STRUCTURAL NOTES

GOVERNING CODES AND STANDARDS:

- A. 2021 International Building Code (and local amendments)
- 2021 International Residential Code (and local amendments) "Minimum Design Loads for Buildings and Other Structures" - ASCE 7-16
- "Steel Construction Manual" AISC Fourteenth Edition
- "National Design Specification for Wood Construction" ANSI/AF&PA-NDS 2018 "Building Code Requirements for Structural Concrete" - ACI318-19
- G. 2023 Solar Ready Code

Design Loads

Building Risk Category:

1 Louis								
٩.	Live	Load	(Residential)	40	psf			
В.	Live	Load	(Light Storage)	125	psf			
C.	Live	Load	(Office)	50	psf			
D.	Live	Load	(Office cord. above first floor)	80	psf			
F	Deac	Logo	·	12	nef			

PROJECT GENERAL NOTES

- A. Material and design specifications cited herein shall be those conforming with the version of the applicable specification or code most recently adopted by the permitting authorities. These structural notes are to be used as a supplement to the specifications, unless noted otherwise.
- B. Refer to the architectural documents for all dimensions not shown on the structural contract documents. Do no scale the structural contract documents.
- C. The general contractor shall verify all dimensions, elevations, and conditions with architectural, mechanical, electrical, plumbing, and civil drawings and notify the architect/engineer of any discrepancies or inconsistencies.
- D. The size, weights and locations of all equipment pads, roof mounted mechanical units, and penetrations required for mechanical, electrical, and plumbing work shall be verified by the contractor. All penetrations are subject to approval by the architect/engineer.
- E. Any contractor inducing loads on the structure not specified on the contract documents must obtain approval from the architect/engineer prior to erection. Field alterations for any structural member shall not be executed without approval from the architect/engineer
- F. Architect/engineer's approval shall be secured for all substitutions.
- G. The structure and all of its parts must be adequately braced against wind, lateral earth, and seismic forces until the permanent lateral-force resisting systems have been constructed and all of its parts have been installed.
- H. Shop drawings, vendor drawings, or any material prepared and submitted by the contractor or subcontractor are not considered part of the structural contract documents. Any engineering design provided by others and submitted for review shall bear the seal of an engineer registered in the state where the project is being built.
- I. During construction the contractor may encounter existing conditions which were not known during design or are at variance with the project documentation. Such conditions may interfere with new construction, require protection and/or support of existing work, or may consist of damaged or deterioration of structural materials/components which could jeopardize the structural integrity of the building. The contractor shall notify the engineer of record of all discoveries he believes may interfere with proper execution of the work or jeopardize the integrity of the building prior to proceeding with work related to such discoveries.
- J. The structural engineer shall not have control or charge of and shall not be responsible for construction means, methods, techniques, sequences, procedures, nor site safety.
- K. The structural drawings have been prepared using available information regarding the existing conditions. No attempt has been made to verify any existing conditions against information provided by others. The contractor shall compare the existing documents and notify the architect of any differences before proceeding with work.
- L. Items, in the opinion of the contractor, that appear to be deficiencies, omissions, contradictions, or ambiguities in the plans and / or specifications shall be brought to the attention of the structural engineer. Plans and / or specifications will be corrected or written interpretations of the alleged deficiency, omission, contradiction or ambiguity will be made by the structural engineer. Work shall not proceed in these areas before a response in received from the structural engineer.
- M. All products and materials used by the contractor shall be installed in strict accordance with the manufacturer's instructions.
- N. The general contractor shall determine from the local building official when the permit is obtained whether any letters of construction compliance will be requested from the structural engineer, if so, the contractor shall notify the engineer in writing before the start of construction.
- O. Exterior roofs, flashing, ledges, concrete, \$ other surfaces shall slope min. χ :12 to prevent water ponding. Landings shall also slope max. χ :12 to prevent slipping. Covered garages or carports floor surface shall slope min. 1/2:12 to provide positive drainage to drain, unless surfaced with asphalt.
- P. Provide passive radon gas control system per IRC AF103 on new single family homes - Install passive submembrane depressurization system during construction.
- Q. All work connected with this project by any trade involved shall be of the highest quality attainable in accordance with the professional practice of the trade.

