

DEVELOPMENT REVIEW APPLICATION

For Office Use Only			
STAFF CONTACT	Ben Gardner	PROJECT NO(S)	MISC-23-02
		PRE-APPLICATION NO.	
NON-REFUNDABLE FEE(S)	\$1,000	REFUNDABLE DEPOSIT(S)	TOTAL \$1,000

Type of Review (Please check all that apply):

- | | | |
|--|--|---|
| <input type="checkbox"/> Annexation (ANX)
<input type="checkbox"/> Appeal and Review (AP)
<input type="checkbox"/> Code Interpretation
<input type="checkbox"/> Conditional Use (CUP)
<input type="checkbox"/> Design Review (DR)
<input type="checkbox"/> Tree Easement Vacation
<input type="checkbox"/> Final Plat or Plan (FP)
<input type="checkbox"/> Flood Management Area | <input type="checkbox"/> Historic Review
<input type="checkbox"/> Legislative Plan or Change
<input type="checkbox"/> Lot Line Adjustment (LLA)
<input type="checkbox"/> Minor Partition (MIP) (Preliminary Plat or Plan)
<input type="checkbox"/> Modification of Approval
<input checked="" type="checkbox"/> Non-Conforming Lots, Uses & Structures
<input type="checkbox"/> Planned Unit Development (PUD)
<input type="checkbox"/> Street Vacation | <input type="checkbox"/> Subdivision (SUB)
<input type="checkbox"/> Temporary Uses
<input type="checkbox"/> Time Extension
<input type="checkbox"/> Variance (VAR)
<input type="checkbox"/> Water Resource Area Protection/Single Lot (WAP)
<input type="checkbox"/> Water Resource Area Protection/Wetland (WAP)
<input type="checkbox"/> Willamette & Tualatin River Greenway (WRG)
<input type="checkbox"/> Zone Change |
|--|--|---|



Pre-Application, Home Occupation, Sidewalk Use, Addressing, and Sign applications require different forms, available on the City website.

Site Location/Address: 2247 5th Ave.	Assessor's Map No.: 3S, 1E, 02AB Tax Lot(s): 6600 Total Land Area: 15,661 SF
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Brief Description of Proposal:

Expanding the existing garage 6' forward toward the street. The garage is currently 3.5' from the side yard property line. We will not build any closer to the the property line than the existing garage currently is.


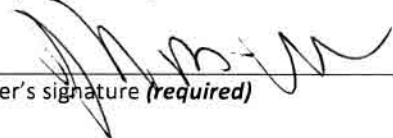
Applicant Name: (please print) Watton Design Works, Inc. Thomas Watton Address: 1880 Willamette Falls Dr. Suite 200-D City State Zip: West Linn, Or. 97068	Phone: 503.655.1001 Email: thomas@wattondesign.com
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Owner Name (required): (please print) Jim Walsh Address: 2247 5th Ave. City State Zip: West Linn, Or. 97068	Phone: 503.816.4997 Email: jim@walsh-industries.com
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Consultant Name: (please print) Address: City State Zip:	Phone: Email:
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1. All application fees are non-refundable (excluding deposit). **Any overruns to deposit will result in additional billing.**
2. The owner/applicant or their representative should be present at all public hearings.
3. A decision may be reversed on appeal. The permit approval will not be effective until the appeal period has expired.
4. Submit this form and supporting documents through the [Submit a Land Use Application](https://westlinnoregon.gov/planning/submit-land-use-application) web page:
<https://westlinnoregon.gov/planning/submit-land-use-application>

The undersigned property owner(s) hereby authorizes the filing of this application, and authorizes on site review by authorized staff. I hereby agree to comply with all code requirements applicable to my application. Acceptance of this application does not infer a complete submittal. All amendments to the Community Development Code and to other regulations adopted after the application is approved shall be enforced where applicable. Approved applications and subsequent development is not vested under the provisions in place at the time of the initial application.

Thomas P. Watton  Applicant's signature	3-9-2023 Date	 Owner's signature (required)	3-9-2023 Date
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1880 Willamette Falls Dr.
Suite 200-D
West Linn, Or. 97068
503.655.1001
thomas@wattondesign.com
wattondesign.com

Client Information:

Jim Walsh
2247 5th Ave.
West Linn, Or. 97068

Project:

Non-Conforming Review
Garage Addition; 2247 5th Ave.

Darren Wyss
Planning Manager
22500 Salamo Road
West Linn, Or. 97068

Planning Manager Wyss,

Please see attached application and supporting documents for a non-conforming review of a six foot addition to the depth of an existing garage at the address listed above. Below is the response addressing approval criteria of chapters 11 & 66 of the West Linn CDC.

66.080 ENLARGEMENT OF OR ALTERATION TO A NON-CONFORMING STRUCTURE:
PROCESS AND APPROVAL STANDARDS

A. An enlargement of or alteration to a non-conforming structure containing a non-conforming use may be permitted subject to review and approval by the Planning Commission under the provisions of CDC 99.060(B) and CDC 65.120 through 65.140.

Response: The existing structure to be enlarged is the primary garage and will not contain any non-conforming uses.

B. An enlargement or alteration to a non-conforming structure containing a conforming use may be permitted subject to the following:

1. If the enlargement, in and of itself, meets all provisions of this code, the enlargement will be permitted. This exception does not preclude design review or other applicable provisions of this code.

2. If the enlargement, in and of itself, does not meet all provisions of the code, review and approval by the Planning Director for single-family structures, and by the Planning Commission for non-single-family structures under the provisions of CDC 99.060(B) is required subject to the following standards.

a. The enlargement or alteration will not change the non-conformity; and

b. All other applicable ordinance provisions will be met. (Ord. 1192, 1987)

Response: The proposed enlargement to the existing non-conforming garage will not change the existing non-conformity.

The non-conformity of the existing structure is that it is located 3.5' from the east side yard property line. The enlargement we are proposing will expand the garage depth to the north by 6' to make it usable for today's garage needs. The proposed expansion will be no closer to the side yard than the existing structure. This 6' extension to the garage will change the garage street front setback from 39.5' to 33.5'. This still gives ample off-street parking for the residence.

We are required to update the existing framed garage floor to today's structural code standards. Because there is living space below the garage, this floor framing upgrade will raise the garage floor approx. 18" from its existing elevation. This upgrade will also allow us to upgrade the lateral design of this old structure. We will be able to install a port-hole frame at the garage door face that will greatly stiffen this structure to wind and earthquake forces.

Please note that the adjacent property to the east is a 15' wide flag lot access. There will never be any adjacent structures built near this property line.

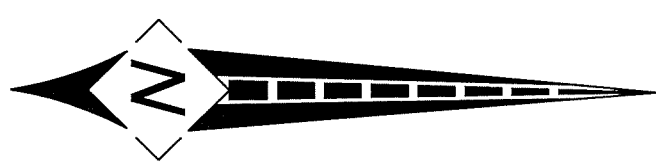
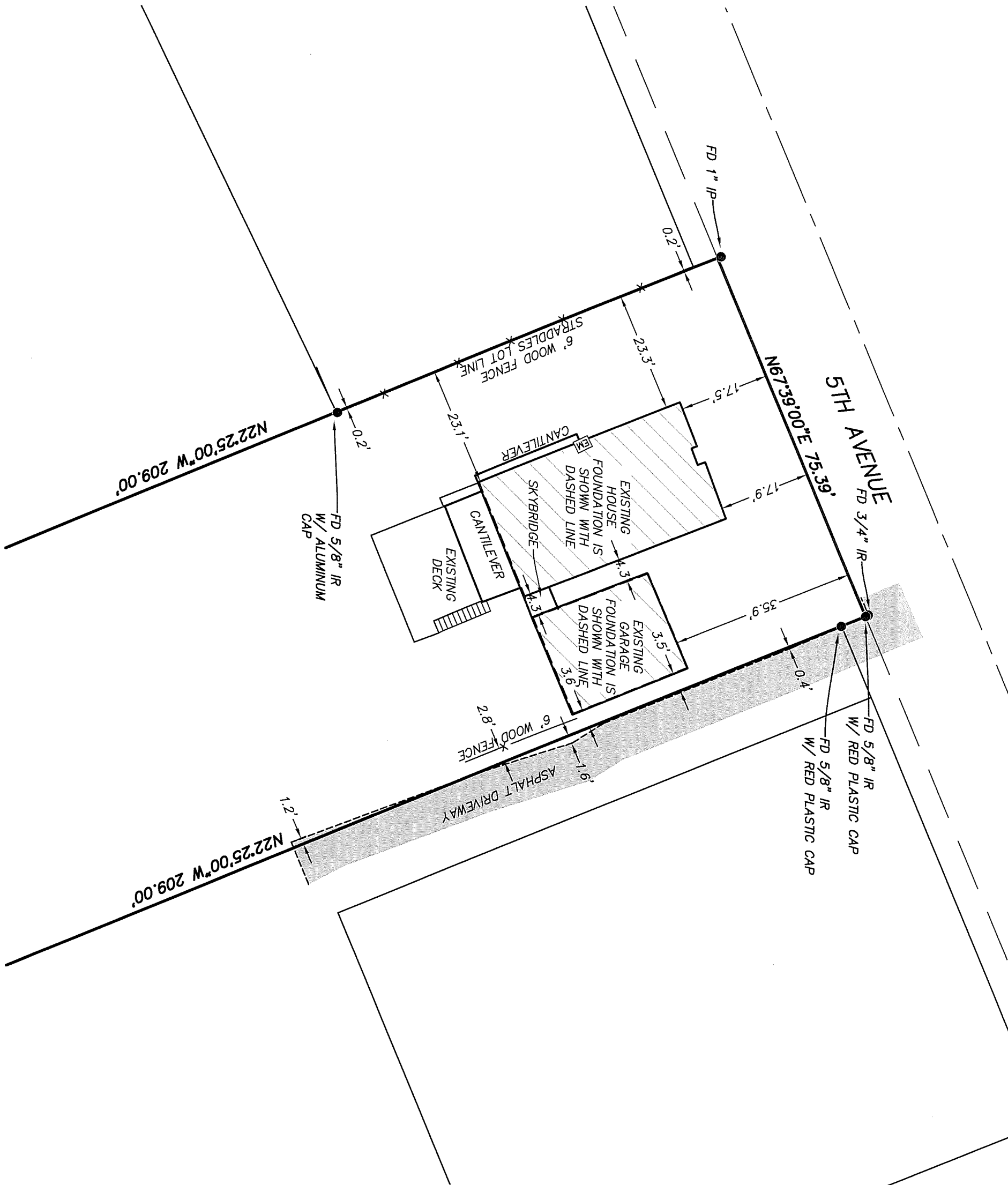
11.070 DIMENSIONAL REQUIREMENTS, USES PERMITTED OUTRIGHT AND USES PERMITTED UNDER PRESCRIBED CONDITIONS

We have chosen to also address section 11 requirements for the R-10 Zone.

- 1. 5,000 min. lot size: **This Lot is 15,661sf***
- 2. 35' min. front yard width: **This lot is 75.39' wide***
- 3. 50' Average width: **This lot is 75.39' average width***
- 4. n/a*
- 5. Building setbacks:*

 - a. 20' front: **proposed setback is 33.5'***
 - b. 7.5' side: **current setback to structure is 3.5'. The proposed addition will not encroach any closer than the 3.5'.***
 - c. 20' rear: **n/a***

- 6. 35' max. ht.: **This building height at the proposed addition will be 12'-6-1/2" tall.***
- 7. Max lot coverage: **Existing house (3,237sf) + proposed (120sf) = 3,367sf / 15,661= 21.4% total coverage.***
- 8. n/a*
- 9. FAR: **No increase in heated floor area. n/a***



SIGNED ON:

REGISTERED
PROFESSIONAL
LAND SURVEYOR

OREGON
NOVEMBER 30, 2007
JAMES BURTON BROWN
60379

RENEWALS: DECEMBER 31, 2023

SCALE MAP

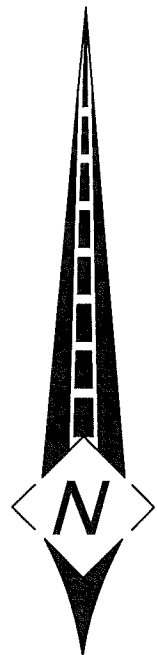
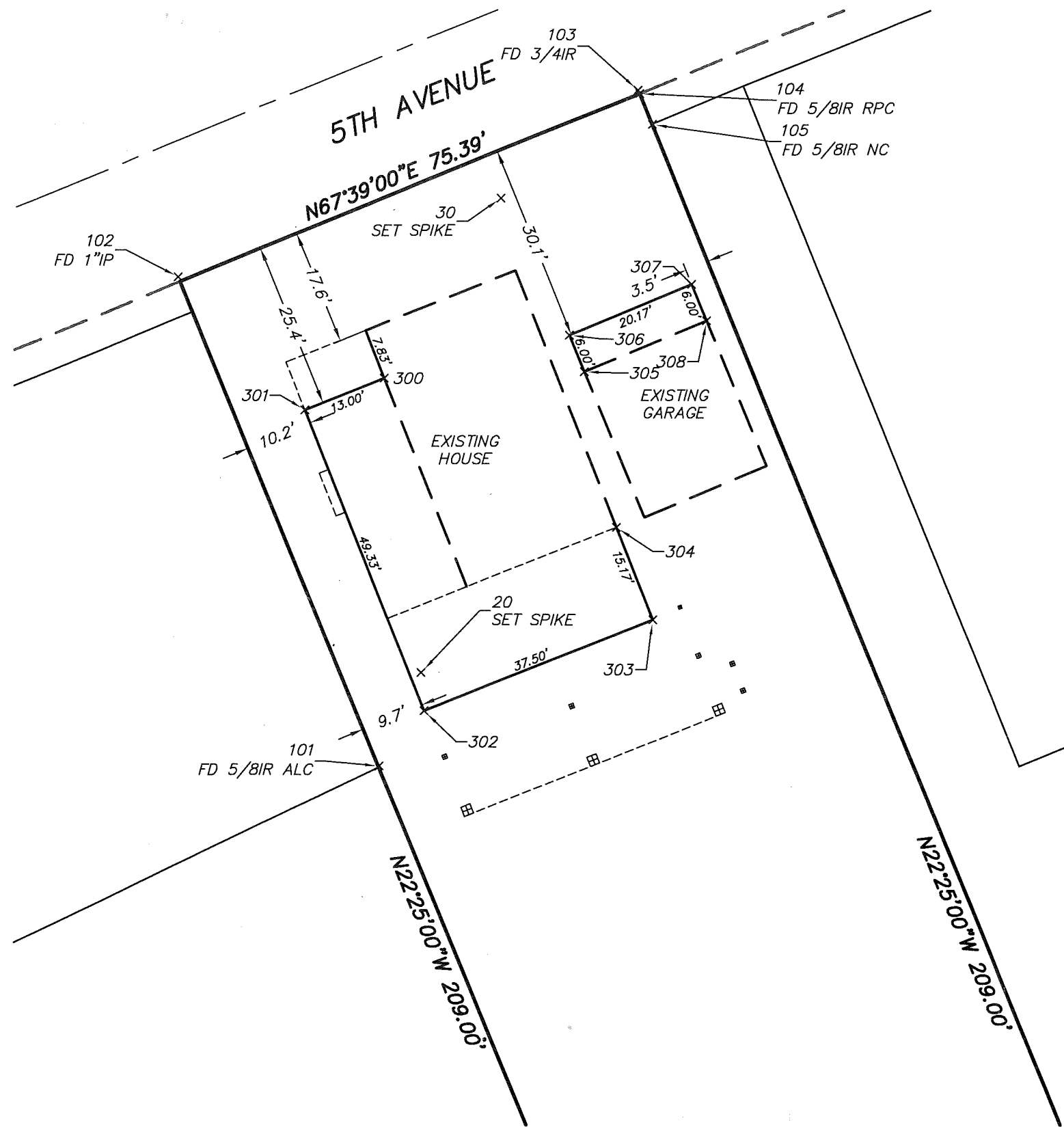
TAX LOT 6600, MAP 32, 1E, 02AB (2247 5TH AVENUE)

CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON

Scale: 1"=20'

CLIENT: WALSH
 ORIG. DATE: 10-7-2022
 DRAWN BY: CJB
 SHEET No. 1 OF 1

CENTERLINE CONCEPTS
 LAND SURVEYING, INC.
 19376 MOLALLA AVE., SUITE 120
 OREGON CITY, OREGON 97045
 PHONE 503.650.0188 FAX 503.650.0189



SIGNED ON: 1-23-2023

REGISTERED
PROFESSIONAL
LAND SURVEYOR

OREGON
NOVEMBER 30, 2007
JAMES BURTON BROWN
60379

RENEWS: DECEMBER 31, 2023

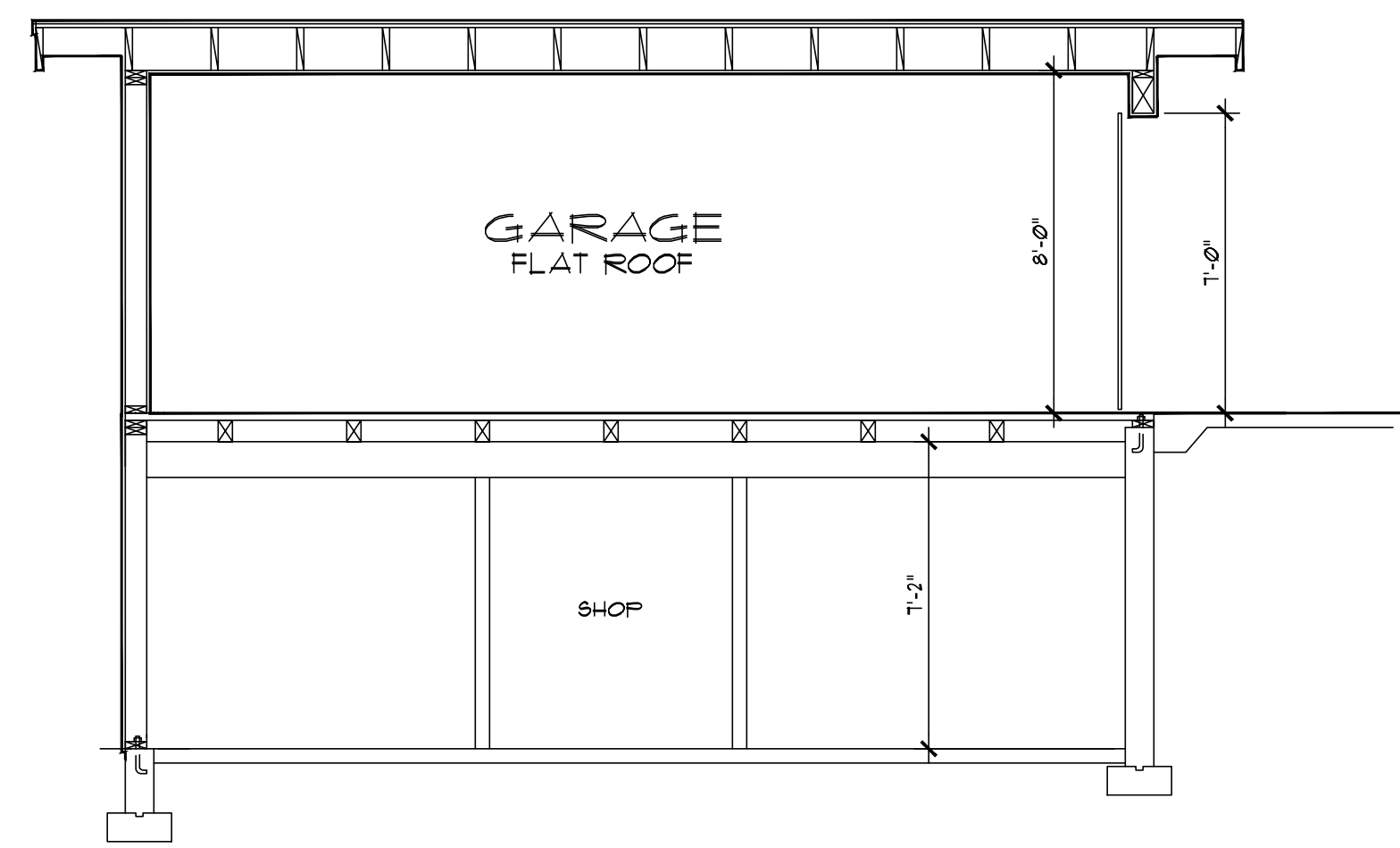
STAKEOUT DISCLAIMER:

THIS MAP IS FOR STAKEOUT PURPOSES ONLY, AND TO SHOW SURVEYED POINTS IN RELATIONSHIP TO FOUNDATION CORNERS. THIS MAP DOES NOT REPRESENT ELEVATIONS TO BE USED BY OTHERS, UNLESS OTHERWISE NOTED. THIS MAP WAS PREPARED USING EXISTING SURVEYS, PLATS, AND DEED DATA OF RECORD. THIS MAP DOES NOT REPRESENT A SURVEY TO BE RECORDED. LOCATION IS BASED UPON MONUMENTS FOUND IN PLACE THAT APPEAR TO BE PROPERTY CORNERS. NO TITLE REPORT WAS USED UNLESS OTHERWISE NOTED. NO WARRANTIES ARE MADE TO MATTERS OF UNWRITTEN TITLE. SUBJECT TO EASEMENTS, CONDITIONS, OR RESTRICTIONS UNDISCLOSED TO THE SURVEYOR.

CENTERLINE CONCEPTS
LAND SURVEYING, INC.
19376 MOLALLA AVE., SUITE 120
OREGON CITY, OREGON 97045
PHONE 503.650.0188 FAX 503.650.0189

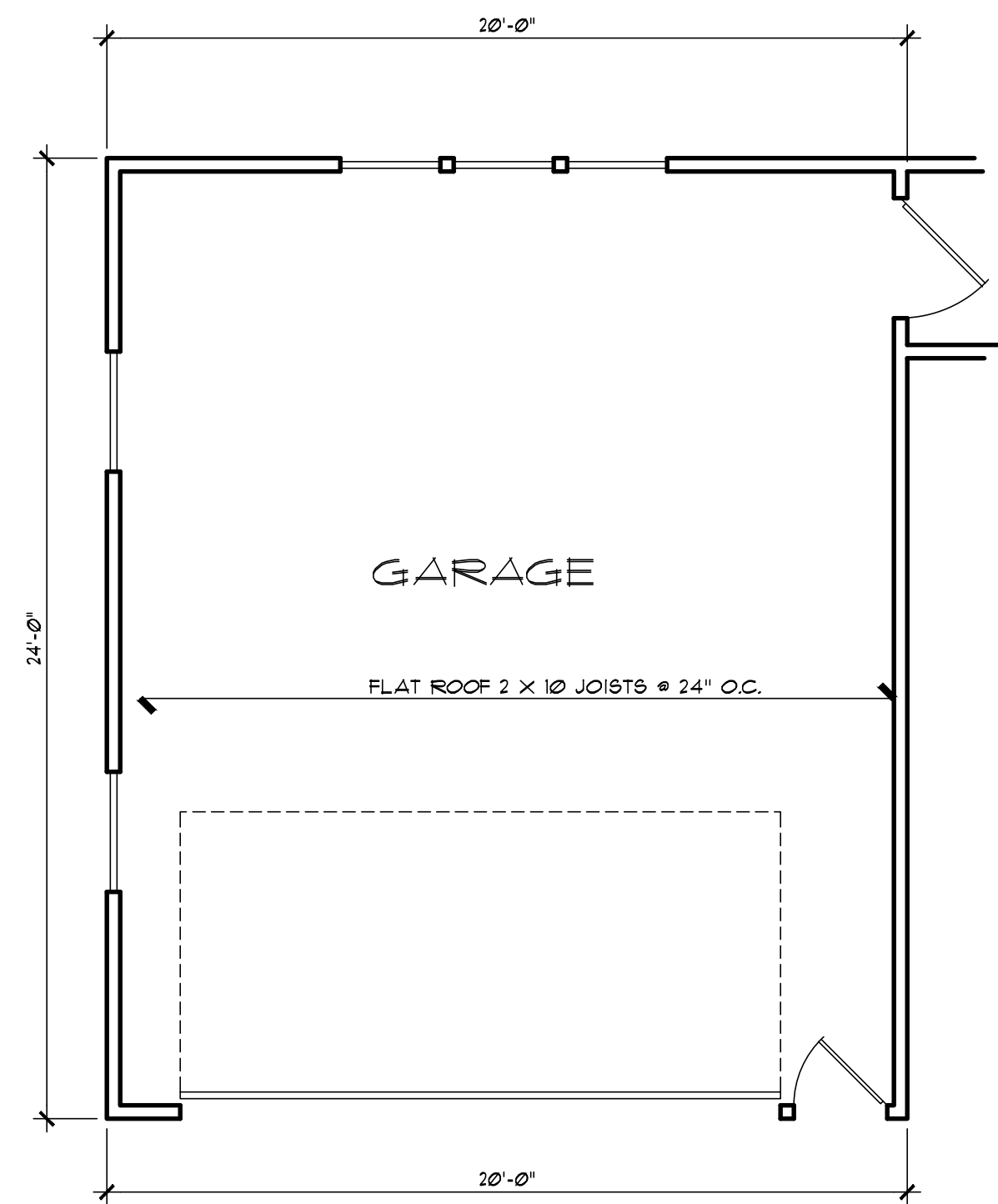
STAKEOUT
TAX LOT 6600, MAP 3S, 1E, 02AB (2247 5TH AVENUE)
CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON
Scale: 1"=20'

CLIENT: WALSH
ORIG. DATE: 1-19-2023
DRAWN BY: CJB
SHEET No. 1 OF 1



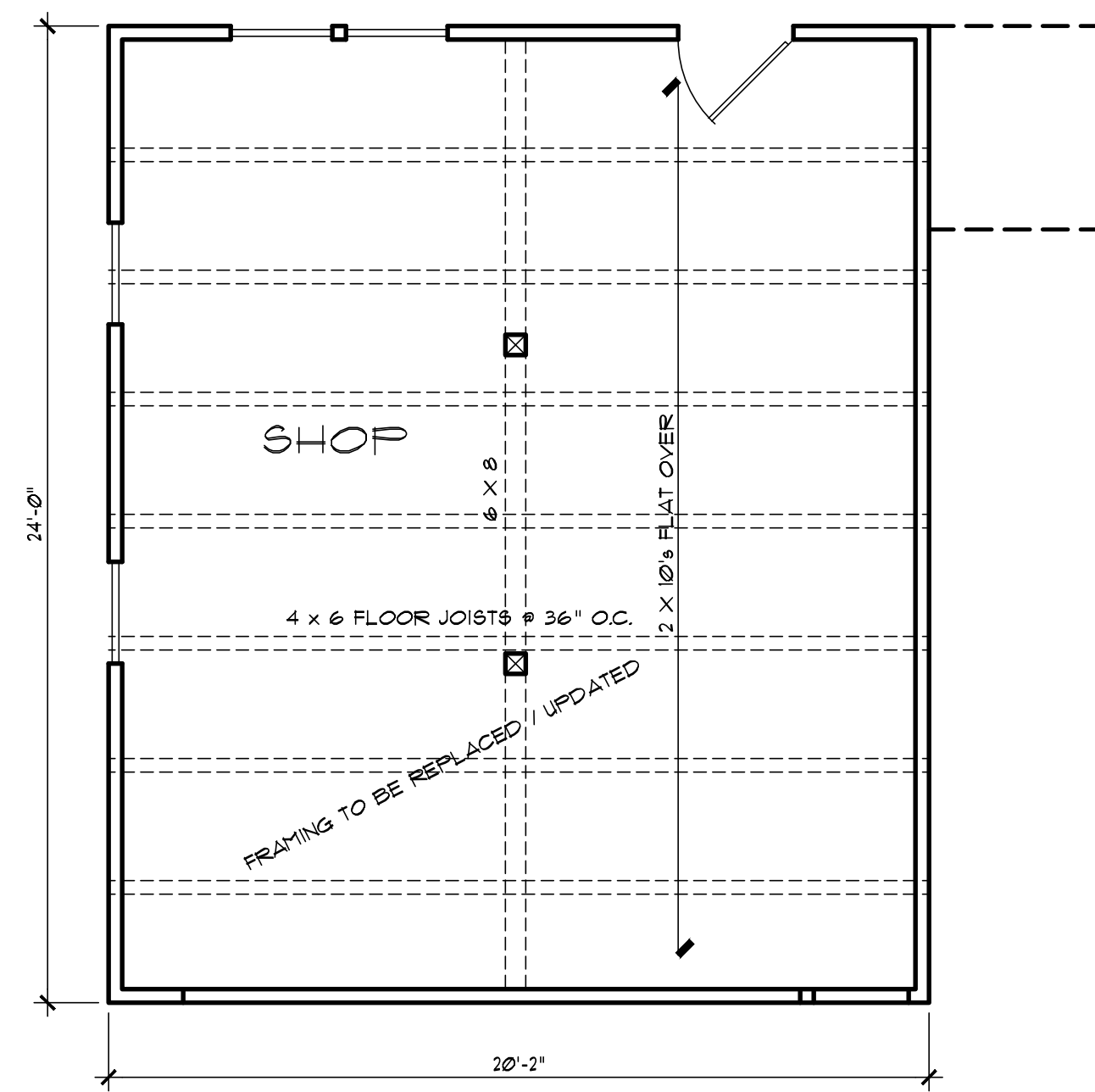
EXISTING SECTION

SCALE : 1/4" = 1'-0"



