8.5	NP	NP	NP	NP	NP	NP	NP
	SWI-T 34	1.5	2.5	4.5	6.5	8.5	NP	NP	NP	NP	NP	NP	NP
14"	SWI-T 24	1.5	2.5	4.5	7.0	9.0	10.5	11.5	12.0	NP	NP	NP	NP
	SWI-T 34	1.5	2.5	4.5	7.0	9.0	10.5	11.5	12.0	NP	NP	NP	NP
16"	SWI-T 34	1.5	2.5	4.5	7.0	9.0	10.5	11.5	12.0	13.0	NP	NP	NP
18"	SWI-T 44	1.5	2.5	4.5	7.0	9.0	10.0	12.0	13.0	14.0	15.0	16.0	16.0
20"	SWI-T 44	1.5	2.5	4.5	7.0	9.0	10.0	12.0	13.0	14.0	15.0	16.0	16.0

**Notes to Table 2B:**

<sup>1</sup>Openings must be centered vertically at mid-height of joist.

<sup>2</sup>Maximum of three holes per span.

<sup>3</sup>Spacing center-to-center of adjacent holes must be at least three times diameter (d) or width (w) of largest hole.

<sup>4</sup>Flanges must not be cut or notched.

<sup>5</sup>NP = Not permitted.

<sup>6</sup>1<sup>1</sup>/<sub>2</sub>-inch-diameter holes are allowed anywhere in the joist web at approximately 12 inches on center.

TABLE 2C—PERCENTAGE OF SHEAR CAPACITY REMAINING WITH HOLE CUT IN WEB OF WOOD I-JOIST

JOIST DEPTH (in.)	CIRCULAR HOLE DIAMETER (in.)	SHEAR CAPACITY REMAINING <sup>1</sup>	RECTANGULAR HOLE SIZE (height x width) (in.)	SHEAR CAPACITY REMAINING <sup>2</sup>
9 <sup>1</sup> / <sub>2</sub>	2	100	No hole	100
	5 (max)	77	5 x 12 (max)	45
11 <sup>1</sup> / <sub>4</sub>	2	100	No hole	100
	6 (max)	71	6 x 12 (max)	40
11 <sup>7</sup> / <sub>8</sub>	2	100	No hole	100
	6 (max)	71	6 x 12 (max)	40
14	2	100	No hole	100
	9 (max)	63	8 x 12 (max)	40
16	2	100	No hole	100
	10 (max)	57	9 x 12 (max)	25
18	2	100	No hole	100
	12 (max)	52	10.5 x 12 (max)	25
20	2	100	No hole	100
	12 (max)	47	10.5 x 12 (max)	30

For SI: 1 inch = 25.4 mm, 1 lb./ft. = 14.6 N/m.

Notes to Table 2C:

<sup>1</sup>Shear capacity for circular hole sizes not shown must be interpolated based on the diameter of the circular hole.

<sup>2</sup>Shear capacity for rectangular holes not shown must be interpolated based on the width of the rectangular hole.

<sup>3</sup>Shear capacities are based on centerline of the openings being located a minimum of 24 inches from the edge of the nearest bearing location. See Figure 3 in this report. Bearing length for the SWI-T 24 joist must be a minimum of 2 inches. Bearing length for the remaining joists must be a minimum of 2<sup>1</sup>/<sub>2</sub> inches.

TABLE 3—WEB STIFFENER REQUIREMENTS FOR THE SWI-T WOOD I-JOIST<sup>1,2</sup>

SERIES	JOIST DEPTH (inches)	STIFFENER DEPTH (inches) <sup>1</sup>	THICKNESS (inches)	WIDTH (inches)
SWI-T 24	9 <sup>1</sup> / <sub>2</sub>	6	<sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>
	11 <sup>1</sup> / <sub>4</sub>	8	<sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>
	11 <sup>7</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	<sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>
	14	10 <sup>1</sup> / <sub>2</sub>	<sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>
SWI-T 34	9 <sup>1</sup> / <sub>2</sub>	6	<sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>
	11 <sup>1</sup> / <sub>4</sub>	8	<sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>
	11 <sup>7</sup> / <sub>8</sub>	8 <sup>3</sup> / <sub>4</sub>	<sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>
	14	10 <sup>3</sup> / <sub>4</sub>	<sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>
	16	12 <sup>3</sup> / <sub>4</sub>	<sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>
SWI-T 44	18	14 <sup>1</sup> / <sub>2</sub>	<sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>
	20	16 <sup>1</sup> / <sub>2</sub>	<sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>

For SI: 1 inch = 25.4 mm.

<sup>1</sup>Attach web stiffeners to the joist web with (5) 8d box (0.113" x2.5") nails, staggered, clinched where possible, with 2 inch end spacing, equally spaced (2<sup>1</sup>/<sub>2</sub> inches max.), adjacent nails driven in opposing directions.

<sup>2</sup>Stiffener material is plywood or solid sawn lumber.

