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EVALUATION REPORT

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TJI® JOIST, TJI/96 JOIST, TJI/96 GARAGE DOOR HEADER, BIG RED GARAGE DOOR HEADER AND OPEN WEB TRUSSES

TRUS JOIST MACMILLAN
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I. **Subject:** TJI® Joist, TJI/96 Joist, TJI/96 Garage Door Header, Big Red Garage Door Header and Open Web Trusses.

II. **Description:** A. **TJI Joists and Headers:** 1. **General:** The TJI Joists are prefabricated wood I-joists with Microllam laminated veneer lumber or solid-sawn lumber flanges and plywood or oriented strand board (OSB) webs. The joists have either parallel flanges forming a constant-depth joist or a single taper top flange forming a variable-depth joist. The web panels have the face grain oriented vertically and the web-to-web connection is butt jointed and glued to form a continuous web. The web-to-flange connection is a proprietary, glued, tongue-and-groove joint. See Table 1 for joist descriptions.

The TJI joists are available with a factory-fabricated step-down detail that provides an elevated drop of approximately $1^1/_2$ or 2 inches at the top of the joist. Field modifications or alterations are not permitted. See Figure 1 for details.

The TJI/96 joist is similar in shape to the TJI joist except the fabrication includes a variable web thickness between the ends and interior of the joist. The TJI/96 joist has a camber and a designated top flange. The ends of the joists are typically provided with glued plywood blocks or Timberstrand LSL on each side of the web to support approved steel hangers. See Table 2 for TJI/96 joist description.

The TJI/96 garage door header is a prefabricated wood I-shaped structural member that has a standard length of either 16 feet, 9 inches or 18 feet, 9 inches. The headers are manufactured with a camber and have a designated bottom flange. The ends and the midspan of the headers are provided with either plywood or TimberStrand blocking on each side of the web above the bottom flange.

The Big Red Garage Door Header is a prefabricated wood I-shaped structural member that has a standard length of either 16 feet, 9 inches or 18 feet, 9 inches. The headers are manufactured with a camber and an "UP" stamp is provided on the web. The ends and the midspan of the headers are provided with Timberstrand® LSL blocks on each side of the web above the bottom flange.

2. **Materials:** a. **Flanges:** Flange material is either Microllam laminated veneer lumber, which is recognized in National Evaluation Report No. NER-126, or $1^1/_2$-inch-thick machine-stress-rated (MSR) lumber, meeting grading rules specified in the quality control manual.

b. **Webs:** Oriented strand board and plywood web materials conform with Structural 1, Exposure 1 performance-rated panel requirements and the Trus Joist MacMillan quality control manual. Timberstrand LSL webs comply with ICBO ES Evaluation Report No. 4979.

c. **Adhesive:** Exterior-type adhesives comply with ASTM D 2559.

d. **Web Reinforcement:** Web reinforcement, where applicable, consists of either plywood or TimberStrand™ LSL blocks. When plywood blocks are used, they are either single plywood thickness or multiple laminates of glued plywood. TimberStrand blocks have a minimum 1.2×10^6 psi modulus of elasticity.

3. **Design and Installation:** Design and installation of TJI joists, TJI/96 joists, TJI/96 garage door headers and Big Red garage door headers comply with the following conditions:

a. **Allowable Capacity:** Table 3 specifies allowable moments, shears, stiffnesses and reactions for TJI joists. Table 4 specifies allowable moments, shears and stiffnesses for TJI/96 joists. Table 5 specifies allowable loads expressed in pounds per linear feet applied to the top flange for TJI/96 garage door headers. Table 6 specifies allowable loads for the Big Red garage door header.

b. **Web Stiffeners:** Both sides of the web have web stiffeners at all supports where specified in Table 3 and Figure 2 for TJI joists, and where specified in Table 4 for TJI/96 joists, and where specified in Table 5 for TJI/96 garage door headers.

c. **Lateral Support:** The compression flange of the joists requires continuous lateral support and the joist ends require restraint to prevent rollover. Code approved methods are acceptable.

d. **Holes:** Figure 3-A shows allowable hole sizes and location in the web of TJI joists. The webs of TJI/96 joists, TJI/96 garage door headers and Big Red garage door headers are not permitted to have holes.

e. **Duration of Load:** Adjustments for duration of load according to Section 2304.3.4 of the code apply to the joists and headers and their fastenings.

f. **In-Service Moisture Conditions:** Lumber properties require adjustment in accordance with Section 2304.3.10 of the code when in-service moisture content exceeds 19 percent.

g. **Repetitive-member Use:** The allowable bending moment for the joists is permitted to be increased 4 percent when joist installation complies with the code definition of repetitive-member use in Section 2304.1 of the code.

h. **Member Span:** Joist and header span complies with the code. Vertical shear calculations include all loads within the span from face to face of supports.

i. **Deflection:** Deflection of uniformly-loaded, simple-span joists and joists with a concentrated load at midspan are determined using the deflection formulae in Table 3.

j. **Blocking Panels:** The joists located under bearing walls that are perpendicular to the joists have full depth solid blocking.

k. **Bearing Length:** Table 3 specifies minimum bearing lengths for the TJI joists. The minimum bearing length for TJI/96 joists is determined using Footnote 4 to Table 4. Additionaly, the TJI/96 joist can be supported by the adjustable ledger hangers shown in Figures 4, 5 and 6. Table 7 provides allowable capacities for the hangers. The supporting member for TJI/96 garage door headers is equal in width of the bottom flange and has a 3-inch bearing length.

B. **Open Web Trusses:** 1. **General:** The open web trusses are Warren web trusses that have either parallel, tapered or pitchchord members. The trusses have wood chords, steel-tubed webs, and steel pin web flange connectors. There are five series of the open web truss: TJL, TJH, TJM, TJS and TJW. The TJL and TJW trusses are installed with a maximum spacing up to 48 inches on center with sheathing materials nailed directly to the top chord. Ceilings are either attached directly to the bottom chord or applied to stripping or are suspended.

a. **TJL™ Open Web Truss:** Chords are single 2 by 4 lumber or Microllam lumber positioned flatwise. Web members are round steel tubing connected to chord members with either $^3/_8$- or $^5/_8$-inch-diameter solid steel pins.

b. **TJH™ Open Web Truss:** Chords are two 2- by 6-inch nominal wood members positioned edgewise. Web members are round steel tubing connected to chord members with either $^3/_4$-inch-diameter solid steel pins or $1^1/_4$-inch-diameter outside steel tubes having 0.165-inch tube thickness.

c. **TJM™ Open Web Truss:** Chords are two 2- by 4-inch nominal wood members positioned edgewise. Web members are round steel tubing connected to chord members with either $^5/_8$-or 1-inch-diameter solid steel pins.

d. **TJS™ Open Web Truss:** Chords are two 1.5- by 2.30-inch wood members positioned edgewise. Web members are round steel tubing connected to chord members with either $^1/_2$-or $^3/_4$-inch-diameter solid steel pins. Tension chords are continuous without finger joints, and compression chords may contain finger joints.

e. **TJW™ Open Web Truss:** Chords are one 2- by 5-inch nominal wood members positioned flatwise. Web members are round steel tubing connected to chord members with either $^3/_8$- or $^5/_8$-inch-diameter solid steel pins.

2. **Materials:** a. **Chords:** Chords consist of either Microllam laminated veneer lumber, Grade A, which is recognized in NER-126; or stress-graded structural lumber, graded as A (1.8E), AA (2.0E), and AAA (2.2E) in accordance with the quality control manual; or machine-stress-rated lumber, graded as 2100F-1.8E, 2400F-2.0E, and 2700F-2.2E in accordance with grading rules specified in the quality control manual. Lumber species are Douglas fir-larch, southern pine, hem-fir, spruce-pine-fir, or Englemann spruce-lodgepole pine.

Lumber having glued finger joints are manufactured and tension tested in accordance with the quality control manual to form continuous chord members.

b. **Webs:** Webs are cold-formed steel tubes conforming to ASTM A 500, Grade B with minimum 45 ksi yield strength and 60 ksi tensile strength before cold forming. The electrically welded steel tubing ends are swedged flat and contain punched holes for the pin connectors. Each web member has a color stripe painted at least $^1/_2$-inch in width for the full length of the tube or otherwise continuously color coded to permit identification of the tube wall thickness.

Wall Thickness	Color Code
No. 13 gage 0.095 inch	Yellow
No. 14 gage 0.083 inch	Green
No. 16 gage 0.065 inch	Red
No. 18 gage 0.049 inch	Black
No. 19 gage 0.042 inch	Blue
No. 20 gage 0.035 inch	Yellow

c. **Pin Connectors:** The pins are either $^3/_8$-, $^1/_2$-, $^5/_8$-, $^3/_4$-, or 1-inch-diameter solid steel conforming to ASTM A 307; or $1^1/_4$-inch- diameter steel tube, having a tube wall thickness of 0.165 inch, conforming to ASTM A 449.

d. **Bearing Clips:** Bearing clips, having different configurations for each open web truss series, are fabricated from ASTM A 446 steel.

e. **Tension Connector:** The tension connector is a variable-density laminated veneer component used at splice locations of open web truss tension chords. It has a nondensified and densified portion. The nondensified portion is finger jointed to solid-sawn tension chord members, and the densified portion is spliced with steel plates on both sides of the connector with an approved number of bolts required by design. See Figure 8 for details.

3. **Design and Installation:** The open web trusses are designed using accepted truss design principles and this report.

a. **Chord Members:** Table 8 provides section properties and Tables 9 and 10 provide allowable unit stresses. The top chord of the open web trusses is designed as a continuous member subject to combined axial and bending stresses. The bottom chord is designed as an axially loaded tension member provided ceilings that are directly applied to the chords, or stripping spaced not more than 24 inches on center do not weigh more than 5 pounds per square foot. For other conditions, the bottom chord is designed as a continuous member subject to combined axial and bending stresses.

b. **Web Members:** Table 11 provides allowable tension and compression loads for web members.

c. **Pin Connectors:** Table 12 provides allowable loads for pin connectors bearing on wood. The allowable load for the resultant of parallel and perpendicular pin loading on the chord member is determined using the Hankinson formula in accordance with the code.

d. **Bearing Assembly:** Table 13 provides allowable reactions at supports with bearing clips. See Figure 9.

e. **Duration of Load:** Allowable unit flexural stress may be increased in accordance with Section 2304.3.4 of the code.

f. **Repetitive Member Use:** When truss installation complies with code defined repetitive member use according to Section 2304.1 of the code, the allowable parallel-to-grain tension and compression stresses noted in Tables 7, 8, and 9 are permitted to be increased 7 percent for solid-sawn lumber and 4 percent for Microllam laminated veneer lumber.

g. **Deflection:** Deflection of a uniformly loaded truss is approximated using the classic, uniformly loaded, simple-span beam deflection formula. The moment of inertia of the truss consists of the top and bottom chord member without considering reduced areas from pin holes.

h. **Tension Connector:** The Microllam densified laminated veneer lumber tension connector design parameters are as follows:

Bolt bearing in wood	7,200 lb. per sq. in.
Tension in densified net area	2,700 lb. per sq. in.
Tension in nondensified area	1,970 lb. per sq. in.

The bolt end distance e shall not be less than $4d$

$$e = \frac{P}{1{,}200t}$$

or whichever is greater.

Where:

t = thickness of connector measured along the bolt,

P = load per bolt and

d = diameter of bolt.

Steel side plates and bolts shall be designed according to the code.

i. **Lateral Support:** The two-member compression chords require lateral support at least every 24 inches. Each connection must be capable of transmitting a 75-pound horizontal load. Table 14 provides lateral restraint requirements for TJS compression chord members.

C. **One-hour, Fire-resistive Roof-ceiling and Floor-ceiling Assemblies:** Refer to Figure 10 for details. The ceiling in the following assemblies may be omitted over unusable space below and the flooring may be omitted where unusable space occurs above.

1. **Assembly No. C-1:** A double-wood floor, consisting of a subfloor of 1-inch nominal tongue-and-groove sheathing or $^1/_2$-inch interior plywood with exterior glue, and a layer of 1-inch nominal tongue-and-groove finish flooring or $^5/_8$-inch interior-type plywood finish flooring or a layer of Type I Grade M-1 particleboard not less than $^5/_8$ inch thick, is supported by TJI joists or open web trusses spaced not more than 24 inches on center. A suspended ceiling of $^5/_8$-inch-thick, 2-foot by 2-foot or 2-foot by 4-foot USG FIRECODE AURATONE® lay-in acoustical board is supported by an approved exposed fire-rated suspension system attached to the bottom flange or to cold-rolled channels spaced not over 4 feet on center. Installed over the acoustical board are 1-inch thick, minimum 4-pound-per-cubic-

foot USG THERMAFIBER® or FIBREX FBX mineral wool blankets. The distance from the bottom of the truss to the soffit of the ceiling shall be at least 10 inches. When used as a roof-ceiling assembly, code-complying plywood is permitted to be used for roof sheathing, and joists are permitted to be spaced up to 48 inches on center.

Light fixtures, having a maximum size of 2 feet by 4 feet, are permitted to be installed in the ceiling, provided the aggregate areas of fixtures do not exceed 12 square feet per 100 square feet of ceiling and the fixtures are protected as follows: A $2^1/_4$-inch by 48-inch piece of USG THERMAFIBER or FIBREX FBX light fixture protection is laid along the long dimensions on each side of the fixture and against adjacent suspension members, and a $17^1/_2$-inch by 48-inch piece is laid over each side of the fixture and a $4^1/_2$-inch by 24-inch piece at each end and tied to top pieces at corners of the fixture with No. 18 SWG steel wire. See Figure 7.

Ceiling openings for air diffusers, having a maximum size of 12 inches in diameter, are permitted to be installed, provided openings are protected with fire dampers and the aggregate areas do not exceed 113 square inches per 100 square feet of ceiling.

2. **Assembly No. C-2:** A single-layer floor consisting of $^3/_4$-inch tongue-and-groove plywood or $^{23}/_{32}$-inch tongue-and-groove APA-rated structural-use panel (Exposure 1 or Exterior), is supported by TJI joists or trusses spaced up to 24 inches on center. A ceiling of two layers of $^1/_2$-inch-thick Type X gypsum board is applied to the bottom chord. All butt joints of the $^3/_4$-inch plywood or $^{23}/_{32}$-inch- rated structural-use panels must fall on framing members. The first layer of gypsum board is attached with $1^5/_8$-inch-long Type S screws placed 12 inches on center. The second layer is installed with the joints staggered from the first layer, and is fastened with 2-inch-long Type G screws spaced 12 inches on center in the field and 6 inches on center at the butt joints. The second layer must be finished with joint tape and compound.

Resilient channels may be used as part of the ceiling attachment system, provided they are spaced 16 inches on center (24 inches if joists or trusses are 16 inches on center) and fastened perpendicular to joists with 1-inch-long case-hardened steel, 0.15-inch-diameter shank, self-drilling and self-tapping Phillipshead screws. The first layer of gypsum board is attached to the resilient channels with 1-inch-long, Type S screws. The second layer is fastened with $1^1/_2$-inch-long Type S screws. The fastener spacing for both layers is the same as described above. When used as a roof-ceiling assembly, the decking may be any wood deck as specified in the code, and the joist spacing may exceed 24 inches on center. When joists or trusses are spaced more than 24 inches on center, the ceiling is applied to stripping spaced 24 inches on center. The attachment to the stripping is similar to the joists described above. The stripping is minimum 2-inch by 4-inch Construction grade Douglas-fir lumber for spans up to 5 feet, attached to the bottom chord with 10d nails.

3. **Assembly No. C-3:** A single-layer floor, consisting of $^3/_4$-inch tongue-and-groove plywood or $^{23}/_{32}$-inch tongue-and-groove APA-rated structural-use panel (Exposure 1 or Exterior), is supported by TJI joists or trusses spaced up to 24 inches on center. All butt joints of the $^3/_4$-inch plywood or $^{23}/_{32}$-inch-rated structural-use panels must fall on framing members. A ceiling consisting of a single-layer of $^1/_2$-inch-thick Type X gypsum wallboard is attached to the structural members that are spaced 24 inches on center, or to stripping that is spaced 24 inches on center with $1^5/_8$-inch-long Type S drywall screws located 6 inches on center at end joints and 8 inches on center in the field. Noncombustible insulation rated at R-30 or less may be installed above the gypsum board.

An approved exposed fire-rated suspended ceiling system is installed beneath the gypsum board ceiling a minimum distance of 12 inches. Ceiling panels may be either $^5/_8$-inch USG FIRECODE AURATONE or $^5/_8$-inch Gold Bond Fire-Shield Solitude Panels as manufactured by Gold Bond Building Products Division of National Gypsum Company. The grid system is suspended with No. 12 SWG galvanized steel wire fastened to the furring or joists with 3-inch-long flathead hanger screws.

Light fixture protection consists of 6-inch-wide pieces of ceiling panels 4 feet long for the sides and 2 feet long for the ends and a full-sized panel placed on top. A galvanized steel duct with maximum 12-inch-diameter steel diffuser opening without damper and a maximum 6-inch by 12-inch return-air opening are permitted for each 200 square feet of ceiling.

When used as a roof-ceiling assembly, the decking may be any wood deck as specified in the code, and the joint spacing may exceed 24 inches on center. When joists or trusses are spaced more than 24 inches on center, the ceiling is applied to stripping spaced 24 inches on center. The attachment to the stripping is similar to the joists described above. The stripping is minimum 2-inch by 4-inch Construction grade Douglas-fir lumber for spans up to 5 feet attached to the bottom chord with 10d nails.

4. **Assembly No. C-4:** A single-layer floor, consisting of $^3/_4$-inch or $^{23}/_{32}$-inch-thick APA-rated structural-use tongue-and-groove plywood, is supported by joists or trusses spaced maximum 24 inches on center. A ceiling, consisting of $^1/_2$-inch USG FIRECODE C® gypsum board, is screw attached to approved steel furring channels spaced 24 inches on center that is suspended from the joists by No. 24 gage Simpson Strong Tie (CSC) ceiling support clip. All butt joints of the plywood must fall on framing members. The wallboard side joints are offset 8 inches from the joist's centerline and fastened to the furring channels with 1-inch-long Type S buglehead steel screws. The screws are located $^3/_4$ inch and 6 inches from each wallboard side joint and 12 inches on center in the field. One-inch-thick layer of 6 pcf minimum USG THERMAFIBER or Fibrex FBX mineral wool blanket is placed between the bottom flange of the joist or chord of the truss and the top of the furring channel.