EXISTING GARAGE LEVEL

SCALE : 1/4" = 1'-0"



EXISTING SHOP LEVEL

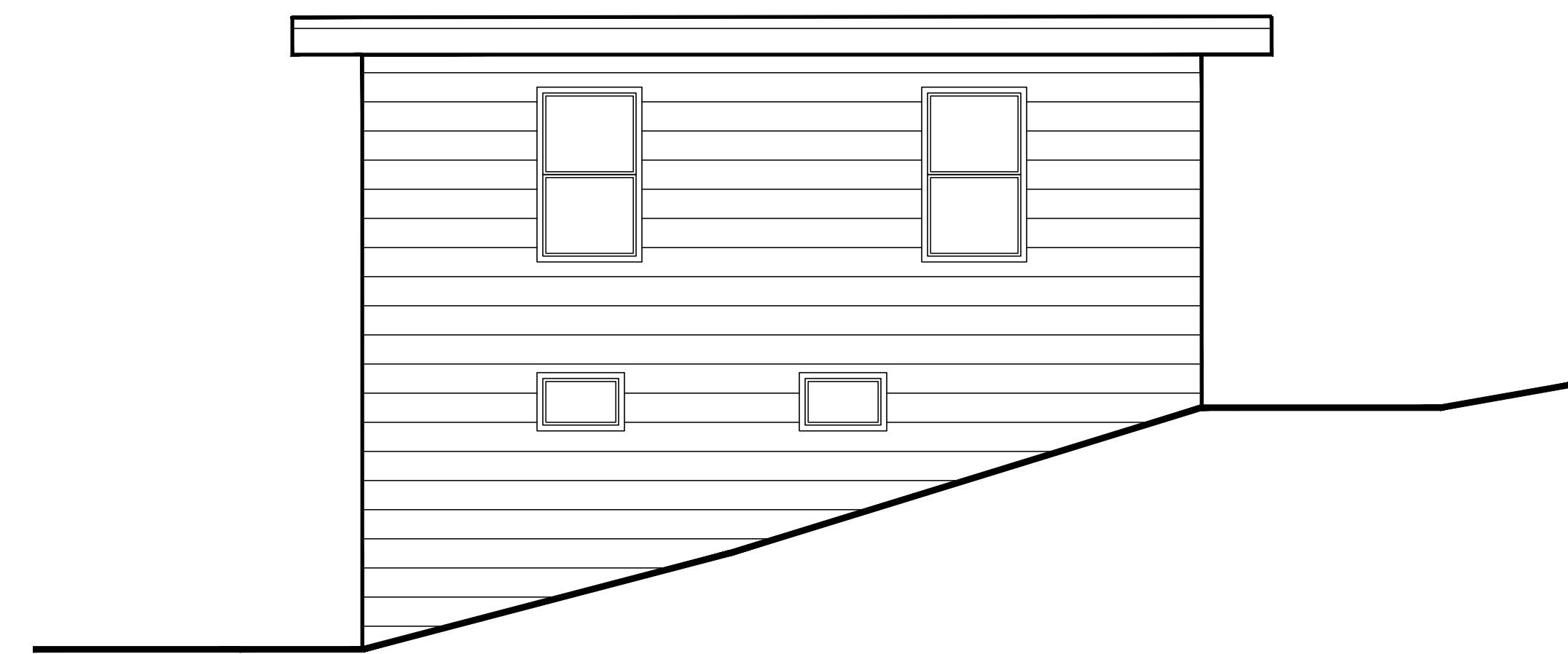
SCALE : 1/4" = 1'-0"

THE SCOPE OF WORK SPECIFIC TO THIS PERMIT IS ONLY RELATED TO THE 6' ADDITION TO THE FRONT OF THE GARAGE. THIS BUILDING HAS ALREADY BEEN PERMITTED TO UPDATE THE FLOOR SYSTEM TO SUPPORT A VEHICLE. IT HAS ALSO BEEN REVIEWED BY AN ENGINEER FOR STRUCTURAL AND LATERAL INTEGRITY. THE PROPOSED ADDITION IS MEANT TO GIVE MORE FLOOR AREA IN THE GARAGE AREA ONLY. NOT THE SPACE LOCATED UNDER THE GARAGE. THE ADDITION IS ALSO MEANT TO CREATE A FRESH AND UP TO DATE FRONT GARAGE WALL WITH FOOTING, WALL TO GARAGE FLOOR CONNECTION FOR LATER SHEAR.



FRONT ELEVATION

SCALE : 1/4" = 1'-0"



LEFT ELEVATION

SCALE : 1/4" = 1'-0"



REAR ELEVATION

SCALE : 1/4" = 1'-0"

ALTERNATE TO BE BUILT FROM PRINT / SHOWN DRAWING ONLY
 REVIEWED FOR PERMIT BY THE
 COUNTY OF CLATSOP AS OF 04/10/2023
 THE CITY OF SEASIDE IS NOT
 PROVIDING ANY GUARANTEE OR
 WARRANTY OF ANY KIND FOR THE
 USE OF THIS DRAWING FOR ANY
 PURPOSE OTHER THAN THAT FOR
 WHICH IT WAS PREPARED. THE
 USER SHALL BE RESPONSIBLE FOR
 OBTAINING ALL NECESSARY
 PERMITS AND FOR THE PROTECTION
 OF THE PUBLIC SAFETY.
 WITH REVIEWER OF WATSON WORKS, INC.



**WATSON
DESIGN
WORKS, Inc.**
 1880
 Willamette Falls Drive
 Suite #200-D
 West Linn, Or. 97068
 503.655.1001
 thomas@watsondesign.com

PROJECT: GARAGE ADDITION
BUILDING SITE ADDRESS:
 2247 5th AVENUE
 WEST LINN, OREGON 97068
 CLACKAMAS COUNTY

EXISTING GARAGE PLANS
CONCRETE ALTERNATIVES, Inc.
 480 S.E.
 120 S.E.
 600 S.E.
 NOAH KAMP 503.709.3922 noah@concretetail.com
WALSH RESIDENCE
 JIM WALSH 503.816.4997 jim@walsh-industries.com

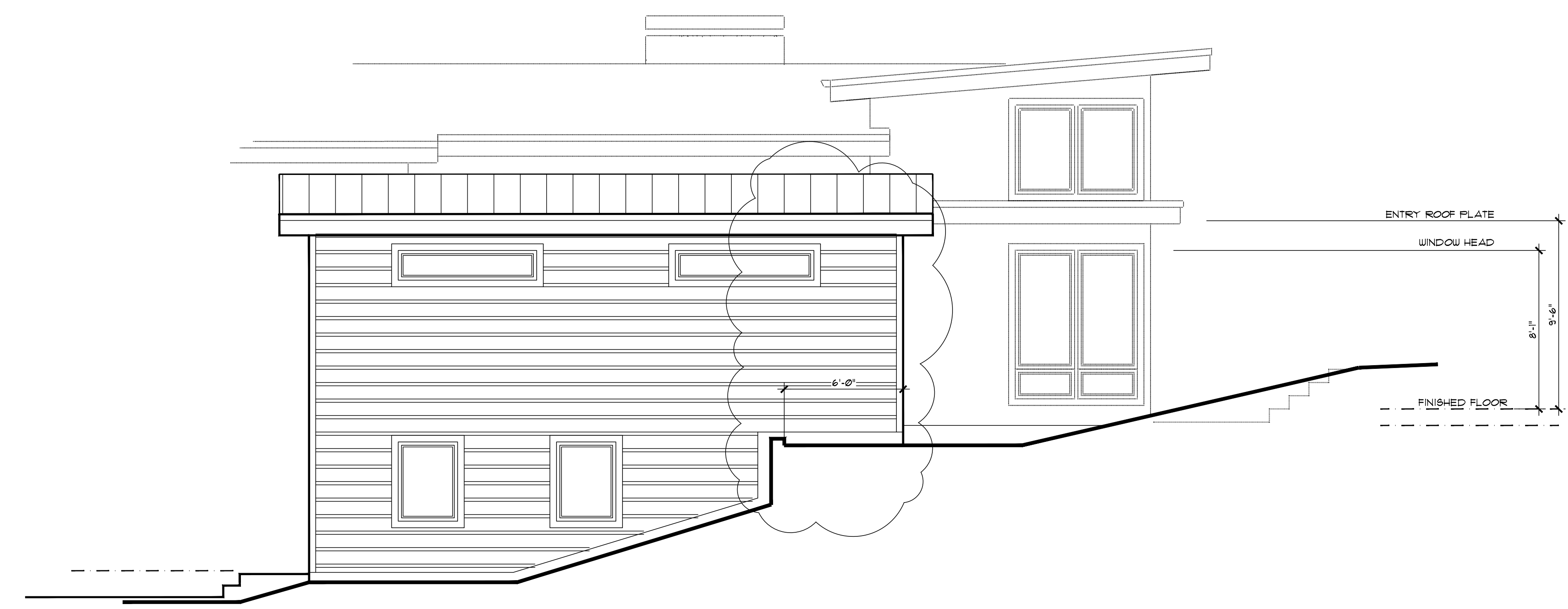
SQUARE FOOTAGE
 EXISTING GARAGE
 PROPOSED GARAGE
 TOTAL AREA
 480 S.F.
 120 S.F.
 600 S.F.

DATE:
 Est. 4-10-2023
 Rev.

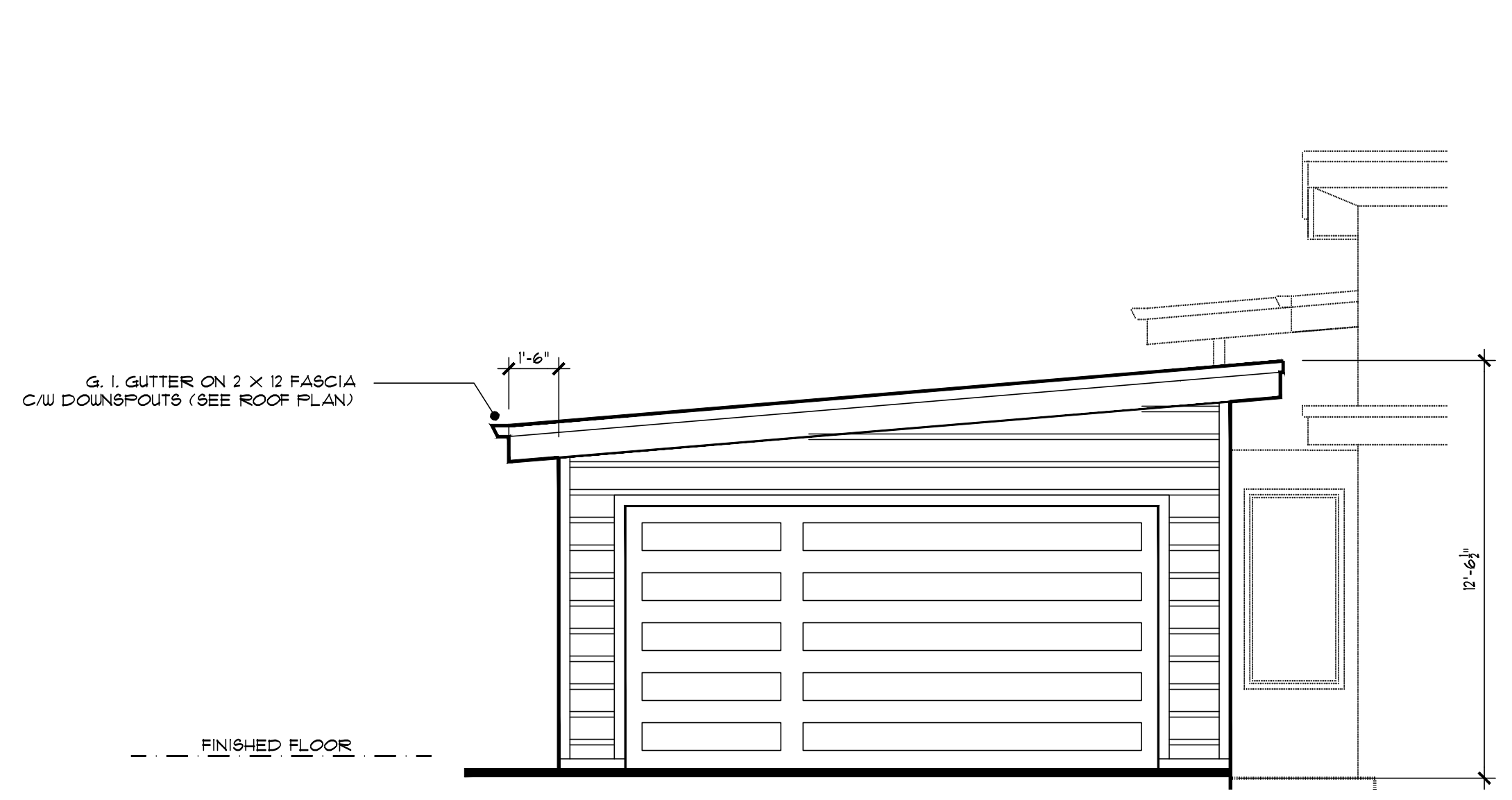
PLANS VOID 1YR. FROM EST. DATE
 JOB No.

22054

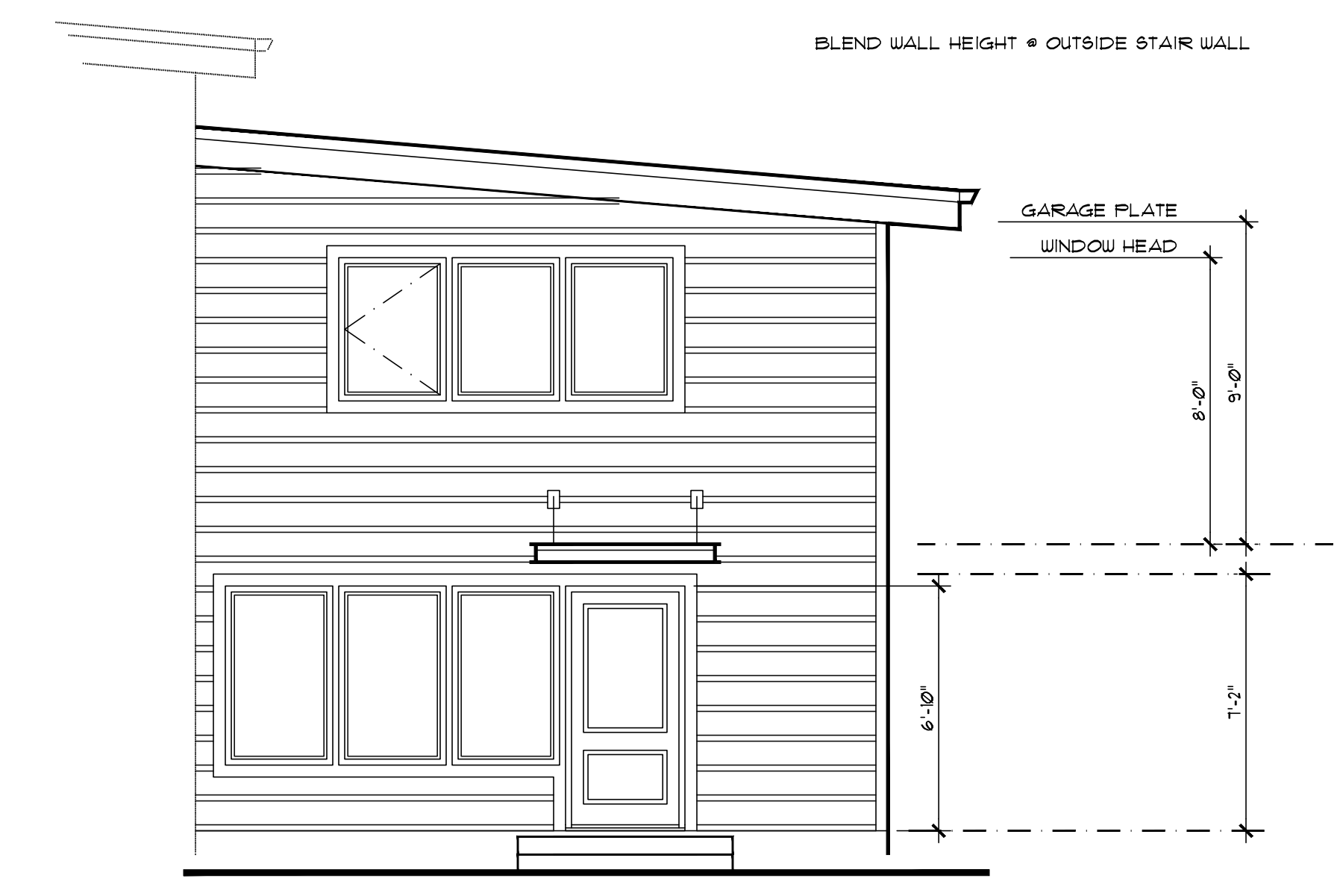
SHEET



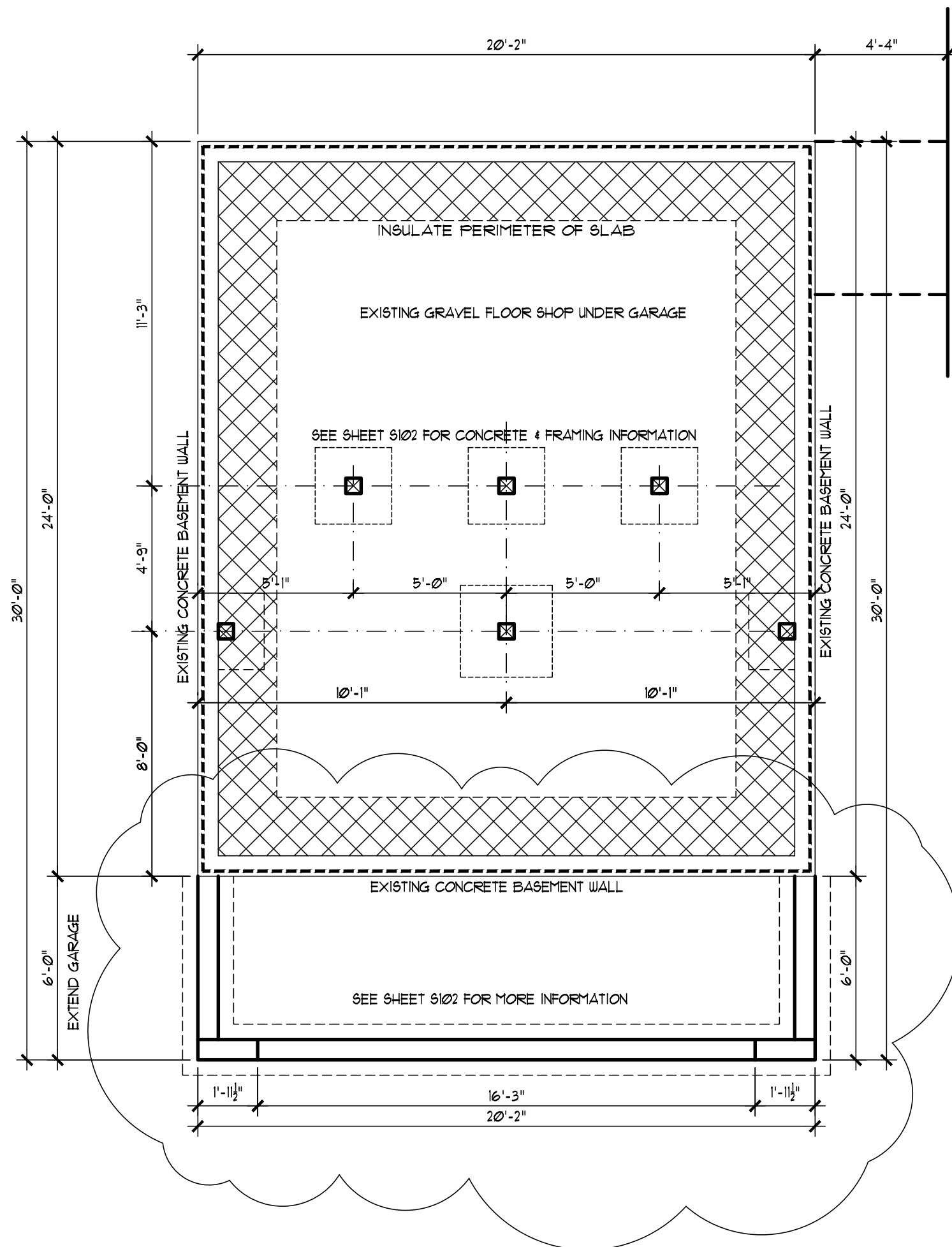
LEFT ELEVATION
 SCALE: 1/4" = 1'-0"



FRONT ELEVATION
 SCALE: 1/4" = 1'-0"

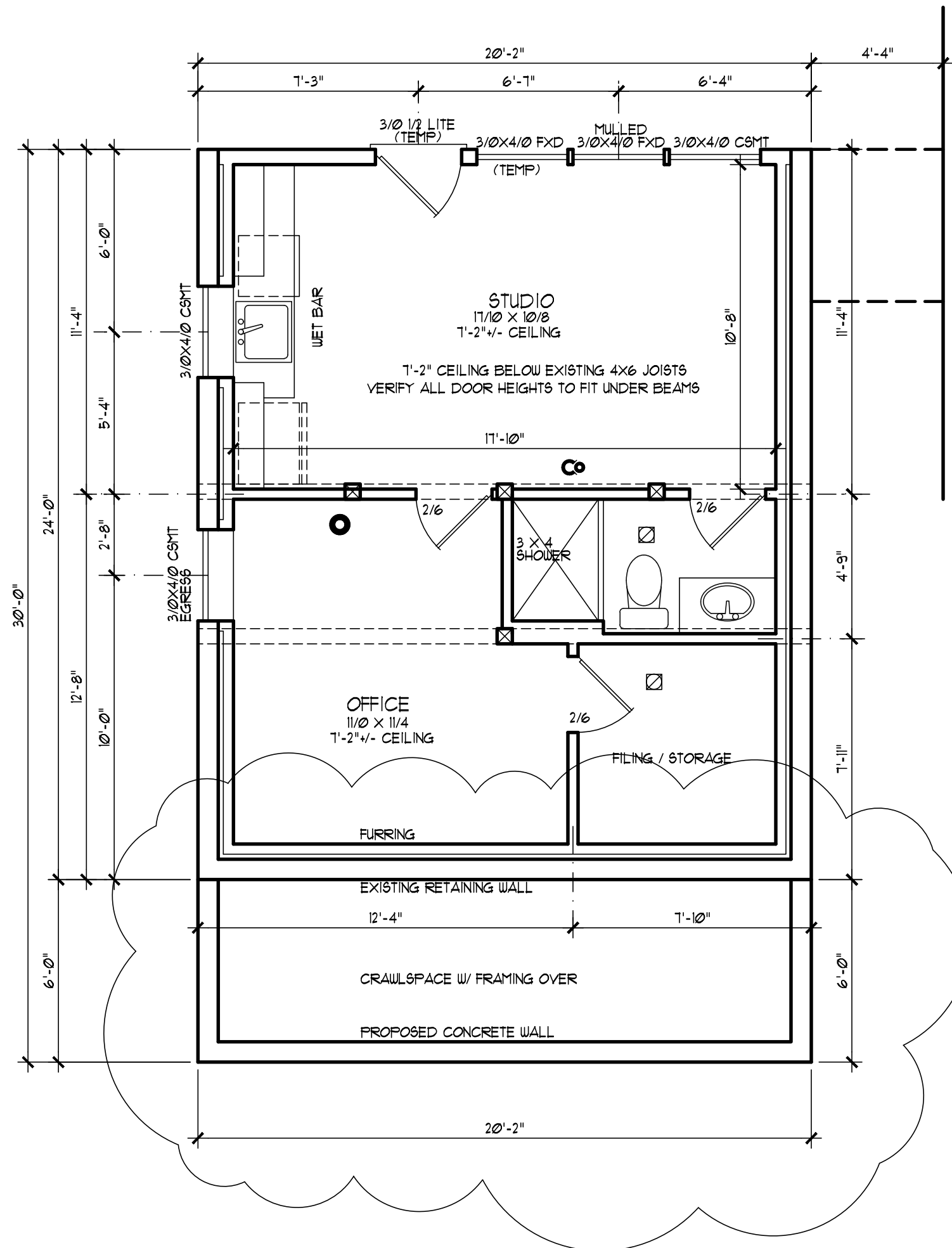


REAR ELEVATION
 SCALE: 1/4" = 1'-0"



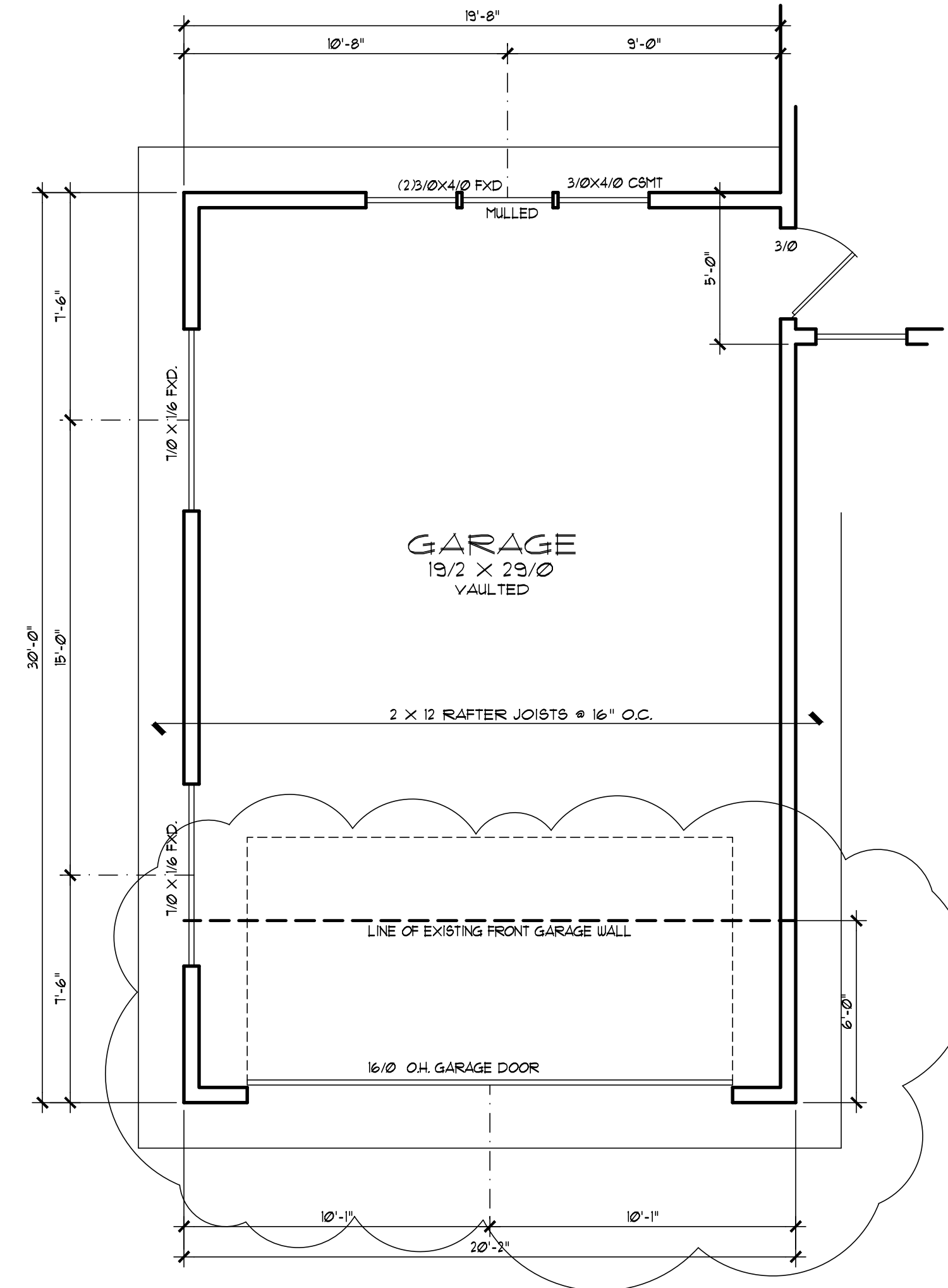
FOUNDATION PLAN

SCALE : 1/4" = 1'-0"