STRUCTURAL WOOD FRAMING

- A. Unless noted otherwise, all 2" lumber shall be Douglas-Fir S4S No. 2 and better. All solid timber beams and posts shall be DF-1 No. 1 or better.
- B. Unless noted otherwise, minimum nailing shall be provided as specified in table No. 2304.10.2, "Fastening Schedule", of the IBC or table No. R602.3(1), "Fastener Schedule for Structural Members".
- C. Wall and floor sheathing shall be APA rated with exterior glue and graded in accordance with APA standards. Panel identification and thickness shall be as noted on the drawings.
- D. Where light gauge framing anchors are shown or required, they shall be Simpson "Strong Tie" (or equal approved by ICBO). they shall be installed with the number and type of fasteners recommended by the manufacturer to develop the rated capacity.
- E. All members 3x or less (least dimensions) shall be kiln-dry with 19% moisture content,
- F. Floor joists shall be plant fabricated I series with LVL or solid wood flanges and plywood or OSB webs, and shall carry ICBO approval for a complete section. Joists shall be designed to carry full live and dead loads of the roof(s), floor(s), and any superimposed

STRUCTURAL WOOD FRAMING CONTINUED

- G. Provide solid blocking (same depth of member) at all points of bearing.
- H. All plates and ledgers in contact with concrete or masonry shall be pressure treated in accordance with AWPA standard C-2. Pressure-treated lumber shall bear the AWPB (American Wood Preservers Bureau) quality mark.
- I. Plywood sheathing shall be laid with end joints staggered. Minimum width of plywood shall be 1'-0'', or 2'-0'' for floor sheathing, unless all undersized sheets are supported by blocking.
- J. Block all shear wall sheathing with 2x6 flat blocking at all edges. Block walls @ max. 8ft. o.c. for fireblocking. Block interior bearing walls @ max. 4'-0" o.c., u.n.o.
- K. Nailing indicated on plans and details are "common" nails as defined by the National Design Specification for Wood Construction (NDS), unless noted otherwise. The minimum nail sizes are as follows:
- a. 8d = 0.131" dia x $2\frac{1}{2}$ " long
- 10d = 0.148" dia x 3" long $16d = 0.162^{\circ} dia \times 3\frac{1}{2}^{\circ} long$
- M. Nails shall be driven with the head flush with the sheathing. Nail spacing in sheathing less than 4" o.c. shall be staggered. Nail spacing @ 2" o.c. requires nominal 3" framing member or blocking @ panel edges.
- N. Oriented strand board conforming with IBC and manufactured with exterior glue may be substituted for plywood provided it has equal load/span rating index and bears the APA trademark of the American Plywood Association.
- O. Solid bridging at maximum of 8'-0" on center shall be required where joists have a five-to-one or greater depth-to-thickness ratio and where one edge is not held in line by sheathing, wallboard, bracina, etc.
- P. Double up studs at corners of bearing walls, unless noted otherwise, see plans for bearing wall locations.
- Q. Provide (3) 2x studs nailed together under all bearing points of roof girder trusses, concentrated loads and beam bearings, unless noted otherwise. Studs shall extend from top of foundation to bottom of members.
- R. Contractor is to protect floor and roof sheathing from extreme wet conditions to limit movements due to expansion caused by moisture. Additionally, provide proper panel spacing per the American Plywood Association recommendations.
- S. Where pressure-treated plywood is indicated on the drawings, it shall conform with AWPA standard C-9 and shall exceed the AWPB (American Wood Preservers Bureau) quality mark.
- T. Joists shall be treated if w/in 18" \$ beams shall be treated if w/in 12" above grade
- U. All lumber exposed to weather shall be naturally durable, preservative treated or pressure treated if not covered by a roof overhang or covering to prevent moisture or water accumulation on the surface.
- V. All fasteners (nails, screws, anchor bolts, etc.) in contact with pressure treated or FRT lumber shall be corrosion resistant in accordance with IBC 2304.10.5.
- W. All connectors used with pressure treated material or exposed to weather shall be stainless steel or have a Simpson Z-Max/HDG coating or equal. All connectors exposed to the exterior shall be G185 galvanized or approved equal.
- X. Provide solid blocking under all columns from top of foundation or beam bearing to the bottom of column or post.
- Y. Provide one $\frac{1}{4}$ "x3"x3" minimum galvanized plate washer (conforming to the 2018 National Design Specification Special Design Provisions for Wind and Seismic) under all shear wall anchor bolts. Plate washers shall extend to within $\frac{1}{2}$ " of the edge of the bottom plate on the side with shear wall sheathing. Where sheathing occurs on both sides of wall, stagger plate washers.
- Z. All floor decking shall be glued and nailed to joists. All floor decking shall be tongue and groove with glued joints.
- BB. Engineered wood beams shall be as manufactured by I-level, or approved equal.
- CC. Glue laminated beams shall be as manufactured by Weverhaeuser, or approved equal.
- DD. Do not drill vertical holes in beams without consent from Engineer of Record
- DD. All rim joists shall be as noted on plans and details. Rim material shall be ICC approved for rim joist applications.
- EE. Provide min. $\frac{1}{2}$ drywall on the underside of all TJI joists to protect the engineered webs in the event of a fire per IRC Sec. R302.13. If the floor is located over a crawl space not used for storage or fuel-fired or electric powered heating appliances, the drywall is not required.