When used as a roof-ceiling assembly, the decking may be any wood deck as specified in the code, and the joist spacing may exceed 24 inches on center. When joists or trusses are spaced more than 24 inches on center, the ceiling is applied to stripping spaced 24 inches on center. The attachment to the stripping is similar to the joists described above. The stripping is minimum 2-inch by 4-inch Construction grade Douglas-fir lumber for spans up to 5 feet, attached to the bottom chord with 10d nails.

5. **Assembly No. C-5:** A double-wood floor described in paragraph II C-1 above, or a single layer of $^3/_4$-inch tongue-and-groove plywood floor sheathing meeting requirements of the code, is supported by TJI joists or trusses spaced 24 inches on center. The ceiling system, which provides a 40-minute finish rating is attached to the bottom chord or flange. An example of a ceiling having a 40-minute finish rating consists of two layers of $^1/_2$-inch thick Type X gypsum wallboard, minimum 4 feet wide, installed perpendicular to the joists or trusses as described in Assembly No. C-2. When an alternate ceiling system is used, substantiating fire-endurance test data in accordance with U.B.C. Standard 7-1, must be furnished to the local building official verifying that the alternate ceiling system meets the 40-minute finish-rating requirement. A test report showing compliance with Sections 7.142 through 7.146 of U.B.C. Standard 7-1 must be submitted to the building official.

When used as a roof-ceiling assembly, the decking may be any wood deck as provided in the code, and the joist spacing may exceed 24 inches on center. When joists or trusses are spaced more than 24 inches on center, the ceiling is applied to stripping spaced 24 inches on center. The attachment to the stripping is similar to the joists described above. The stripping is minimum 2-inch by 4-inch Construction grade Douglas-fir lumber for spans up to 5 feet, attached to the bottom chord with 10d nails.

6. **Assembly No. C-6:** A single-layer floor, consisting of $^3/_4$-inch-thick tongue-and-groove code-complying plywood, is supported by TJI/45S-plywood web, TJI/55, TJI/65, TJI/75 or TJI/550 joists spaced maximum 24 inches on center. The plywood flooring is attached to the top flange with AFG-01 construction adhesive and nailed with 8d common nails spaced maximum 6 inches on center along the boundary and edges and 12 inches on center in the field. RC-1 resilient channels, spaced 16 inches on center and attached to the bottom flange, support one layer of $^5/_8$-inch-thick USG FIRECODE C gypsum board and $1^1/_2$-inch-thick, $2^1/_2$-pound-per-cubic-foot USG THERMAFIBER mineral wool batts. The resilient channels are attached with $1^5/_8$-inch Type S screws to each joist. Two channels are provided at each gypsum board butt joint, extending to the next joist beyond the longitudinal joints. The gypsum board is fastened to the channels with 1-inch Type S screws at 12 inches on center in the field and 8 inches on center at the butt joints. The mineral wool batts are friction fitted between the bottom flanges and supported by the resilient channels.

When used as a roof-ceiling assembly, the decking is any code-complying wood decking and the joist spacing is permitted to exceed 24 inches on center. When joists are spaced more than 24 inches on center, the ceil-

ing including the resilient channels, is applied to stripping spaced 24 inches on center. The attachment to the stripping is similar to the attachment of the joists described above. The stripping is minimum 2-inch by 4-inch Construction grade Douglas fir lumber for spans up to 5 feet, attached to the bottom chord with 10d nails, or equivalent strength material and attachment.

7. **Assembly No. C-7:** A minimum $^5/_8$-inch-thick code complying plywood floor is supported by TJI joists or trusses spaced at a maximum of 24 inches on center. Placed over the plywood is a layer of $1^1/_2$ inches of lightweight concrete or 1 inch of gypsum concrete. When the joists or trusses are limited to a maximum spacing of 20 inches on center, a $^3/_4$-inch topping of gypsum concrete may be used. The gypsum concrete must be covered in a current evaluation report.

The ceiling is any previously described ceiling assembly in Section II C of this report.

D. **Sound Rating:** The system described in paragraph III C 2 above, when constructed with resilient channels and with approved pad and carpet, meets minimum STC and IIC ratings of 50.

The system described in paragraph III C 4, with pad and carpet, meets minimum STC and IIC ratings of 50, provided a minimum 8 pcf layer of USG THERMAFIBER insulation is used.

The system described in paragraph III C 7 with a $^3/_4$-inch GYP-CRETE topping meets minimum STC and IIC ratings of 50 when there is an approved pad and carpet.

All systems used as sound transmission control assemblies require a minimum $^1/_4$-inch-thick by $^3/_4$-inch-wide strip of an approved resilient material at the floor perimeter to maintain the sound rating.

III. **Evidence Submitted:** Reports of sound, fire, and load tests; data in accordance with the ICBO ES Acceptance Criteria for Prefabricated Wood I-Joists dated July, 1993; and quality control manuals.

Findings

IV. Findings: That the TJI® Joist, TJI/96 Joist, TJI/96 Garage Door Header, Big Red Garage Door Header and Open Web Trusses described in this report comply with the 1994 *Uniform Building Code*™, subject to the following conditions:

1. **The joists, headers and trusses are designed in accordance with this report.**
2. **Drawings and design details verifying compliance with this report are submitted to the building official for approval.**
3. **Allowable unit stresses for joists, headers, trusses, and their fasteners are permitted to be increased for duration of load in accordance with the code.**
4. **Where one-hour fire-resistive construction is required, construction shall comply with this report.**
5. **No cutting of joist or header flanges or truss chords is permitted.**
6. **The products are manufactured in manufacturing locations noted in Table 15. Quality control inspections are provided by PFS Corporation (NERQA-251).**

This report is subject to re-examination in two years.

TABLE 1—JOIST DESCRIPTION

JOIST SERIES	FLANGE			WEB		RANGE OF JOIST DEPTHS (inches)
	Material	Grade	Size (inches)	Material	Thickness (inches)	
TJI/PRO	LVL	1.8E	1.50 × 1.50	OSB	3/8	9 1/2 to 11 7/8
TJI/15 DF	LVL	2.0E	1.50 × 1.50	OSB	3/8	9 1/2 to 11 7/8
TJI/25 DF	LVL	2.0E	1.50 × 1.75	OSB	3/8	7 1/4 to 16
TJI/35 DF	LVL	2.0E	1.50 × 2.30	OSB	3/8	10 to 20
TJI/55 DF	LVL	2.0E	1.50 × 3.50	OSB	7/16	10 to 30
TJI/15 SP	LVL	2.1E	1.50 × 1.50	OSB	3/8	7 1/4 to 11 7/8
TJI/25 SP	LVL	2.1E	1.50 × 1.75	OSB	3/8	7 1/4 to 16
TJI/35 SP	LVL	2.1E	1.50 × 2.30	OSB	3/8	10 to 20
TJI/55 SP	LVL	2.1E	1.50 × 3.50	OSB	7/16	10 to 30
TJI/150	LVL	2.0E	1.50 × 1.50	OSB	3/8	9 1/2 to 11 7/8
TJI/250	LVL	2.0E	1.50 × 1.75	OSB	3/8	7 1/4 to 16
TJI/350	LVL	2.0E	1.50 × 2.30	OSB	3/8	10 to 20
TJI/350X/35C	LVL	2.0E	1.50 × 2.30	OSB	7/16	10 to 30
TJI/550E/55C	LVL	2.0E	1.50 × 3.50	OSB	7/16	10 to 30
TJI/550	LVL	2.4E	1.50 × 3.50	OSB	7/16	10 to 30
TJI/35P/35X	LVL	2.0E	1.50 × 2.30	Plywood	15/32	10 to 30
TJI/40P	LVL	2.0E	1.75 × 2.30	Plywood	15/32	10 to 30
TJI/55E/55P	LVL	2.0E	1.50 × 3.50	Plywood	15/32	10 to 30
TJI/40C	LVL	2.0E	1.75 × 2.30	OSB	7/16	10 to 30
TJI/60C	LVL	2.0E	1.75 × 3.50	OSB	7/16	10 to 30
TJI/25	LVL	2.0E	1.50 × 1.75	Plywood	3/8	7 1/4 to 16
TJI/35	LVL	2.0E	1.50 × 2.30	Plywood	3/8	10 to 20
TJI/55	LVL	2.4E	1.50 × 3.50	Plywood	15/32	10 to 30
TJI/60P	LVL	2.0E	1.75 × 3.50	Plywood	15/32	10 to 30
TJI/75	LVL	2.0E	1.75 × 3.50	Plywood	19/32	10 to 30
TJI/32	MSR	1400 psi/1.8E	1.50 × 2.62	Plywood	3/8	9 1/2 to 20
TJI/38	MSR	1925 psi/1.8E	1.50 × 3.50	Plywood	3/8	9 1/2 to 20
TJI/42	MSR	1925 psi/2.0E	1.50 × 3.50	Plywood	15/32	10 to 30
TJI/321	MSR	1400 psi/1.8E	1.50 × 2.62	OSB	3/8	9 1/2 to 20
TJI/424	MSR	1925 psi/2.0E	1.50 × 3.50	OSB	7/16	9 1/2 to 30
TJI/420	MSR	1925 psi/2.0E	1.50 × 3.50	OSB	7/16	10 to 30
TJI/65	LVL	2.0E	1.50 × 3.50	Plywood	19/32	10 to 30

[1]Flange material is either Microllam laminated veneer lumber (LVL) or solid-sawn machine-stress-rated lumber (MSR). The grade of the LVL is given as modulus of elasticity ($E = 10^6$ psi) and the grade of the MSR is given as the allowable tension parallel-to-grain value (F_t) and modulus of elasticity ($E = 10^6$ psi). Other flange material which is recognized by the code or a current evaluation report, must be approved by the building official. Data submitted to the building official must include engineering calculations and qualification testing in accordance with ASTM D 5055. Testing must be certified by an approved independent testing laboratory. The I-joist with alternate flange material must bear an identification mark approved by the building official.

[2]Web material is either oriented strand board (OSB) or plywood, both of which meet additional proprietary grading rules specified in the quality control manual.

[3]See Table 3 for specific joist depths for each joist series.

TABLE 2—TJI/96 JOIST DESCRIPTION

JOIST MODEL	FLANGE[1]					WEB[2]		
	Material	Grade		Size (inches)		Material	Thickness (inches)	
		Top Flange	Bottom Flange	Thickness	Width		End Panel[3]	Interior Panel
TJI/96	LVL	1.8E	2.2E	1 3/4 to 3	3.85 to 4.65	Plywood	7/8	3/4
							3/4	5/8

[1]Flange material is Microllam laminated veneer lumber (LVL). Grade is expressed as modulus of elasticity ($E = 10^6$ psi).

[2]Web material is plywood or 3/4-inch-thick Performance Plus OSB that meets proprietary grading rules specified in the quality control manual.

[3]Minimum web end panel length is 21 inches.

TABLE 3—PROPERTIES FOR TJI JOISTS

BASIC PROPERTIES						REACTION PROPERTIES									
JOIST DEPTH (in.)	JOIST WT. (plf)	RESISTIVE MOMENT (ft.-lbs.)	VERT. SHEAR (lbs.)	EI x 10^6 in^2-lbs	K	END REACTION (lbs.)					INTERMEDIATE REACTION (lbs.)				
						1-3/4" Bearing Lgth.		3-1/2" Bearing Lgth.		NAILS REQ'D. IN STIFFENER	3-1/2" *5-1/4" (7)* Bearing Lgth.		5-1/4" *7" (7)* Bearing Lgth.		NAILS REQ'D. IN STIFFENER
						Web Stiffeners		Web Stiffeners			Web Stiffeners		Web Stiffeners		
						NO	YES	NO	YES		NO	YES	NO	YES	
TJI/15 DF JOIST (1)															
9-1/2	1.9	2800	1120	161	4.5	945	NA	1120	NA	NA	1895	NA	2440	NA	NA
11-7/8	2.2	3715	1420	280	4.5	945	NA	1420	NA	NA	1895	NA	2440	NA	NA
TJI/25 DF JOIST (1)															
7-1/2	1.9	2395	860	103	4.5	860	NA	860	NA	NA	2030	NA	2225	NA	NA
9-1/2	2.1	3290	1120	186	4.5	1015	NA	1120	NA	NA	2030	NA	2575	NA	NA
11-7/8	2.4	4375	1420	322	4.5	1015	1120	1420	1420	3-8d	2030	2385	2575	2930	3-8d
14	2.6	5350	1710	480	4.5	1015	1120	1560	1710	5-8d	2030	2480	2575	3170	5-8d
16	2.9	6270	1970	663	4.5	1015	1120	1560	1970	6-8d	2030	2480	2575	3290	6-8d
TJI/35 DF JOIST (1)															
9-1/2	2.5	4380	1120	241	4.5	1120	NA	1120	NA	NA	2320	NA	2870	NA	NA
10	2.6	4680	1185	274	4.5	1160	1185	1185	1185	3-8d	2320	2680	2870	3065	3-8d
11-7/8	2.8	5820	1420	414	4.5	1160	1420	1420	1420	3-8d	2320	2680	2870	3225	3-8d
14	3.0	7120	1710	613	4.5	1160	1505	1615	1710	5-8d	2320	2915	2870	3465	5-8d
16	3.3	8350	1970	841	4.5	1160	1505	1615	1970	6-8d	2320	3035	2870	3580	6-8d
18	3.5	9255	2155	1112	4.5	NA	1505	NA	2155	7-8d	NA	3155	NA	3700	7-8d
20	3.7	10445	2165	1427	4.5	NA	1505	NA	2165	8-8d	NA	3275	NA	3820	8-8d
TJI/55 DF JOIST (1)															
10	3.4	7175	1720	411	5.3	1400	1715	1720	1720	2-16d	3355	3670	3970	4285	2-16d
11-7/8	3.6	8925	1925	619	5.3	1400	1715	1885	1925	2-16d	3355	3670	3970	4285	2-16d
14	3.9	10920	2125	912	5.3	1400	1875	1885	2125	3-16d	3355	3830	3970	4445	3-16d
16	4.1	12810	2330	1245	5.3	1400	2030	1885	2330	4-16d	3355	3985	3970	4605	4-16d
18	4.3	14200	2535	1638	5.3	1400	2030	1885	2515	4-16d	3355	3985	3970	4605	4-16d
20	4.6	16030	2740	2093	5.3	NA	2190	NA	2675	5-16d	NA	4145	NA	4760	5-16d
22	4.8	17825	2935	2612	5.3	NA	2345	NA	2830	6-16d	NA	5090	NA	5710	11-16d
24	5.0	18870	3060	3198	5.3	NA	2345	NA	2830	6-16d	NA	5195	NA	6025	13-16d
26	5.3	20535	2900	3854	5.3	NA	2345	NA	2900	7-16d	*NA*	*5800*	*NA*	*5800*	14-16d
28	5.5	22205	2900	4583	5.3	NA	2345	NA	2900	8-16d	*NA*	*5800*	*NA*	*5800*	15-16d
30	5.8	23870	2900	5386	5.3	NA	2345	NA	2900	8-16d	*NA*	*5800*	*NA*	*5800*	17-16d
TJI/15 SP JOIST (2)															
7-1/4	1.9	2331	825	97	4.5	825	NA	825	NA	NA	2085	NA	2135	NA	NA
9-1/2	2.1	2860	1120	164	4.5	945	NA	1120	NA	NA	2085	NA	2685	NA	NA
11-7/8	2.4	3800	1420	286	4.5	945	NA	1420	NA	NA	2085	NA	2685	NA	NA
TJI/25 SP JOIST (2)															
7-1/4	2.0	2331	825	97	4.5	825	NA	825	NA	NA	2135	NA	2135	NA	NA
9-1/2	2.3	3370	1120	190	4.5	1115	NA	1120	NA	NA	2230	NA	2830	NA	NA
11-7/8	2.6	4480	1420	329	4.5	1115	1120	1420	1420	3-8d	2230	2480	2830	3190	3-8d
14	2.8	5480	1710	490	4.5	1115	1120	1710	1710	5-8d	2230	2480	2830	3425	5-8d
16	3.1	6425	1970	677	4.5	1115	1120	1715	1970	6-8d	2230	2480	2830	3545	6-8d
TJI/35 SP JOIST (2)															
9-1/2	2.9	4480	1120	247	4.5	1120	NA	1120	NA	NA	2555	NA	2900	NA	NA
11-7/8	3.1	5960	1420	423	4.5	1275	1420	1420	1420	3-8d	2555	2910	3155	3510	3-8d
14	3.3	7300	1710	626	4.5	1275	1505	1710	1710	5-8d	2555	3150	3155	3750	5-8d
16	3.6	8560	1970	859	4.5	1275	1505	1775	1970	6-8d	2555	3270	3155	3870	6-8d
18	3.8	9490	2155	1136	4.5	NA	1505	NA	2155	7-8d	NA	3330	NA	3990	7-8d
20	4.0	10715	2165	1457	4.5	NA	1505	NA	2165	8-8d	NA	3330	NA	4105	8-8d
TJI/55 SP JOIST (2)															
10	3.4	7345	1720	420	5.3	1540	1720	1720	1720	2-16d	3690	4005	4370	4450	2-16d
11-7/8	3.6	9140	1925	633	5.3	1540	1855	1925	1925	2-16d	3690	4005	4370	4685	2-16d
14	3.9	11195	2125	932	5.3	1540	2010	2070	2125	3-16d	3690	4165	4370	4840	3-16d
16	4.1	13135	2330	1273	5.3	1540	2170	2070	2330	4-16d	3690	4320	4370	5000	4-16d
18	4.3	14565	2535	1675	5.3	1540	2170	2070	2535	4-16d	3690	4320	4370	5000	4-16d
20	4.6	16445	2740	2139	5.3	NA	2330	NA	2740	5-16d	NA	4480	NA	5160	5-16d
22	4.8	18330	2935	2669	5.3	NA	2345	NA	2935	6-16d	NA	5195	NA	6105	11-16d
24	5.0	19505	3060	3267	5.3	NA	2345	NA	3020	6-16d	NA	5195	NA	6420	13-16d
26	5.3	21325	2900	3937	5.3	NA	2345	NA	2900	7-16d	*NA*	*5800*	*NA*	*5800*	14-16d
28	5.5	23145	2900	4679	5.3	NA	2345	NA	2900	8-16d	*NA*	*5800*	*NA*	*5800*	15-16d
30	5.8	24920	2900	5498	5.3	NA	2345	NA	2900	8-16d	*NA*	*5800*	*NA*	*5800*	17-16d