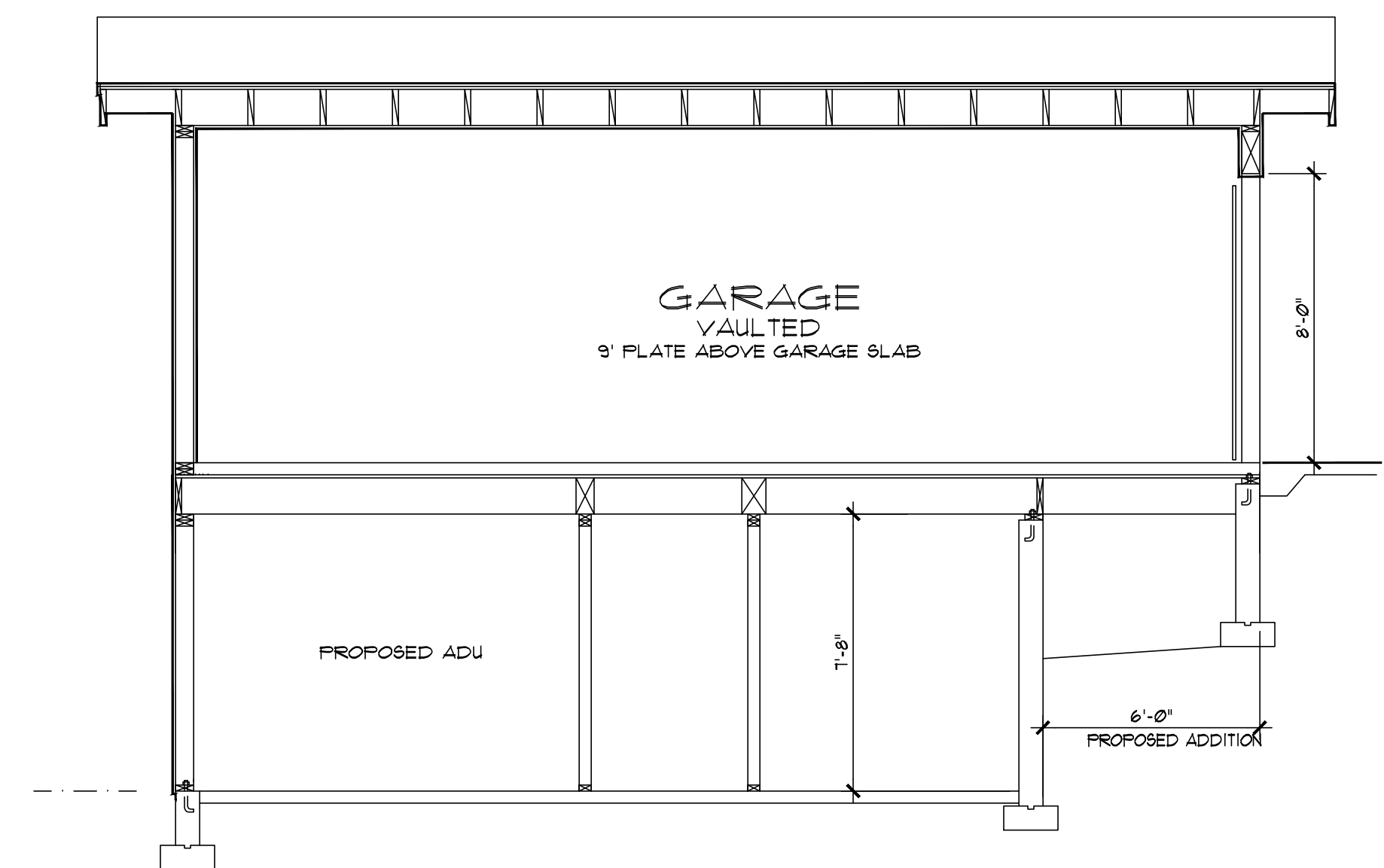
LOWER SHOP LEVEL

SCALE : 1/4" = 1'-0"



GARAGE FLOOR LEVEL

SCALE : 1/4" = 1'-0"



PROPOSED SECTION

SCALE : 1/4" = 1'-0"

A) GENERAL CONDITIONS:

- 1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, DETAILS AND JOB SITE CONDITIONS PRIOR TO COMMENCING WORK AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
2. ALL CONSTRUCTION AND METHODS SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF THE 2019 OSSC, 2021 ORSC, AND THE REFERENCED STANDARDS THEREIN, TOGETHER WITH APPLICABLE MUNICIPAL, STATE, AND FEDERAL REGULATIONS.
3. ALL WORK IS SUBJECT TO BUILDING DEPARTMENT FIELD INSPECTOR'S APPROVAL.
4. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE, WORKMEN, AND ALL OTHER PERSONS DURING CONSTRUCTION.
5. THE DESIGN, ADEQUACY AND SAFETY OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, SHORING OF EXISTING BUILDING ELEMENTS, ETC. IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE PRIOR TO THE ERECTION OF THE FRAMING AND OF THE LATRAL LOAD
5. THE ENGINEER IS RESPONSIBLE FOR THE STRUCTURAL ITEMS IN THE PLANS ONLY. SHOULD ANY CHANGES BE MADE FROM THE DESIGN AS SPECIFIED IN THESE CALCULATIONS WITHOUT APPROVAL FROM THE ENGINEER, THEN THE ENGINEER WILL ASSUME NO RESPONSIBILITY FOR ANY ELEMENT OR SYSTEM OF THE STRUCTURE.

B) DESIGN CRITERIA:

- 1. BUILDING CODE = 2019 OREGON STRUCTURAL SPECIALTY CODE, ASCE 7-16
2. GEOTECHNICAL & GRAVITY DESIGN DATA:
ALLOWABLE SOIL BEARING PRESSURE = 1,500psf
ROOF DEAD/LIVE/SNOW LOAD = 17psf / 20psf / 25psf
FLOOR DEAD/LIVE LOAD = 15psf / 40psf
DECK DEAD/LIVE LOAD = 12psf / 60psf
3. SEISMIC DESIGN DATA:
IMPORTANCE FACTOR (Ib) = 1.0
RISK CATEGORY = II
MAPPED SPECTRAL RESPONSE ACCELERATION (Sa) = 0.832
MAPPED SPECTRAL RESPONSE ACCELERATION (Sb) = 0.376
MAPPED SPECTRAL RESPONSE COEFFICIENT (Sbs) = 0.666
MAPPED SPECTRAL RESPONSE COEFFICIENT (Sbt) = 0.482
SITE SOIL CLASS = D (BY DEFAULT)
SEISMIC DESIGN CATEGORY = D
REDUNDANCY FACTOR (p) = 1.30
SEISMIC RESPONSE COEFFICIENT (Cs - Sbs x I/R) = 0.102
RESPONSE MOD COEFF. (R) = 6.5 (EA, ORTHOGONAL DIRECTION)
BASIC SEISMIC FORCE RESISTING SYSTEM = LIGHT-FRAME (WOOD) SHEARWALLS
ANALYSIS PROCEDURE USED = EQUIVALENT LATERAL FORCE
DESIGN BASE SHEAR (V = CwW) = 0.102 W
HORIZONTAL SEISMIC LOAD (Eh = pV) = 0.133 W
4. WIND DESIGN DATA:
WIND SPEED = 97mph (BASIC WIND SPEED - 3 second gust)
WIND EXPOSURE FACTOR = C

C) FOUNDATIONS:

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL UNDERGROUND FACILITIES OR OTHER BURIED OBJECTS WHICH MAY BE ENCOUNTERED BUT WHICH ARE NOT SHOWN ON THESE PLANS.
2. FOUNDATION DESIGN IS BASED UPON A SOIL BEARING CAPACITY PER DESIGN LOADS.
3. THESE CALCULATIONS ASSUME STABLE, UNDISTURBED SOILS AND LEVEL OR STEPPED FOOTINGS. ANY UNUSUAL SOIL CONDITIONS SUCH AS ORGANIC SOILS, CLAY POCKETS, OR UNCERTIFIED FILLS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO CONSTRUCTION.
4. FILL MATERIAL SHALL BE FREE FROM DEBRIS, VEGETATION, AND OTHER FOREIGN SUBSTANCES.
5. THE BOTTOM OF ALL FOOTING EXCAVATIONS SHALL BE CLEAN AND LEVEL.
6. ALL FINISHED GRADE SHALL SLOPE AT A MINIMUM SLOPE OF 2% AWAY FROM ALL FOUNDATIONS A MINIMUM OF 10 FEET HORIZONTAL.
7. FOUNDATIONS SHALL NOT BE SCALED FROM PLAN OR DETAIL DRAWINGS.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL ANCHOR BOLTS, HOLDOWN ANCHORS OR STRAPS AND EMBEDMENTS, PRIOR TO PLACEMENT OF CONCRETE AND/OR INSTALLATION OF STRUCTURAL FRAMING MEMBERS.

D) CONCRETE:

- 1. ALL FOUNDATION CONCRETE SHALL HAVE A MAXIMUM SLUMP OF 4" AND A MINIMUM F'c=2500 PSI @ 28 DAYS (UNO). AGGREGATE SIZE SHALL BE A MAXIMUM OF 1-1/2" IN FOUNDATIONS AND 3/4" AT ALL OTHER LOCATIONS.
2. CONCRETE FOR ICF WALLS SHALL HAVE A FREE-FLOW, SELF-COMPACTING SLUMP, MINIMUM F'c=3000 PSI @ 28 DAYS, WITH 3/8" - MAX 1/2" AGGREGATE, OR SIMILAR APPROVED.
3. CURING COMPOUND SHALL BE SPRAYED ON ALL EXPOSED SURFACES IMMEDIATELY AFTER FINAL TROWELING.
4. ALL CEMENT USED SHALL CONFORM TO ASTM C-150 AND SHALL BE TYPE II OR TYPE III LOW ALKALI. FLYASH SUBSTITUTION UP TO 25% IS PERMITTED FOR MIX DESIGNS ALREADY ESTABLISHED & APPROVED BY LOCAL JURISDICTION.
5. AGGREGATE SHALL CONFORM TO ASTM C-33 AND SHALL NOT CONTAIN MATERIALS WHICH ARE ALKALI REACTIVE AS DETERMINED BY ASTM C-227, 289 AND 295. IF TEST DATA IS UNAVAILABLE IN REGARDS TO ALKALI REACTIVE MATERIALS, PROVIDE CEMENT WITH A MAXIMUM ALKALI CONTENT LESS THAN 0.45% BY WEIGHT.
6. CONCRETE EXPOSED TO FREEZING OR THAWING SHALL BE PROTECTED IN ACCORDANCE TO THE LATEST EDITION OF ACI & IRC
7. WATER PROOFING OF FOUNDATIONS, RETAINING WALLS, AND SLAB ON GRADE IS THE RESPONSIBILITY OF THE CONTRACTOR OR OWNER.
8. VIBRATE CONCRETE AROUND ALL BOLTS, REBAR AND SURFACES.
9. CONSTRUCTION JOINTS SHALL BE CLEAN AND WET PRIOR TO POURING CONCRETE.
10. CONCRETE SHALL HAVE A WATER-CEMENT RATIO OF 0.45 LB./LB. OR LESS.
11. CONCRETE SHALL BE AIR ENTRAINED A MINIMUM OF 5% AND MAXIMUM OF 7%.

E) CONCRETE SLAB CONSTRUCTION:

- 1. GRAVEL OR SAND BASE SHOWN IS TO PROVIDE STRUCTURAL BASE FOR SLAB ONLY. NO PROVISIONS FOR PREVENTING GROUNDWATER INFILTRATION OR DAMPNESS OF THE SLAB ARE INCLUDED. IF BUILDING USE WILL BE SUCH THAT SLAB MUST BE DRY AT ALL TIMES, DAMP-PROOFING WITH PEA GRAVEL BASE, VISQUEEN AND 2" SAND TOPPING IS RECOMMENDED.
2. SLABS ON GRADE SHALL BE PLACED OVER 4" MINIMUM OF FREE DRAINING AGGREGATE BASE COMPACTED TO A MINIMUM OF 95% RELATIVE COMPACTION, UNLESS NOTED OTHERWISE.
3. CRACK CONTROL JOINTING IS DESIGNED BY THE CONTRACTOR, UNLESS SHOWN ON FOUNDATION PLAN. THE MAXIMUM SPACING OF JOINTS SHALL NOT EXCEED 30" IN ANY DIRECTION.
4. STEEL REBAR OR WIRE MESH IN SLABS SHALL BE LOCATED IN THE CENTER OF THE SLAB.

F) STRUCTURAL STEEL:

- 1. MATERIALS:
1.a. WIDE FLANGE & WT SHAPES: ASTM A992
1.b. CHANNELS, ANGLES, PLATES & BARS: ASTM A36
1.c. GRADE 50 PLATES (WHERE NOTED ON PLANS): ASTM A52
1.d. PIPE: ASTM A53, GRADE B
1.e. HSS: ASTM A500, GRADE B, Fy = 42ksi FOR ROUNDS & Fy = 46ksi FOR RECTANGULAR & SQUARE
2. FASTENERS
2.a. MACHINE BOLTS: ASTM A307
2.b. BOLTS: ASTM A325-X
2.c. ANCHOR RODS: ASTM F1554, GRADE 36, THREADED WITH NUT, UNLESS NOTED OTHERWISE
2.d. SHEAR STUD CONNECTORS: ASTM A108, GRADE 1010 THRU 1020
2.e. NUTS: ASTM A563
2.f. HARDENED PLAIN & BEVELED WASHERS: ASTM F436
3. WELDING
3.a. ARC-WELDING ELECTRODES AND/OR FILLER METALS TO BE LOW HYDROGEN TYPES E7XTX, E7XTXX, OR E70XXX, MINIMUM, AS APPLICABLE.
3.b. WELDING SHALL CONFORM TO AWS D1.1, "STRUCTURAL WELDING CODE - STEEL".
3.c. ALL WELDING SHALL BE PERFORMED BY A WELDER CERTIFIED BY AWS AND THE GOVERNING JURISDICTION, IF APPLICABLE.
3.d. FIELD WELDING SYMBOLS HAVE NOT NECESSARILY BEEN INDICATED ON THE DRAWINGS, WHERE SHOWN, PROPER FIELD WELDING PER AWS SHALL BE USED. WHERE NO FIELD WELDING SYMBOLS ARE SHOWN, IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE USE OF SHOP AND FIELD WELDS.

G) WOOD FRAMING:

- 1. SAWN LUMBER:
1.a. SHALL BE MINIMUM NO. 2 DOUGLAS FIR/LARCH, W/WPA GRADING RULES
1.b. ALL LUMBER SHALL BE KILN-DRIED WITH A MOISTURE CONTENT LESS THAN 19%
1.c. SILLS AND PLATES IN CONTACT WITH CONCRETE/MASONRY AND WITHIN 6" OF GRADE SHALL BE PRESSURE-TREATED DOUGLAS FIR-LARCH. MUD-SILL SHALL BE 2x MINIMUM THICKNESS OF THE SAME OR GREATER WIDTH AS THE STUDS ABOVE.
1.d. WALL FRAMING SHALL BE 2x6 STUDS @ 16" ON CENTER UNLESS OTHERWISE NOTED. PROVIDE DOUBLE 2x6 TOP PLATE WITH MINIMUM 48" LAP SPLICE WITH (8) 16d COMMON NAILS MINIMUM, STAGGERED, UNLESS OTHERWISE NOTED.
2. TIMBERS (4x NOMINAL WIDTH & LARGER):
2.a. SHALL BE MINIMUM NO. 1 DOUGLAS IRL/LARCH, W/WPA GRADING RULES
2.b. TIMBERS USED IN TRUSS CONSTRUCTION SHALL HAVE A MAXIMUM MOISTURE CONTENT OF 12% BEFORE ASSEMBLING THE TRUSS.
3. GLUED LAMINATED TIMBER (GLULAM):
3.a. GLUED LAMINATED TIMBER SHALL BE MANUFACTURED IN ACCORDANCE WITH AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AITC 117 & AITC 190.1.
3.b. GLUED LAMINATED TIMBER SHALL BE OF THE FOLLOWING GRADES, UNLESS NOTED OTHERWISE:
3.b.a. SINGLE SPAN MEMBERS: COMBINATION 24F-V4
3.b.b. MULTI-SPAN & CANTILEVER MEMBERS: COMBINATION 24F-V8
4. LAMINATED VENEER LUMBER (LVL):
4.a. MINIMUM DESIGN PROPERTIES FOR 1 1/2" WIDE MEMBERS: Fb = 2,800psi, E = 2,000,000psi, Fv = 285psi
4.b. MINIMUM DESIGN PROPERTIES FOR 3 1/2" AND WIDER MEMBERS: Fb = 3100psi, E = 2,000,000psi, Fv = 310psi
4.c. LVL MEMBERS SHALL NOT BE USED IN EXTERIOR APPLICATIONS OR AGAINST CONCRETE.
4.d. FASTEN MULTI-PLY LVL BEAM OR JOISTS TOGETHER WITH TWO ROWS OF 10d NAILS @ 12" ON CENTER THROUGH LENGTH, STAGGERED TO PREVENT SPLITTING, BETWEEN EACH PLY. PROVIDE (8) ADDITIONAL 10d NAILS BETWEEN EACH PLY DISTRIBUTED CLOSELY TO THE VICINITY OF CONCENTRATED LOADS ON MEMBERS FROM FLUSH-SUPPORTED BEAMS OR JOISTS.
5. PARALLEL STRAND LUMBER (PSL):
5.a. MINIMUM DESIGN PROPERTIES: Fb = 2,900psi, E = 2,000,000psi, Fv = 290psi
5.b. PSL MEMBERS USED IN EXTERIOR APPLICATIONS, OR AGAINST CONCRETE, SHALL BE APPROVED BY THE MANUFACTURER FOR USE IN THE EXPOSURE CONDITION TO WHICH THEY ARE SUBJECT.
6. LAMINATED STRAND LUMBER (LSL):
6.a. MINIMUM DESIGN PROPERTIES: Fb = 2,325psi, E = 2,000,000psi, Fv = 310psi
7. PREFABRICATED WOOD I-JOISTS:
7.a. WOOD I-JOISTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM D5055
7.b. JOIST TYPES AND SIZES SHALL BE AS INDICATED ON THE PLANS, OR WRITTEN APPROVED EQUALS.
7.c. JOISTS SHALL HAVE LOAD-CARRYING CAPACITY IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED LOAD TABLES. INSTALLATION SHALL BE AS PER MANUFACTURER'S RECOMMENDATIONS OR AS DETAILED; USE THE MORE STRINGENT CONDITION.
7.d. FLOOR SHEATHING SHALL BE GLUED AND NAILED CONTINUOUSLY TO THE TOP FLANGE OF ALL JOISTS AS SPECIFIED ON THE PLANS AND IN THESE NOTES.
7.e. SUBMIT SHOP DRAWINGS OF LAYOUT AND REQUIRED CONNECTION DETAILS FOR REVIEW BY THE ENGINEER PRIOR TO FABRICATION.
8. PREFABRICATED WOOD TRUSSES:
8.a. MAXIMUM TRUSS SPACING: 24" ON CENTER
8.b. TRUSS LOADING UNLESS NOTED OTHERWISE ON DRAWINGS:
8.b.a. TOP CHORD SNOW LOAD = 25 psf
8.b.b. TOP CHORD DEAD LOAD = 8 psf
8.b.c. BOTTOM CHORD LIVE LOAD = 0 psf
8.b.d. BOTTOM CHORD DEAD LOAD = 7 psf
8.b.e. NET WIND UPLIFT (FOR LOAD COMBINATION 0.6 x DEAD - 0.6 x WIND) = 0 psf AT INTERIOR REGIONS, 3 psf WITHIN 8 FEET OF WALL AND PARALLEL TO ROOF EDGES, AND 18 psf WITHIN 8 FEET IN ANY DIRECTION FROM ROOF CORNERS.
8.b.f. REVIEW THE PLANS AND DETAILS FOR SPECIAL LOADS INCLUDING, BUT NOT LIMITED TO, REACTIONS FROM PARAPET WALLS, MECHANICAL UNITS, AND AXIAL LOADS FROM SEISMIC CROSS-TIES & DRAG STRUTS.
8.c. TRUSSES TO BE FABRICATED BY A CERTIFIED MEMBER OF THE TRUSS PLATE INSTITUTE. DESIGN, FABRICATION, AND ERECTION TO CONFORM TO ANSIT/PI 1.
8.d. THE TRUSS SUBMITTAL PACKAGE PROVIDED BY THE TRUSS MANUFACTURER SHALL CONSIST OF EACH INDIVIDUAL TRUSS DESIGN DRAWING, THE TRUSS PLACEMENT DIAGRAM, THE PERMANENT INDIVIDUAL TRUSS MEMBER RESTRAINT/BRACING METHOD, AND DETAILS AND ANY OTHER STRUCTURAL DETAILS GERMANE TO THE TRUSSES.
8.d.a. TRUSS DESIGN DRAWINGS SHALL BE PREPARED AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED. DRAWINGS SHALL INCLUDE THE WRITTEN, GRAPHIC, AND PICTORIAL DEPICTION OF EACH INDIVIDUAL TRUSS SHALL BE PROVIDED TO THE BUILDING OFFICIAL FOR APPROVAL PRIOR TO INSTALLATION. REFERENCE THE DEFERRED SUBMITTAL SECTION OF THESE NOTES FOR MORE INFORMATION. TRUSS DESIGN DRAWINGS SHALL ALSO BE PROVIDED WITH THE SHIPMENT OF TRUSSES DELIVERED TO THE JOB SITE. TRUSS DESIGN DRAWINGS SHALL INCLUDE, AT A MINIMUM, THE FOLLOWING:
8.d.a.a. SLOPE OR DEPTH, SPAN, AND SPACING
8.d.a.b. LOCATION OF ALL JOINTS AND SUPPORT LOCATIONS
8.d.a.c. NUMBER OF PLYS IF GREATER THAN ONE
8.d.a.d. REQUIRED BEARING WIDTHS
8.d.a.e. DESIGN LOADS AS APPLICABLE, INCLUDING:
8.d.a.e.a. TOP CHORD LIVE LOAD
8.d.a.e.b. TOP CHORD DEAD LOAD
8.d.a.e.c. BOTTOM CHORD LIVE LOAD
8.d.a.e.d. BOTTOM CHORD DEAD LOAD
8.d.a.e.e. ADDITIONAL LOADS AND LOCATIONS
8.d.a.e.f. ENVIRONMENTAL DESIGN CRITERIA AND LOADS (WIND, RAIN, SNOW, SEISMIC, ETC.)
8.d.a.g. OTHER LATERAL LOADS, INCLUDING DRAG STRUT LOADS
8.d.a.f. ADJUSTMENTS TO WOOD MEMBER AND METAL CONNECTOR PLATE DESIGN VALUE FOR CONDITIONS OF USE.
8.d.a.g. METAL-CONNECTOR-PLATE TYPE, SIZE, AND THICKNESS OR GAGE, AND THE DIMENSIONED LOCATION OF EACH METAL CONNECTOR PLATE. CONNECTOR PLATES SHALL HAVE A CURRENT ICC-ES OR IAPMO EVALUATION REPORT.
8.d.a.h. SIZE, SPECIES, AND GRADE FOR EACH WOOD MEMBER
8.d.a.i. TRUSS-TO-TRUSS CONNECTIONS AND TRUSS FIELD ASSEMBLY REQUIREMENTS.
8.d.a.j. CALCULATED SPAN-TO-DEFLECTION RATIO AND MAXIMUM VERTICAL AND HORIZONTAL DEFLECTION FOR LIVE AND TOTAL LOAD, AS APPLICABLE.
8.d.a.k. MAXIMUM AXIAL TENSION AND COMPRESSION FORCES IN THE TRUSS MEMBERS.
8.d.a.l. REQUIRED PERMANENT INDIVIDUAL TRUSS MEMBER RESTRAINT LOCATION AND THE METHOD AND DETAILS OF RESTRAINT/BRACING TO BE USED.
8.d.b. PERMANENT INDIVIDUAL TRUSS MEMBER RESTRAINT SHALL CONFORM WITH SECTION 2303.4.1.2 OF THE 2015 IBC. PROJECT-SPECIFIC PERMANENT INDIVIDUAL TRUSS MEMBER RESTRAINT/BRACING DESIGN, IF USED, SHALL BE SPECIFIED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED.
8.e. TEMPORARY INSTALLATION OF BRACING/RESTRAINTS: THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LATERAL AND INSTALLATION BRACING OF THE TRUSSES. TRUSS BRACING SHALL COMPLY WITH THE REQUIREMENTS OF TPI DSB-89. TEMPORARY BRACING INCLUDES TOP CHORD LATERAL BRACING, BOTTOM CHORD LATERAL BRACING, DIAGONAL BRACING, CROSS BRACING, AND GROUND BRACING.
8.f. TRUSSES SPANNING 60 FEET OR GRATER, THE OWNER SHALL CONTRACT WITH ANY QUALIFIED REGISTERED PROFESSIONAL ENGINEER FOR THE DESIGN OF THE TEMPORARY INSTALLATION RESTRAINT/BRACING AND THE PERMANENT INDIVIDUAL TRUSS MEMBER RESTRAINT/BRACING FOR ALL TRUSSES WITH CLEAR SPANS 60 FEET OR GREATER.
9. WOOD STRUCTURAL PANELS:
9.a. WOOD STRUCTURAL PANELS SHALL CONFORM TO VOLUNTARY PRODUCT STANDARDS PS 1 AND PS 2 AND APA PRP-108 PERFORMANCE STANDARDS.
9.b. ALL SHEATHING SHALL BEAR THE APA TRADEMARK AND GRADE STAMP.
9.c. ALL END JOINTS SHALL BE STAGGERED AND SHALL BUTT ALONG THE CENTER LINES OF FRAMING MEMBERS.
9.d. THE LONG DIMENSION OF PANELS SHALL BE INSTALLED PERPENDICULAR TO SUPPORTS WITH PANEL CONTINUOUS OVER TWO OR MORE SPANS.
9.e. PANELS SHALL NOT BE LESS THAN 4' x 8' EXCEPT AT BOUNDARIES AND CHANGES IN FRAMING. THE MINIMUM PANEL DIMENSION FOR FLOOR SHEATHING AT BOUNDARIES SHALL BE 24" UNLESS ALL EDGES OF THE UNDERSIZED PANELS ARE SUPPORTED BY AND FASTENED TO FRAMING MEMBERS OR BLOCKING.
9.f. NAILS SHALL BE COMMON WIRE NAILS (NOT BOX OR SINKER NAILS) AND BE PLACED 3/4" MINIMUM FROM THE EDGE OF PANELS. MINIMUM NAIL PENETRATION INTO FRAMING MEMBERS SHALL BE 1 1/2" FOR 8d NAILS AND 1 3/8" FOR 10d NAILS.
9.g. WHERE SPECIAL INSPECTIONS ARE REQUIRED, PANEL NAILING SHALL BE INSPECTED PRIOR TO COVERING.
9.1. ROOF PANELS SHALL BE 1/2" THICK, MINIMUM, 3/8" SPAN RATING; PANEL GRADE: APA RATED SHEATHING, NAILING, UNLESS NOTED OTHERWISE:
9.1.1. 8d @ 6" o/c AT PANEL EDGES
9.1.2. 8d @ 12" o/c AT PANEL FIELD
9.2. FLOOR FLOOR PANELS SHALL 1/2" THICK, MINIMUM, 24", PANEL GRADE: APA RATED SHEATHING, GLUED w/ NAILING, UNLESS NOTED OTHERWISE:
9.2.1. 10d @ 6" o/c AT PANEL EDGES
9.2.2. 10d @ 12" o/c AT PANEL FIELD
9.3. WALL PANELS SHALL BE 1/2" THICK, MINIMUM, 3/8" SPAN RATING; PANEL GRADE: APA RATED SHEATHING, NAILING, UNLESS NOTED OTHERWISE:
9.3.1. 8d @ 6" o/c AT PANEL EDGES
9.3.2. 8d @ 12" o/c AT PANEL FIELD
10. WOOD DECKING BOARDS:
10.a. BOARDS SHALL BE LAID AT 90 DEGREES TO SUPPORTING MEMBERS.
10.b. NAILING TO EACH INTERIOR SUPPORTING MEMBER:
10.b.a. 2x6 BOARDS: (2) GALVANIZED 16d NAILS OR #12 WOOD DECK SCREWS.
10.b.b. 2x8 BOARDS: (3) GALVANIZED 16d NAILS OR #12 WOOD DECK SCREWS.
10.c. NAILING TO EDGE SUPPORTING MEMBER: GALVANIZED 16d NAILS OR #12 WOOD DECK SCREWS AT 4" ON CENTER.
10.d. END JOINTS IN ADJACENT BOARDS SHALL BE SEPARATED BY AT LEAST ONE JOIST. THERE SHALL BE AT LEAST TWO BOARDS BETWEEN JOINTS ON THE SAME SUPPORT.