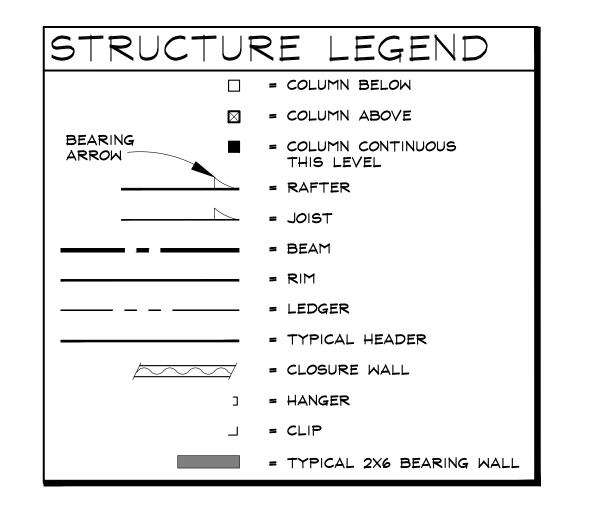
ABBREVIATIONS LIST								
ABV	ABOVE	MECH	MECHANICAL					
ALT	ALTERNATE/ALTERNATING	MIN	MINIMUM					
ARCH	ARCHITECT/ARCHITECTURAL	OC	ON CENTER					
BO	BOTTOM OF	OH	OVERHANG					
BOT	BOTTOM	<i>o</i> sb	ORIENTED STRAND LUMBER					
⊈	CENTER LINE	PERP						
CMU	CONCRETE MASONRY UNIT	Æ	PLATE					
COL	COLUMN	PLUM	•					
CONC	CONCRETE	PLYWD	PLYWOOD					
CONT	CONTINUOUS	PSL	PARALLEL STRAND LUMBER					
DBL	DOUBLE	REINF						
DF	DOUGLAS FIR	REQ						
DIA	DIAMETER	SCH						
ϕ	DIAMETER	SCHED						
DWG	DRAWING	SIM	SIMILAR					
EA	EACH	SPF						
	ELEVATION		STRUCTURE/STRUCTURAL					
EOR	ENGINEER OF RECORD	T#B	TOP AND BOTTOM					
EW FTG	EACH WAY	T#G						
GL	FOOTING GLUE-LAMINATED BEAM	THRU	THR <i>o</i> ugh Preservative treated					
GT	GIRDER TRUSS	TRTD TYP	TYPICAL					
IBC	INTERNATIONAL BUILDING CODE	UNO	UNLESS NOTED OTHERWISE					
IRC	INTERNATIONAL RESIDENTIAL CODE		VERIFY IN FIELD					
LSL	LAMINATED STRAND LUMBER	w/	WITH					
	LAMINATED VENEER LUMBER	WD	WOOD					
MAX	MAXIMUM	WWF	WELDED WIRE FABRIC					