TABLE 3—PROPERTIES FOR TJI JOISTS—(Continued)

BASIC PROPERTIES						REACTION PROPERTIES									
JOIST DEPTH (in.)	JOIST WT. (plf)	RESISTIVE MOMENT (ft.-lbs.)	VERT. SHEAR (lbs.)	EI x 10^6 in^2-lbs	K	END REACTION (lbs.) 1-3/4" Bearing Lgth. Web Stiffeners NO	YES	3-1/2" Bearing Lgth. Web Stiffeners NO	YES	NAILS REQ'D. IN STIFFENER	INTERMEDIATE REACTION (lbs.) 3-1/2" *5-1/4" (7)* Bearing Lgth. Web Stiffeners NO	YES	5-1/4" *7" (7)* Bearing Lgth. Web Stiffeners NO	YES	NAILS REQ'D. IN STIFFENER
TJI/150 JOIST (3)															
9-1/2	1.9	2800	1120	161	4.5	945	NA	1120	NA	NA	1895	NA	2440	NA	NA
11-7/8	2.2	3715	1420	280	4.5	945	NA	1420	NA	NA	1895	NA	2440	NA	NA
TJI/250 JOIST (3)															
7-1/2	1.9	2395	860	103	4.5	860	NA	860	NA	NA	2030	NA	2225	NA	NA
9-1/2	2.1	3290	1120	186	4.5	1015	NA	1120	NA	NA	2030	NA	2575	NA	NA
11-7/8	2.4	4375	1420	322	4.5	1015	1120	1420	1420	3-8d	2030	2385	2575	2930	3-8d
14	2.6	5350	1710	480	4.5	1015	1120	1445	1710	5-8d	2030	2480	2575	3170	5-8d
16	2.9	6270	1970	663	4.5	1015	1120	1445	1970	6-8d	2030	2480	2575	3290	6-8d
TJI/350 JOIST (3)															
9-1/2	2.5	4380	1120	241	4.5	1075	NA	1120	NA	NA	2320	NA	2870	NA	NA
10	2.6	4680	1185	274	4.5	1075	1185	1185	1185	3-8d	2320	2680	2870	3065	3-8d
11-7/8	2.8	5820	1420	414	4.5	1075	1420	1420	1420	3-8d	2320	2680	2870	3225	3-8d
14	3.0	7120	1710	613	4.5	1075	1505	1445	1710	5-8d	2320	2915	2870	3465	5-8d
16	3.3	8350	1970	841	4.5	1075	1505	1445	1970	6-8d	2320	3035	2870	3580	6-8d
18	3.5	9255	2155	1112	4.5	NA	1505	NA	2155	7-8d	NA	3155	NA	3700	7-8d
20	3.7	10445	2165	1427	4.5	NA	1505	NA	2165	8-8d	NA	3275	NA	3820	8-8d
TJI/350X/35C JOIST (3)															
10	2.5	4640	1720	276	5.3	1255	1505	1685	1720	3-8d	2625	3000	3245	3615	3-8d
11 7/8	2.8	5765	1925	419	5.3	1255	1505	1685	1925	3-8d	2625	3000	3245	3615	3-8d
14	3.0	7050	2125	622	5.3	1255	1505	1685	2125	5-8d	2625	3245	3245	3865	5-8d
16	3.2	8265	2330	857	5.3	1255	1505	1685	2330	6-8d	2625	3330	3245	3990	6-8d
18	3.5	9160	2535	1137	5.3	1255	1505	1685	2535	7-8d	2625	3330	3245	4115	7-8d
20	3.7	10340	2740	1464	5.3	NA	1505	NA	2680	8-8d	NA	3330	NA	4235	8-8d
22	3.9	11495	2935	1841	5.3	NA	1505	NA	2805	9-8d	NA	3330	NA	4360	9-8d
24	4.2	12165	3060	2270	5.3	NA	1505	NA	2925	10-8d	NA	3330	NA	4485	10-8d
26	4.4	13240	2900	2754	5.3	NA	1505	NA	2900	11-8d	*NA*	*4610*	*NA*	*5225*	11-8d
28	4.6	14310	2900	3297	5.3	NA	1505	NA	2900	12-8d	*NA*	*4735*	*NA*	*5350*	12-8d
30	4.9	15385	2900	3899	5.3	NA	1505	NA	2900	13-8d	*NA*	*4840*	*NA*	*5475*	13-8d
TJI/550E/55C JOIST (3)															
10	3.4	7175	1720	411	5.3	1255	1570	1685	1720	2-16d	3130	3450	3675	3990	2-16d
11-7/8	3.6	8925	1925	619	5.3	1255	1570	1685	1925	2-16d	3130	3450	3675	3990	2-16d
14	3.9	10920	2125	912	5.3	1255	1725	1685	2125	3-16d	3130	3605	3675	4150	3-16d
16	4.1	12810	2330	1245	5.3	1255	1885	1685	2320	4-16d	3130	3765	3675	4305	4-16d
18	4.3	14200	2535	1638	5.3	1255	1885	1685	2320	4-16d	3130	3765	3675	4305	4-16d
20	4.6	16030	2740	2093	5.3	NA	2045	NA	2475	5-16d	NA	3920	NA	4465	5-16d
22	4.8	17825	2935	2612	5.3	NA	2200	NA	2635	6-16d	NA	4870	NA	5410	11-16d
24	5.0	18870	3060	3198	5.3	NA	2200	NA	2635	6-16d	NA	5185	NA	5730	13-16d
26	5.3	20535	2900	3854	5.3	NA	2345	NA	2795	7-16d	*NA*	*5800*	*NA*	*5800*	14-16d
28	5.5	22205	2900	4583	5.3	NA	2345	NA	2900	8-16d	*NA*	*5800*	*NA*	*5800*	15-16d
30	5.8	23870	2900	5386	5.3	NA	2345	NA	2900	8-16d	*NA*	*5800*	*NA*	*5800*	17-16d
TJI/550 JOIST (4)															
10	3.4	8390	1720	472	5.3	1255	1570	1685	1720	2-16d	3130	3450	3675	3990	2-16d
11-7/8	3.6	10475	1925	711	5.3	1255	1570	1685	1925	2-16d	3130	3450	3675	3990	2-16d
14	3.9	12855	2125	1047	5.3	1255	1725	1685	2125	3-16d	3130	3605	3675	4150	3-16d
16	4.1	15105	2330	1430	5.3	1255	1885	1685	2320	4-16d	3130	3765	3675	4305	4-16d
18	4.3	16775	2535	1879	5.3	1255	1885	1685	2320	4-16d	3130	3765	3675	4305	4-16d
20	4.6	18960	2740	2397	5.3	NA	2045	NA	2475	5-16d	NA	3920	NA	4465	5-16d
22	4.8	21145	2935	2988	5.3	NA	2200	NA	2635	6-16d	NA	4870	NA	5410	11-16d
24	5.0	22510	3060	3652	5.3	NA	2200	NA	2635	6-16d	NA	5185	NA	5730	13-16d
26	5.3	24625	2900	4394	5.3	NA	2345	NA	2795	7-16d	*NA*	*5800*	*NA*	*5800*	14-16d
28	5.5	26740	2900	5216	5.3	NA	2345	NA	2900	8-16d	*NA*	*5800*	*NA*	*5800*	15-16d
30	5.8	28850	2900	6120	5.3	NA	2345	NA	2900	8-16d	*NA*	*5800*	*NA*	*5800*	17-16d

TABLE 3—PROPERTIES FOR TJI JOISTS—(Continued)

BASIC PROPERTIES						REACTION PROPERTIES									
						END REACTION (lbs.)					INTERMEDIATE REACTION (lbs.)				
JOIST DEPTH (in.)	JOIST WT. (plf)	RESISTIVE MOMENT (ft.-lbs.)	VERT. SHEAR (lbs.)	EI x 10^6 in^2-lbs	K	1-3/4" Bearing Lgth.		3-1/2" Bearing Lgth.		NAILS REQ'D. IN STIFFENER	3-1/2" 5-1/4" (7) Bearing Lgth.		5-1/4" 7" (7) Bearing Lgth.		NAILS REQ'D. IN STIFFENER
						Web Stiffeners		Web Stiffeners			Web Stiffeners		Web Stiffeners		
						NO	YES	NO	YES		NO	YES	NO	YES	
TJI/35P/35X JOIST (5)															
10	2.7	4630	1215	264	3.4	1215	1215	1215	1215	3-8d	2450	2830	3025	3145	3-8d
11-7/8	2.9	5755	1420	396	3.4	1225	1420	1420	1420	3-8d	2450	2830	3025	3405	3-8d
14	3.2	7040	1625	581	3.4	1225	1505	1625	1625	5-8d	2450	3085	3025	3660	5-8d
16	3.4	8250	1830	791	3.4	1225	1505	1800	1830	6-8d	2450	3210	3025	3785	6-8d
18	3.6	9140	2030	1038	3.4	1225	1505	1800	2030	7-8d	2450	3330	3025	3915	7-8d
20	3.9	10315	2235	1323	3.4	NA	1505	NA	2235	8-8d	NA	3330	NA	4040	8-8d
22	4.1	11470	2440	1647	3.4	NA	1505	NA	2440	9-8d	NA	3330	NA	4165	9-8d
24	4.4	12140	2645	2011	3.4	NA	1505	NA	2645	10-8d	NA	3330	NA	4295	10-8d
26	4.6	13210	2775	2418	3.4	NA	1505	NA	2775	11-8d	*NA*	*4420*	*NA*	*4995*	11-8d
28	4.9	14280	2900	2859	3.4	NA	1505	NA	2900	12-8d	*NA*	*4550*	*NA*	*5125*	12-8d
30	5.1	15350	2900	3364	3.4	NA	1505	NA	2900	13-8d	*NA*	*4675*	*NA*	*5250*	13-8d
TJI/40P JOIST (5)															
11-7/8	3.1	6415	1575	438	3.4	1330	1505	1575	1575	3-8d	2665	3045	3240	3620	3-8d
14	3.4	7895	1770	645	3.4	1330	1505	1770	1770	5-8d	2665	3300	3240	3875	5-8d
16	3.6	9295	1970	881	3.4	1330	1505	1910	1970	6-8d	2665	3330	3240	4005	6-8d
18	3.8	10335	2165	1157	3.4	1330	1505	1910	2165	7-8d	2665	3330	3240	4130	7-8d
20	4.1	11695	2360	1475	3.4	NA	1505	NA	2360	8-8d	NA	3330	NA	4255	8-8d
22	4.3	13055	2555	1837	3.4	NA	1505	NA	2555	9-8d	NA	3330	NA	4385	9-8d
24	4.6	13910	2750	2243	3.4	NA	1505	NA	2750	10-8d	NA	3330	NA	4510	10-8d
26	4.8	15225	2950	2696	3.4	NA	1505	NA	2950	11-8d	*NA*	*4640*	*NA*	*5215*	11-8d
28	5.1	16510	3030	3197	3.4	NA	1505	NA	3010	12-8d	*NA*	*4765*	*NA*	*5340*	12-8d
30	5.3	17750	3115	3747	3.4	NA	1505	NA	3010	13-8d	*NA*	*4840*	*NA*	*5465*	13-8d
TJI/55E/55P JOIST (5)															
10	3.3	7165	1380	399	3.4	1380	1380	1380	1380	2-16d	3125	3450	3570	3570	2-16d
11-7/8	3.6	8915	1575	596	3.4	1500	1575	1575	1575	2-16d	3125	3450	3700	4025	2-16d
14	3.8	10905	1770	870	3.4	1500	1770	1770	1770	3-16d	3125	3610	3700	4165	3-16d
16	4.1	12790	1970	1179	3.4	1500	1970	1970	1970	4-16d	3125	3770	3700	4345	4-16d
18	4.4	14180	2165	1539	3.4	1500	2140	2020	2165	4-16d	3125	3770	3700	4345	4-16d
20	4.6	16005	2360	1952	3.4	NA	2305	NA	2360	5-16d	NA	3930	NA	4505	5-16d
22	4.9	17800	2555	2418	3.4	NA	2345	NA	2555	6-16d	NA	4895	NA	5470	11-16d
24	5.1	18840	2750	2940	3.4	NA	2345	NA	2750	6-16d	NA	5195	NA	5795	13-16d
26	5.4	20505	2950	3518	3.4	NA	2345	NA	2950	7-16d	*NA*	*5900*	*NA*	*5900*	14-16d
28	5.6	22170	3030	4155	3.4	NA	2345	NA	3030	8-16d	*NA*	*6060*	*NA*	*6060*	15-16d
30	5.9	23840	3115	4851	3.4	NA	2345	NA	3115	8-16d	*NA*	*6230*	*NA*	*6230*	17-16d
TJI/40C JOIST (3)															
11-7/8	3.2	6430	1925	460	5.3	1255	1505	1685	1925	3-8d	2860	3230	3475	3850	3-8d
14	3.5	7915	2125	686	5.3	1255	1505	1685	2125	5-8d	2860	3330	3475	4095	5-8d
16	3.7	9320	2330	946	5.3	1255	1505	1685	2330	6-8d	2860	3330	3475	4220	6-8d
18	4.0	10365	2535	1255	5.3	1255	1505	1685	2535	7-8d	2860	3330	3475	4345	7-8d
20	4.3	11725	2740	1616	5.3	NA	1505	NA	2680	8-8d	NA	3330	NA	4470	8-8d
22	4.5	13095	2935	2030	5.3	NA	1505	NA	2805	9-8d	NA	3330	NA	4595	9-8d
24	4.8	13950	3060	2501	5.3	NA	1505	NA	2925	10-8d	NA	3330	NA	4715	10-8d
26	5.1	15270	2900	3031	5.3	NA	1505	NA	2900	11-8d	*NA*	*4840*	*NA*	*5460*	11-8d
28	5.3	16555	2900	3624	5.3	NA	1505	NA	2900	12-8d	*NA*	*4840*	*NA*	*5585*	12-8d
30	5.6	17800	2900	4281	5.3	NA	1505	NA	2900	13-8d	*NA*	*4840*	*NA*	*5705*	13-8d
TJI/60C JOIST (3)															
11-7/8	4.1	9995	1925	686	5.3	1255	1570	1685	1925	2-16d	3130	3450	3675	3990	2-16d
14	4.3	12310	2125	1015	5.3	1255	1725	1685	2125	3-16d	3130	3605	3675	4150	3-16d
16	4.6	14500	2330	1389	5.3	1255	1885	1685	2320	4-16d	3130	3765	3675	4305	4-16d
18	4.8	16130	2535	1829	5.3	1255	1885	1685	2320	4-16d	3130	3765	3675	4305	4-16d
20	5.1	18260	2740	2338	5.3	NA	2045	NA	2475	5-16d	NA	3920	NA	4465	5-16d
22	5.3	20395	2935	2918	5.3	NA	2200	NA	2635	6-16d	NA	4870	NA	5410	11-16d
24	5.6	21735	3060	3572	5.3	NA	2200	NA	2635	6-16d	NA	5185	NA	5730	13-16d
26	5.8	23800	2900	4302	5.3	NA	2345	NA	2795	7-16d	*NA*	*5800*	*NA*	*5800*	14-16d
28	6.1	25805	2900	5111	5.3	NA	2345	NA	2900	8-16d	*NA*	*5800*	*NA*	*5800*	15-16d
30	6.3	27750	2900	6002	5.3	NA	2345	NA	2900	8-16d	*NA*	*5800*	*NA*	*5800*	17-16d

TABLE 3—PROPERTIES FOR TJI JOISTS—(Continued)