TABLE 4—SWII, SWII-T AND SWIII-T HEADER DESCRIPTIONS

HEADER SERIES	FLANGE		WEB MATERIAL	HEADER DEPTH (inches)
	MATERIAL	SIZE (inches)		
SWII 42	MSR lumber	1.5 x 3.5	<sup>7</sup> / <sub>16</sub> -inch OSB	7 <sup>1</sup> / <sub>4</sub>
				9
				11 <sup>1</sup> / <sub>4</sub>
SWII 62	MSR lumber	1.5 x 5.5	<sup>7</sup> / <sub>16</sub> -inch OSB	7 <sup>1</sup> / <sub>4</sub>
				9 <sup>1</sup> / <sub>4</sub>
				11 <sup>1</sup> / <sub>4</sub>
SWII-T 44	MSR lumber	1.5 x 3.5	<sup>3</sup> / <sub>8</sub> -inch OSB	11 <sup>7</sup> / <sub>8</sub>
SWII-T 64	MSR lumber	1.5 x 5.5	<sup>3</sup> / <sub>8</sub> -inch OSB	11 <sup>7</sup> / <sub>8</sub>
SWIII-T 64	MSR lumber	1.5 x 5.5	<sup>3</sup> / <sub>8</sub> -inch OSB	11 <sup>7</sup> / <sub>8</sub>

For SI: 1 inch = 25.4 mm.

TABLE 5—SWII 42 AND 62, SWII-T 44 AND 64, AND SWIII-T 64 SERIES HEADERS <sup>1,3</sup>

SERIES	DEPTH (inches)	WEIGHT (plf)	ALLOWABLE MOMENT <sup>2</sup>	ALLOWABLE SHEAR <sup>2</sup>		MAX. END REACTION <sup>2,4</sup> (pounds)		DEFLECTION <sup>5</sup>	
				1 1/2 inch Bearing	3 inch Bearing	1 1/2 inch Bearing	3 inch Bearing	EI × 10 <sup>6</sup> (in <sup>2</sup> -lb)	GA × 10 <sup>5</sup> (pounds)
SWII 42	7 1/4	3.7	2,396		1,170		1,170	128	8.8
	9 1/4	4.3	3,217		1,610		1,610	225	12.2
	11 1/4	4.6	4,039		2,050		2,050	353	15.5
SWII 62	7 1/4	4.8	3,863		1,170		1,170	202	8.8
	9 1/4	5.4	5,194		1,610		1,610	362	12.2
	11 1/4	6.0	6,525		2,050		2,050	569	15.5
SWII-T 44	11 7/8	4.5	6,766	1,770	2,050	1,770	2,050	487	15.0
SWII-T 64	11 7/8	5.6	10,851	1,820	2,125	1,820	2,125	780	15.0
SWIII-T 64	11 7/8	6.9	10,659	2,220	2,830	2,220	2,830	768	22.6

Notes to Table 5:

<sup>1</sup>Series SWII 42 and T44 flanges are nominally 2-inch-by- 4 inch, and Series SWII 62 and T64 and SWIII T64 flanges are nominally 2-inch-by-6 inch. See Table 4.

<sup>2</sup>Moment and shear values and end reactions are for normal duration of load, and may be increased in accordance with Section 4.1.6 in this report.

<sup>3</sup>Flanges and webs must not be cut or notched.

<sup>4</sup>Maximum end reaction is based on a 3 inch bearing length, except for SWII-T 44, SWII-T 64 and SWIII-T 64 which are based on both 1 1/2-inch and 3-inch bearing length.

<sup>5</sup>Deflection calculations must include both bending and shear deformation. The following formulas must be used to determine total deflection:

Formula for uniform load on a simple span header:

$$\Delta = \frac{22.5WL^4}{EI} + \frac{1.5WL^2}{GA}$$

Formula for concentrated load at center span of header:

$$\Delta = \frac{36PL^3}{EI} + \frac{3PL}{GA}$$

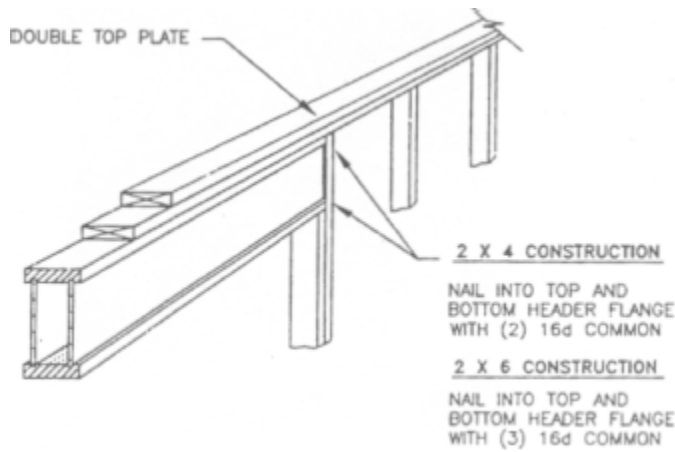
where:

- EI = Stiffness coefficient.
- GA = Shear coefficient from Table 5.
- L = Clear span, feet.
- P = Concentrated load.
- W = Uniform load, pounds per lineal foot.
- Δ = Deflection, inches.