STRUCTURAL STEEL AND MISCELLANEOUS IRON

- A. Structural steel shall be detailed and fabricated in accordance with the latest version of the AISC manual of steel construction.
- B. All boits, other than anchor boits, shall conform to ASTM spec. A325, Gr. A.
- C. Structural steel shall conform to the ASTM standards below: C.A. Rolled shapes, including plates and angles, shall be ASTM spec. A36, 36ksi.
- C.B. Rect. HSS shapes shall be ASTM spec. A500, Gr. C, 50 ksi.
- C.C. W-shapes shall be ASTM spec. A992, 50 ksi
- D. Field welded connections must be inspected by the engineer of record.
- E. Fillet welds indicated on the plans shall be of E70xx electrodes and shall be the minimum size specified in the AISC manual of steel construction, table J2.4. All other welds shall be made with E70xx electrodes.
- F. All welding shall conform to AWS specifications and shall be performed by a certified welder under AWS specifications.
- G. Steel shall be thoroughly cleaned of mill scale prior to application of the primer in accordance with SSPC SP-3.
- H. All steel plates and angles in contact with concrete and exposed to weather shall have a
- protective coating 1. Shop and erection drawings shall be submitted for engineers review prior to fabrication.
- Fabricator proceeds at his own risk without receipt of above review. J. The contractor shall coordinate with the mechanical location of all openings - no holes shall
- be drilled in steel without EOR's approval
- K. All fabrication, erection, identification and painting of structural steel shall conform to AISC
- M. Anchor rods and embedded items shall be set in accordance with the code of standard,

L. Anchor rods are to be located by means of a template. Do not hand set or wet set.

- practice section 7.5. N. All bolts shall be snug tight, unless noted otherwise on the plans.
- O. Anchor boilts shall conform with F1554 and shall be provided with plate washers and heavy hex nuts. Bolts in contact w/ pressure treated material or are exterior bolts shall be galvanized in accordance with ASTM A153, class C. Nuts shall be over-tapped to class 2A fit before galvanizing, in accordance with ASTM A563. Bolt heads or nuts bearing on sloping flanges shall be equipped with beveled washers.



REVIEWED FOR CODE COMPLIANCE

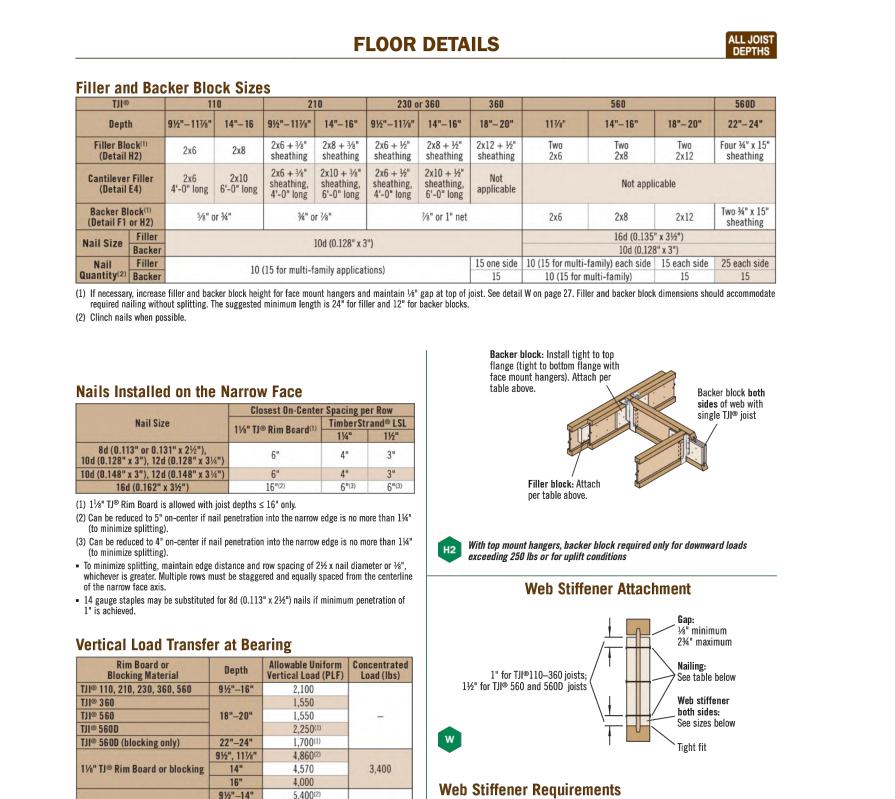






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DRAWN BY: JET REVIEWED BY: CWM PROJECT # 24018 STRUCTURAL NOTES



Trus Joist® TJI® Joist Specifier's Guide TJ-4000 | July 2019 WEB STIFFENER/BACKER BLOCK DETAILS

Also see nailing requirements on page 24

Stiffener Size

2x4(2)

16d (0.135" x 3½")

DO NOT

cut holes in cantilever

cut or notch flange.