BASIC PROPERTIES						REACTION PROPERTIES									
JOIST DEPTH (in.)	JOIST WT. (plf)	RESISTIVE MOMENT (ft-lbs.)	VERT. SHEAR (lbs.)	EI x 10^6 in^2-lbs	K	END REACTION (lbs.) 1-3/4" Bearing Lgth. Web Stiffeners NO	YES	3-1/2" Bearing Lgth. Web Stiffeners NO	YES	NAILS REQ'D. IN STIFFENER	INTERMEDIATE REACTION (lbs.) 3-1/2" 5-1/4" (7) Bearing Lgth. Web Stiffeners NO	YES	5-1/4" 7" (7) Bearing Lgth. Web Stiffeners NO	YES	NAILS REQ'D. IN STIFFENER
TJI/25 JOIST (5)															
7-1/2	1.8	2835	640	99	2.7	640	NA	640	NA	NA	1655	NA	1655	NA	NA
9-1/2	1.9	3280	805	175	2.7	805	NA	805	NA	NA	1905	NA	2085	NA	NA
11-7/8	2.0	4360	990	295	2.7	950	990	990	990	3-8d	1905	2260	2415	2560	3-8d
14	2.2	5330	1160	432	2.7	950	1120	1160	1160	5-8d	1905	2480	2415	2730	5-8d
16	2.4	6245	1315	587	2.7	950	1120	1315	1315	6-8d	1905	2480	2415	3095	6-8d
TJI/35 JOIST (5)															
10	2.5	4670	845	259	2.7	845	NA	845	NA	NA	2180	NA	2185	NA	NA
11-7/8	2.6	5805	1000	387	2.7	1000	1000	1000	1000	3-8d	2180	2540	2590	2590	3-8d
14	2.8	7105	1160	565	2.7	1090	1160	1160	1160	5-8d	2180	2730	2695	2730	5-8d
16	3.0	8325	1315	765	2.7	1090	1315	1315	1315	6-8d	2180	2895	2695	3095	6-8d
18	3.1	9230	1470	999	2.7	NA	1470	NA	1470	7-8d	NA	2940	NA	2940	7-8d
20	3.3	10420	1625	1265	2.7	NA	1505	NA	1625	8-8d	NA	3135	NA	3250	8-8d
TJI/55 JOIST (4)															
10	3.3	8375	1380	460	3.4	1380	1380	1380	1380	2-16d	3125	3450	3570	3570	2-16d
11-7/8	3.6	10460	1575	688	3.4	1500	1575	1575	1575	2-16d	3125	3450	3700	4025	2-16d
14	3.8	12835	1770	1006	3.4	1500	1770	1770	1770	3-16d	3125	3610	3700	4165	3-16d
16	4.1	15080	1970	1363	3.4	1500	1970	1970	1970	4-16d	3125	3770	3700	4345	4-16d
18	4.4	16750	2165	1779	3.4	1500	2140	2020	2165	4-16d	3125	3770	3700	4345	4-16d
20	4.6	18930	2360	2255	3.4	NA	2305	NA	2360	5-16d	NA	3930	NA	4505	5-16d
22	4.9	21110	2555	2793	3.4	NA	2345	NA	2555	6-16d	NA	4895	NA	5470	11-16d
24	5.1	22475	2750	3393	3.4	NA	2345	NA	2750	6-16d	NA	5195	NA	5795	13-16d
26	5.4	24585	2950	4057	3.4	NA	2345	NA	2950	7-16d	*NA*	*5900*	*NA*	*5900*	14-16d
28	5.6	26695	3030	4787	3.4	NA	2345	NA	3030	8-16d	*NA*	*6060*	*NA*	*6060*	15-16d
30	5.9	28810	3115	5583	3.4	NA	2345	NA	3115	8-16d	*NA*	*6230*	*NA*	*6230*	17-16d
TJI/60P JOIST (5)															
11-7/8	4.0	9975	1575	663	3.4	1500	1575	1575	1575	2-16d	3455	3775	4030	4075	2-16d
14	4.2	12290	1770	973	3.4	1500	1770	1770	1770	3-16d	3455	3940	4030	4165	3-16d
16	4.4	14475	1970	1323	3.4	1500	1970	1970	1970	4-16d	3455	4100	4030	4635	4-16d
18	4.7	16105	2165	1731	3.4	1500	2140	2020	2165	4-16d	3455	4100	4030	4675	4-16d
20	4.9	18230	2360	2198	3.4	NA	2305	NA	2360	5-16d	NA	4260	NA	4835	5-16d
22	5.1	20360	2555	2725	3.4	NA	2345	NA	2555	6-16d	NA	5195	NA	5800	11-16d
24	5.4	21695	2750	3314	3.4	NA	2345	NA	2750	6-16d	NA	5195	NA	6125	13-16d
26	5.6	23755	2950	3967	3.4	NA	2345	NA	2950	7-16d	*NA*	*5900*	*NA*	*5900*	14-16d
28	5.8	25760	3030	4685	3.4	NA	2345	NA	3030	8-16d	*NA*	*6060*	*NA*	*6060*	15-16d
30	6.0	27700	3115	5469	3.4	NA	2345	NA	3115	8-16d	*NA*	*6230*	*NA*	*6230*	17-16d
TJI/65 JOIST (4)															
10	3.7	8285	1755	459	4.3	-	-	-	1755	3-10d	-	4130	-	4130	6-10d
12	4.0	10475	1995	705	4.3	-	-	-	1995	3-10d	-	4695	-	4695	6-10d
14	4.3	12685	2235	1008	4.3	-	-	-	2235	3-10d	-	5260	-	5260	6-10d
16	4.5	14900	2480	1370	4.3	-	-	-	2480	3-10d	-	5835	-	5835	6-10d
18	4.8	16540	2725	1791	4.3	-	-	-	2725	4-10d	-	6410	-	6410	8-10d
20	5.1	18690	2965	2275	4.3	-	-	-	2965	4-10d	-	-	-	6975	8-10d
22	5.4	20845	3205	2823	4.3	-	-	-	3205	5-10d	-	-	-	7540	10-10d
24	5.7	22190	3450	3436	4.3	-	-	-	3450	5-10d	-	-	-	8120	10-10d
26	6.0	24270	3690	4117	4.3	-	-	-	3690	6-10d	-	-	-	*7380*	12-10d
28	6.2	26355	3930	4868	4.3	-	-	-	3930	6-10d	-	-	-	*7860*	12-10d
30	6.5	28435	4170	5689	4.3	-	-	-	4170	6-10d	-	-	-	*8340*	12-10d

TABLE 3—PROPERTIES FOR TJI JOISTS—(Continued)

BASIC PROPERTIES						REACTION PROPERTIES									
						END REACTION (lbs.)					INTERMEDIATE REACTION (lbs.)				
JOIST DEPTH (in.)	JOIST WT. (plf)	RESISTIVE MOMENT (ft.-lbs.)	VERT. SHEAR (lbs.)	EI x 10^6 lb-in^2	K	1-3/4" Bearing Lgth.		3-1/2" Bearing Lgth.		NAILS REQ'D. IN STIFFENER	3-1/2" 5-1/4" (7) Bearing Lgth.		5-1/4" 7" (7) Bearing Lgth.		NAILS REQ'D. IN STIFFENER
						Web Stiffeners		Web Stiffeners			Web Stiffeners		Web Stiffeners		
						NO	YES	NO	YES		NO	YES	NO	YES	
TJI/75 JOIST (4)															
10	3.9	9240	1755	506	4.3	-	-	-	1755	3-10d	-	4130	-	4130	6-10d
12	4.2	11795	1995	783	4.3	-	-	-	1995	3-10d	-	4695	-	4695	6-10d
14	4.5	14375	2235	1126	4.3	-	-	-	2235	3-10d	-	5260	-	5260	6-10d
16	4.8	16970	2480	1534	4.3	-	-	-	2480	3-10d	-	5835	-	5835	6-10d
18	5.1	18915	2725	2011	4.3	-	-	-	2725	4-10d	-	6410	-	6410	8-10d
20	5.4	21440	2965	2558	4.3	-	-	-	2965	4-10d	-	-	-	6975	8-10d
22	5.7	23970	3205	3177	4.3	-	-	-	3205	5-10d	-	-	-	7540	10-10d
24	6.0	25565	3450	3869	4.3	-	-	-	3450	5-10d	-	-	-	8120	10-10d
26	6.3	28010	3690	4637	4.3	-	-	-	3690	6-10d	-	-	-	*7380*	12-10d
28	6.6	30455	3930	5482	4.3	-	-	-	3930	6-10d	-	-	-	*7860*	12-10d
30	6.9	32905	4170	6406	4.3	-	-	-	4170	6-10d	-	-	-	*8340*	12-10d
TJI/32 JOIST (6)															
9-1/2	2.5	3010	805	229	2.7	805	NA	805	NA	NA	2085	NA	2085	NA	NA
11-7/8	2.7	4020	990	388	2.7	990	990	990	990	3-8d	2435	2560	2560	2560	3-8d
14	2.9	4935	1160	567	2.7	1070	1160	1160	1160	5-8d	2435	2730	2730	2730	5-8d
16	3.1	5795	1315	770	2.7	1070	1315	1315	1315	6-8d	2435	3095	2970	3095	6-8d
18	3.2	6660	1470	1005	2.7	NA	1470	NA	1470	7-8d	NA	3270	NA	3460	7-8d
20	3.4	7525	1625	1275	2.7	NA	1625	NA	1625	8-8d	NA	3390	NA	3825	8-8d
TJI/38 JOIST (6)															
9-1/2	3.2	5585	845	338	2.7	845	NA	845	NA	NA	2185	NA	2185	NA	NA
11-7/8	3.5	7465	1040	570	2.7	1040	1040	1040	1040	2-16d	2690	2690	2690	2690	2-16d
14	3.7	9165	1220	832	2.7	1200	1220	1220	1220	3-16d	2870	2870	2870	2870	3-16d
16	4.0	10770	1380	1125	2.7	1200	1380	1380	1380	4-16d	2900	3245	3245	3245	4-16d
18	4.3	12380	1545	1466	2.7	NA	1545	NA	1545	4-16d	NA	3090	NA	3090	4-16d
20	4.5	13995	1705	1854	2.7	NA	1705	NA	1705	5-16d	NA	3410	NA	3410	5-16d
TJI/42 JOIST (6)															
10	3.3	5920	1380	384	3.4	1250	1380	1380	1380	2-16d	3205	3530	3570	3570	2-16d
11-7/8	3.6	7390	1700	576	3.4	1250	1570	1560	1700	2-16d	3205	3530	3795	4120	2-16d
14	3.8	9070	1930	844	3.4	1250	1735	1560	1930	3-16d	3205	3690	3795	4280	3-16d
16	4.1	10655	2145	1146	3.4	1250	1895	1560	2145	4-16d	3205	3850	3795	4440	4-16d
18	4.4	12245	2360	1499	3.4	1250	1895	1560	2205	4-16d	3205	3850	3795	4440	4-16d
20	4.6	13839	2570	1903	3.4	NA	2055	NA	2365	5-16d	NA	4010	NA	4600	5-16d
22	4.9	15435	2785	2360	3.4	NA	2215	NA	2525	6-16d	NA	4975	NA	5570	11-16d
24	5.1	16185	3000	2872	3.4	NA	2215	NA	2525	6-16d	NA	5195	NA	5890	13-16d
26	5.4	17705	3215	3439	3.4	NA	2345	NA	2685	7-16d	*NA*	*6050*	*NA*	*6430*	14-16d
28	5.6	19225	3300	4064	3.4	NA	2345	NA	2850	8-16d	*NA*	*6210*	*NA*	*6600*	15-16d
30	5.9	20746	3395	4748	3.4	NA	2345	NA	2850	8-16d	*NA*	*6535*	*NA*	*6790*	17-16d
TJI/321 JOIST (6)(8)															
9-1/2	2.5	3010	1120	240	4.5	1120	NA	1120	NA	NA	2665	NA	2900	NA	NA
11-7/8	2.7	4020	1420	413	4.5	1175	1420	1420	1420	3-8d	2665	3025	3255	3610	3-8d
14	2.9	4935	1710	615	4.5	1175	1710	1560	1710	5-8d	2665	3265	3255	3850	5-8d
16	3.1	5795	1970	846	4.5	1175	1735	1560	1970	6-8d	2665	3385	3255	3970	6-8d
16V	3.1	5795	1780	846	4.5	1175	1735	1560	1780	6-8d	2665	3385	3255	3970	6-8d
18	3.3	6660	2230	1120	4.5	NA	1735	NA	2230	7-8d	NA	3505	NA	4085	7-8d
20	3.5	7525	2490	1436	4.5	NA	1735	NA	2490	8-8d	NA	3620	NA	4205	8-8d
TJI/424 JOIST (6)															
9-1/2	3.2	5555	1675	351	5.3	1250	NA	1560	NA	NA	3495	NA	4100	NA	NA
11-7/8	3.6	7430	1920	601	5.3	1250	1565	1560	1875	2-16d	3495	3810	4100	4420	2-16d
14	3.8	9115	2140	889	5.3	1250	1725	1560	2035	3-16d	3495	3970	4100	4575	3-16d
16	4.1	10715	2350	1217	5.3	1250	1880	1560	2190	4-16d	3495	4130	4100	4735	4-16d
18	4.4	12315	2555	1603	5.3	1250	1880	1560	2190	4-16d	3495	4130	4100	4735	4-16d
20	4.6	13915	2765	2051	5.3	NA	2040	NA	2350	5-16d	NA	4285	NA	4890	5-16d
22	4.9	15525	2970	2563	5.3	NA	2200	NA	2510	6-16d	NA	5195	NA	5840	11-16d
24	5.1	16280	3175	3141	5.3	NA	2200	NA	2510	6-16d	NA	5195	NA	6155	13-16d
26	5.4	17810	3175	3789	5.3	NA	2345	NA	2665	7-16d	*NA*	*6315*	*NA*	*6350*	14-16d
28	5.6	19340	3175	4508	5.3	NA	2345	NA	2825	8-16d	*NA*	*6350*	*NA*	*6350*	15-16d
30	5.9	20870	3175	5301	5.3	NA	2345	NA	2825	8-16d	*NA*	*6350*	*NA*	*6350*	17-16d

TABLE 3—PROPERTIES FOR TJI JOISTS—(Continued)

BASIC PROPERTIES						REACTION PROPERTIES									
						END REACTION (lbs.)					INTERMEDIATE REACTION (lbs.)				
JOIST DEPTH (in.)	JOIST WT. (plf)	RESISTIVE MOMENT (ft.-lbs.)	VERT. SHEAR (lbs.)	EI x 10^6 in^2-lbs	K	1-3/4" Bearing Lgth.		3-1/2" Bearing Lgth.		NAILS REQ'D. IN STIFFENER	3-1/2" 5-1/4" (7) Bearing Lgth.		5-1/4" 7" (7) Bearing Lgth.		NAILS REQ'D. IN STIFFENER
						Web Stiffeners		Web Stiffeners			Web Stiffeners		Web Stiffeners		
						NO	YES	NO	YES		NO	YES	NO	YES	
TJI/420 JOIST (6)															
10	3.3	5950	1565	398	5.3	1250	1565	1560	1565	2-16d	3495	3810	4050	4050	2-16d
11-7/8	3.6	7430	1750	601	5.3	1250	1565	1560	1750	2-16d	3495	3810	4100	4420	2-16d
14	3.8	9115	1935	889	5.3	1250	1725	1560	1935	3-16d	3495	3970	4100	4555	3-16d
16	4.1	10715	2200	1217	5.3	1250	1880	1560	2190	4-16d	3495	4130	4100	4735	4-16d
18	4.4	12315	2305	1603	5.3	1250	1880	1560	2190	4-16d	3495	4130	4100	4735	4-16d
20	4.6	13915	2490	2051	5.3	NA	2040	NA	2350	5-16d	NA	4285	NA	4890	5-16d
22	4.9	15525	2670	2563	5.3	NA	2200	NA	2510	6-16d	NA	5195	NA	5840	11-16d
24	5.1	16280	2785	3141	5.3	NA	2200	NA	2510	6-16d	NA	5195	NA	6155	13-16d
26	5.4	17810	2900	3789	5.3	NA	2345	NA	2665	7-16d	*NA*	*5800*	*NA*	*5800*	14-16d
28	5.6	19340	2900	4508	5.3	NA	2345	NA	2825	8-16d	*NA*	*5800*	*NA*	*5800*	15-16d
30	5.9	20870	2900	5301	5.3	NA	2345	NA	2825	8-16d	*NA*	*5800*	*NA*	*5800*	17-16d
TJI/PRO JOISTS (9)															
9-1/2	1.9	2005	1120	145	4.5	800	NA	1095	NA	NA	1880	NA	2195	NA	NA
11-7/8	2.2	2675	1420	253	4.5	800	NA	1095	NA	NA	1880	NA	2195	NA	NA

Footnotes (for Table 3)

1. Figure 2 provides web stiffener details that are required for joist installation.
2. Deflection is calculated as follows:

$$\text{Uniform load}: \Delta = \frac{5WL^4}{384EI} + \frac{WL^2}{Kd \times 10^5}$$

Concentrated load to midspan:

$$\Delta = \frac{PL^3}{48EI} + \frac{2PL}{Kd \times 10^5}$$

Where:

P = Concentrated load.
W = Uniform load in pounds per lineal inch.
L = Clear span in inches.
d = Out-to-out depth of joist, in inches.
EI = From table.
K = Stiffness coefficient provided in Table 3.

3. The allowable design values are for normal duration of load, and are permitted to be increased for duration as permitted by the code.
4. Allowable design reactions are permitted to be interpolated within the range of bearing lengths and depths shown.
5. When approved by the building official, the minimum bearing length is permitted to be reduced for joists supported by hangers if supplemental nail attachment is provided to the web stiffener.
6. When the veneer layup pattern results in flange thickness other than $1^1/_2$ or $1^3/_4$ inches nominal, adjustment of section properties for moment resistance and EI is permitted.
7. Bearing stress of the supporting member cannot exceed allowable stresses recognized in the code or a current evaluation report.
8. Shaded areas indicate $5^1/_4$-inch or 7-inch bearing lengths at intermediate reactions.
9. When joists are used as multiple span members, the design shear is the calculated shear at the interior support reduced by the following:

$$R = K_1 + K_2 (W - 100) \text{ --- } R \leq 18\%$$

Where:

R is the percent reduction
W in PLF is uniform load
K_1 = $10{,}000/V_{12}$
K_2 = $K_1/100$
V_{12} is the allowable shear for a 12-inch (or $11^7/_8$) joist.

10. The design shear of multiple span member joists, which have depths no greater than 12 inches and support live loads no greater than 40 psf, is permitted to be increased an additional 10 percent.

TABLE 4—ALLOWABLE CAPACITIES OF TJI/96 JOISTS[1,2,3,4]

JOIST DEPTH (inches)	FLANGE SIZE (inches)	MAXIMUM RESISTIVE Moment (ft-lbs)[5]	MAXIMUM RESISTIVE SHEAR (pounds)[6]			EI (lb-in^2)	
			3/4" Plywood Web (pounds)	5/8" Plywood Web (pounds)	3/4" Performance Plus Web (pounds)	Plywood Web	Performance Plus Web
26.35	3.85 × 2.25	34,920	4,440	3,550	6,215	5,480	5,920
26.85	3.85 × 2.50	39,130	4,440	3,550	6,215	6,160	6,597
34.35	3.85 × 2.25	47,380	5,280	4,220	7,390	10,108	11,181
34.85	3.85 × 2.50	53,040	5,280	4,220	7,390	11,260	12,325
34.85	4.65 × 2.50	64,579	5,280	4,220	7,390	13,360	14,406
37.10	3.85 × 2.50	56,970	6,090	4,870	8,525	13,010	14,322
37.10	4.65 × 2.50	69,358	6,090	4,870	8,525	15,410	16,702
38.10	4.65 × 3.00	84,080	6,090	4,870	8,525	18,690	19,964
38.85	4.65 × 2.50	73,080	6,090	4,870	8,525	17,110	18,625

[1]The allowable values noted are for simple span conditions.