G) WOOD FRAMING (CONT.):

- 1. FASTENERS AND FRAMING ANCHORS AND CONNECTORS:
1.a. NAILS: COMMON WIRE NAILS
1.a.a. 8d = 0.131"Ø x 2 1/2" LONG
1.a.b. 10 = 0.148"Ø x 3" LONG
1.a.c. 16d = 0.162"Ø x 3 1/2" LONG
1.b. LAG BOLTS AND THRU-BOLTS ASTM A307
1.b.a. THROUGH-BOLT HOLES SHALL BE 1/16" LARGER THAN BOLT DIAMETER. PROVIDE STANDARD CUT WASHER UNDER ALL HEAD AND NUTS FOR BOLTS BEARING ON WOOD.
1.b.b. INSTALL LAG BOLTS IN DRILLED PILOT HOLES EQUAL TO 3/4 TIMES THE BOLT SHANK DIAMETER. DO NOT HAMMER OR OVER-DRIVE BOLTS. PROVIDE STANDARD CUT WASHER UNDER ALL LAG BOLT HEADS BEARING ON WOOD.
1.c. WOOD SCREWS SHALL BE AS SPECIFIED ON PLANS
1.d. ALL FRAMING ANCHORS AND CONNECTORS SHALL BE BY SIMPSON STRONG-TIE, UNLESS NOTED OTHERWISE
1.e. METAL CONNECTORS AND TREATED LUMBER:
1.e.a. ALL METAL CONNECTORS IN CONTACT WITH TREATED LUMBER SHALL BE STAINLESS STEEL, BATCH HOT-DIP GALVANIZED PER ASTM A153 OR A153, OR PROPRIETARY EQUIVALENT.
2. PROVIDE 3" x 3" x 1/4" PLATE WASHERS ON ALL FOUNDATION ANCHOR BOLTS.
3. GENERAL:
3.a. FOR CONNECTIONS FOR WOOD MEMBERS NOT SHOWN ON THESE DRAWINGS OR IN THESE NOTES, USE THE IBC FASTENING SCHEDULE, TABLE 2304.10.1.
3.b. ALL EXTERIOR WOOD SHALL BE PRESSURE TREATED, PAINTED OR STAINED. MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER. FOLLOW THE MANUFACTURER'S RECOMMENDATIONS FOR EXTERIOR APPLICATIONS.
3.c. ALL NON-BEARING WALLS BELOW FLOOR FRAMING AND PREFABRICATED TRUSSES SHALL BE SLIP CONNECTED TO ALLOW FOR POTENTIAL FRAMING DEFLECTION.
H) POST-INSTALLED ANCHORS:
1. ADHESIVE ANCHORS AND DOWELS IN CONCRETE: SET-XP (ICC-ES ESR-2508) OR AT-XP (IAPMO UES ER-263) BY SIMPSON STRONG-TIE OR HIT-HY 200 (ICC-ES ESR-3187) BY HILTI.
2. ADHESIVE ANCHORS AND DOWELS IN REINFORCED MASONRY: SET-XP (IAPMO UES ER-265) OR AT-XP (IAPMO UES ER-281) BY SIMPSON STRONG-TIE.
3. EXPANSION ANCHORS IN CONCRETE: STRONG-BOLT 2 (IAPMO UES ER-240) BY SIMPSON STRONG-TIE OR KWIK BOLT TZ (ICC-ES ESR-1917) BY HILTI.
4. EXPANSION ANCHORS IN MASONRY: STRONG-BOLT 2 (IAPMO UES ER-240) BY SIMPSON STRONG-TIE.
5. SCREW ANCHORS IN CONCRETE: TITEN HD (ICC-ES ESR-2713) BY SIMPSON STRONG-TIE OR KWIK HUS-EZ (ICC-ES ESR-3056) BY HILTI.
6. SCREW ANCHORS IN MASONRY: TITEN HD (IC-ES ESR-1056) BY SIMPSON STRONG-TIE OR KWIK HUS-EZ (ICC-ES ESR-3056) BY HILTI.
7. FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR ALL POST-INSTALLED ANCHORS, INCLUDING REQUIREMENTS FOR INSTALLING ANCHORS NEAR HEAD OR BED JOINTS IN MASONRY WALLS.
8. PROVIDE STAINLESS STEEL FASTENERS FOR EXTERIOR USE OR WHEN EXPOSED TO WEATHER. PROVIDE ELECTRO-PLATED CARBON STEEL ANCHORS AT OTHER LOCATIONS, UNLESS NOTED OTHERWISE.
9. IF REINFORCEMENT IS ENCOUNTERED DURING DRILLING, ABANDON AND SHIFT THE HOLE LOCATION TO AVOID THE REINFORCEMENT. PROVIDE A MINIMUM OF (2) ANCHOR DIAMETERS OR 1 INCH, WHICHEVER IS LARGE, OF SOUND CONCRETE OR MASONRY BETWEEN THE ANCHOR AND THE ABANDONED HOLE. FILL THE ABANDONED HOLE WITH NON-SHRINK GROUT. IF THE ANCHOR OR DOWEL MAY NOT BE SHIFTED AS NOTED ABOVE, SEEK GUIDANCE FROM THE ENGINEER.
10. LOCATED REINFORCEMENT AND CONFIRM FINAL ANCHOR LOCATIONS PRIOR TO FABRICATING PLATES, MEMBERS, OR OTHER STEEL ASSEMBLIES ATTACHED WITH POST-INSTALLED ANCHORS.
11. SUBSTITUTE PRODUCTS SHALL HAVE AN ASSOCIATED ICC-ES OR IAPMO EVALUATION REPORT AND THE CONTRACTOR MUST DEMONSTRATE PERFORMANCE IS EQUIVALENT TO THE SPECIFIED PRODUCTS. SUBSTITUTIONS WILL NOT BE CONSIDERED UNLESS THIS INFORMATION IS SUBMITTED.

ABBREVIATIONS:

Table with 4 columns: Abbreviation, Description, Abbreviation, Description. Includes terms like AB ANCHOR BOLT, ARCHL ARCHITECTURAL, BLW BELOW, BTM BOTTOM, etc.

DRAWING LIST:

- S100 GENERAL STRUCTURAL NOTES
S101 SPECIAL INSPECTIONS & SCHEDULES
S102 FOUNDATION PLAN
S103 FLOOR FRAMING PLAN
S104 ROOF FRAMING PLAN
S201 STRUCTURAL DETAILS
S202 STRUCTURAL DETAILS
S203 STRUCTURAL DETAILS

Table with 10 columns for REVISIONS and 10 rows for tracking changes.

Table with 10 columns for REVISIONS and 10 rows for tracking changes.

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STAMPED: 2/5/2023

WALSH RESIDENCE - GARAGE REMODEL
2247 5TH AVENUE, WEST LINN, OR 97068
GENERAL STRUCTURAL NOTES
DATE: FEBRUARY 2023
DRAWN: M. GALVIN
COPYRIGHT: 2023

JOB NUMBER: 22.037
DRAWING NUMBER: S100
REV

CONCRETE					
SYSTEM OR MATERIAL:	IBC CODE REFERENCE:	CODE OR STANDARD:	CONTINUOUS:	PERIODIC:	NOTES:
AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	TABLE 1705.3	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	X		FABRICATE SPECIMENS AT TIME FRESH CONCRETE IS PLACED ONCE EACH DAY FOR A GIVEN CLASS OF CONCRETE. OR LESS THAN ONCE FOR EACH 150 YDS OF CONCRETE. OR LESS THAN ONCE FOR EACH 5,000 FT2 OF SURFACE AREA FOR SLABS/WALLS. ONCE EACH SHIFT FROM REPLACE WORK OR FROM TEST PANEL AND MINIMUM ONE SPECIMEN FOR EACH 100 CUBIC YARDS. *PRECONSTRUCTION TESTS AS REQUIRED PER THE BUILDING OFFICIAL.*
CONCRETE STRENGTH	TABLE 1705.3	ASTM C39	X		
CONCRETE SLUMP	TABLE 1705.3	ASTM C143		X	
CONCRETE AIR CONTENT	TABLE 1705.3	ASTM C231		X	
CONCRETE TEMPERATURE	TABLE 1705.3	ASTM C1064		X	
INSPECTION OF ANCHORS INSTALLED IN HARDENED CONCRETE	1909.1 TABLE 1705.3	ACI 318: 3.8.6, 6.1.3, 21.1.8		X	SPECIAL INSPECTIONS APPLY TO ANCHOR PRODUCT NAME, TYPE, AND DIMENSIONS, HOLE DIMENSIONS, COMPLIANCE WITH DRILL BIT REQUIREMENTS, CLEANLINESS OF THE HOLE AND ANCHOR, ADHESIVE EXPIRATION DATE, ANCHOR/ADHESIVE INSTALLATION, ANCHOR EMBEDMENT, AND TIGHTENING TORQUE
REINFORCING STEEL PLACEMENT	1705.3 1910.4 1901.3.2	ACI 318: 3.5 ACI 318: 7.1-7.7		X	TOLERANCES AND REINFORCING PLACEMENT PER ACI 7.5; SPACING LIMITS FOR REINFORCING ACI 7.8 PROTECTION OF REINFORCEMENT PER ACI 17.7
WELDING REINFORCING STEEL	1705.2.2.1.2 1903.1	ACI 318: 3.5.2 AWS D1.4	X		REFER TO STEEL FOR WELDING REQUIREMENTS TABLE 1705.2.2, ITEM 2b
a. VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A 706	TABLE 1705.2.2	AWS D1.4 ACI 318: SECTION 3.5.2		X	
b. OTHER REINFORCING STEEL	TABLE 1705.2.2	AWS D1.4 ACI 318: SECTION 3.5.2		X	
PLACEMENT OF BOLTS INSTALLED IN CONCRETE	TABLE 1705.3 1909.1	ACI 318: 1.3.2.C ACI 318: 6.1.3 ACI 318: 21.1.8 ACI 318 - APPENDIX D		X	ALL BOLTS VISUALLY INSPECTED
VERIFYING USE OF REQUIRED MIX DESIGN(S)	TABLE 1705.3 1904 1904.2 1910.2 1910.3	ACI 318: CHAPTER 4 ACI 318: 5.2-5.4		X	
CONCRETE PLACEMENT	TABLE 1705.3	ACI 318: 1.3.2.D ACI 318: 5.9 - 5.10	X		
CONCRETE PLACEMENT AT COMPOSITE SLABS	TABLE 1705.3	ASCE 9, CHAPTER 3		X	
CONCRETE CURING	TABLE 1705.3 1910.9.1-3	ACI 318: 5.11-5.13		X	
VERIFICATION OF IN-SITU CONCRETE PRIOR TO REMOVAL OF FORMS AND SHORES FROM ELEVATED BEAMS AND STRUCTURAL SLABS	TABLE 1705.3	ACI 318: 6.2		X	
VERIFICATION OF FORMWORK	TABLE 1705.3	ACI 318: 6.1.1		X	SPECIAL INSPECTIONS APPLY TO SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.

SHEARWALL SCHEDULE				
MARK	SHEATHING NAILING	SILL NAILING	RIM NAILING	FOUNDATION ANCHORS
1	6" o/c EDGES 12" o/c FIELD	16d @ 6" o/c	A35 @ 18" o/c	2x PL. w/ 1/2" DIA. ANCHOR BOLTS @ 48" o/c
2	4" o/c EDGES 12" o/c FIELD	16d @ 4" o/c	A35 @ 16" o/c	2x PL. w/ 1/2" DIA. ANCHOR BOLTS @ 36" o/c

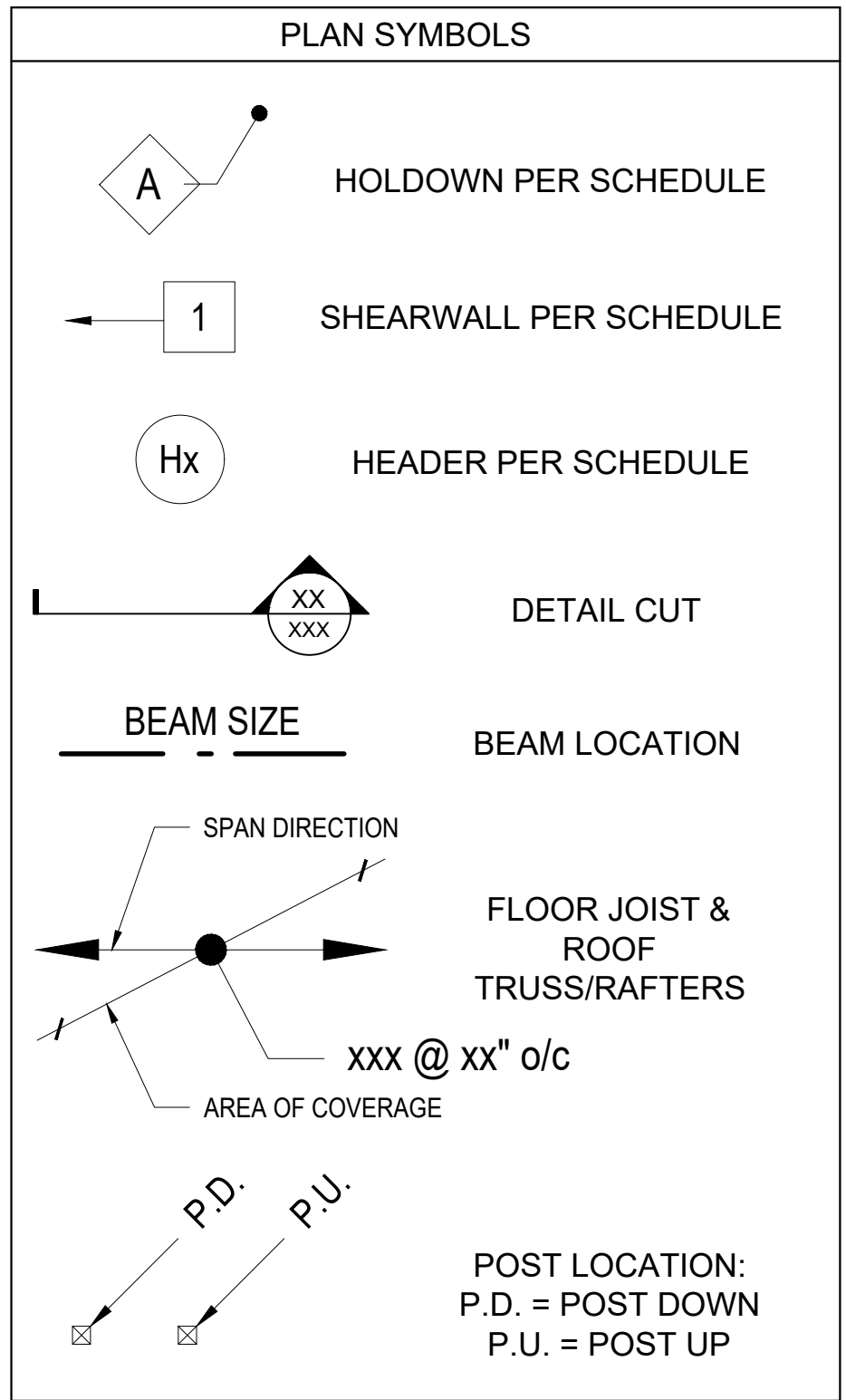
HOLDOWN SCHEDULE						
MARK	TYPE	POST	FASTENERS	ANCHOR BOLT	REMARKS	DETAIL
A	CS16	SINGLE STUD	PER MFR		MIN. 11" END DIST. ON BEAM BELOW	112 S202
B	H DU2	DOUBLE STUD	(6) 1/4" x 2 1/2" SDS SCREWS	SSTB20		109 S201
C	H DU4	DOUBLE STUD	(10) 1/4" x 2 1/2" SDS SCREWS	SSTB24		109 S201
D	H DU5	DOUBLE STUD	(14) 1/4" x 2 1/2" SDS SCREWS	SSTB24		109 S201

HEADER SCHEDULE			
MARK	SIZE	TRIMMER STUDS	KING STUDS
HE	EXISTING TO REMAIN		
H1	4x6	(1) 2x	(1) 2x
H2	6x6	(1) 2x	(1) 2x
H3	6x8	(1) 2x	(1) 2x
H4	6x10	(2) 2x	(2) 2x
H5	6x12	(2) 2x	(2) 2x

***HOLDOWN SCHEDULE NOTES:**

- HOLDOWNS SHOWN ARE MANUFACTURED BY SIMPSON STRONG-TIE.
- THREADED RODS SHALL BE ASTM F1554 GR. 36. PROVIDE DOUBLE NUTS AT EMBEDDED END ROD WITH PLATE WASHERS (ASTM A36) OF THE FOLLOWING SIZES INSTALLED BETWEEN THE NUTS:

AB DIA	PL SIZE
5/8"	3/8"x2 1/2"x2 1/2"
7/8"	3/8"x3"x3"
- IF REQUIRED, DEEPEN FOOTING OR WALL TO PROVIDE A MINIMUM OF 3" CLEARANCE BETWEEN THE BOTTOM OF THE HOLDDOWN ANCHOR BOLT (WITH THE EMBEDMENT DEPTH SHOWN IN THE SCHEDULE) AND THE BOTTOM OF THE FOOTING OR WALL. THE THICKENED SECTION OF THE FOOTING OR WALL (PARALLEL TO THE LENGTH OF THE WALL) SHALL EXTEND A MINIMUM OF 1.5x EMBEDMENT DEPTH (1'-0" MIN.) BEYOND THE BOLT CENTERLINE EACH SIDE.
- EMBEDMENT DEPTHS SHOWN FOR ANCHOR RODS ARE MEASURED FROM THE TOP OF CONCRETE FOOTING.
- CONNECT MULTIPLE STUDS AS POSTS USING MIN. (2) 16d NAILS @ 8" o/c EA. PLY.

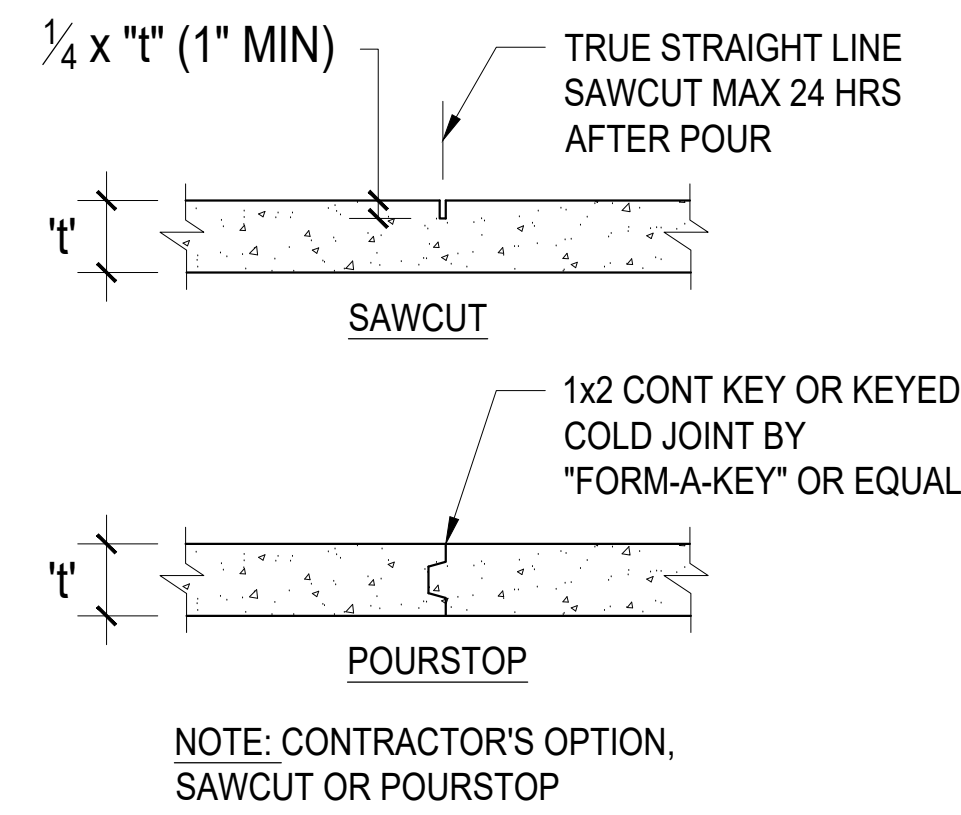


FOOTING SCHEDULE						
MARK	DIMENSIONS			REINFORCEMENT		REMARKS
	LONG ("A")	SHORT ("B")	THICKNESS	LONG DIREC ("C")	SHORT DIREC ("D")	
CF1	CONT.	1'-3"	10"	(2) #4 BOT.	---	
CF2	CONT.	2'-6"	12"	(3) #4 BOT.	#4 @ 24" o/c	
PF1	2'-0"	2'-0"	10"	(3) #4 BOT.	(3) #4 BOT.	
PF2	2'-6"	2'-6"	10"	(3) #4 BOT.	(3) #4 BOT.	
PF3	3'-0"	3'-0"	12"	(4) #4 BOT.	(4) #4 BOT.	
PF4	3'-6"	3'-6"	12"	(5) #4 BOT.	(5) #4 BOT.	
PF5	5'-0"	5'-0"	12"	(8) #4 BOT.	(8) #4 BOT.	

NOTE: REINFORCING "C" IS PARALLEL TO DIMENSION "A" & REINFORCING "D" IS PARALLEL TO DIMENSION "B"

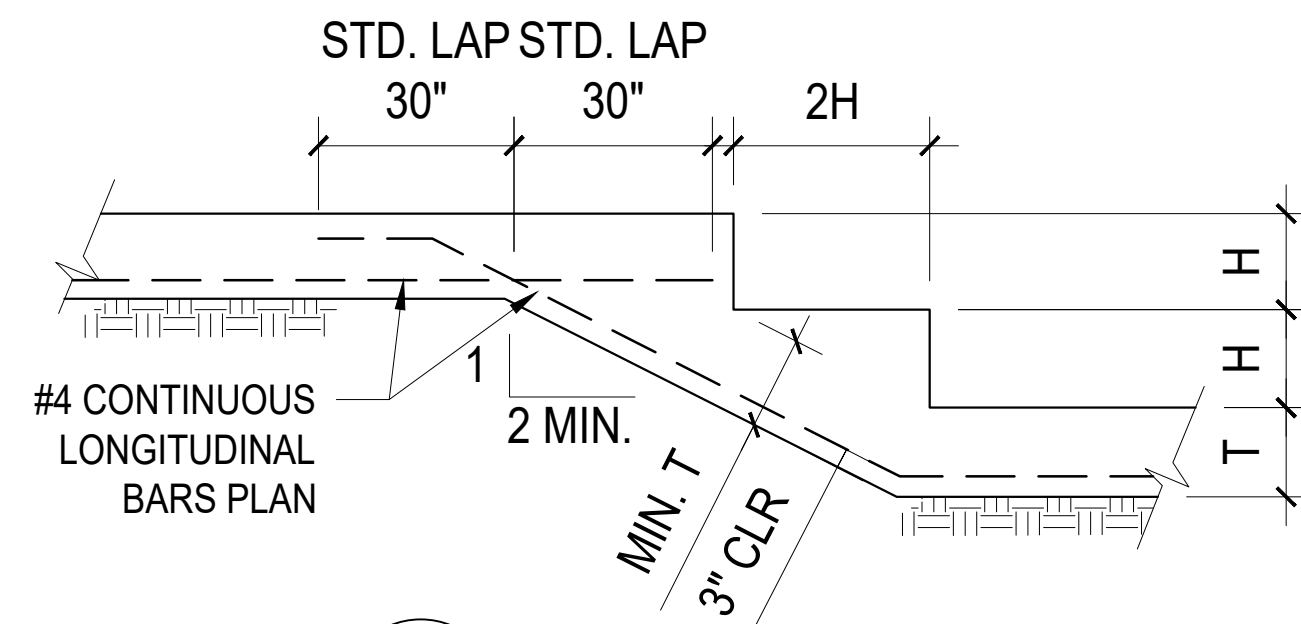
REVISIONS											
NO.	DATE	BY	CHKD	REMARKS							

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STAMPED: 2/5/2023
WALSH RESIDENCE - GARAGE REMODEL 2247 5TH AVENUE, WEST LINN, OR 97088 SCHEDULES & SPECIAL INSPECTIONS
DRAWN: M. GALVIN DATE: FEBRUARY 2023
JOB NUMBER: 22.037 DRAWING NUMBER: S101



110
S201 SCALE: 3/4" = 1'-0"

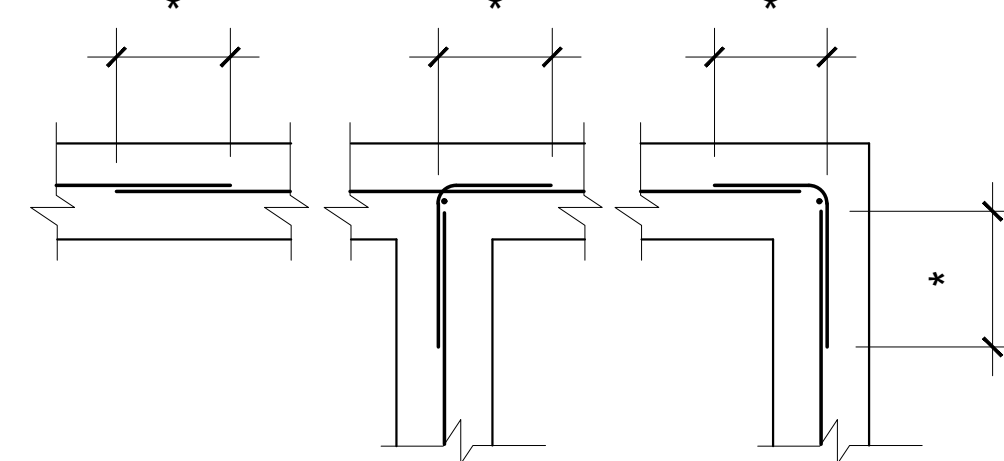
- NOTES:
 1. MAXIMUM FOOTING STEP 'H' SHALL BE 16"
 2. FOOTING THICKNESS 'T' PER PLAN