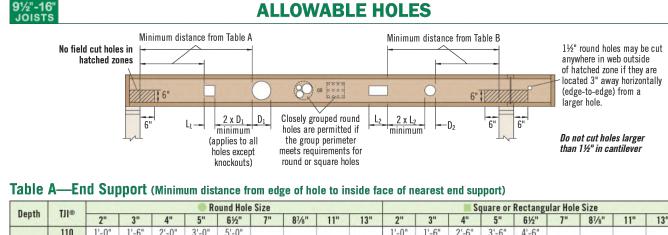
All 34" x 2 5/16"(1)
All 76" x 25/16"(1)

(3) Web stiffeners are always required for 22" and 24" TJI® 560D joists.

(1) PS1 or PS2 sheathing, face grain vertical

(2) Construction grade or better

PER WEYERHAEUSER MARCH 2021 SPECIFIER'S GUIDE #TJ-4500 VERIFY WITH OTHER MANUFACTURER SPECIFICATIONS IF OTHER THAN WEYERHAEUSER JOISTS USED ONLY APPLICABLE FOR RESIDENTIAL LIVING AREA LOADING - CONTACT SEAD FOR OTHER SCENARIOS



5,000 4,340

3,700

3,160

6,480(2) 6,380 5,740

5,070

1¼" TimberStrand® LSL

1/2" TimberStrand® LSL

(1) Capacity is based on calculation

(2) Capacity is limited to a maximum of 360 psi per ASTM D7672

• Loads shall not be increased for duration of load.

3,760

1'-0" 2'-0" 2'-6" 3'-6" 5'-6" 5'-6" 7'-0"

Table B—Intermediate or Cantilever Support (Minimum distance from edge of hole to inside face of nearest intermediate or cantilever support)

0" 1'-0" 1'-0" 1'-0" 1'-0" 2'-6" 3'-6" 3'-6" 7'-0" 11'-0" 15'-0" 1'-0" 1'-0" 1'-0" 3'-6" 5'-6" 9'-0" 10'-0" 14'-6" 16'-0" 18'-0 18'-0Rectangular holes based on measurement of longest side.

General Notes

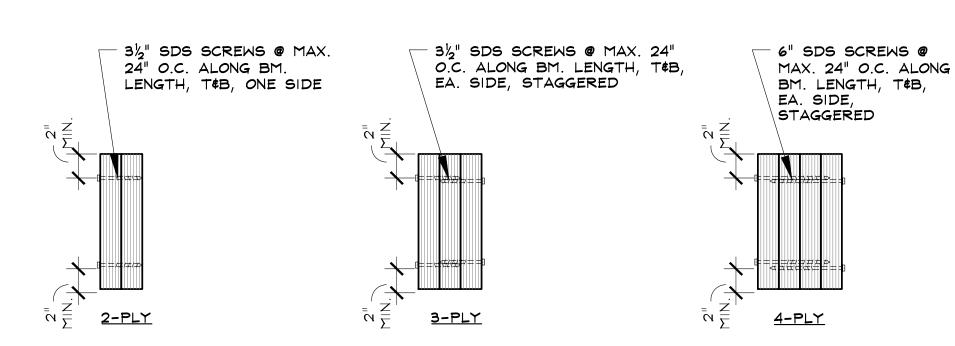
- Holes may be located vertically anywhere within the web. Leave 1/8" of web (minimum) at top and bottom of hole.
- Knockouts are located in web at approximately 12" on-centre; they do not affect hole placement and may be located in the hatched zone. • For simple span (5' minimum) uniformly loaded joists meeting the requirements of this guide, one maximum
- size round hole may be located at the centre of the joist span provided that no other holes occur in the joist. Distances are based on the maximum uniform loads shown in this guide. For other load conditions or hole
- configurations use ForteWEB™ software or contact your Weyerhaeuser representative.