[2]Deflection is calculated per Table 3 using $K = 5.3$ for plywood web and 9.0 for Performance Plus web.

[3]Maximum resistive moments and shears are subject to duration of load adjustments as permitted in the code.

[4]For bottom bearing conditions, reactions shall be limited as follows (not to exceed the allowable bearing stress on the supporting member):

a. For end bearing of joists not employing web stiffeners, the maximum reaction, R, is as follows:

$$R = 0.33\,[967(BL) + 4812],\ \text{where } BL = \text{bearing length}$$

b. For end bearing of joists where 2 by 4 web stiffeners extending from the top of the bottom flange to within $2\frac{1}{2}$ inches of the top flange are installed at the plant by gluing, the maximum reaction is limited to the allowable compression perpendicular to the grain stress on the Microllam™ LVL flange (480 psi).

[5]The value shown is for spans up to 25 feet. Multiply table value by C as follows for longer spans:

$C = {}^{22}/_{23}$ for spans greater than 25 feet and less than 45 feet.

$C = {}^{21}/_{23}$ for spans greater than 45 feet.

[6]Plywood web is 3/4 inch thick at the ends and may be 5/8 inch on the interior.

TABLE 5—ALLOWABLE LOADS FOR TJI/96 GARAGE DOOR HEADER[1,2]

MAXIMUM DOOR OPENING	DEPTH (Inches)	ALLOWABLE LOAD (plf)[2,3]		
		100%[4]	115%[5]	125%[5]
16′-3″	$11\frac{7}{8}$	320	445	450
	$12\frac{3}{8}$	350	470	500
	$13\frac{1}{2}$	425	530	575
	14	470	560	610
	$14\frac{3}{4}$	520	595	655
	16	545	625	685
	$16\frac{1}{2}$	560	640	700
	18	590	675	735
18′-3″	$11\frac{7}{8}$	235	330	330
	$12\frac{3}{8}$	255	360	360
	$13\frac{1}{2}$	315	420	440
	14	345	445	480
	$14\frac{3}{4}$	385	475	515
	16	460	530	575
	$16\frac{1}{2}$	480	550	600
	18	525	605	655

[1]The flange material is Microllam laminated veneer lumber, 2.5 inches thick and 3.5 inches wide. The top and bottom flanges have a modulus of elasticity of 1.8×10^6 psi and 2.2×10^6 psi, respectively. The web material is either 7/8-inch-thick plywood or 3/4-inch-thick Performance Plus oriented strand board.

[2]The top flange requires approved lateral bracing spaced minimum 24 inches on center.

[3]Header support members have a minimum bearing area of $10\frac{1}{2}$ square inches at the bottom flange.

[4]Deflection limited to L/360 for live load. Live load is assumed to be 70 percent of total load.

[5]Deflection limited to L/180 of total load or L/240 of live load. Live load is assumed to be 60 percent of total load.

TABLE 6—BIG RED GARAGE DOOR HEADER[1,2,3,4]

DOOR OPENING	DEPTH (Inches)	ALLOWABLE LOAD (plf)		
		100%[5]	115%[6]	125%[6]
16′-3″	$11\frac{7}{8}$	325	445	445
	14	480	645	700
	16	730	895	975
	18	915	1,055	1,075
18′-3″	$11\frac{7}{8}$	230	320	320
	14	350	480	480
	16	530	710	735
	18	705	835	910

[1]Support header with double trimmer (3.0 inch bearing length).

[2]The top flange requires lateral bracing at points not to exceed 24 inches on center.

[3]Header spans may be reduced provided the maximum reaction attainable on the longer span is not exceeded on the shorter span.

[4]Values shown are the maximum uniform loads in PLF that can be applied to the header in addition to its own weight.

[5]Deflection limits of L/360 for live load. Live load assumed to be 70 percent of total load.

[6]Deflection limits of L/180 of total load or L/240 of live load. Live load assumed to be 60 percent of total load.

TABLE 7—ALLOWABLE CAPACITIES FOR TJI/96 JOIST HANGERS

BEARING MATERIAL	NO. 10 GAGE INTERLOCK			3/16 IN. LEDGER			2 BOLT LEDGER		
	100%	115%	125%	100%	115%	125%	100%	115%	125%
Glulam or Microllam LVL	5200	5980	6500	6000	6900	7500	8800	10120	11000
Structural Steel[1]	5200	5980	6500	6000	6900	7500	8800	10120	11000
Solid 3X Solid 4X	4800 5200	5520 5980	6000 6500	4800 5200	5520 5980	6000 6500	4800 5200	5520 5980	6000 6500
Uplift	2900			2900			5800		

[1]See Figures 4,5 and 6 for hanger fastening details.

TABLE 8—CHORD SECTION PROPERTIES AT PIN LOCATION FOR OPEN WEB TRUSSES

NOMINAL MEMBER SIZE (inches)	NET DIMENSIONS (inches)	PIN DIAMETER (inches)	NET AREA COMPRESSION (square inches)	NET AREA TENSION (square inches)	SECTION MODULUS (cubic inches)
		TJL			
one 2 × 4 one 2 × 4	1 1/2 × 3 1/2 1 1/2 × 3 1/2	3/8 3/8	4.87 3.38	3.66 2.73	1.20 1.09
		TJH			
two 2 × 6 two 2 × 6	1 1/2 × 5 1/2 1 1/2 × 5 1/2	3/4 1 3/4	16.50 16.50	14.25 12.75	15.09 14.95
		TJM			
two 2 × 4 two 2 × 4	1 1/2 × 3 1/2 1 1/2 × 3 1/2	5/8 1	10.50 10.50	8.62 7.50	6.09 5.98
		TJS			
2 members 2 members	1 1/2 × 2.30 1 1/2 × 2.30	1/2 3/4	5.40 4.65	5.40 4.65	2.62 2.56
		TJW			
one 2 × 5 one 2 × 5	1 1/2 × 4 3/4 1 1/2 × 4 3/4	3/8 5/8	5.06 3.83	5.06 3.83	1.67 1.56

TABLE 9—ALLOWABLE UNIT STRESSES IN POUNDS PER SQUARE INCH FOR TJL, TJM, TJH AND TJS SERIES

LUMBER GRADE IDENTIFICATION	TENSION (TJL Truss)				TENSION (TJM, TJH and TJS Trusses)		COMPRESSION PARALLEL TO GRAIN (All Trusses)		EXTREME FIBER IN BENDING (All Trusses)	MOE × 10^6
	Truss Profile	At PP[1] 3/8 Pin	At PP[1] 5/8 Pin	Other	At PP[1]	Other	At PP	Other		
TJAAA[5] (2700f[5] 2.2E)	Parallel	2,550	2,440	2,150	2,200	1,900	2,500	2,500	2,700[2]	2.2
	Pitched	2,440	2,325							
TJAA[5] (2400f[5] 2.0E)	Parallel	2,250	2,150	1,650	1,925	1,650	1,925	1,925	2,400[2]	2.0
	Pitched	2,150	2,050							
TJA[5] (2100f[5] 1.8E)	Parallel	1,945	1,860	1,460	1,700	1,460	1,700	1,700	2,100[2]	1.8
	Pitched	1,860	1,770							
Microllam Laminated Veneer Lumber	All Profiles	2,300	2,300	2,100	2,300[3]	2,100	3,000	2,550	3,000[4]	2.2

[1]At PP is used at drilled areas.

[2]Stress shown is for lumber used on edge. When loaded flatwise, F_b may be increased 18 percent.

[3]For panel point spacing less than 24 inches on center, tension stress shall be reduced to 2,100 psi.

[4]3,000 psi applies to a 12-inch-deep member. Values for other depths must be adjusted by multiplying by $(12/d)^{1/9}$.

[5]Species used are Douglas fir-larch, southern pine, hem-fir, spruce-pine-fir and Englemann spruce-lodgepole pine.

TABLE 10—ALLOWABLE UNIT STRESSES IN POUNDS PER SQUARE INCH FOR TJW TRUSS

GRADE[1]	PROFILE	TENSION At the Pin 3/8" Pin	TENSION At the Pin 5/8" Pin	TENSION Other	COMPRESSION 3/8" Pin	COMPRESSION 5/8" Pin	COMPRESSION Other	EXTREME FIBER IN BENDING (F_b)	MOE × 10^6
TJAAA (2700f 2.2E)	Parallel[2]	2,425	2,315	2,150	2,760	2,550	2,200	3,150	2.2
	Pitched	2,300	2,200	2,150	2,760	2,550	2,200	3,150	2.2
TJAA (2400f 2.0E)	Parallel[2]	2,140	2,040	1,650	2,430	2,245	1,925	2,780	2.0
	Pitched	2,030	1,940	1,650	2,430	2,245	1,925	2,780	2.0
TJA (2100f 1.8E)	Parallel[2]	1,850	1,765	1,460	2,100	1,940	1,700	2,400	1.8
	Pitched	1,750	1,675	1,460	2,100	1,940	1,700	2,400	1.8

[1]Material may be Douglas fir-larch, southern pine, hem-fir, spruce-pine-fir and Englemann spruce-lodgepole pine.

[2]Also applies to tapered.

TABLE 11—ALLOWABLE LOAD ON WEB MEMBERS[1]

TUBE DIAMETER (Inches)	GAUGE	WALL THICKNESS (Inches)	LOAD CONDITION	OPEN WEB TRUSSES									
				TJL		TJM		TJH		TJS		TJW	
				3/8" Pin (L/R)	5/8" Pin (L/R)	5/8" Pin (L/R)	1" Pin (L/R)	3/4" Pin (L/R)	1 1/4" Pin (L/R)	1/2" Pin (L/R)	3/4" Pin (L/R)	3/8" Pin (L/R)	5/8" Pin (L/R)
3/4	19	.042	TENSION BEARING	1275 1050 [2]	—	—	—	—	—	—	—	—	—
1	20	.035	TENSION BEARING	900 900 (43")	1100 900 (43")	—	—	—	—	—	—	—	—
1	19	.042	TENSION BEARING	1275 1275 (39")	1530 1275 (39")	—	—	—	—	2079 2079 (16")	—	1275 1275 (39")	1530 1275 (39")
1	18	.049	TENSION BEARING	1490 1490 (39")	1800 1490 (39")	—	—	—	—	—	—	1490 1490 (39")	1800 1490 (39")
1	16	.065	TENSION BEARING	—	2370 2370 (35")	—	—	—	—	—	—	1975 1975 (38")	2370 2370 (35")
1	14	.083	TENSION BEARING	—	3025 3025 (34")	—	—	—	—	—	—	—	3025 3025 (34")
1 1/8	16	.065	TENSION BEARING	—	2370 2370 (42")	3290 2630 (36")	—	—	—	—	—	1975 1975 (46")	2370 2370 (42")
1 1/8	13	.095	TENSION BEARING	—	3800 3800 (39")	—	—	—	—	—	—	—	4200 4200 (36")
1 1/4	19	.042	TENSION BEARING	—	—	—	—	—	—	2079 2079 (36")	2602 3118 [2]	—	—
1 1/4	18	.049	TENSION BEARING	—	—	—	—	—	—	—	—	—	—
1 1/4	16	.065	TENSION BEARING	—	—	—	—	—	—	3217 3217 (34")	3901 4826 [2]	—	—
1 1/4	14	.083	TENSION BEARING	—	—	—	—	—	—	4108 4108 (34")	4854 6162 [2]	—	—
1 3/8	16	.065	TENSION BEARING	—	—	3290 3290 (44")	3740 3290 (44")	—	—	—	—	—	—
1 1/2	16	.065	TENSION BEARING	—	—	3290 3290 (52")	4430 3550 (50")	3950 3160 (54")	—	3217 3217 (52")	4036 4826 (26")	—	—
1 1/2	14	.083	TENSION BEARING	—	—	—	5530 4430 (50")	—	—	4108 4108 (50")	5154 6162 (26")	—	—
1 1/2	13	.095	TENSION BEARING	—	—	—	6240 4990 (50")	—	—	—	—	—	—
2	16	.065	TENSION BEARING	—	—	—	—	3950 3950 (76")	6325 5060 (64")	—	—	—	—
2	14	.083	TENSION BEARING	—	—	—	—	5050 5050 (76")	7950 6360 (64")	—	—	—	—
2	13	.095	TENSION BEARING	—	—	—	—	5770 5770 (76")	9000 7200 (66")	—	—	—	—

[1] Allowable load values for web members in compression shall not exceed the values set forth above and shall be further reduced where L/R controls or where allowable wood bearing controls. Maximum length at allowable compression value is shown in parenthesis.

[2] L/R controls at any manufactured length.

TABLE 12—ALLOWABLE WOOD BEARING LOADS ON PINS[1,2]

ANGLE OF LOAD TO GRAIN	ALLOWABLE LOAD (pounds) OPEN WEB TRUSSES									
	TJL[3]		TJH[4]		TJM[4]		TJS		TJW	
	3/8" Pin	5/8" Pin	3/4" Pin	1 1/4" Pin	5/8" Pin	1" Pin	1/2" Pin	3/4" Pin	3/8" Pin	5/8" Pin
Perpendicular	720	720	1,080	1,620	970	1,300	1,010	1,270	855	1,075
Parallel[5]	1,350	2,940	3,360	6,040	2,500	4,800	1,910	3,940	1,975	3,990

[1] Values may be increased for duration of load.

[2] Values are for Douglas-fir larch, southern pine, hem-fir, spruce-pine-fir, and Englemann spruce-lodgepole pine (1.8E or higher).

[3] For TJL Microllam chord members, limit perpendicular-to-grain values to 500 pounds for 3/8-inch and 5/8-inch pins. Also, limit parallel-to-grain values to 1,200 pounds and 1,850 pounds for 3/8-inch and 5/8-inch pins, respectively.

[4] Values are for the pin installed in two 2-inch nominal chord members.

[5] Minimum end distance in the direction of force shall be 12 diameters.

TABLE 13—OPEN-WEB TRUSS ALLOWABLE REACTIONS

OPEN WEB TRUSS SERIES	DETAIL[1]	MAX. REATION[2] (pounds)	BEARING AREA[3] (square inches)
TJL	L-1	2,910	7.0
	L-2	2,910	7.0
	L-3	3,000	6.25
	L-5/2.25 cutoff[4]	2,300	5.20
	L-5/3.25 cutoff[4]	3,290	8.2
	L-5/4.00 cutoff[4]	3,520[5]	11.8
	L-6	3,665[5]	14.5
		4,510	9.7
TJS	60-1	5,390	16.2
	60-2		13.8
TJM	M-1	4,330	10.4
	M-2	7,390	20.3
	M-3	8,310	21.9
	M-4	7,610	15.8
	M-5	6,500	20.6
TJH	H-1	9,200	23.6
	H-2	9,200	29.3
	H-3	12,470	24.1
TJW	W-1	4,300	14.5
	W-2	5,880	13.1

[1]Details are referenced to Figure 8.

[2]Maximum reactions are absolute limits and may not be increased. This allows for maximum bearing tolerance per the manufacturer's installations. Also see footnotes 3 and 5.

[3]Effective area is in square inches and shall be used to determine allowable reactions based on allowable compression perpendicular to grain of the plate.

[4]Cutoff is a minimum distance from pin to the end of the top chord.

[5]The maximum bearing reaction my be increased to 3,780 pounds and 3,930 pounds for the L-5 3.25 and L-5 4.00 clips, respectively, provided no bearing error (full bearing) exists.

NAILING PATTERN TO BE PER PLANS AND SPECIFICATIONS. IN NO CASE SHALL NAIL SPACING BE MORE THAN 24 INCHES O.C. IN EACH CHORD MEMBER. NAILS SHALL NOT BE LESS THAN 8 PENNY NOR GREATER THAN 16 PENNY.

TABLE 14—LATERAL SUPPORT FOR TJS SERIES—SHEATHING NAILING PATTERN

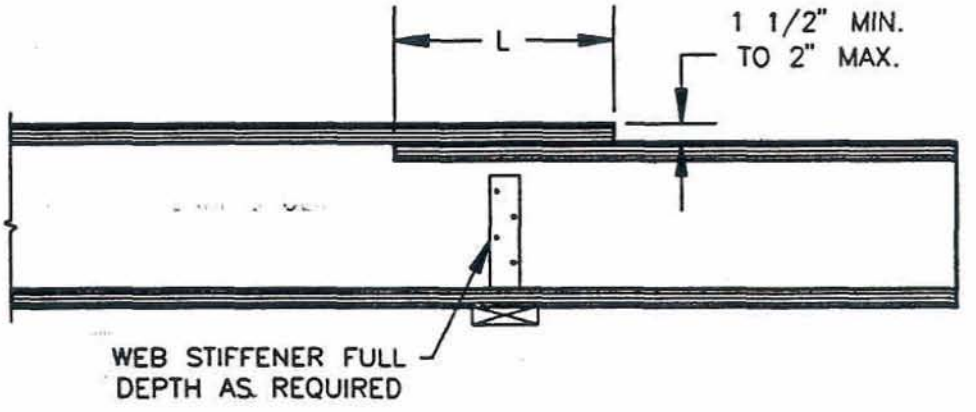
CLOSEST ON-CENTER SPACING ALLOWABLE FOR NAILS IN A ROW			
Nail Size	Nail Type	Nail Gage	Closest Spacing
8d	Box	$11\frac{1}{2}$	4" o.c.
	Common	$10\frac{1}{4}$	6" o.c.
10d	Box	$10\frac{1}{2}$	6" o.c.
	Common	9	6" o.c.
12d	Box	$10\frac{1}{2}$	6" o.c.
	Common	9	6" o.c.
16d	Box	10	6" o.c.
	Common	8	8" o.c.

Note: If more than one row is used, the rows must be offset at least $\frac{1}{2}$ inch.