107
S201 SCALE: 3/4" = 1'-0"

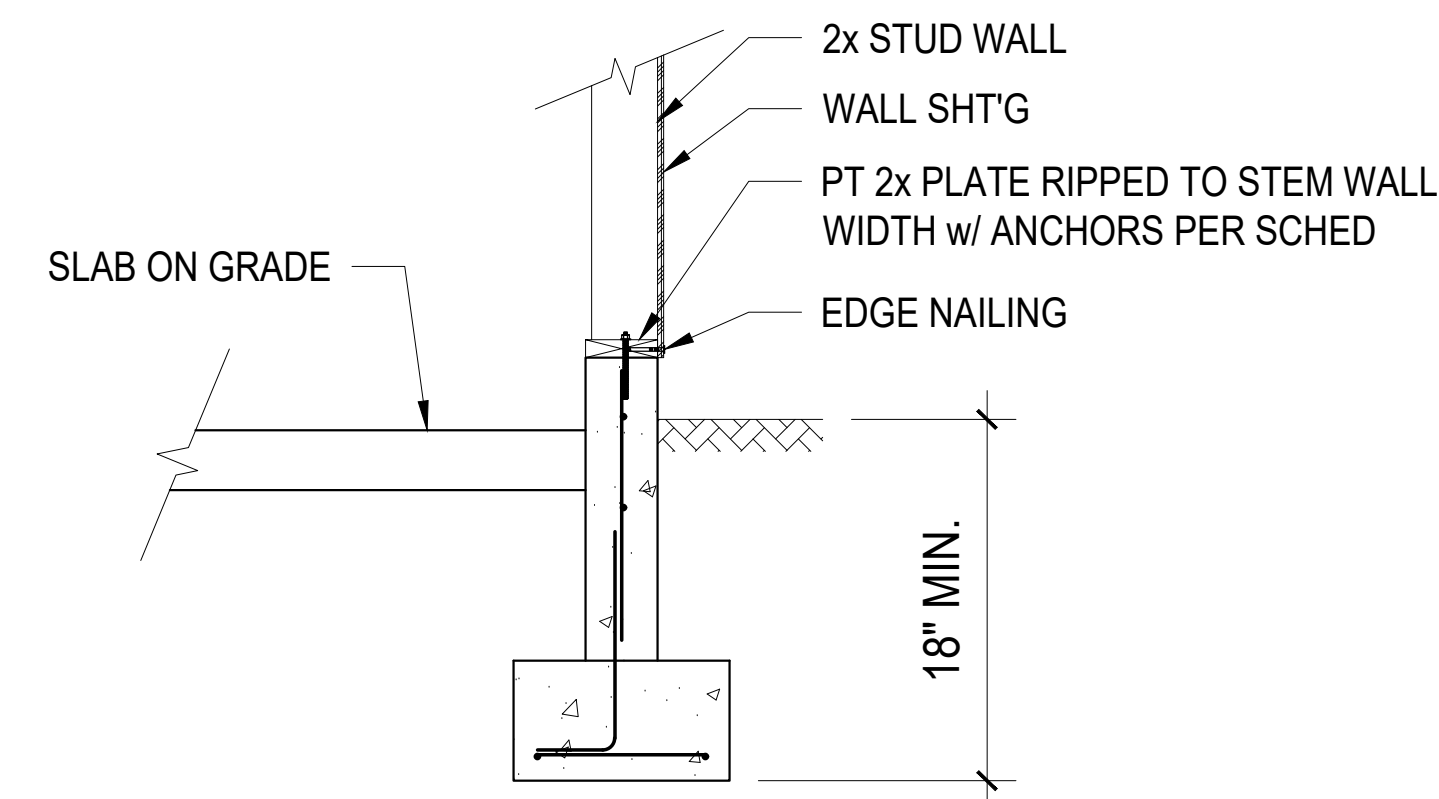
NOTE: #3 BAR GRADE 40; ALL OTHER BARS GRADE 60; $f_c = 2500\text{psi}$

*USE LAP LENGTHS SHOWN UNLESS NOTED OTHERWISE IN DRAWINGS

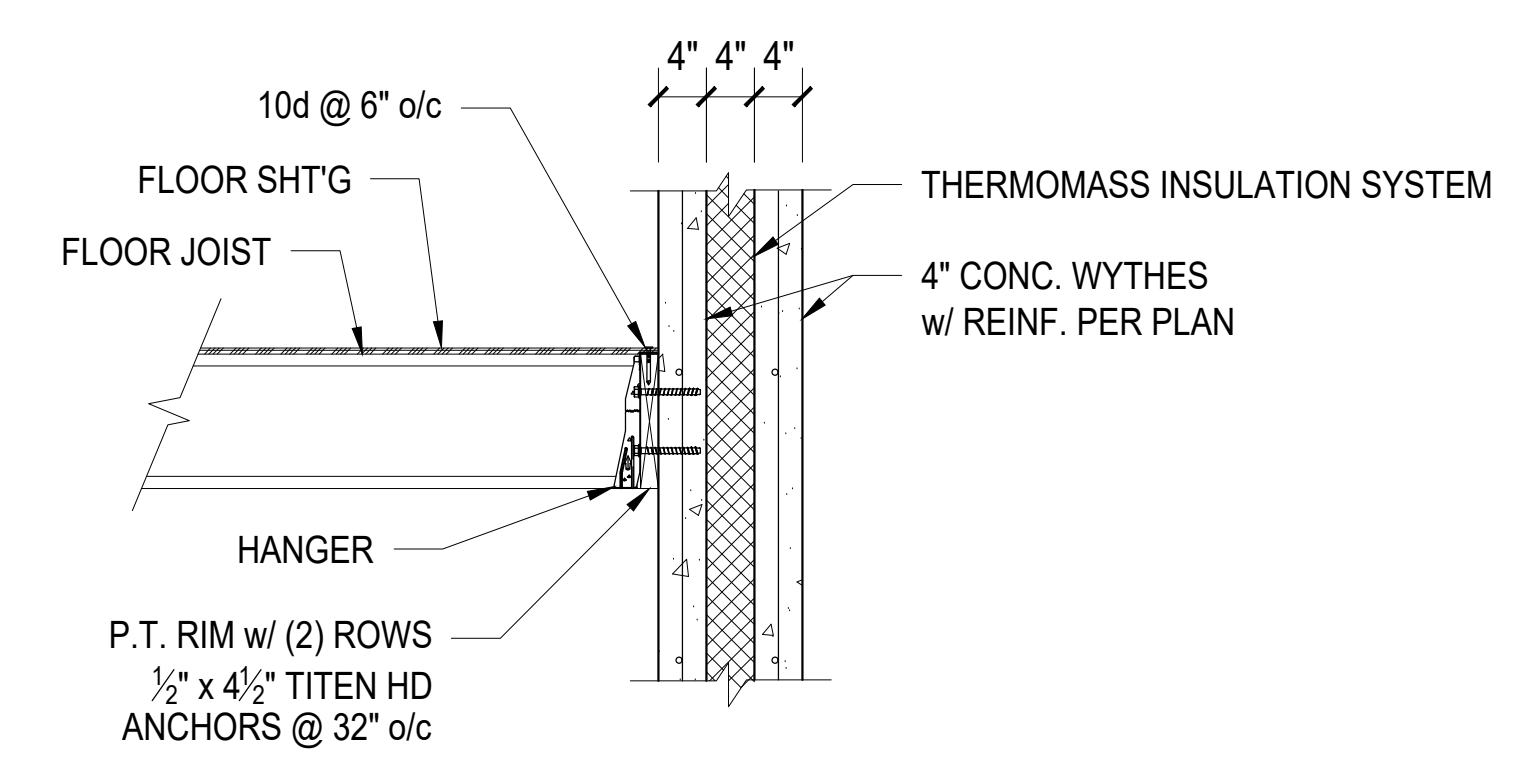


BAR SIZE	LAP LENGTH
#3	24"
#4	32"
#5	39"
#6	47"

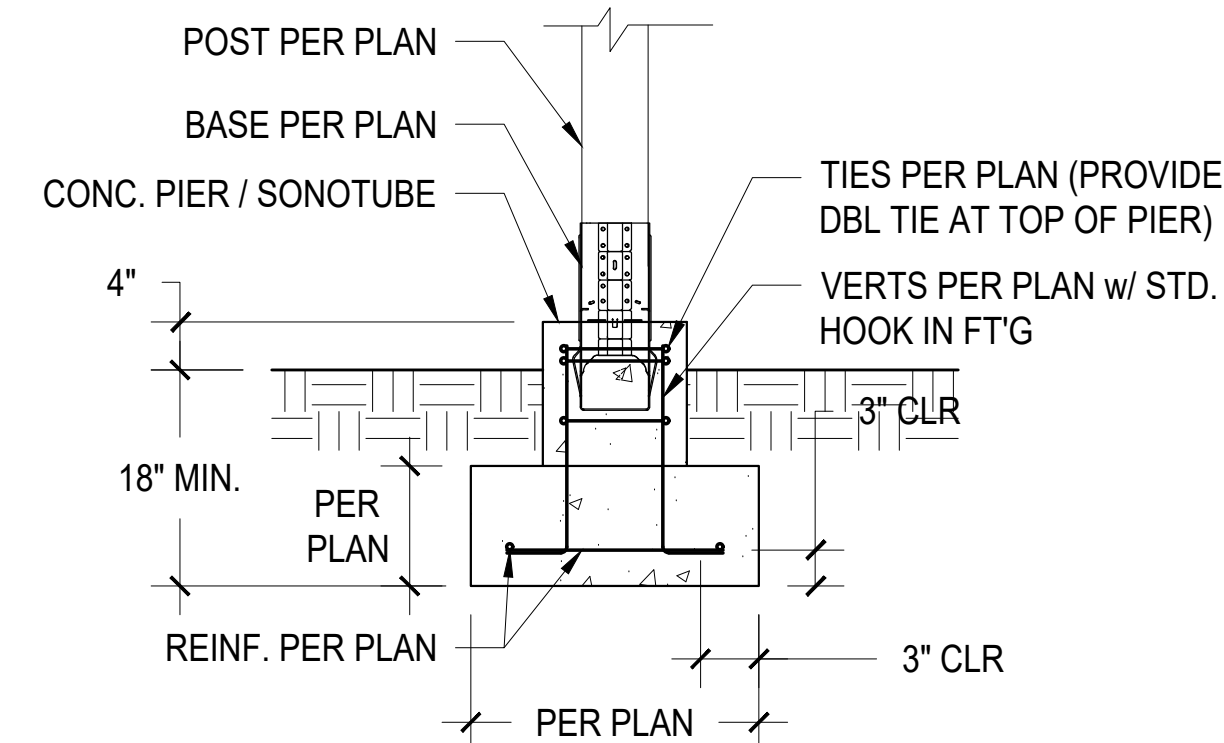
108
S201 SCALE: 3/4" = 1'-0"



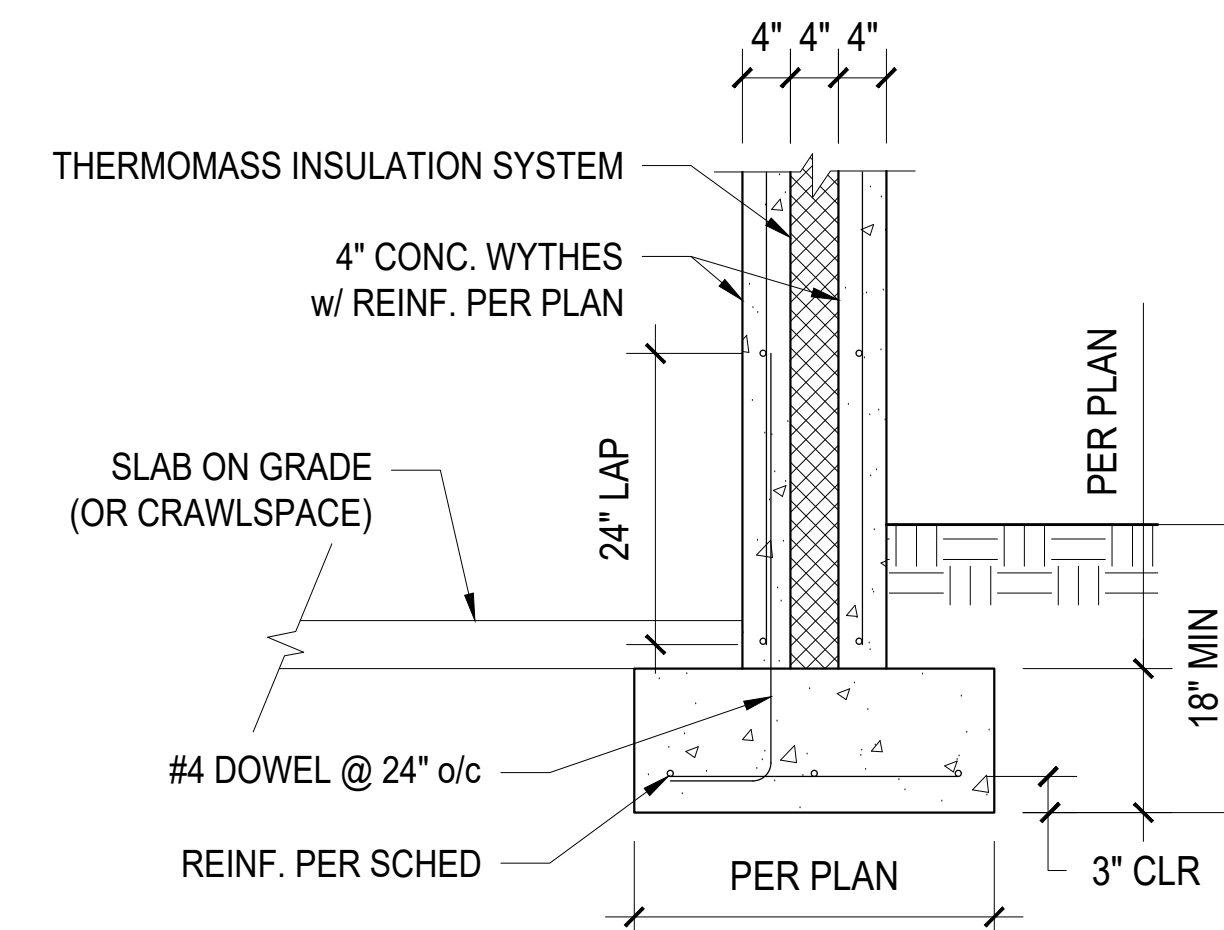
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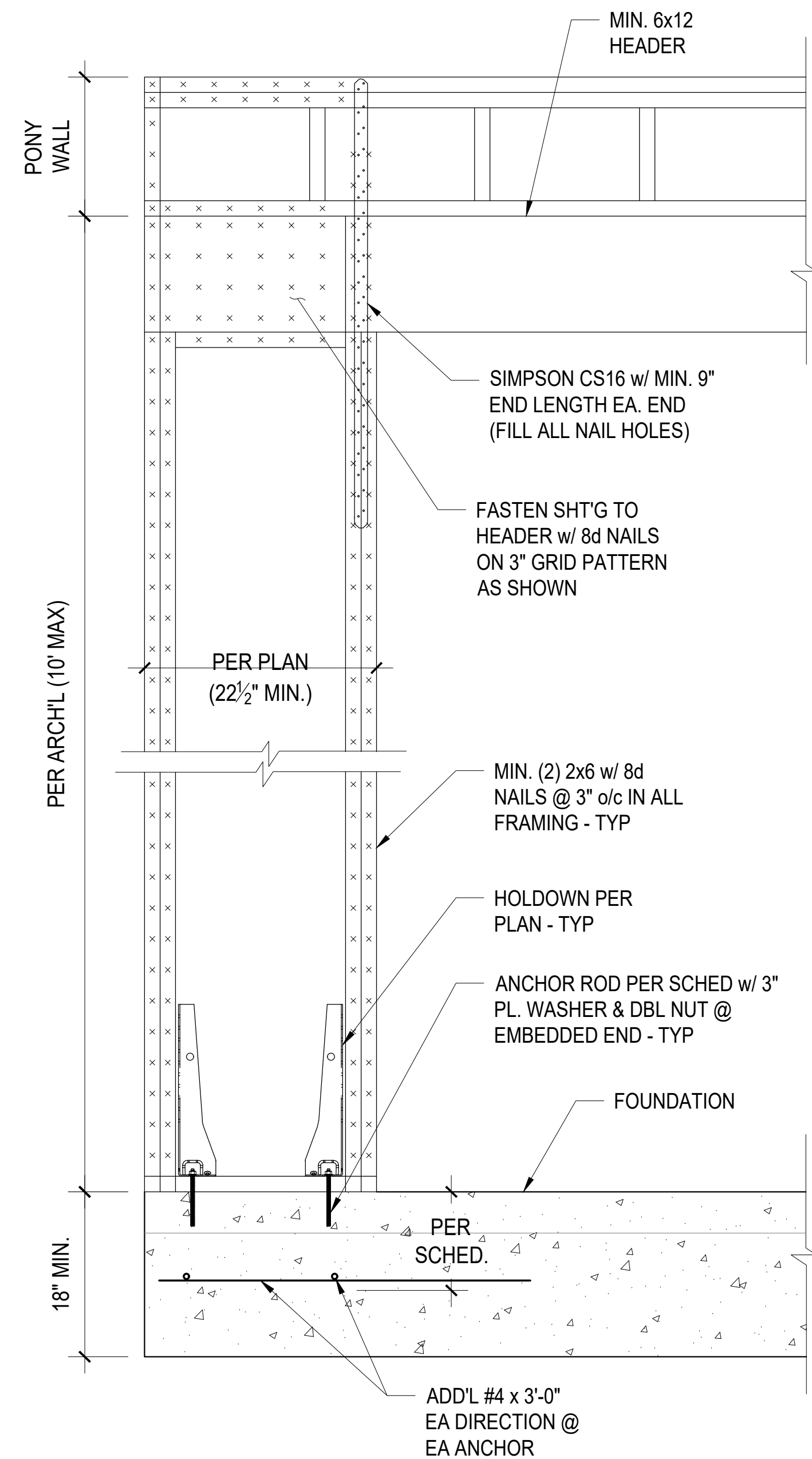
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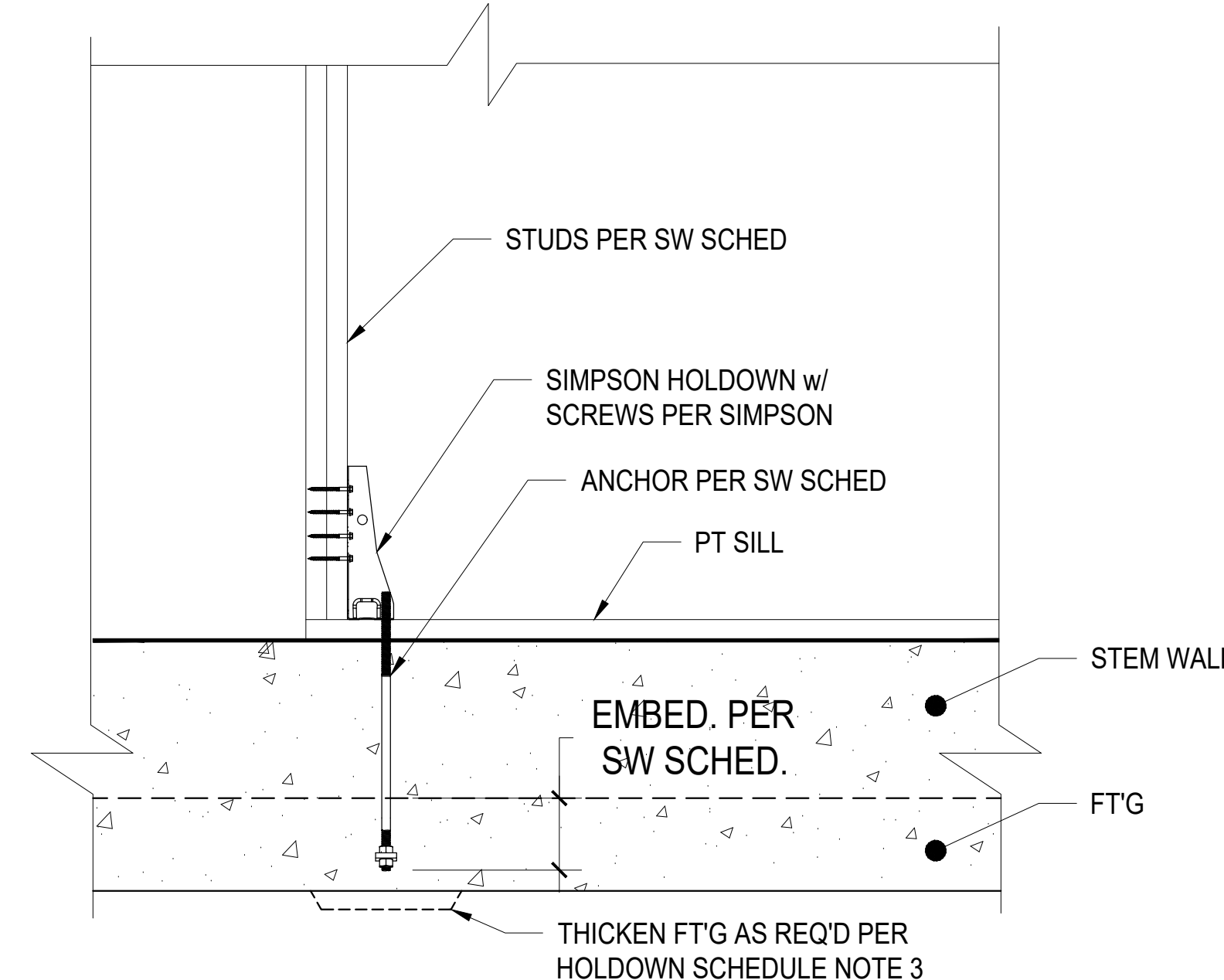
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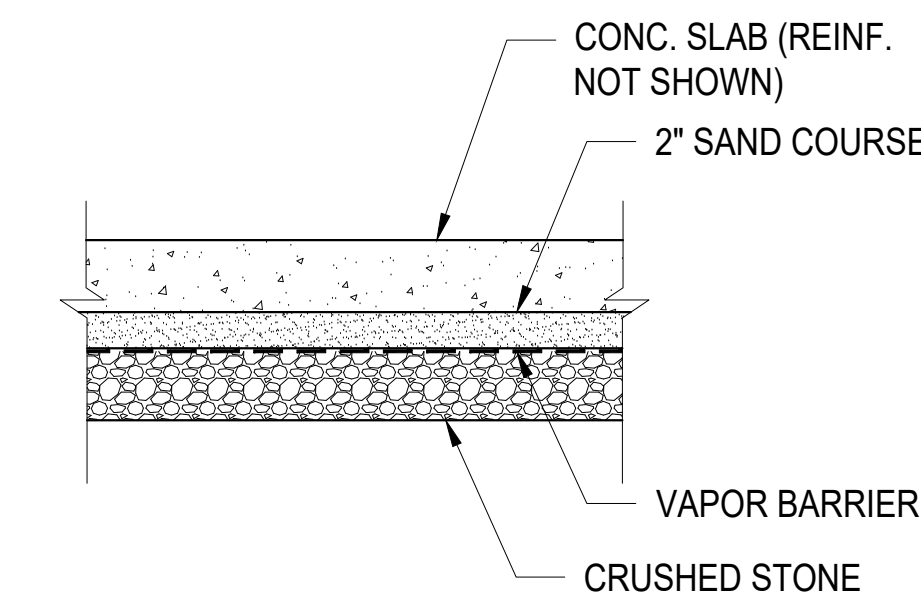
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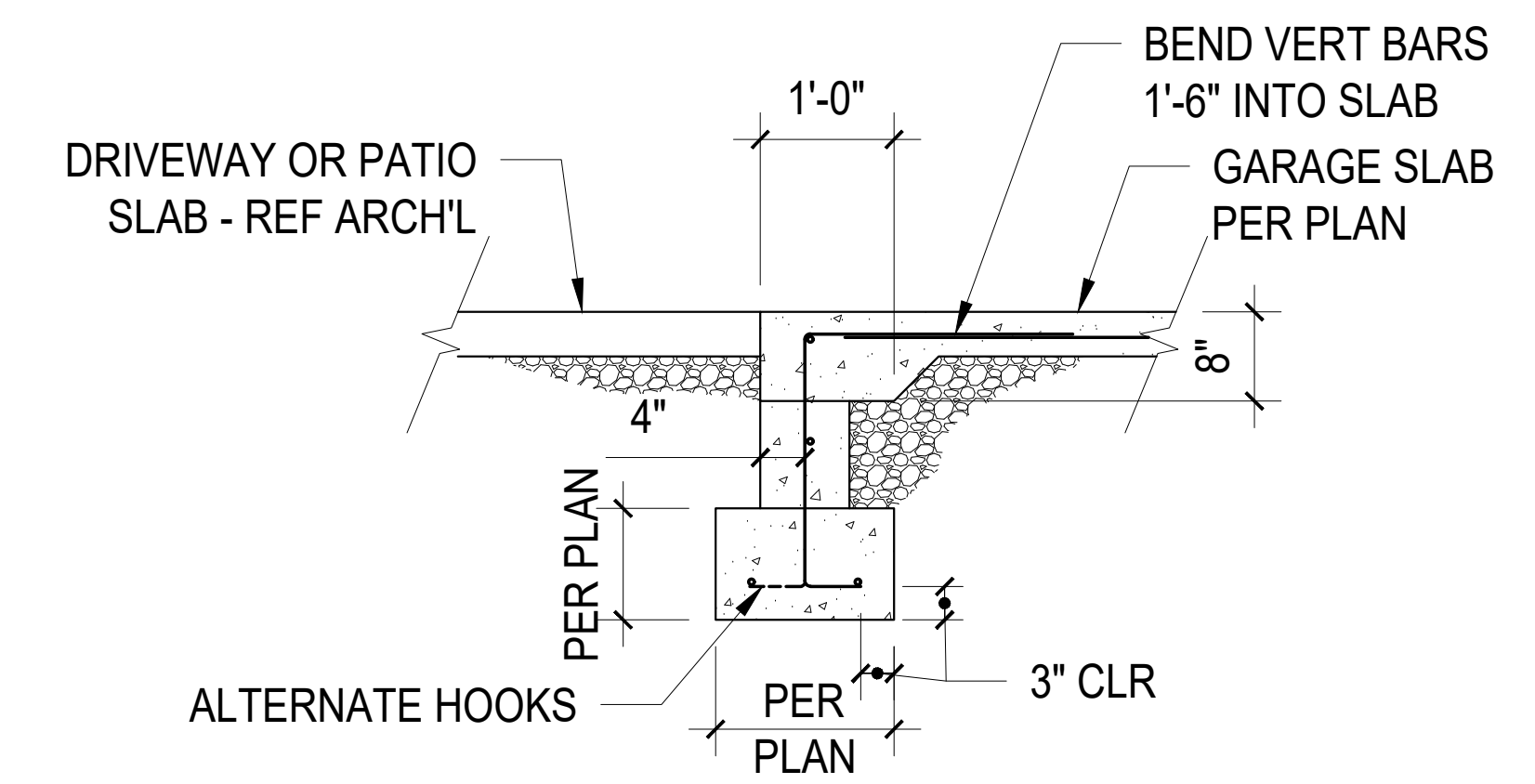
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109
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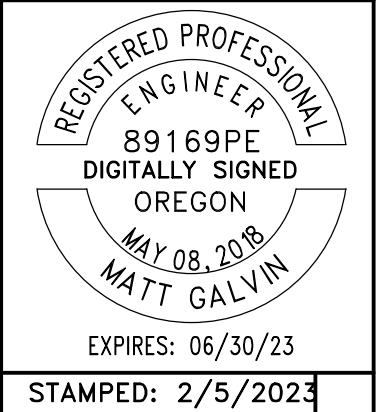
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103
S201 SCALE: 3/4" = 1'-0"