See page 24 for how to use these tables and General Notes. Trus Joist® TJI Joist® Specifier's Guide (Canada) NBCC TJ-4500 | March 2021

91/2"-16"

16

PER WEYERHAEUSER MARCH 2021 SPECIFIER'S GUIDE #TJ-4500 VERIFY WITH OTHER MANUFACTURER SPECIFICATIONS IF OTHER THAN WEYERHAEUSER JOISTS USED ONLY APPLICABLE FOR RESIDENTIAL LIVING AREA LOADING - CONTACT SEAD FOR OTHER SCENARIOS NOTE: ADHESIVE NOTE: ADD A ROW OF SHALL BE APPLIED FASTENERS IF BEAM BETWEEN EA. PLY IS DEEPER THAN 14"



TYPICAL MULTI PLY BEAM FASTENING PER WEYERHAEUSER MARCH 2021 SPECIFIER'S GUIDE #TJ-4500 SCALE: 1/2" = 1'-0"

COMPLIANCE

General Notes Allowed hole zone suitable for headers and bear with uniform and/or concentrated loads anywhere along member.

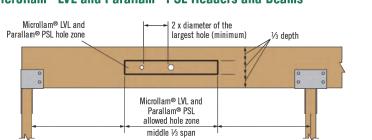
 Round holes only. No holes in headers or beams in plank orientation 1.55E TimberStrand® LSL Header or Beam Depth | Maximum Round Hole Size 14"-16"

Microllam® LVL and Parallam® PSL Headers and Beams

ADHESIVE SHALL BE APPLIED BETWEEN EA. PLY

1.55E TimberStrand® LSL Headers and Beams

2 x diameter of the



 Allowed hole zone suitable for headers and beams with uniform loads only. Round holes only.

 No holes in cantilevers. No holes in headers or beams in plank orientation. Microllam® LVL and Parallam® PSL Header or Beam Depth Maximum Round Hole Siz 7¼"–20"

See illustration for allowed hole zone.

See illustration for allowed hole zone.

General Notes

DO NOT cut, notch, or drill holes in headers or beams except as indicated in the illustrations and tables

ALLOWABLE HOLES IN LSL/LVL/PSL BMS.

SCALE: N.T.S. VERIFY WITH OTHER MANUFACTURER SPECIFICATIONS IF OTHER THAN WEYERHAEUSER JOISTS USED

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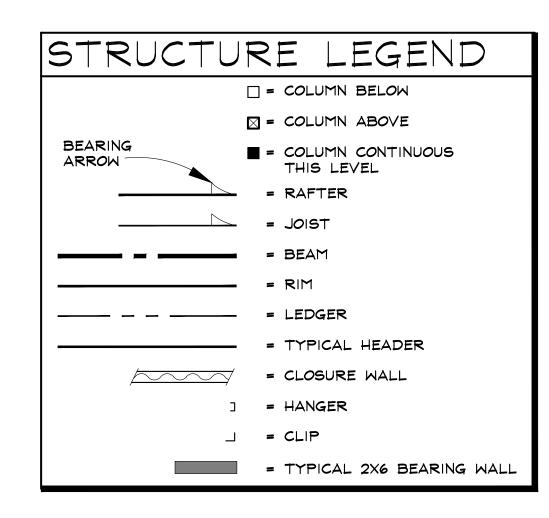
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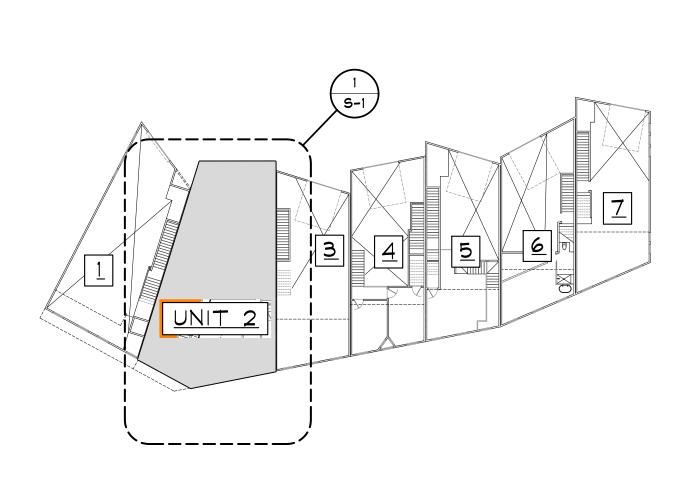
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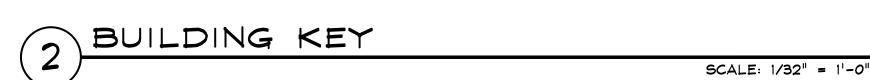
GENERAL WOOD