TJ/50 AND TJ/60 OPEN WEB TRUSS SHEATHING NAILING PATTERN

TABLE 15—MANUFACTURING LOCATIONS

PRODUCT	MANUFACTURING LOCATION								
	Boise, Idaho	Hillsboro, Oregon	Natchetoches, Louisiana	Delaware, Ohio	Chino, California	Valdosta, Georgia	Stayton, Oregon	Eugene, Oregon	Claresholm, Alberta, Canada
TJI Joists	X		X			X	X	X	X
Open Web Truss		X		X	X				



JOIST SERIES (1)(2)	L
TJI/15DF, 15SP, 25DF, 25SP	19"
TJI/35DF, 35SP, 35C, 35P, 40C, 40P, 55DF, 55SP, 55C, 55P, 60C, 60P	22"

(1) JOIST DEPTH LIMITED TO A MAXIMUM OF 24"

(2) STEPPED PORTION CAN BE FLAT OR SLOPE DOWN AT A MAXIMUM RATE OF 1/4" PER FOOT.

FIGURE 1—TJI STEP DOWN DETAIL

1. WEB STIFFENERS MUST BE INSTALLED AT BEARING POINTS AS REQUIRED IN TABLE 3.
2. WEB STIFFENERS MUST BE INSTALLED AT POINTS OF CONCENTRATED LOADS GREATER THAN 1500 POUNDS AND ARE TO BE NAILED IN ACCORDANCE WITH THE INTERMEDIATE REACTION SCHEDULE IN TABLE NO. II.
3. WEB STIFFENERS ARE TO BE INSTALLED ON EACH SIDE OF THE WEB AS SHOWN, WITH NAILS EQUALLY SPACED VERTICALLY.
4. A GAP MUST BE LEFT AT THE TOP OF WEB STIFFENERS AS SHOWN AT ALL BEARING CONDITIONS. IN THE CASE OF CONCENTRATED LOADS, WEB STIFFENERS ARE REQUIRED AS SHOWN AND THE GAP MUST BE AT THE BOTTOM.
5. WEB STIFFENER MATERIAL SHALL BE SHEATHING MEETING THE REQUIREMENTS OF PS1 OR PRP108 WITH THE FACE GRAIN PARALLEL TO THE LONG AXIS.
6. SOME HANGERS REQUIRE WEB STIFFENERS TO COMPLY WITH NAILING REQUIREMENTS THROUGH SIDE PLATES.
7. IF WEB STIFFENERS ARE NOT USED IN HANGER SUPPORT, THE SIDES OF THE HANGER MUST EXTEND UP TO LATERALLY SUPPORT THE TOP FLANGE.

WEB STIFFENER SPECIFICATIONS ARE AS FOLLOWS:

JOIST SERIES	MINIMUM DIMENSIONS		GRADE
	"W" (INCHES)	"T" (INCHES)	
TJI/15DF/15SP/PRO	2 5/16	1/2	SEE NOTE 5
TJI/25/25DF/25SP/250	2 5/16	5/8	SEE NOTE 5
TJI/35/35DF/35SP/350/350X/35X/35P/35C TJI/32/40P/40C/321	2 5/16	7/8	SEE NOTE 5
TJI/42/55/55DF/55SP/38/420/550/550E TJI/60C/60P/424	3 1/2	1 1/2	CONSTRUCTION GRADE 2x4
TJI/65/75	3 1/2	1 1/2	CONSTRUCTION GRADE 2x4

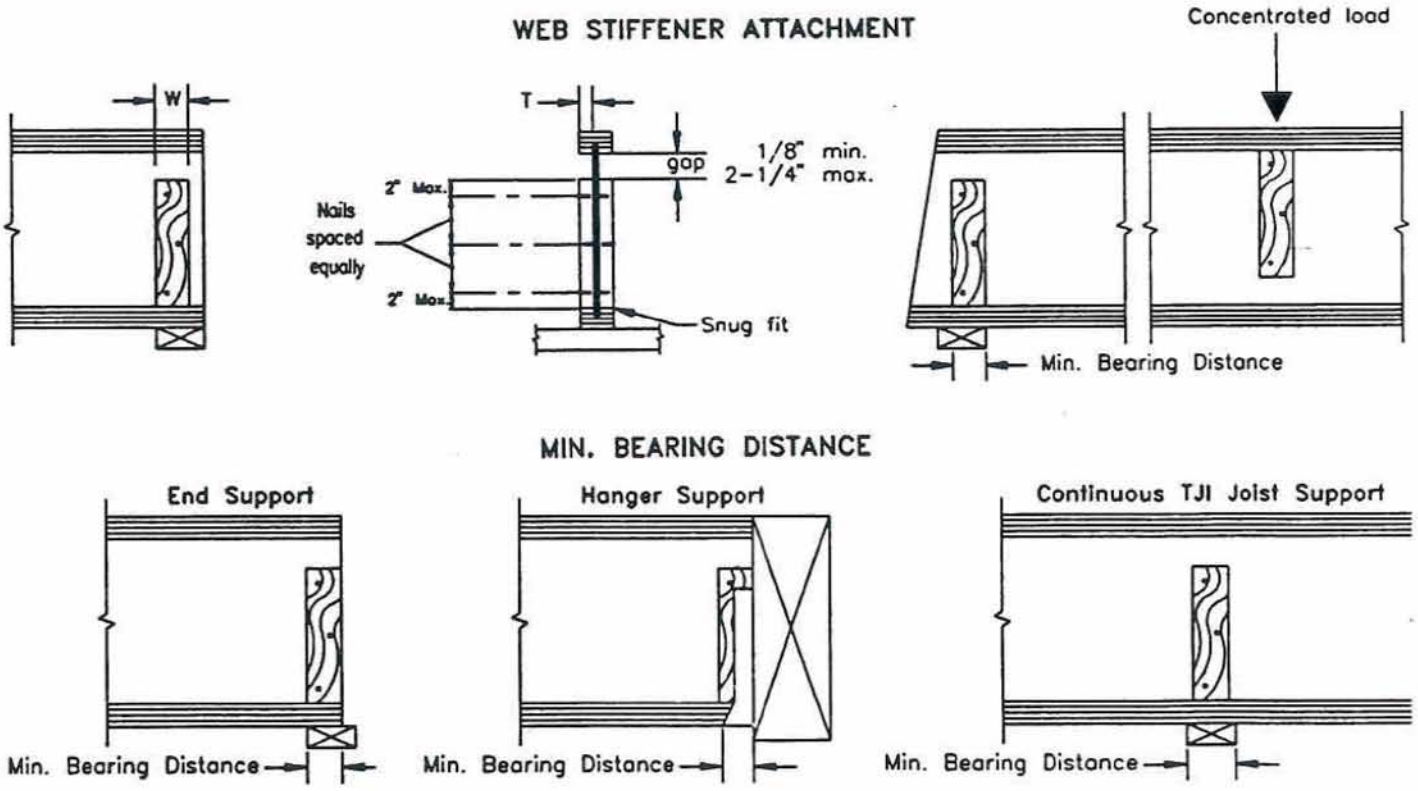
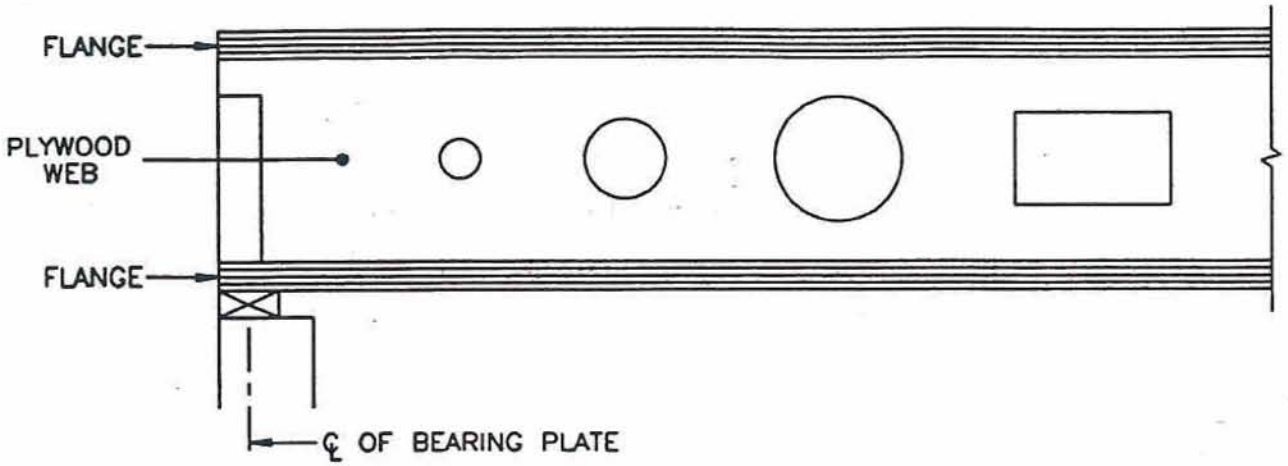


FIGURE 2—WEB STIFFENER NOTES AND DETAILS



SPAN IN FEET	DIAMETER										
	3"	4"	5"	6"	7"	8"	9"	10"	12"	14"	16"
14	1-0	1-3	1-6	2-0	2-3	2-6	3-0	3-3	4-0	4-6	5-3
15	1-0	1-3	1-9	2-0	2-6	2-9	3-0	3-6	4-3	5-0	5-6
16	1-0	1-6	1-9	2-3	2-6	3-0	3-3	3-9	4-6	5-3	6-0
17	1-0	1-6	1-9	2-3	2-9	3-0	3-6	4-0	4-9	5-6	6-3
18	1-3	1-6	2-0	2-6	2-9	3-3	3-9	4-3	5-0	5-9	6-9
19	1-3	1-6	2-0	2-6	3-0	3-6	4-0	4-6	5-3	6-3	7-0
20	1-3	1-9	2-3	2-9	3-3	3-9	4-0	4-6	5-6	6-6	7-6
21	1-3	1-9	2-3	2-9	3-3	3-9	4-3	4-9	5-9	6-9	7-9
22	1-3	1-9	2-3	3-0	3-6	4-0	4-6	5-0	6-0	7-3	8-3
23	1-6	2-0	2-6	3-0	3-9	4-3	4-9	5-3	6-3	7-6	8-6
24	1-6	2-0	2-6	3-3	3-9	4-3	5-0	5-6	6-9	7-9	9-0
25	1-6	2-0	2-9	3-3	4-0	4-6	5-0	5-9	7-0	8-0	9-3
26	1-6	2-3	2-9	3-6	4-0	4-9	5-3	6-0	7-3	8-6	9-9
27	1-9	2-3	3-0	3-6	4-3	4-9	5-6	6-3	7-6	8-9	10-0
28	1-9	2-3	3-0	3-9	4-6	5-0	5-9	6-6	7-9	9-0	10-6
29	1-9	2-3	3-0	3-9	4-6	5-3	6-0	6-6	8-0	9-6	10-9
30	1-9	2-3	3-3	4-0	4-9	5-6	6-0	6-9	8-3	9-9	11-3
31	1-9	2-6	3-3	4-0	4-9	5-6	6-3	7-0	8-6	10-0	11-6
32	2-0	2-9	3-6	4-3	5-0	5-9	6-6	7-3	8-9	10-3	12-0
33	2-0	2-9	3-6	4-3	5-3	6-0	6-9	7-6	9-0	10-9	12-3
34	2-0	2-9	3-6	4-6	5-3	6-0	7-0	7-9	9-3	11-0	12-9
35	2-0	3-0	3-9	4-6	5-6	6-3	7-0	8-0	9-9	11-3	13-0
36	2-3	3-0	3-9	4-9	5-6	6-6	7-3	8-3	10-0	11-9	13-6
	MINIMUM DISTANCE FROM ℄ OF SUPPORT IN FEET AND INCHES TO ℄ OF HOLE										

TJI JOIST HOLE CHART INSTRUCTIONS

ROUND HOLES – For simple spans and uniform loads use the table above to determine hole sizes.
SQUARE HOLES – Square hole sizes are determined by multiplying the maximum round hole diameter by a factor of 0.8 for plywood and 0.7 for OSB.
MULTIPLE HOLES – Where more than one hole is desired, the amount of wood between holes must equal or exceed twice the diameter of the largest hole or twice the side of the largest square hole.
CANTILEVERS AND CONTINUOUS SPANS – For uniformly loaded cantilevers and continuous TJI joists, the holes must be located 1 inch farther from the support for each foot of clear span in addition to the values indicated in the table above.
SPECIAL – Exceptions to these rules may be possible through special inquiry.
NOTE – Do not cut the joist within 4 inches of the support centerline, otherwise a 2 inch hole can be cut in the web anywhere. THE TOP AND BOTTOM FLANGES ARE NEVER TO BE CUT – The sizes given in the table are hole sizes, not duct sizes.
FOR JOISTS with 1.50 inch and 1.75 inch wide x 1.5 inch thick flanges – Where more than three-fourths of the depth of the web is removed, 1 foot must be added to the distance.

FIGURE 3A—ALLOWABLE HOLE SIZE CHART

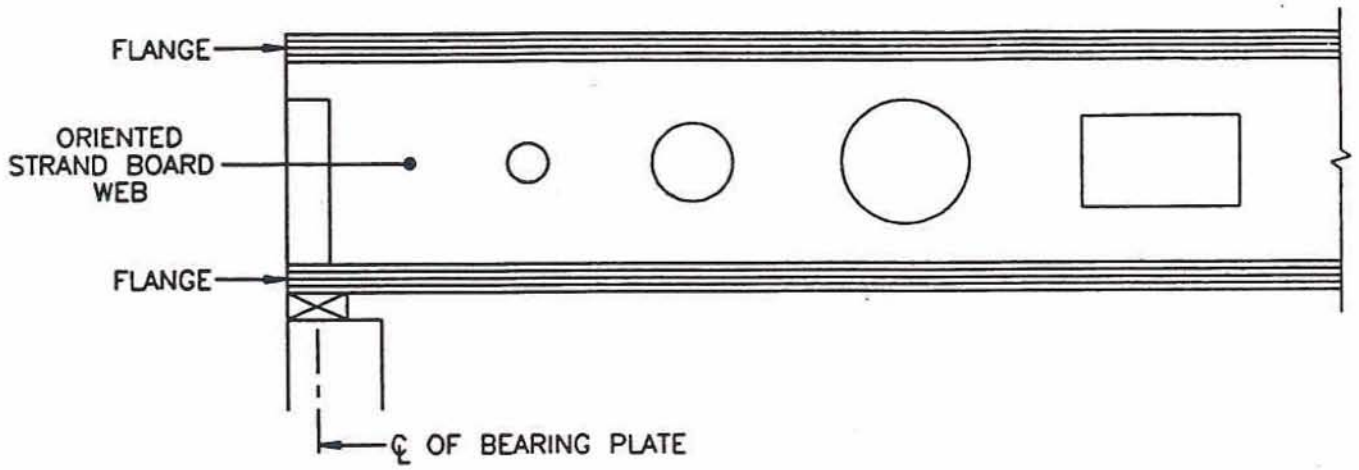


TABLE A
HOLE FACTOR – DIAMETER OF HOLE[1]

JOIST DEPTH IN INCHES	HOLE FACTOR 2	3	4	5	6
10	2¼"	3"	3¾"	4½"	5¼"
12	3"	4"	5"	5¾"	6¾"
14	3½"	4¾"	6"	7¼"	8½"
16	4¼"	5¾"	7"	8½"	10"
18	5"	6½"	8¼"	9¾"	11½"
20	5½"	7½"	9¼"	11¼"	13"
22	6¼"	8¼"	10½"	12½"	14¾"
24	7"	9¼"	11½"	13¾"	16¼"
26	7½"	10¼"	12¾"	15¼"	17¾"
28	8¼"	11"	13¾"	16½"	19¼"
30	9"	12"	15"	17¾"	20¾"

[1] If a particular hole diameter is not given in the table, the next largest size diameter indicated should be used.

TABLE B
MINIMUM DISTANCE FROM ℄ OF SUPPORT TO ℄ OF HOLE

SPAN IN FEET	HOLE FACTOR 2	3	4	5	6
14	1'–3"	2'–0"	2'–9"	3'–6"	4'–0"
15	1'–6"	2'–3"	3'–0"	3'–9"	4'–6"
16	1'–6"	2'–3"	3'–0"	4'–0"	4'–9"
17	1'–6"	2'–6"	3'–3"	4'–3"	5'–0"
18	1'–9"	2'–6"	3'–6"	4'–6"	5'–3"
19	1'–9"	2'–9"	3'–9"	4'–9"	5'–6"
20	2'–0"	3'–0"	4'–0"	5'–0"	6'–0"
21	2'–0"	3'–0"	4'–0"	5'–3"	6'–3"
22	2'–0"	3'–3"	4'–3"	5'–6"	6'–6"
23	2'–3"	3'–3"	4'–6"	5'–9"	6'–9"
24	2'–3"	3'–6"	4'–9"	6'–0"	7'–0"
25	2'–6"	3'–9"	5'–0"	6'–3"	7'–6"
26	2'–6"	3'–9"	5'–0"	6'–6"	7'–9"
27	2'–6"	4'–0"	5'–3"	6'–9"	8'–0"
28	2'–9"	4'–0"	5'–6"	7'–0"	8'–3"
29	2'–9"	4'–3"	5'–9"	7'–3"	8'–6"
30	3'–0"	4'–6"	6'–0"	7'–6"	9'–0"
31	3'–0"	4'–6"	6'–0"	7'–9"	9'–3"
32	3'–0"	4'–9"	6'–3"	8'–0"	9'–6"
33	3'–3"	4'–9"	6'–6"	8'–3"	9'–9"
34	3'–3"	5'–0"	6'–9"	8'–6"	10'–0"
35	3'–6"	5'–3"	7'–0"	8'–9"	10'–6"
36	3'–6"	5'–3"	7'–0"	9'–0"	10'–9"

Instructions:
1. From the Hole Factor Table A, for a specific joist depth and hole diameter, the hole factor is obtained.
2. Using the hole factor and the span of the joist the minimum distance from center line of support to the center line of the hole can be obtained from the Table B.
3. The instructions noted at the bottom of Figure 3A are also applicable to OSB webs.