REV	DATE	BY	CHKD	REMARKS

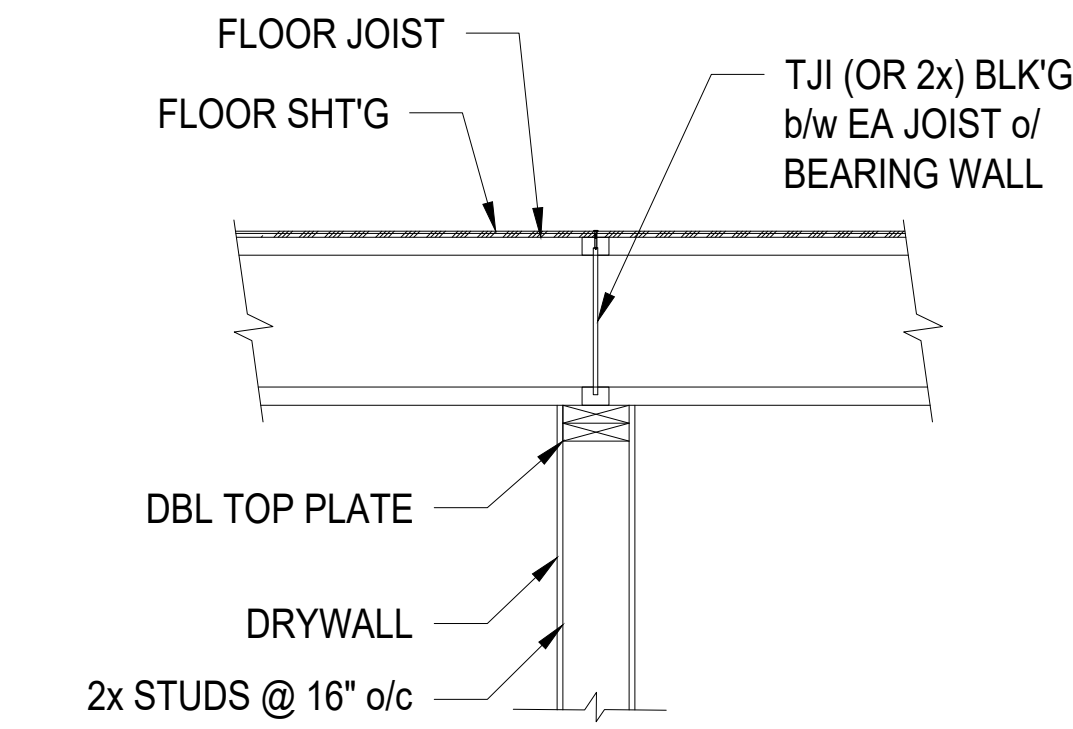
MATT GALVIN, P.E.
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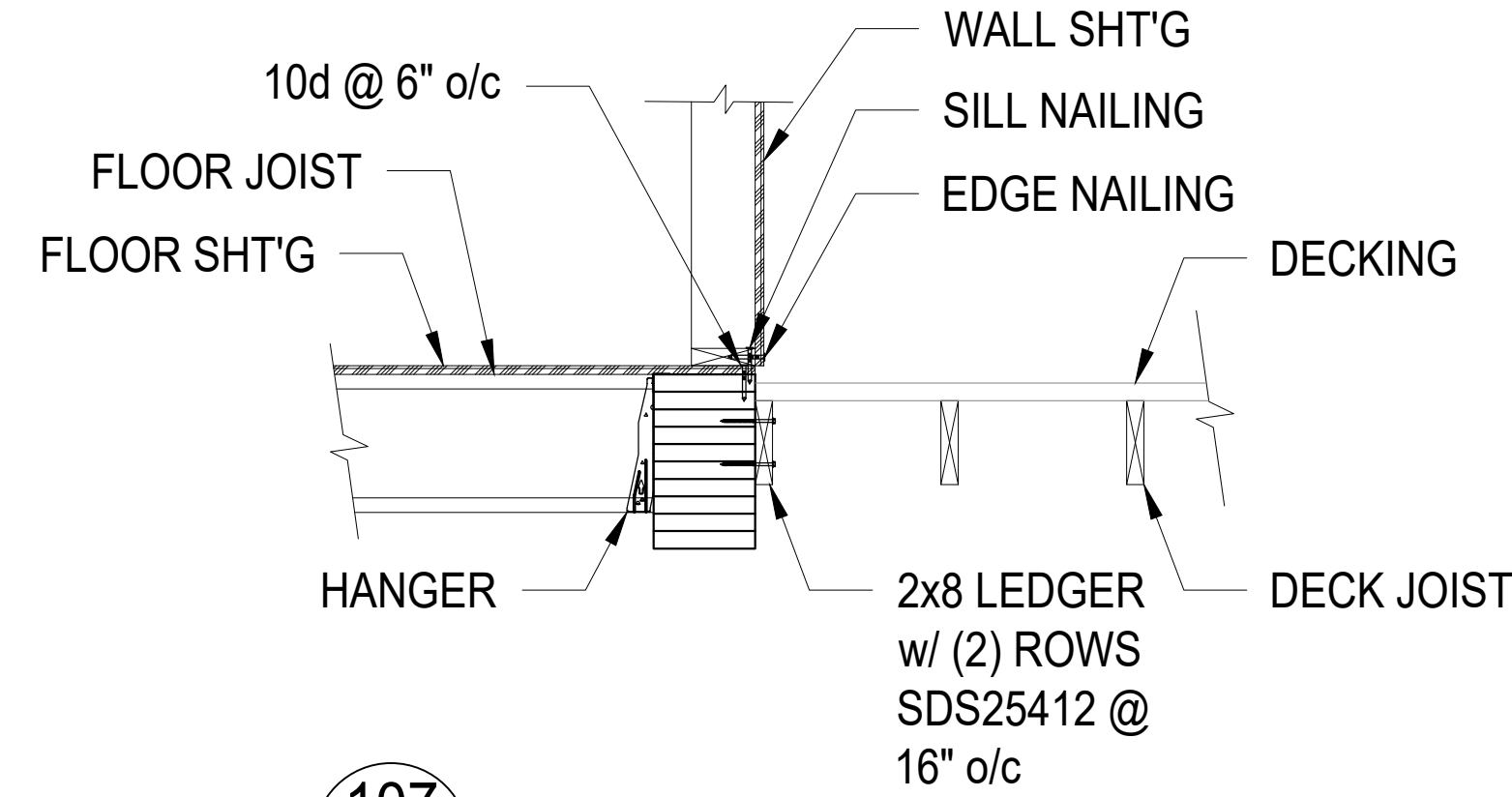
STAMPED: 2/5/2023

WALSH RESIDENCE - GARAGE REMODEL
 2247 5TH AVENUE, WEST LINN, OR 97088
 STRUCTURAL DETAILS
 DRAWN: M. GALVIN
 DATE: FEBRUARY 2023
 COPYRIGHT: 2023

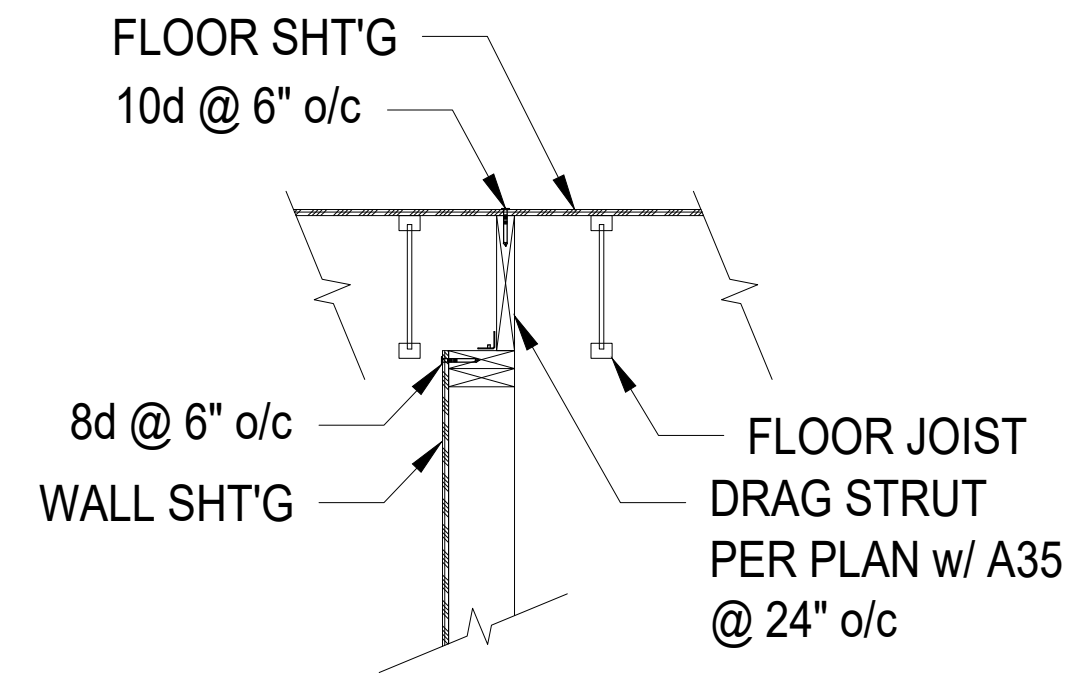
JOB NUMBER
22.037
 DRAWING NUMBER
S201



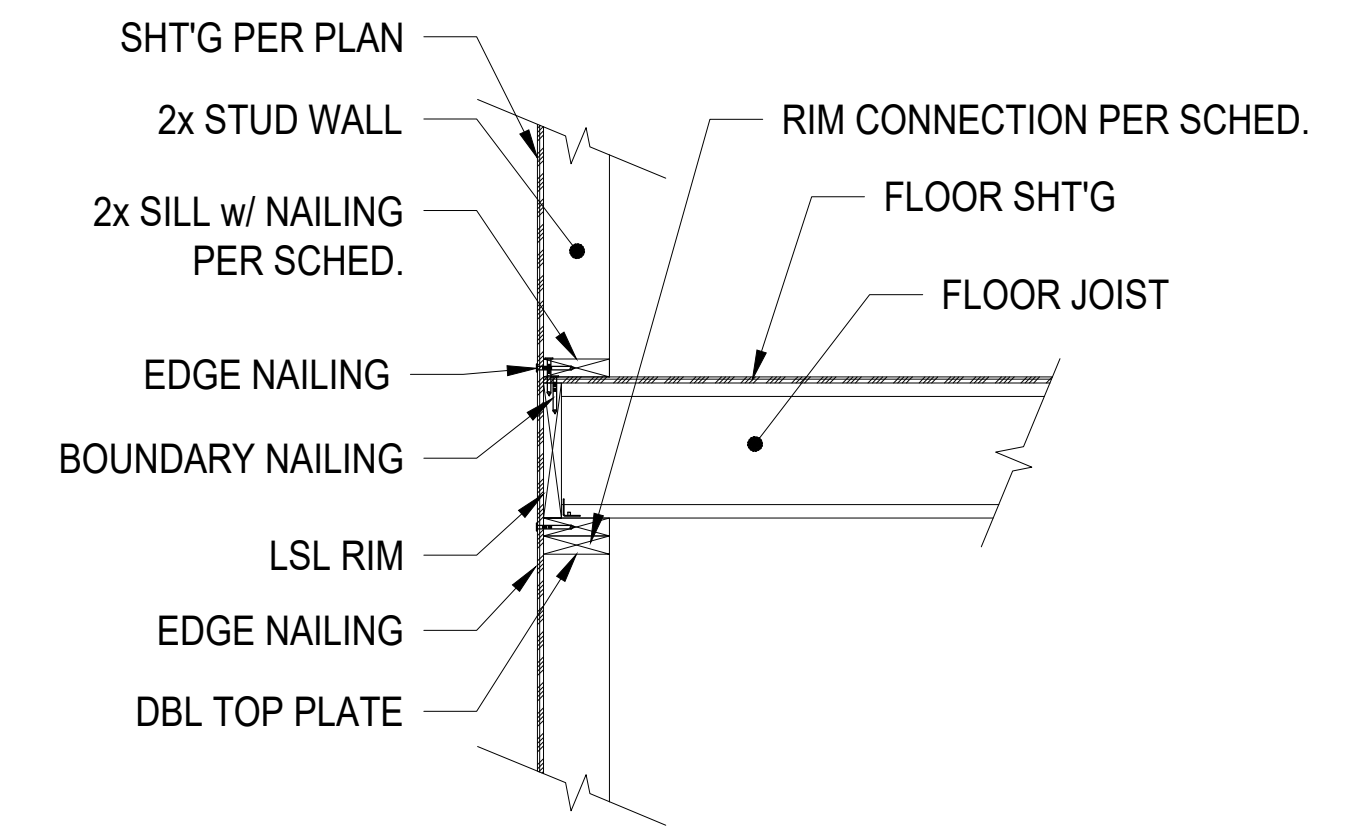
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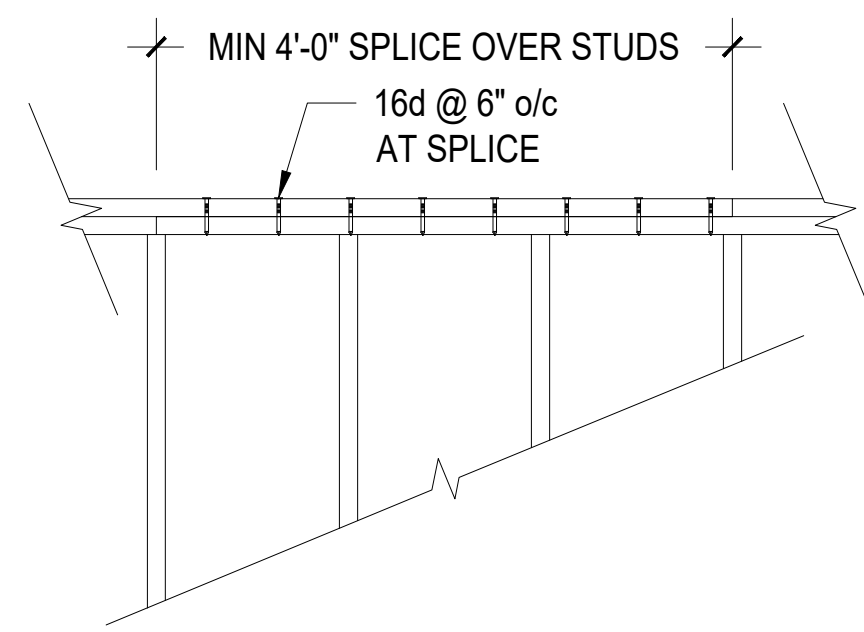
107
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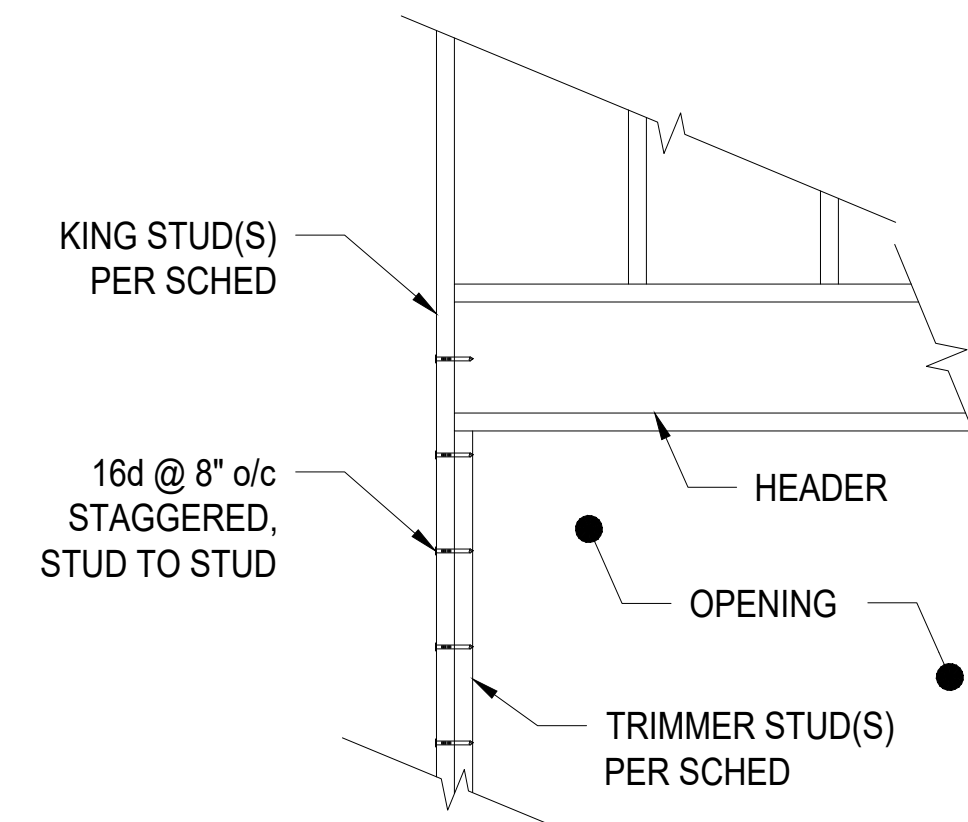
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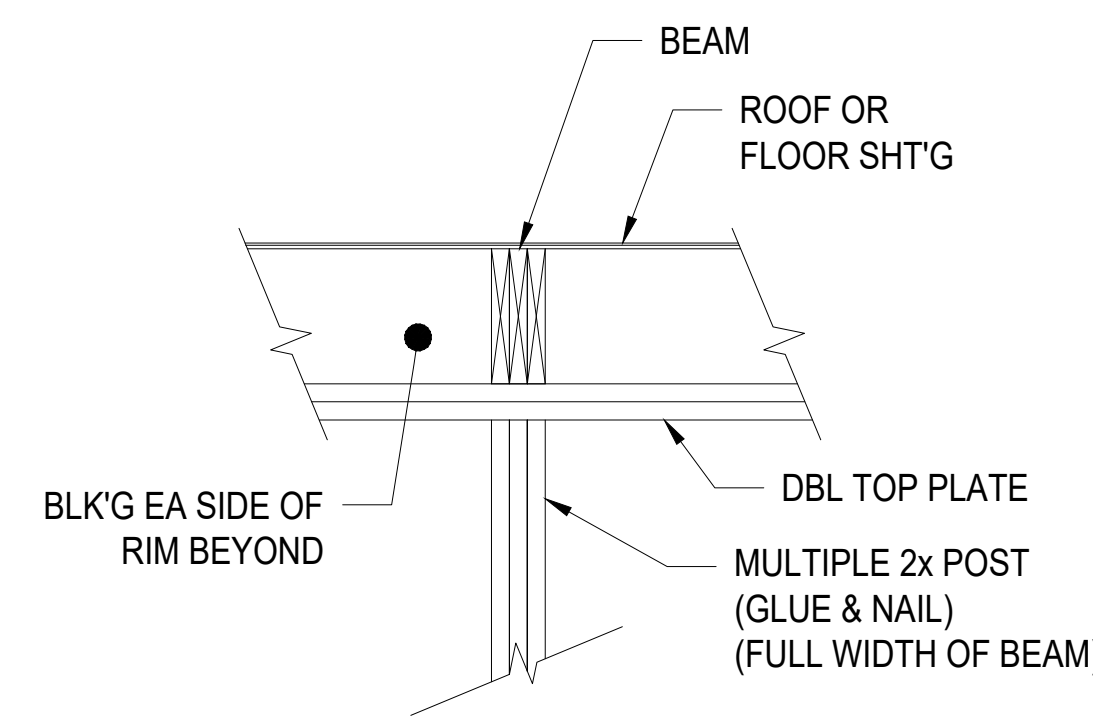
101
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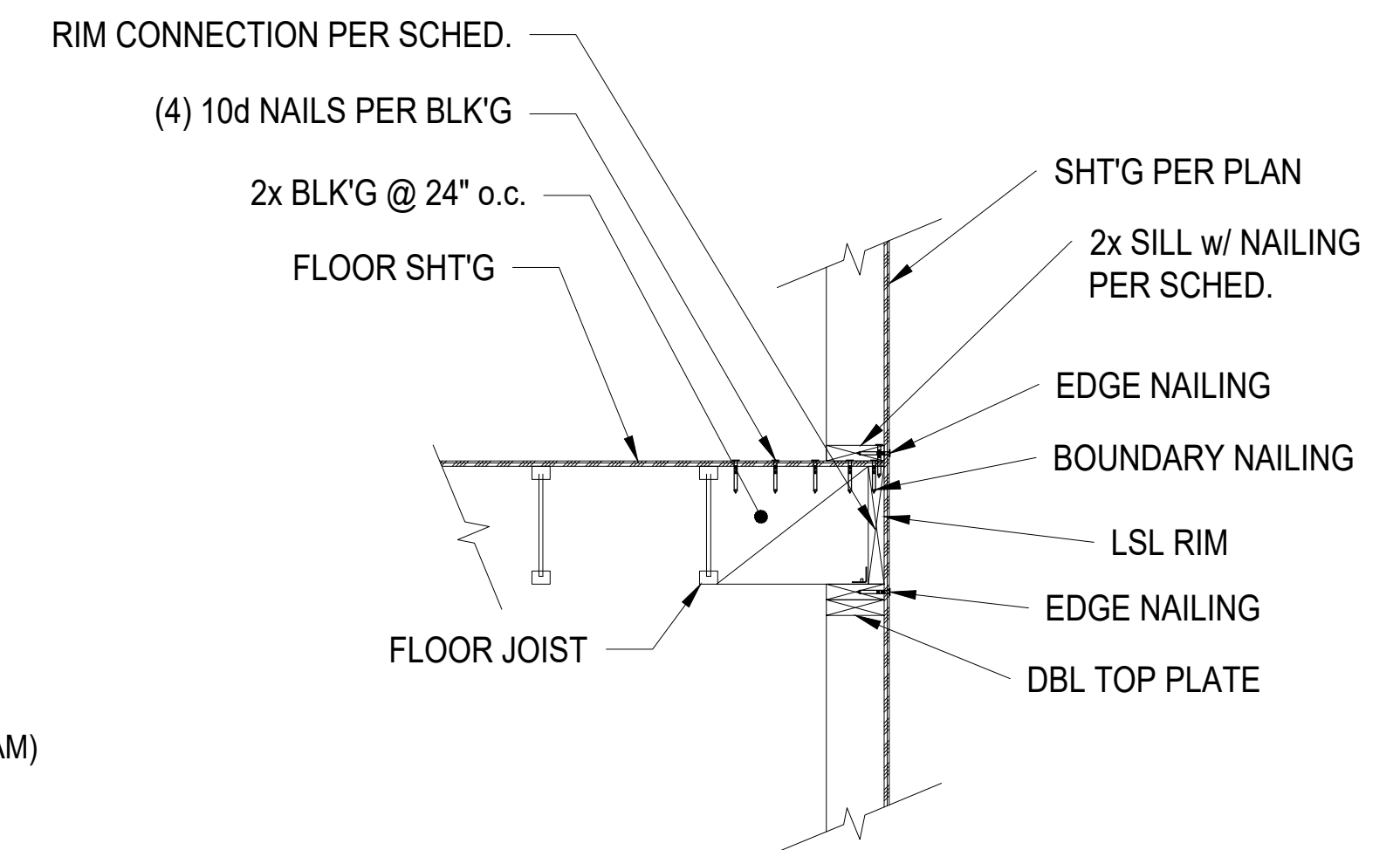
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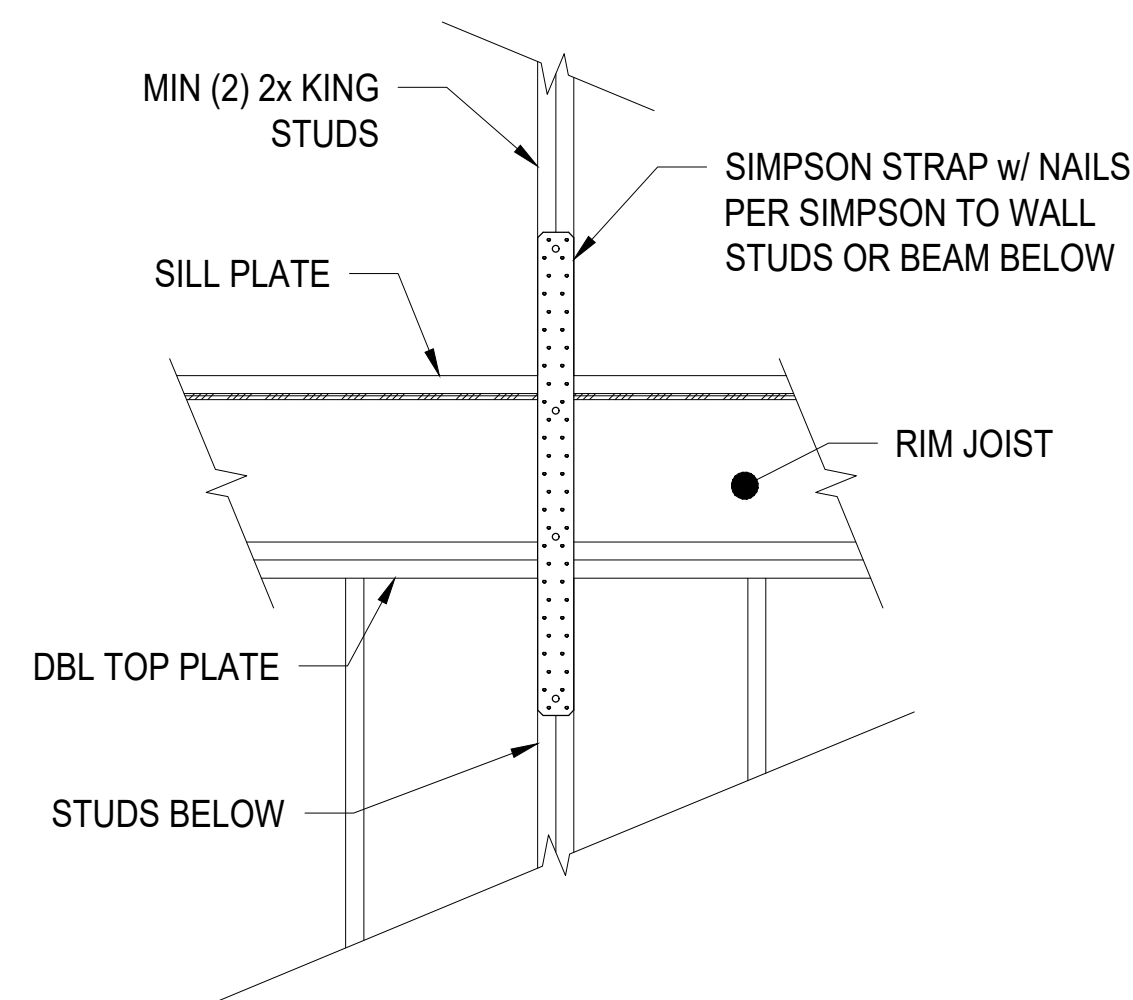
108
S202 SCALE: 3/4" = 1'-0"