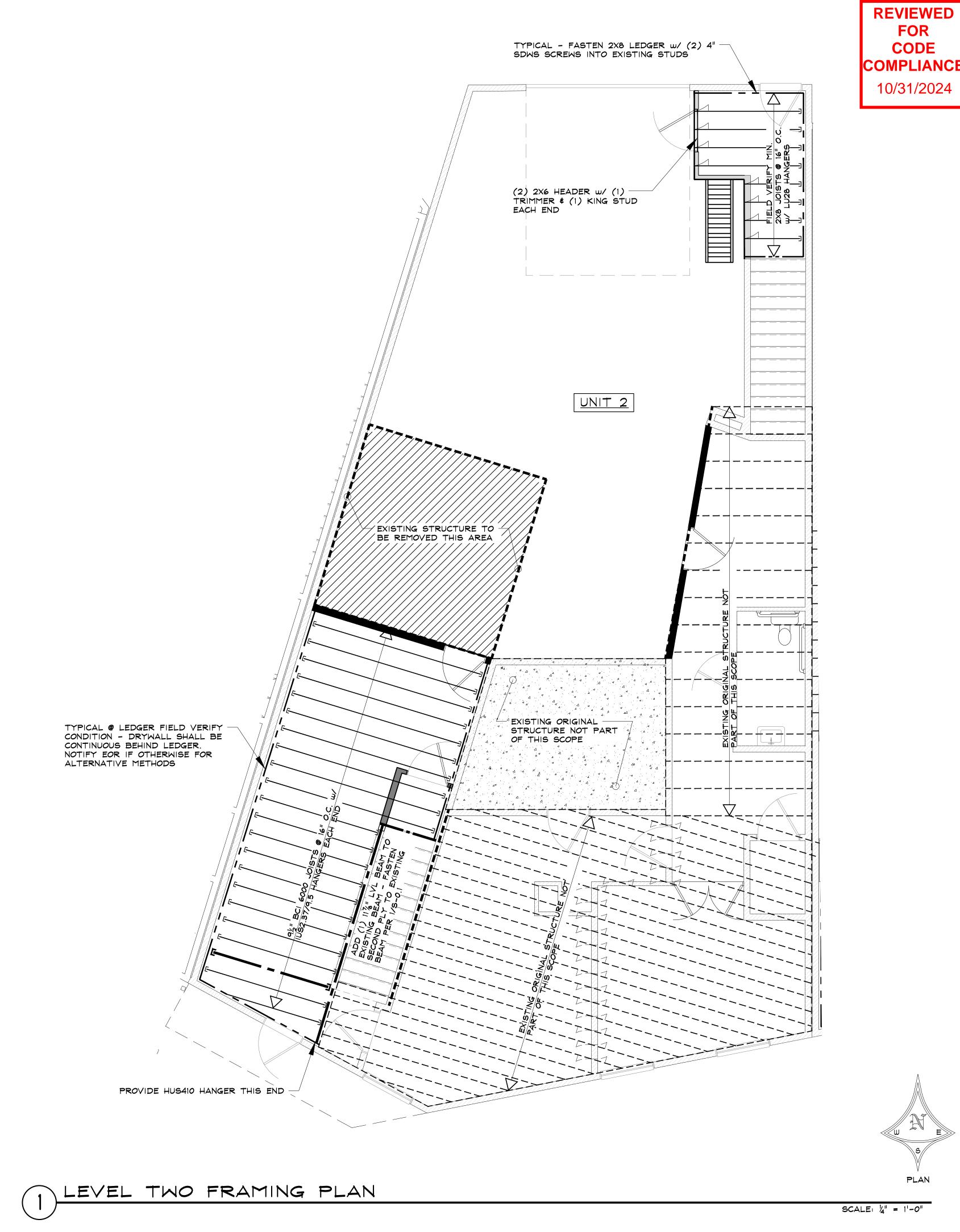
FRAMING DETAILS











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LEVEL TWO FLOOR FRAMING