FIGURE 3B—ALLOWABLE HOLE SIZE CHART

NOTE:
FOR LEDGER HANGERS BEARING ON WOOD USE N20AN NAILS FURNISHED BY TRUS JOIST MacMILLAN

CAUTION:
DO NOT SHOOT HILTI NAILS THROUGH EXISTING HANGER HOLES

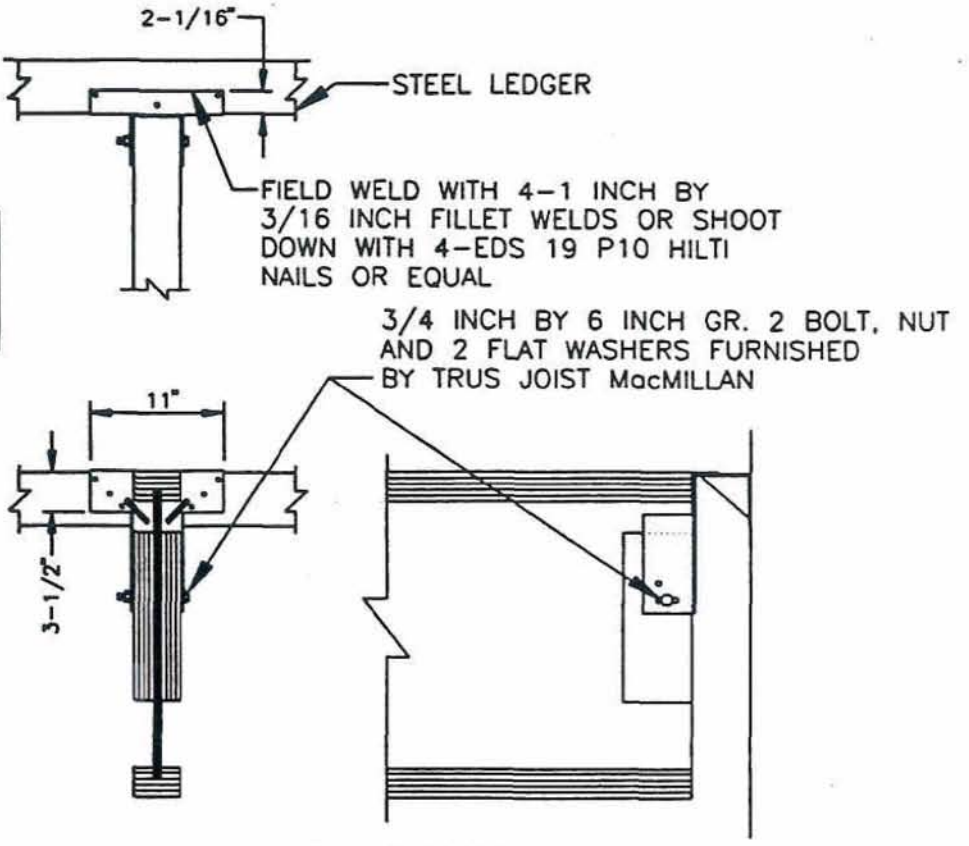
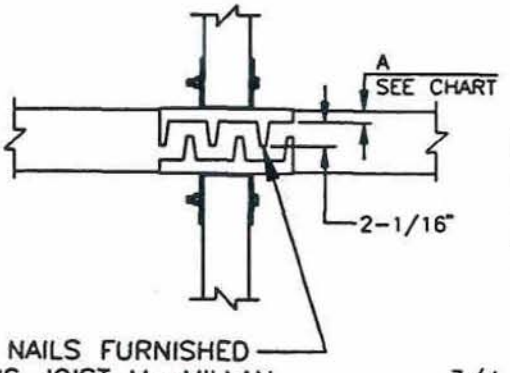


FIGURE 4—TJI/96 JOIST ADJUSTABLE LEDGER HANGER



A	BEAM WIDTH
1 INCH	4-1/2 INCHES TO 6 INCHES
1-5/8 INCHES	6 INCHES AND WIDER

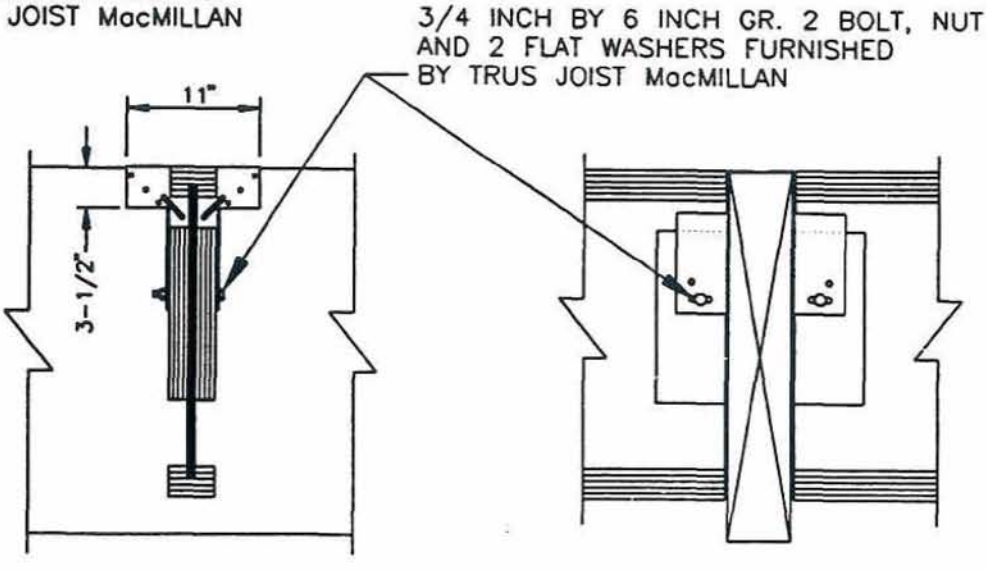
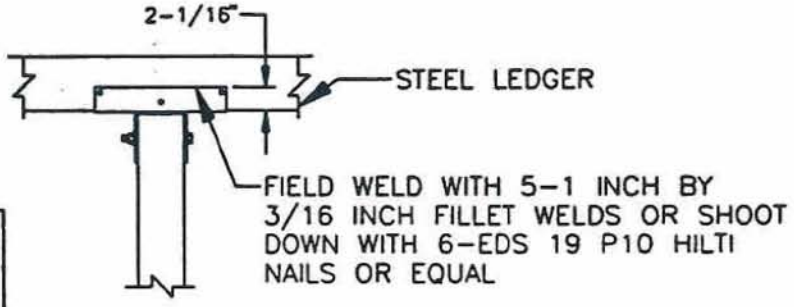


FIGURE 5—TJI/96 JOIST ADJUSTABLE LEDGER HANGER

NOTE:
FOR LEDGER HANGERS BEARING ON WOOD USE N20AN NAILS FURNISHED BY TRUS JOIST MacMILLAN

CAUTION:
DO NOT SHOOT HILTI NAILS THROUGH EXISTING HANGER HOLES



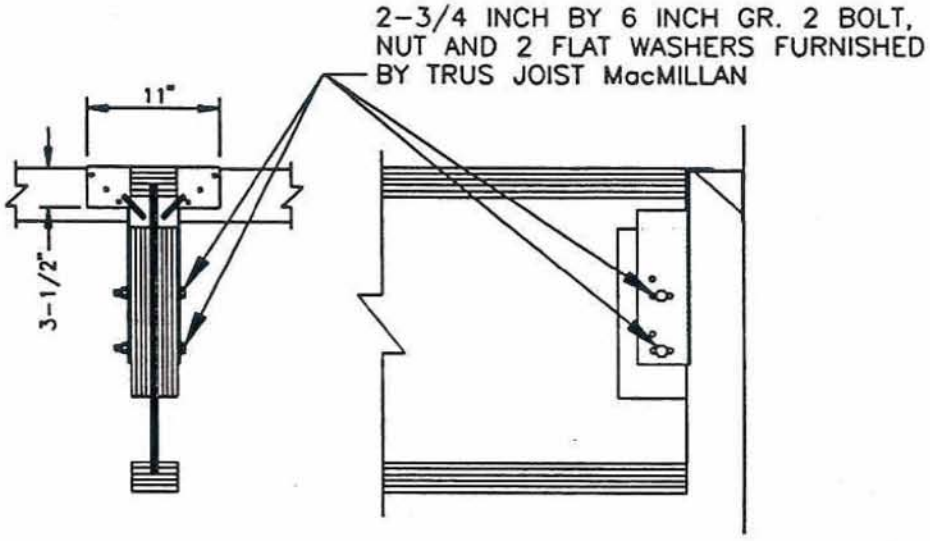


FIGURE 6—TJI/96 JOIST ADJUSTABLE INTERLOCK HANGER

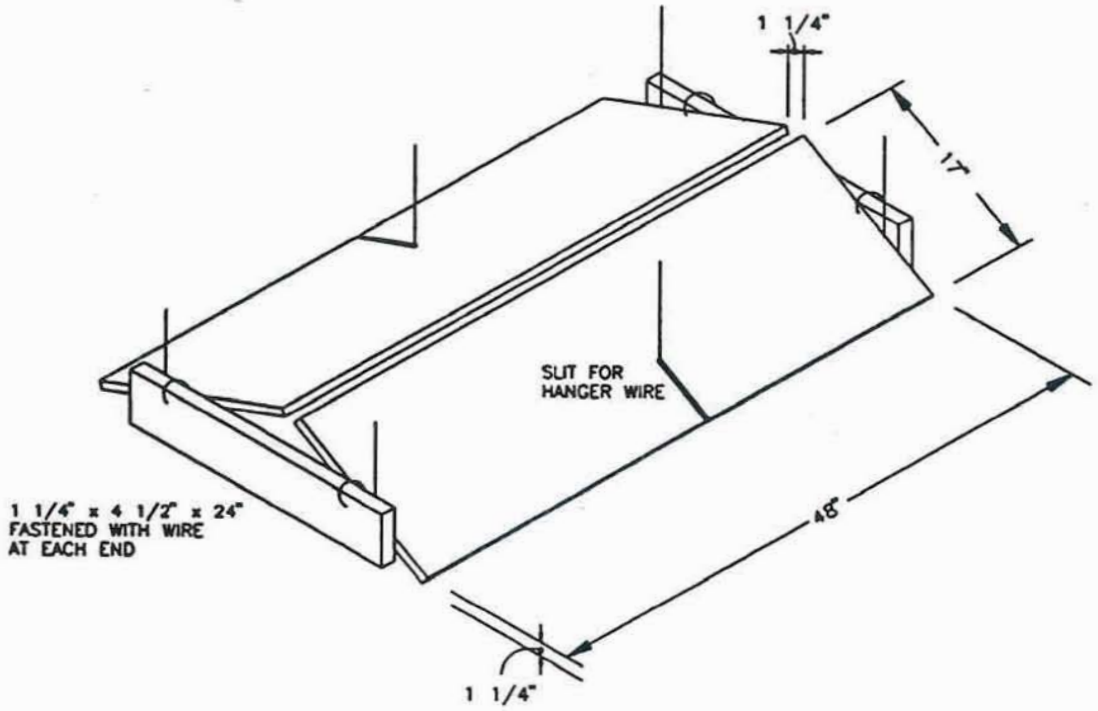


FIGURE 7—LIGHT FIXTURE PROTECTION

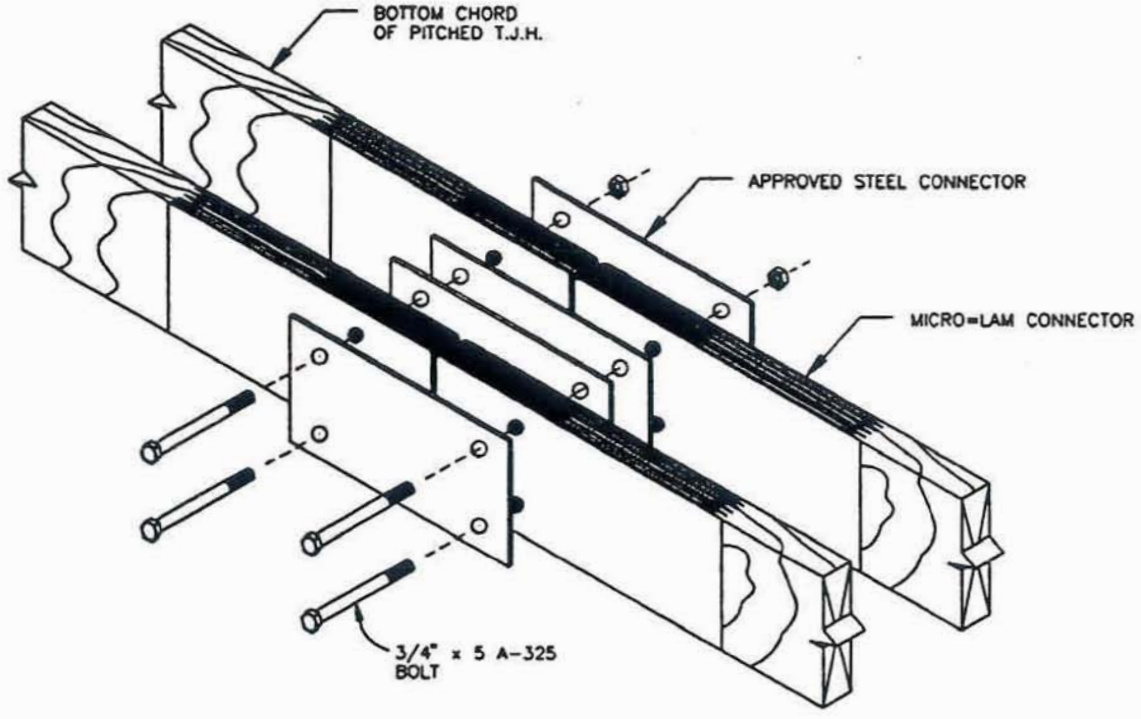


FIGURE 8—TENSION CONNECTION

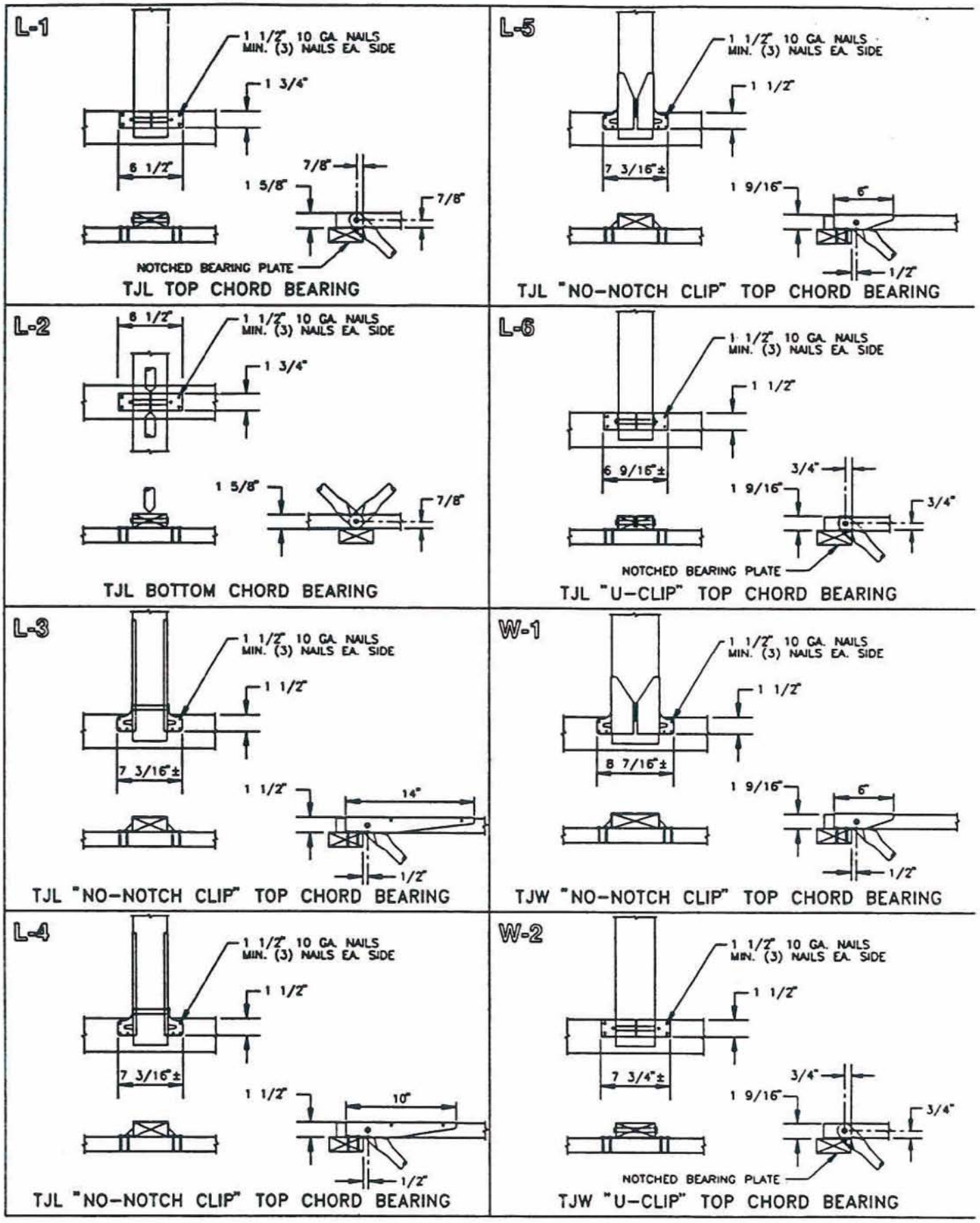
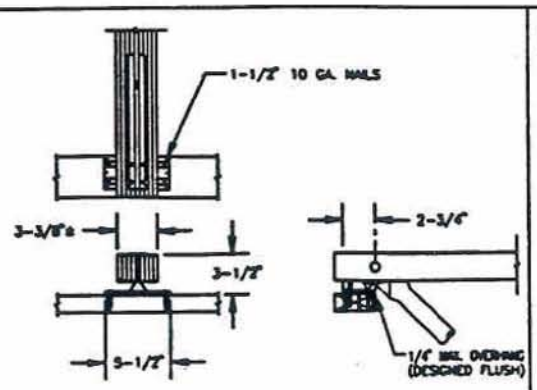