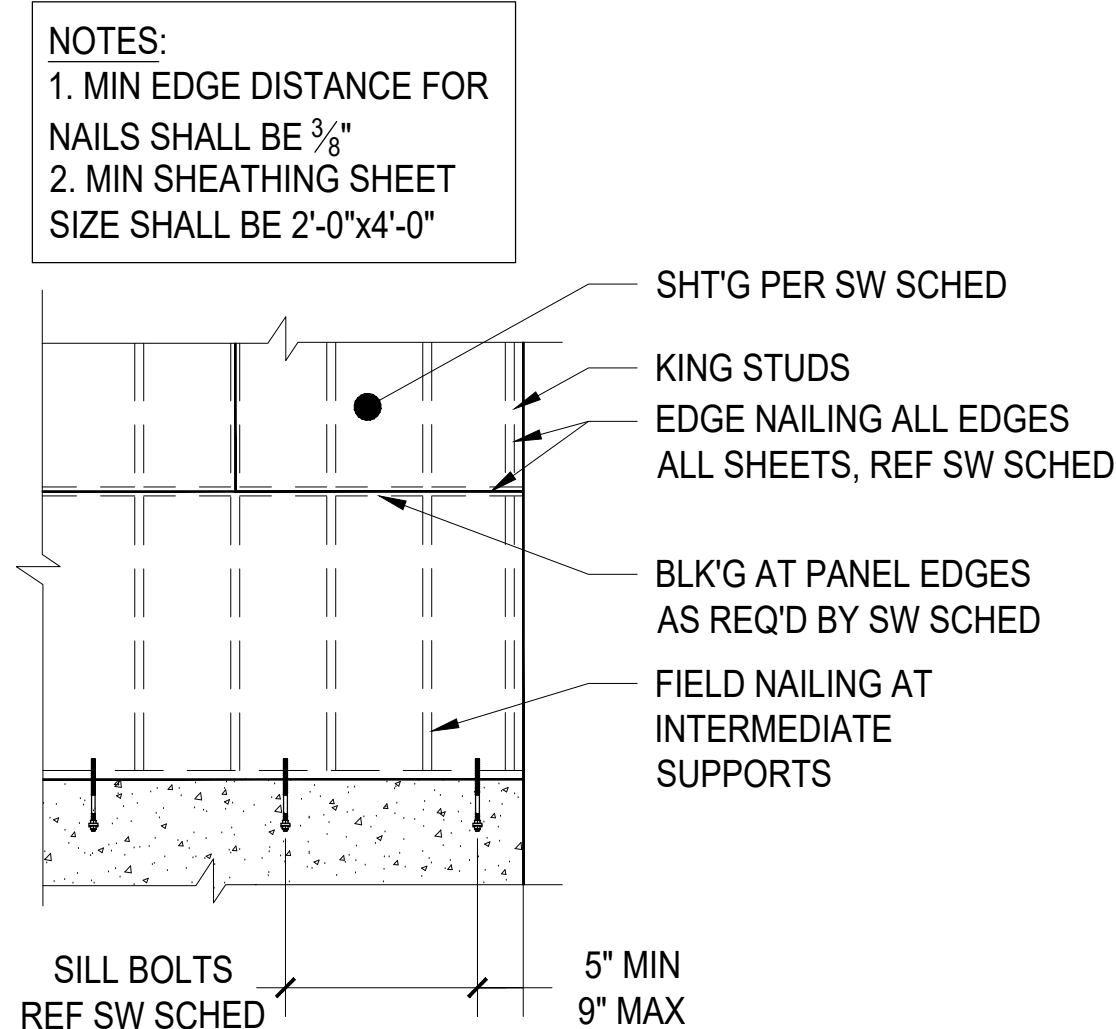
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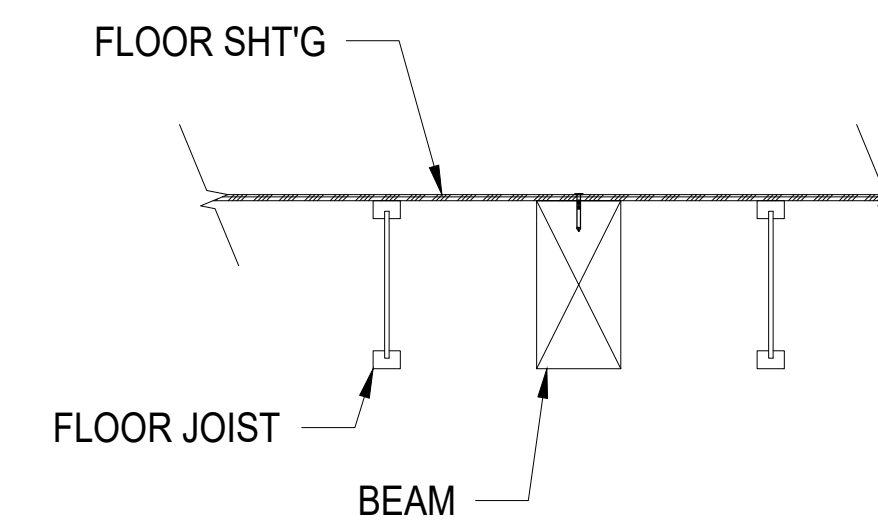
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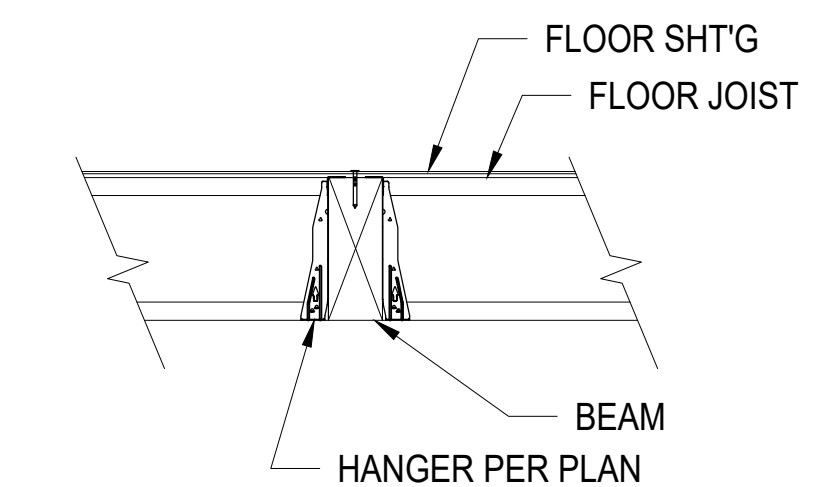
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109
S202 SCALE: 3/4" = 1'-0"



106
S202 SCALE: 3/4" = 1'-0"

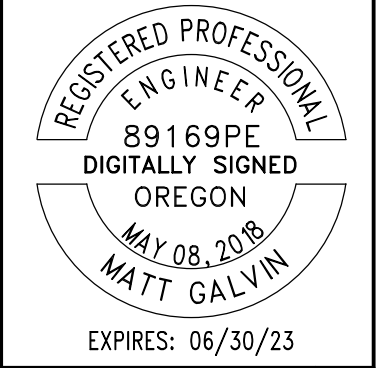


103
S202 SCALE: 3/4" = 1'-0"

NOTES:
1. MIN EDGE DISTANCE FOR NAILS SHALL BE 3/8"
2. MIN SHEATHING SHEET SIZE SHALL BE 2'-0"x4'-0"

REV#	DATE	BY	CHKD	REMARKS

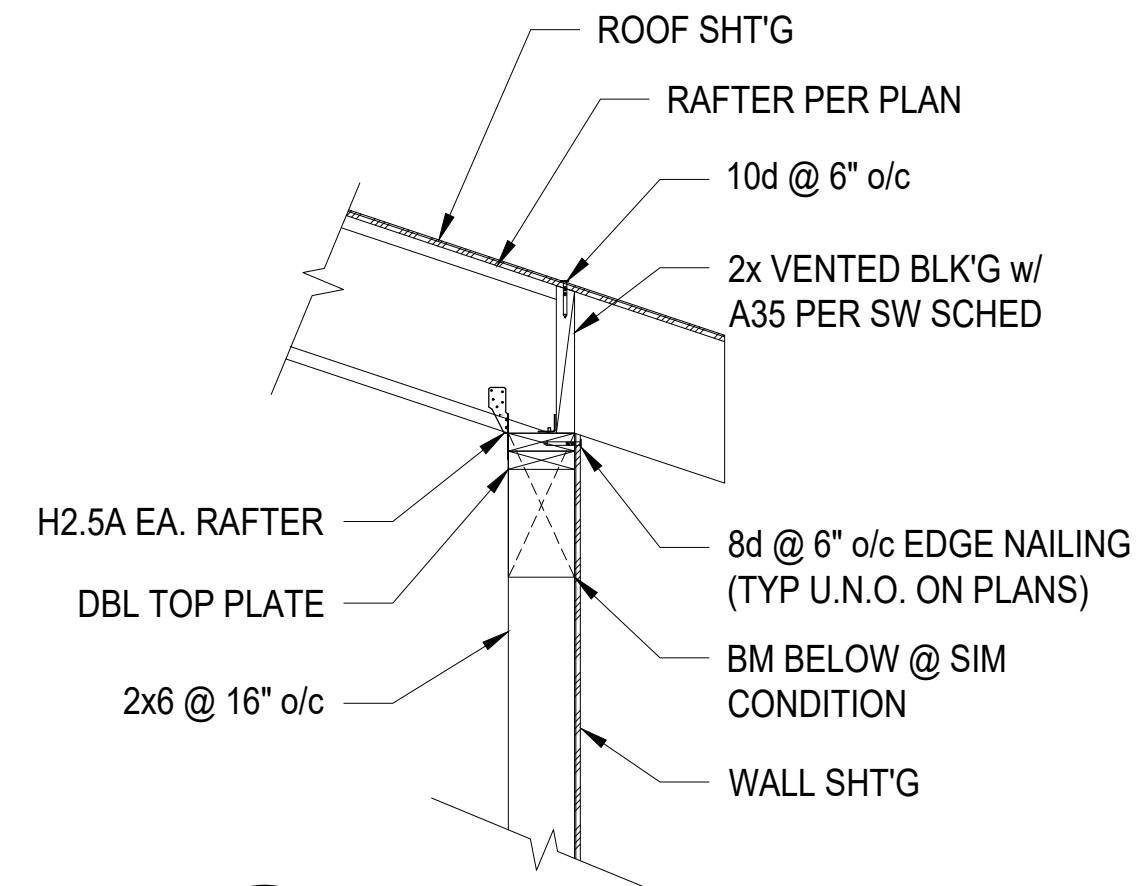
MATT GALVIN, P.E.
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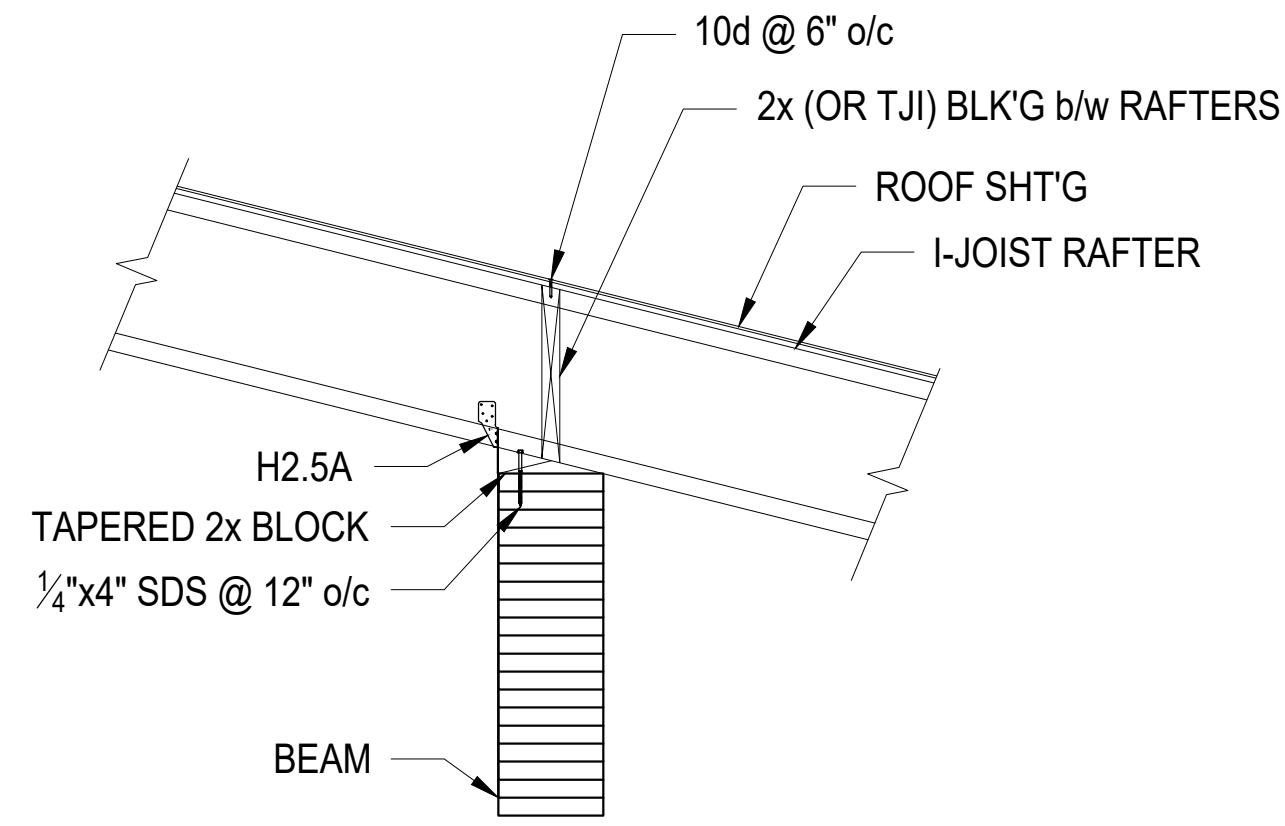
STAMPED: 2/5/2023

WALSH RESIDENCE - GARAGE REMODEL
2247 5TH AVENUE, WEST LINN, OR 97068
STRUCTURAL DETAILS
DATE: FEBRUARY 2023
DRAWN: M. GALVIN
COPYRIGHT: 2023

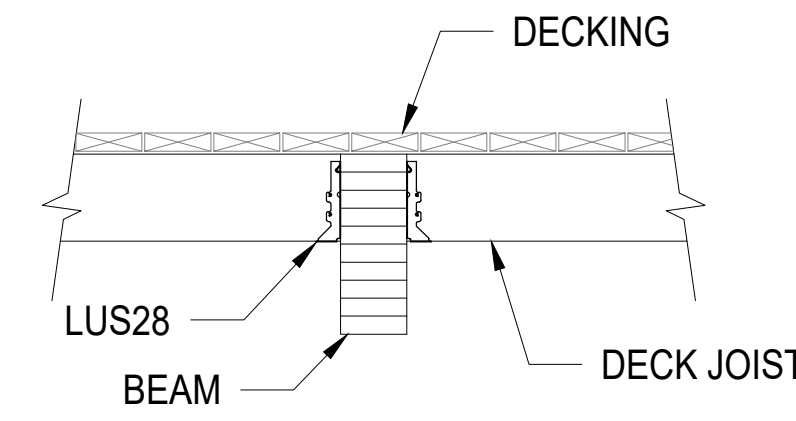
JOB NUMBER: 22.037
DRAWING NUMBER: S202
REV: S202



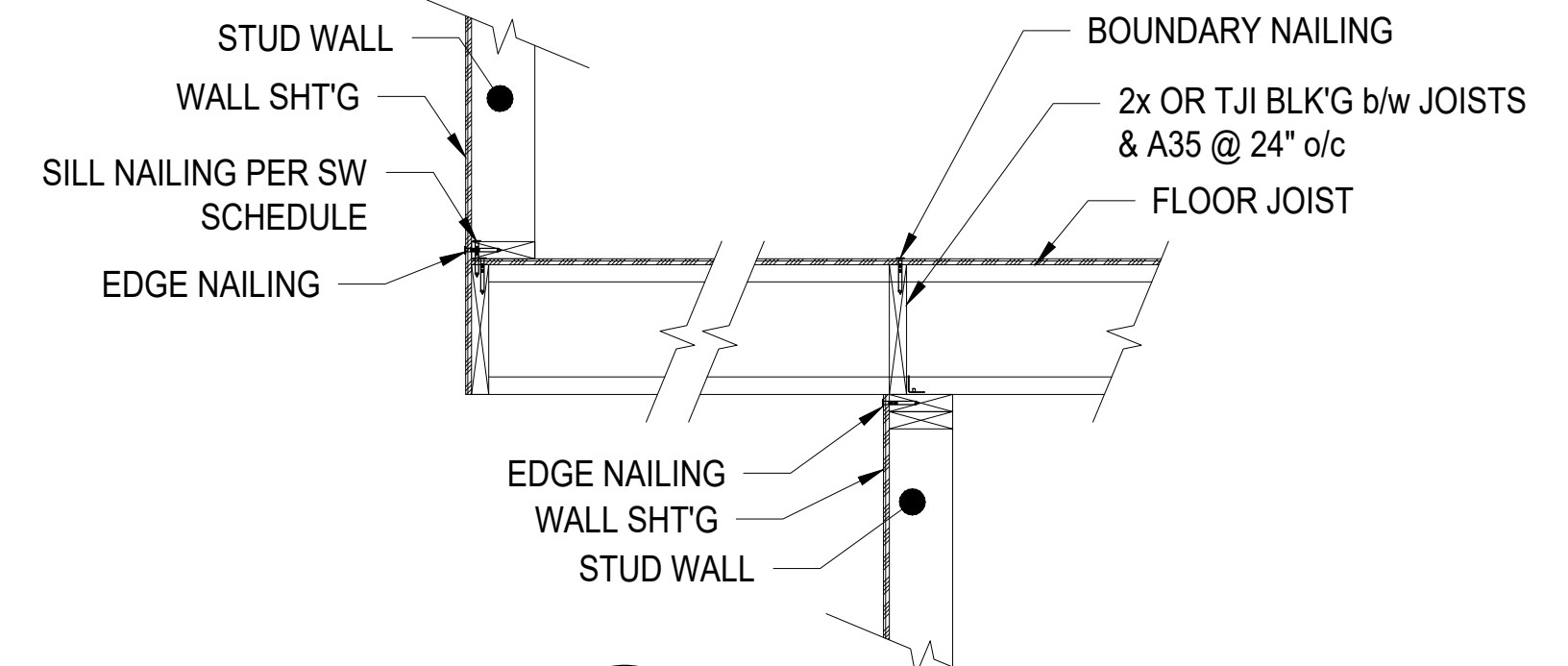
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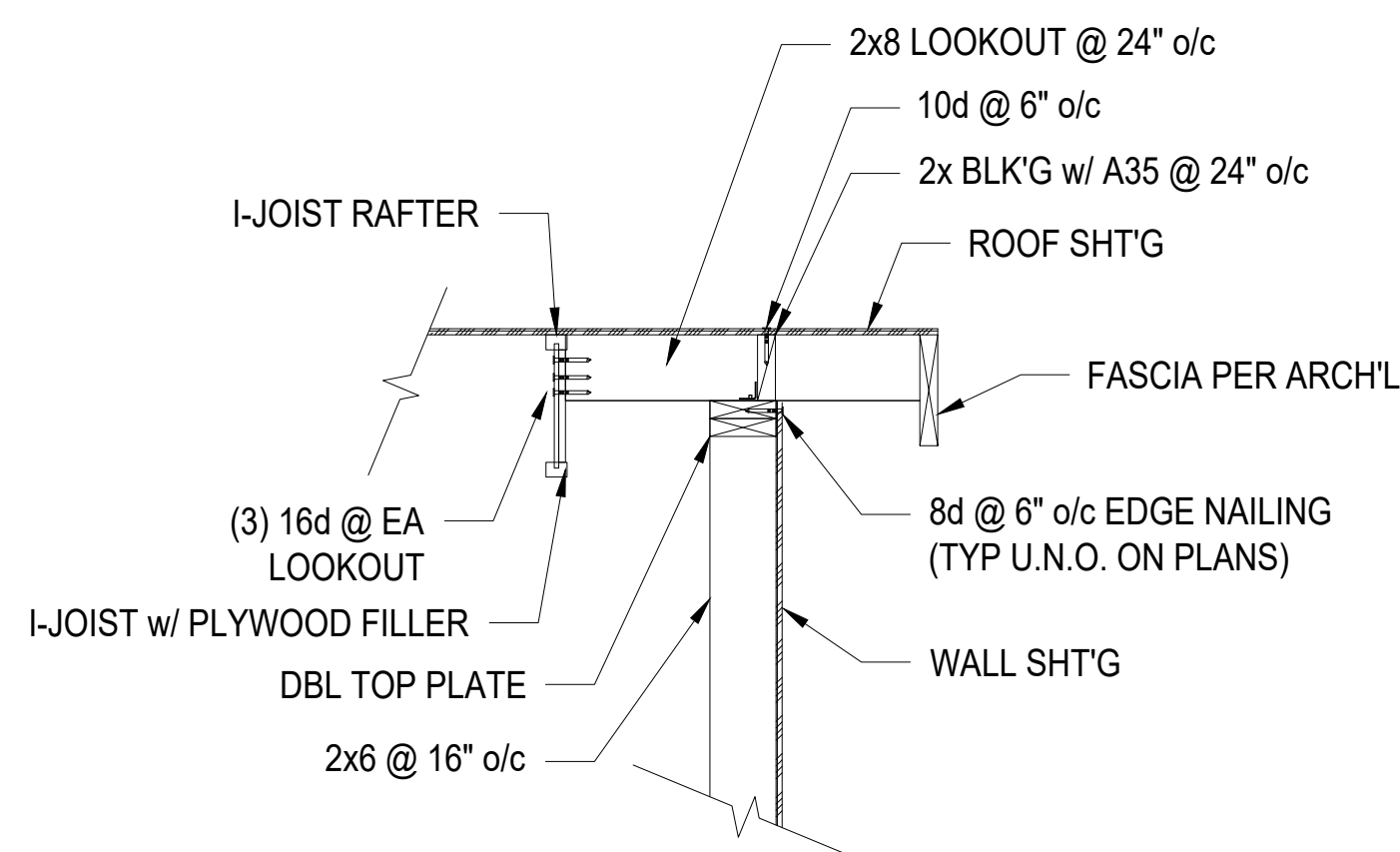
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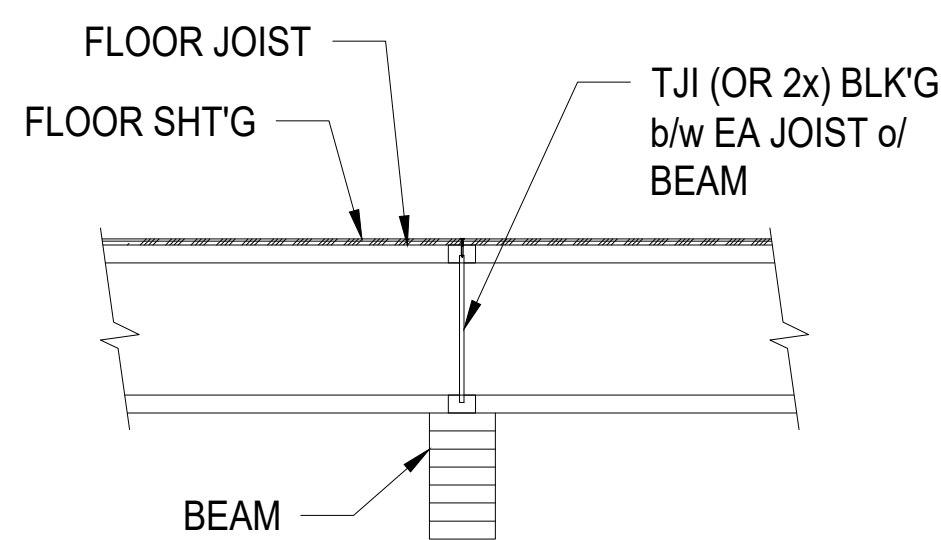
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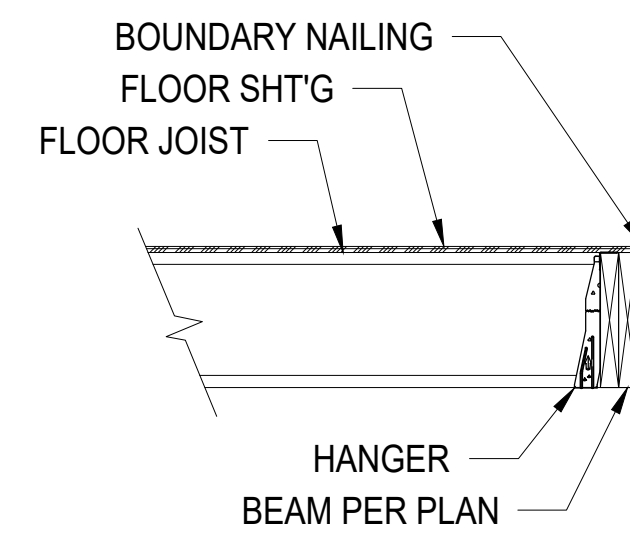
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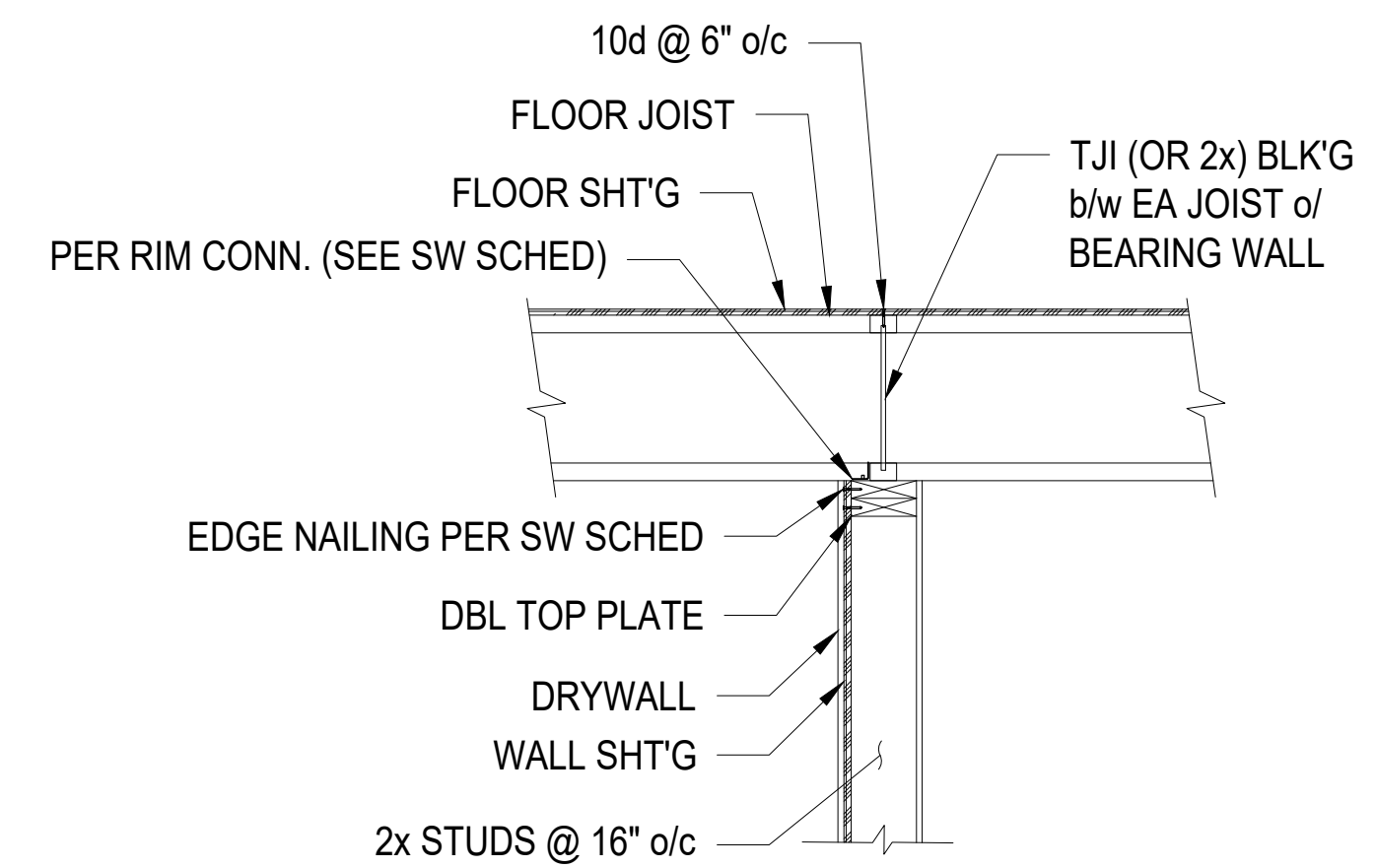
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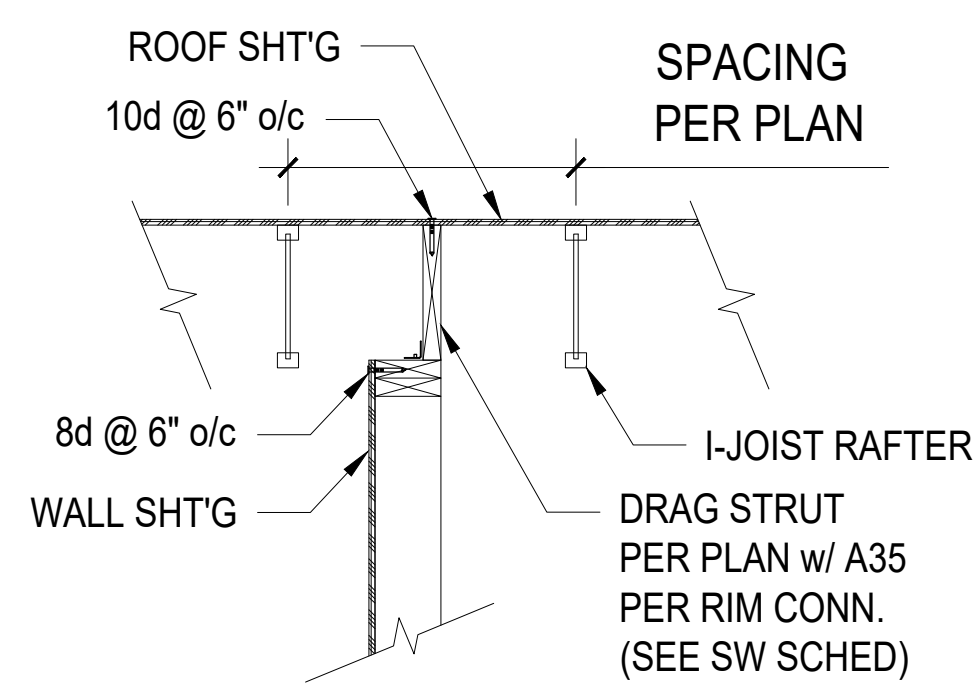
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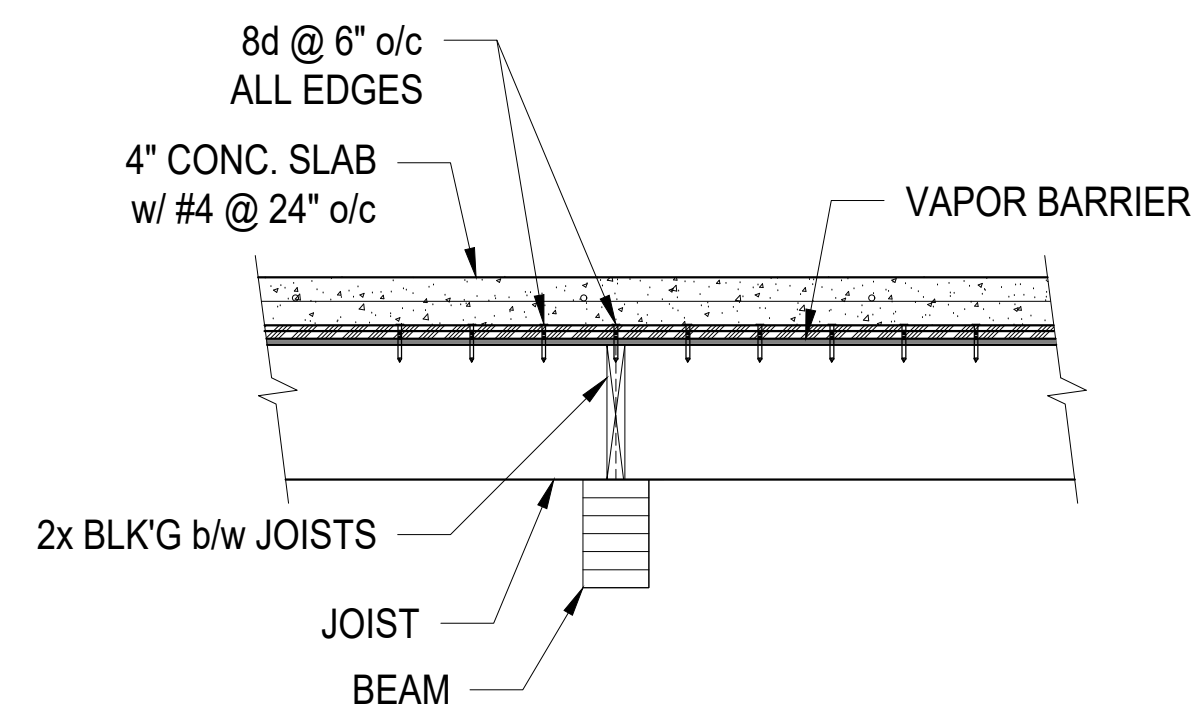
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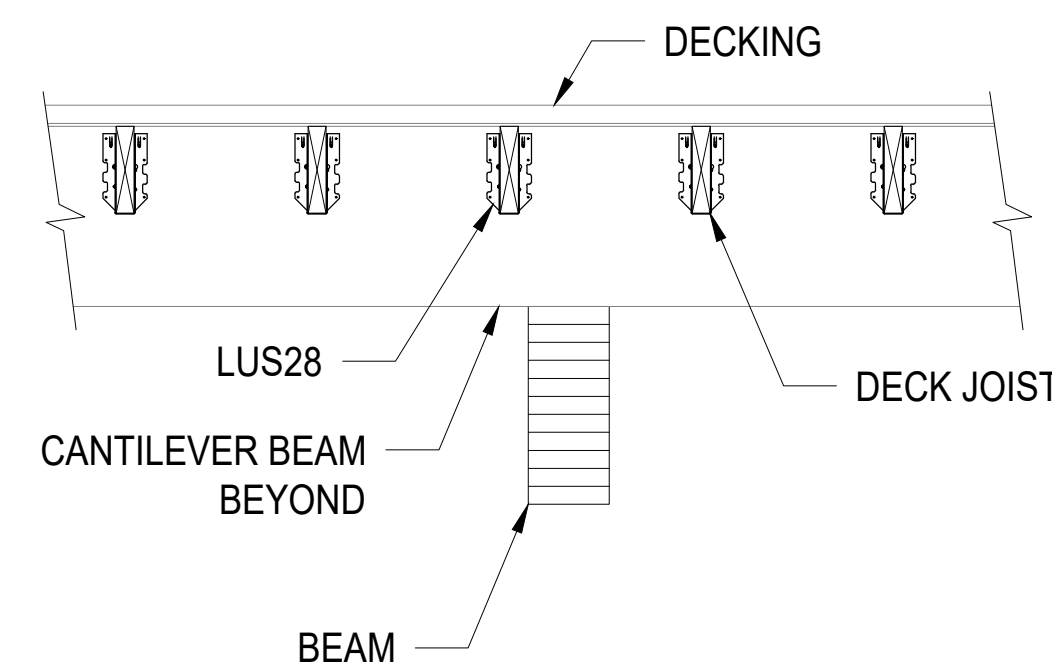
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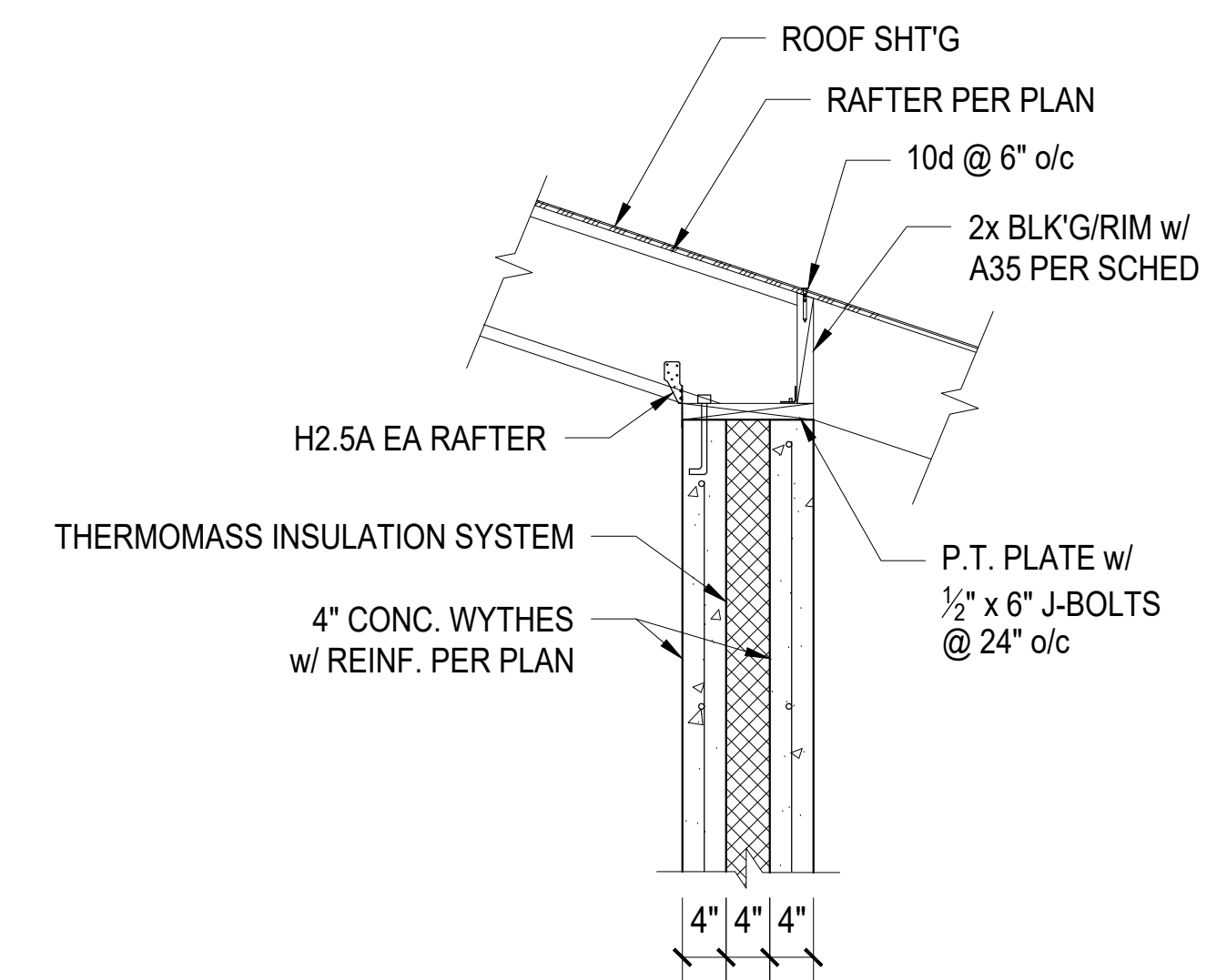
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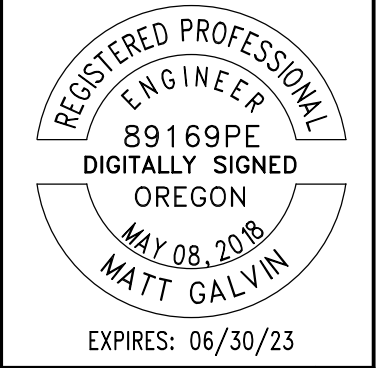
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S203 SCALE: 3/4" = 1'-0"