TABLE 6—MAXIMUM COMPRESSIVE LOAD CAPACITIES FOR JOISTS USED AS BLOCKING PANELS

SIZES/SERIES	DEPTH (inches)	POUNDS PER LINEAL FOOT (lbs)
SWI-T 24, & 34	9 1/2, 11 1/4 and 11 7/8	2,000
SWI-T 24, & 34	14	1,500
SWI-T 34	16	1,400
SWI-T 44	18 and 20	1,000

For SI: 1 inch = 25.4 mm, 1 lb./ft. = 14.6 N/m.



For SI: 1 inch = 25.4 mm.

FIGURE 1—HEADER INSTALLATION DETAILS

## WEB STIFFENERS

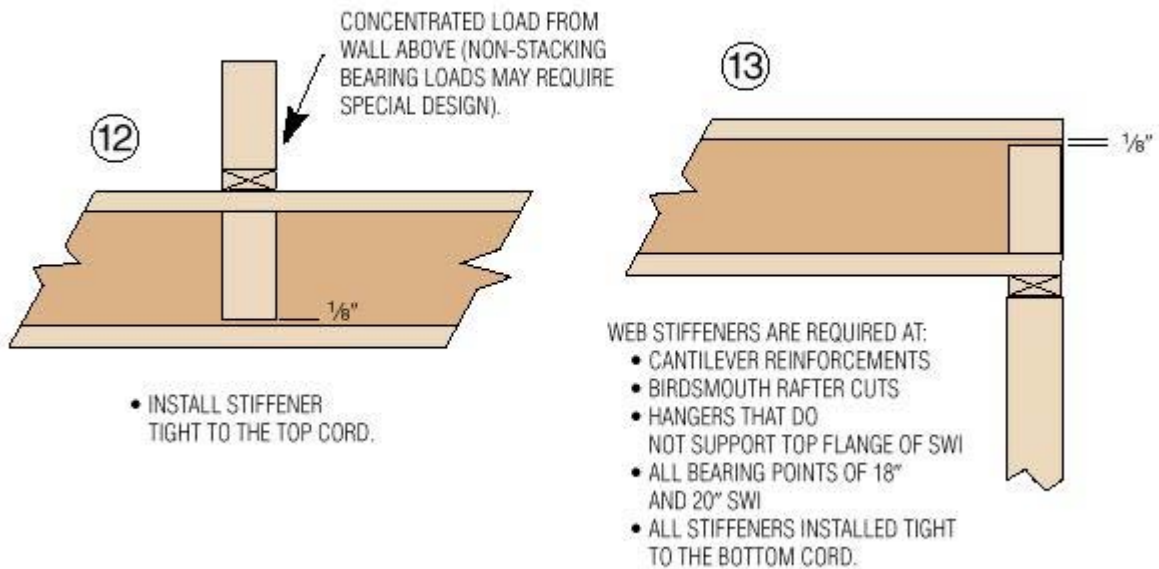


FIGURE 2—WEB STIFFENERS

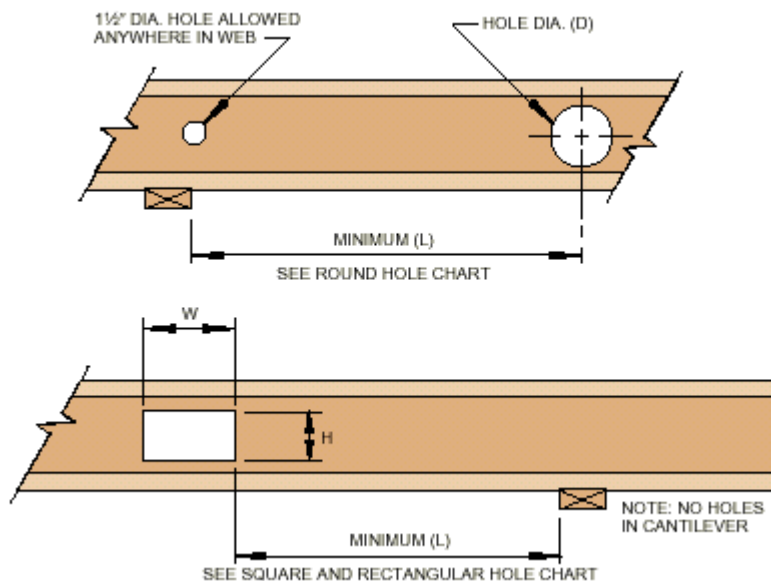


FIGURE 3—WEB HOLE DIAGRAM