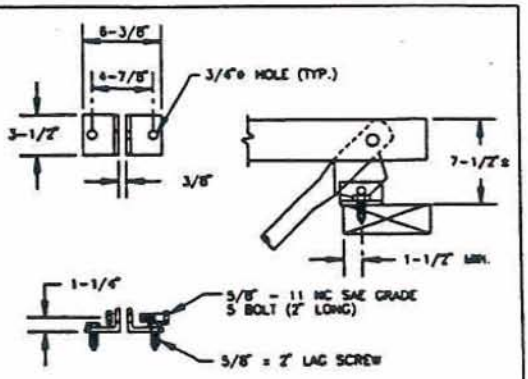
FIGURE 9—OPEN WEB TRUSS DETAILS

S-1



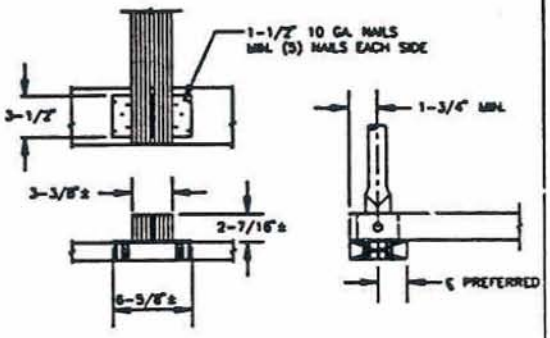
TJS TOP CHORD BEARING CLIP

M-3



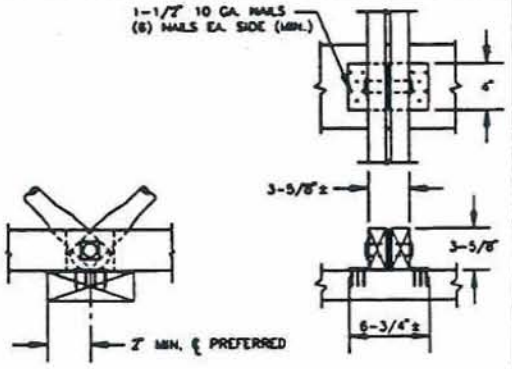
TJM "PEDESTAL" CLIP TOP CHORD BEARING

S-2



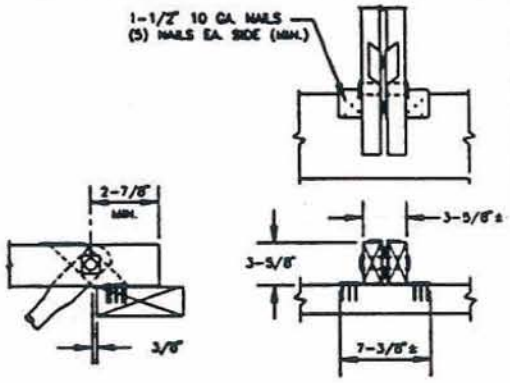
TJS BOTTOM CHORD BEARING CLIP

M-4



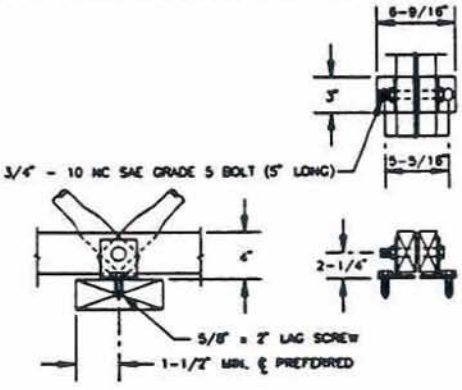
TJM "ANGLE" CLIP BOTTOM CHORD BEARING

M-1



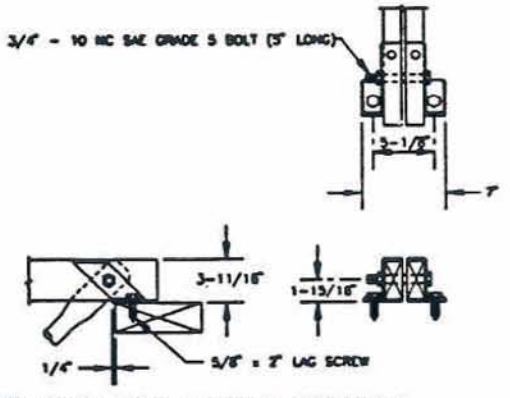
TJM "S" CLIP TOP CHORD BEARING

M-5



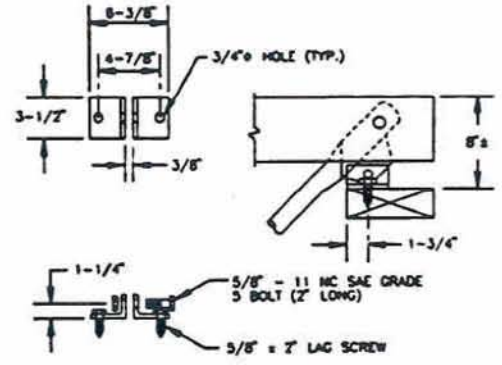
TJM "T" CLIP BOTTOM CHORD BEARING

M-2



TJM "Z" CLIP TOP CHORD BEARING

H-1



TJH "PEDESTAL" CLIP TOP CHORD BEARING

FIGURE 9—OPEN WEB TRUSS DETAILS—(Continued)

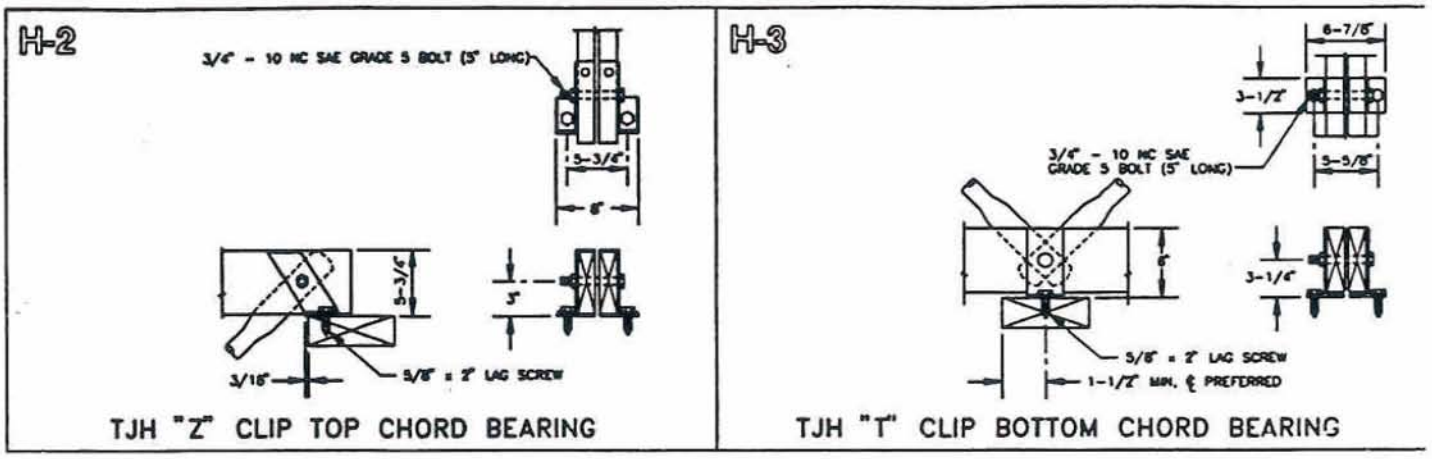
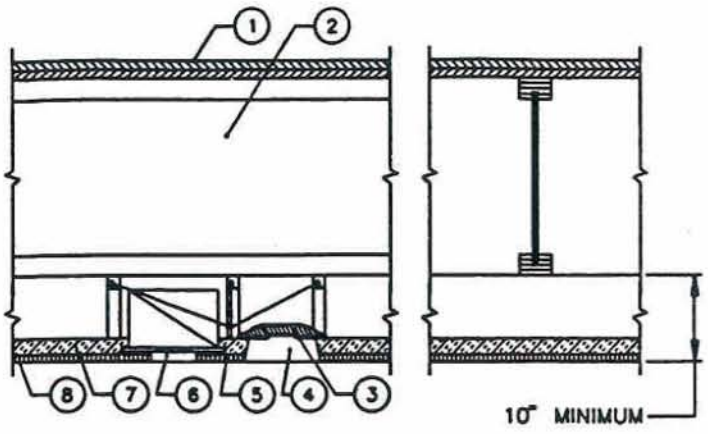
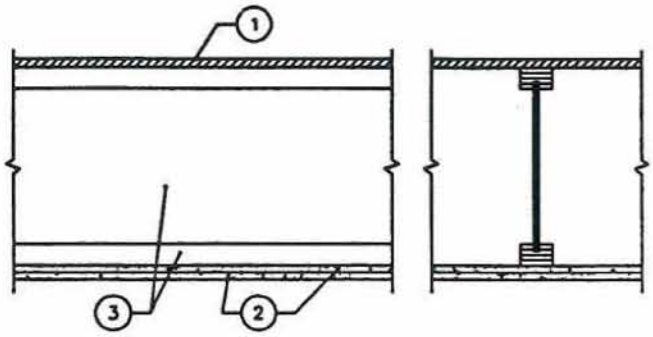


FIGURE 9—OPEN WEB TRUSS DETAILS—(Continued)



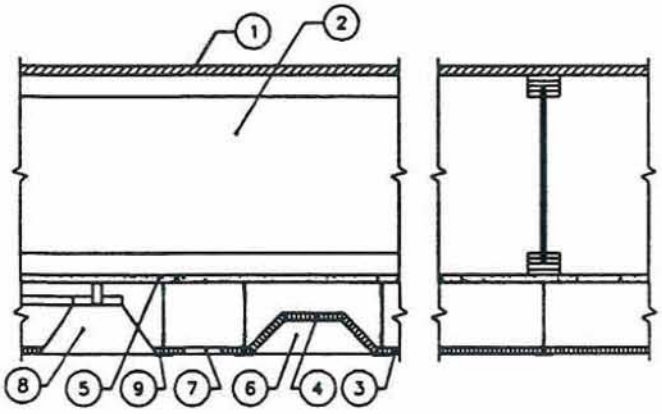
ASSEMBLY C–1.

1. DOUBLE–WOOD FLOOR.
2. TJI® JOIST OR OPEN WEB TRUSS.
3. FIXTURE PROTECTION.
4. 24–INCH X 48–INCH RECESSED LIGHT FIXTURE.
5. COLLED–ROLLED CHANNELS.
6. 12–INCH AIR DIFFUSER.
7. USG THERMAFIBER OR FIBREX FBX MINERAL WOOL BLANKETS.
8. 5/8–INCH ACOUSTICAL PANELS 24 INCHES X 24 INCHES SUPPORTED BY AN APPROVED EXPOSED FIRE–RATED TENSION SUSPENSION SYSTEM.



ASSEMBLY C–2.

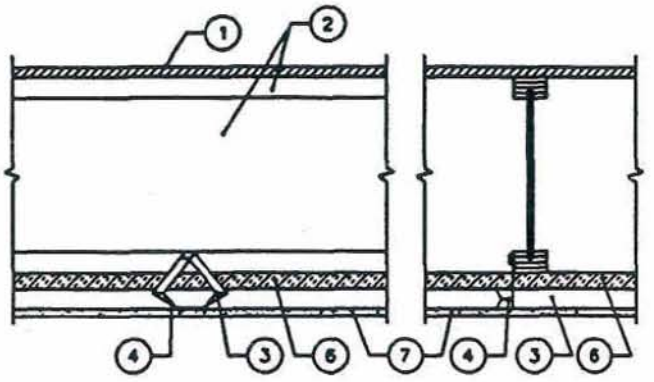
1. 3/4–INCH TONGUE–AND–GROOVE PLYWOOD.
2. TWO LAYERS 1/2–INCH TYPE X GYPSUM BOARD.
3. TJI® JOIST OR OPEN WEB TRUSS.



ASSEMBLY C–3.

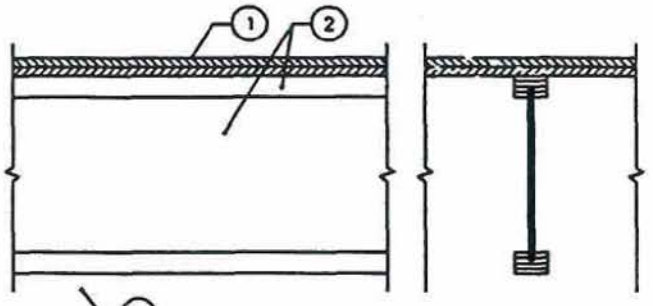
1. 3/4–INCH TONGUE–AND–GROOVE PLYWOOD.
2. TJI® JOIST OR OPEN WEB TRUSS.
3. 5/8–INCH X 24–INCH X 24–INCH PANELS.
4. FIXTURE PROTECTION.
5. 1/2–INCH TYPE X GYPSUM WALLBOARD.
6. 24–INCH X 48–INCH RECESSED LIGHT FIXTURE.
7. 6–INCH X 12–INCH OPENING FOR RETURN AIR.
8. 12–INCH DIAMETER DIFFUSER OPENING.
9. STEEL SUSPENSION GRID.

FIGURE 10—FIRE-RESISTIVE ASSEMBLY DETAILS



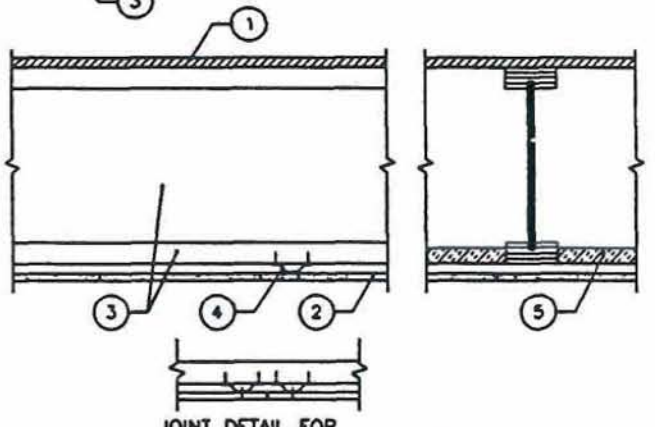
ASSEMBLY C–4.

1. SINGLE–LAYER FLOOR OF 3/4–INCH TONGUE–AND–GROOVE PLYWOOD.
2. TJI® JOIST OR OPEN WEB TRUSS.
3. NO. 26 GAUGE GALVANIZED STEEL FURRING CHANNEL INSTALLED PERPENDICULAR TO JOISTS. FURRING CHANNELS SPACED 1 1/2 INCHES FROM AND ON EACH SIDE OF WALLBOARD END JOINTS AND 24 INCHES ON CENTER AWAY FROM END JOINTS. CHANNEL SECURED TO JOISTS WITH SUPPORT CLIPS (ITEM 4) AT EACH JOIST LOCATION. AT CHANNEL SPLICES, ADJACENT PIECES OVERLAPPED 6 INCHES AND TIED WITH DOUBLE STRANI OF NO. 18 SWG GALVANIZED STEEL WIRE AT EACH END OF OVERLAP.
4. SIMPSON CO. TYPE CSC SUPPORT CLIPS TO BE USED TO SUPPORT FURRING CHANNELS AT THE INTERSECTION WITH EACH JOIST. SUPPORT CLIPS NAILED TO SIDE OF JOIST BOTTOM FLANGE WITH 1 1/2 INCH LONG NO. 11 GAUGE NAIL.
5. STABILIZER STRAP (NOT SHOWN) – 3/4 INCH X 6 INCH NO. 2 GAUGE GALVANIZED STEEL STRAP USED TO PREVENT ROTATION THE SUPPORT CLIPS AT WALLBOARD END JOINTS AND ALONG W
6. 1 INCH (6 PCF MINIMUM) USG THERMAFIBER OR FIBREX FBX MINERAL WOOL FIRE PROOFING.
7. 1/2 INCH USG TYPE C FIRECODE® GYPSUM WALLBOARD.



ASSEMBLY C–5.

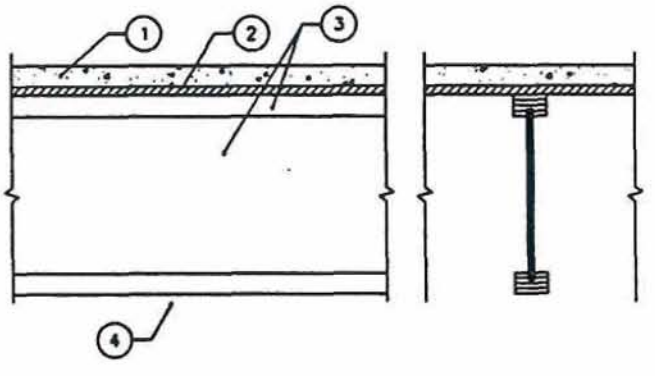
1. DOUBLE–WOOD FLOOR.
2. TJI® JOIST OR OPEN WEB TRUSS.
3. AN APPROVED CEILING SYSTEM THAT WILL PROVIDE A 40–MINUTE FINISH RATING. SEE PARAGRAPH III. C5 FOR A DESCRIPTION OF AN APPROVED CEILING SYSTEM THAT PROVIDES A 40 MINUTE FINISH RATING.



JOINT DETAIL FOR BUTT JOINTS PERPENDICULAR TO FRAMING MEMBERS.

ASSEMBLY C–6.

1. 3/4 INCH TONGUE–AND–GROOVE PLYWOOD.
2. 5/8 INCH USG TYPE C FIRECODE® GYPSUM WALLBOARD.
3. TJI® JOIST (TJI55, TJI65, TJI75, OR TJI550).
4. USG RC–1 CHANNEL AT 16" ON CENTER.
5. USG THEMAFIBER OR FIBREX FBX MINERAL WOOL BATTS.



ASSEMBLY C–7.

1. LIGHTWEIGHT CONCRETE OR GYPCRETE®.
2. PLYWOOD.
3. TJI® JOIST OR OPEN WEB TRUSS.
4. ANY OF THE SIX CEILING SYSTEMS AS SPECIFIED IN SECTIONS C1 THROUGH C6.

FIGURE 10—FIRE-RESISTIVE ASSEMBLY DETAILS—(Continued)