103
S203 SCALE: 3/4" = 1'-0"

REV	DATE	BY	APP	REMARKS

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 galvin.matt@gmail.com



STAMPED: 2/5/2023

WALSH RESIDENCE - GARAGE REMODEL
 2247 5TH AVENUE, WEST LINN, OR 97088
 STRUCTURAL DETAILS
 DATE: FEBRUARY 2023
 DRAWN: M. GALVIN
 COPYRIGHT: 2023

JOB NUMBER: 22.037
 DRAWING NUMBER: S203
 REV: S203

Structural Calculations

**Walsh Residence - Garage Remodel
2247 5th Avenue
West Linn, OR 97068**



EXPIRES: 06/30/23

STAMPED: 2/5/2023

DESIGN CRITERIA - SHEET 1 OF 2

1.0: PROJECT LOCATION

- 1.1 Address: 2247 5th Avenue, West Linn, OR 97068
1.2 Coordinates: 45.34463239999999, -122.6480053
1.3 Site Elevation: 159ft

2.0: APPLICABLE CODES

BUILDING CODES

- 2.1 2019 Oregon Structural Specialty Code
2.2 2021 Oregon Residential Structural Code
2.3 ASCE 7-16: Minimum Design Loads for Buildings & Other Structures

MATERIAL CODES

- 2.4 ACI 318-14: Building Code Requirements for Structural Concrete
2.5 AISC 360-16: Specification for Structural Steel Buildings

3.0: STRUCTURE DEAD & LIVE LOADS

DEAD LOADS

- 3.1 Roof DL = 17 psf (comp. shingles o/ 2x framing)
3.2 Floor DL 1 = 15 psf (finish flr o/ 2x joists)
3.3 Floor DL 2 = NA (not used)
3.4 Exterior Wall DL = 15 psf
3.5 Interior Wall DL = 10 psf

LIVE LOADS

- 3.6 Roof LL = 20 psf (reducible)
3.7 Floor LL = 40 psf
3.8 Deck/Balcony LL = 60 psf (1.5x LL served)
3.9 Storage LL = 100 psf

4.0: DEFLECTION CRITERIA

ROOF

- 4.1 Total Load (DL+SL/RLL) = L/180
4.2 Live Load or Snow Load = L/360

FLOORS

- 4.3 Total Load (DL+LL) = L/240
4.4 Live Load or Snow Load = L/360

DESIGN CRITERIA - SHEET 2 OF 2

5.0: SOILS DESIGN DATA

- 5.1 Soil Site Class = D (By Default)
5.2 Allow. Bearing Pressure = 1,500 psf
5.3 Geotech Report = No

6.0: SEISMIC DESIGN DATA

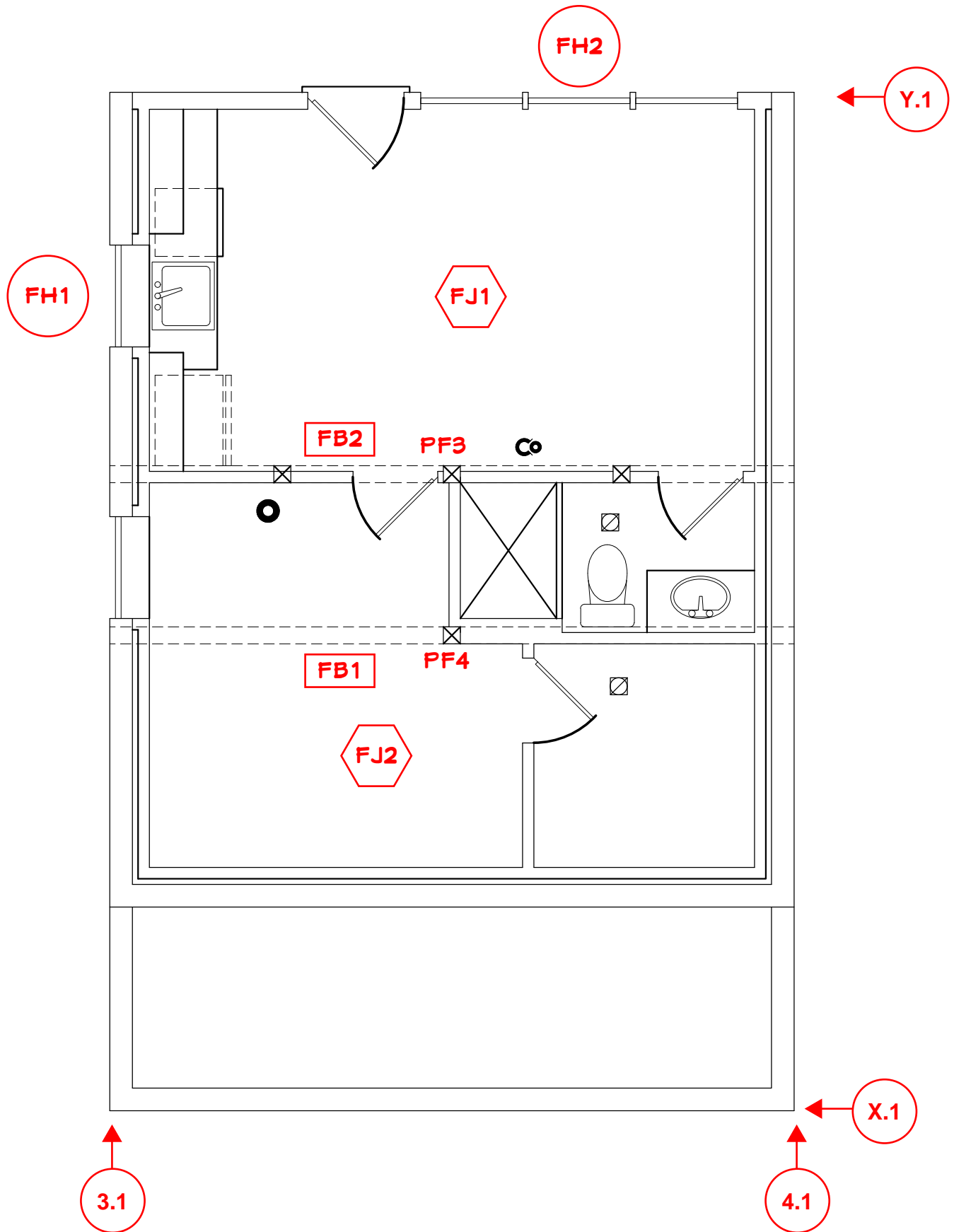
- 6.1 Seismic Importance Factor (I_e) = 1.00
6.2 Structure Risk Category = I
6.3 Mapped Spectral Response Acceleration (S_s) = 0.832
6.4 Mapped Spectral Response Acceleration (S_1) = 0.376
6.5 Mapped Spectral Response Coefficient (S_{DS}) = 0.666
6.6 Mapped Spectral Response Coefficient (S_{D1}) = 0.482
6.7 Site Class = D
6.8 Seismic Design Category = D
6.9 Redundancy Factor (ρ) = 1.30
6.10 Seismic Response Coefficient ($C_s = S_{DS} \times I/R$) = 0.102
6.11 Response Modification Coeff. (R) = 6.50
6.12 Seismic Force Resisting System = Light-frame (wood) shearwalls
6.13 Analysis Procedure Used = Equivalent Lateral Force
6.14 Design Base Shear ($V = C_s W$) = 0.102 W
6.15 Horizontal Seismic Load ($E_h = \rho \times V$) = 0.133 W

7.0: WIND DESIGN DATA

- 7.1 Basic Wind Speed = 97
7.2 Wind Exposure = C

8.0: SNOW DESIGN DATA

- 8.1 Design Roof Snow Load = 25 psf
8.2 Frost Depth = 18 inches



Wood Beam

Project File: 2247 5th ave.ec6

LIC#: KW-06014810, Build:20.22.12.28

(c) ENERCALC INC 1983-2022

DESCRIPTION: FB1 (Concentrated)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2018

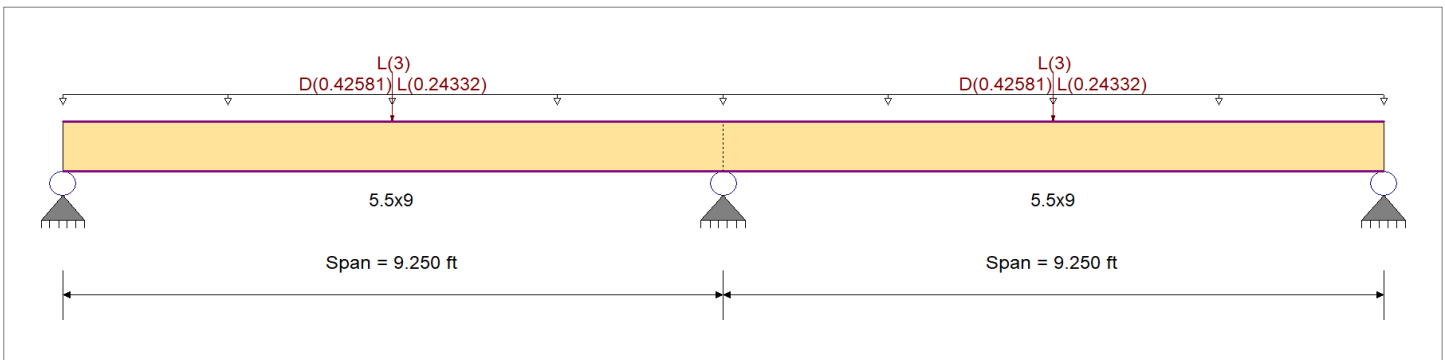
Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2018

Wood Species : DF/DF
Wood Grade : 24F-V8

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	2,400.0 psi	E : Modulus of Elasticity	
Fb -	2,400.0 psi	Ebend- xx	1,800.0ksi
Fc - Prll	1,650.0 psi	Eminbend - xx	950.0ksi
Fc - Perp	650.0 psi	Ebend- yy	1,600.0ksi
Fv	265.0 psi	Eminbend - yy	850.0ksi
Ft	1,100.0 psi	Density	31.210pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading

Load for Span Number 1

Uniform Load : D = 0.070, L = 0.040 ksf, Tributary Width = 6.083 ft, (GARAGE)

Point Load : L = 3.0 k @ 4.625 ft, (Pt Load)

Load for Span Number 2

Uniform Load : D = 0.070, L = 0.040 ksf, Tributary Width = 6.083 ft, (GARAGE)

Point Load : L = 3.0 k @ 4.625 ft, (Pt Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.840	1	Maximum Shear Stress Ratio	=	0.629	1
Section used for this span		5.5x9		Section used for this span		5.5x9	
fb: Actual	=	2,016.07 psi		fv: Actual	=	166.70 psi	
F'b	=	2,400.00 psi		F'v	=	265.00 psi	
Load Combination	+D+L+H, LL Comb Run (LL)			Load Combination	+D+L+H, LL Comb Run (LL)		
Location of maximum on span	=	9.250ft		Location of maximum on span	=	8.527 ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection	0.151 in	Ratio =	737 >=360	Span: 2 : L Only, LL Comb Run (*L)			
Max Upward Transient Deflection	-0.062 in	Ratio =	1777 >=360	Span: 2 : L Only, LL Comb Run (L*)			
Max Downward Total Deflection	0.200 in	Ratio =	554 >=240	Span: 2 : +D+L+H, LL Comb Run (*L)			
Max Upward Total Deflection	-0.031 in	Ratio =	3551 >=240	Span: 2 : +D+L+H, LL Comb Run (L*)			

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios									Moment Values			Shear Values				
			M	V	CD	CM	C _t	CLx	C _v	C _{fu}	C _i	C _r	M	fb	F'b	V	fv	F'v	
+D+H																			
	Length = 9.250 ft	1	0.349	0.281	0.90	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	2,160.0	0.0	0.00	0.0	0.0
	Length = 9.250 ft	2	0.349	0.281	0.90	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	2,160.0	0.0	0.00	0.0	0.0
+D+L+H, LL Comb Run (*L)																			
	Length = 9.250 ft	1	0.577	0.581	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	8.57	1,385.3	2,400.0	0.0	0.00	0.0	0.0
	Length = 9.250 ft	2	0.667	0.581	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	9.91	1,601.3	2,400.0	0.0	0.00	0.0	0.0

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

(c) ENERCALC INC 1983-2022

DESCRIPTION: FB1 (Concentrated)

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios										Moment Values			Shear Values		
Segment Length	Span #	M	V	CD	CM	C _t	CLx	C _v	C _{fu}	C _i	C _r	M	fb	F ^b	V	f _v	F ^v
+D+L+H, LL Comb Run (L*)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.667	0.581	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	9.91	1,601.3	2,400.0	5.08	153.9	265.0
Length = 9.250 ft	2	0.577	0.581	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	8.57	1,385.3	2,400.0	2.63	153.9	265.0
+D+L+H, LL Comb Run (LL)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.840	0.629	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	12.47	2,016.1	2,400.0	5.50	166.7	265.0
Length = 9.250 ft	2	0.840	0.629	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	12.47	2,016.1	2,400.0	5.50	166.7	265.0
+D+Lr+H, LL Comb Run (*L)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.252	0.202	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	3,000.0	2.21	66.9	331.3
Length = 9.250 ft	2	0.252	0.202	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	3,000.0	2.21	66.9	331.3
+D+Lr+H, LL Comb Run (L*)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.252	0.202	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	3,000.0	2.21	66.9	331.3
Length = 9.250 ft	2	0.252	0.202	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	3,000.0	2.21	66.9	331.3
+D+Lr+H, LL Comb Run (LL)					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.252	0.202	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	3,000.0	2.21	66.9	331.3
Length = 9.250 ft	2	0.252	0.202	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	3,000.0	2.21	66.9	331.3
+D+S+H					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.273	0.220	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	2,760.0	2.21	66.9	304.8
Length = 9.250 ft	2	0.273	0.220	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	2,760.0	2.21	66.9	304.8
+D+0.750Lr+0.750L+H, LL Cc					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.409	0.399	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	7.60	1,227.6	3,000.0	4.36	132.2	331.3
Length = 9.250 ft	2	0.432	0.399	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	8.02	1,295.8	3,000.0	4.36	132.2	331.3
+D+0.750Lr+0.750L+H, LL Cc					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.432	0.399	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	8.02	1,295.8	3,000.0	4.36	132.2	331.3
Length = 9.250 ft	2	0.409	0.399	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	7.60	1,227.6	3,000.0	2.52	132.2	331.3
+D+0.750Lr+0.750L+H, LL Cc					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.567	0.428	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	10.52	1,700.7	3,000.0	4.68	141.8	331.3
Length = 9.250 ft	2	0.567	0.428	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	10.52	1,700.7	3,000.0	4.68	141.8	331.3
+D+0.750L+0.750S+H, LL Co					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.445	0.434	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	7.60	1,227.6	2,760.0	4.36	132.2	304.8
Length = 9.250 ft	2	0.469	0.434	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	8.02	1,295.8	2,760.0	4.36	132.2	304.8
+D+0.750L+0.750S+H, LL Co					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.469	0.434	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	8.02	1,295.8	2,760.0	4.36	132.2	304.8
Length = 9.250 ft	2	0.445	0.434	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	7.60	1,227.6	2,760.0	2.52	132.2	304.8
+D+0.750L+0.750S+H, LL Co					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.616	0.465	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	10.52	1,700.7	2,760.0	4.68	141.8	304.8
Length = 9.250 ft	2	0.616	0.465	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	10.52	1,700.7	2,760.0	4.68	141.8	304.8
+D+0.60W+H					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.197	0.158	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	3,840.0	2.21	66.9	424.0
Length = 9.250 ft	2	0.197	0.158	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	3,840.0	2.21	66.9	424.0
+D+0.70E+H					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.197	0.158	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	3,840.0	2.21	66.9	424.0
Length = 9.250 ft	2	0.197	0.158	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	3,840.0	2.21	66.9	424.0
+D+0.750Lr+0.750L+0.450W-					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.320	0.312	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	7.60	1,227.6	3,840.0	4.36	132.2	424.0
Length = 9.250 ft	2	0.337	0.312	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	8.02	1,295.8	3,840.0	4.36	132.2	424.0
+D+0.750Lr+0.750L+0.450W-					1.00	1.00	1.00	1.000	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.337	0.312	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	8.02	1,295.8	3,840.0	4.36	132.2	424.0

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

(c) ENERCALC INC 1983-2022

DESCRIPTION: FB1 (Concentrated)

Maximum Forces & Stresses for Load Combinations

Load Combination	Max Stress Ratios											Moment Values			Shear Values			
	Segment Length	Span #	M	V	CD	CM	C _t	CLx	C _v	C _{fu}	C _i	C _r	M	fb	F'b	V	fv	F'v
+D+0.750Lr+0.750L+0.450W-	Length = 9.250 ft	2	0.320	0.312	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	7.60	1,227.6	3,840.0	2.52	132.2	424.0
															0.0	0.00	0.0	0.0
+D+0.750L+0.750S+0.450W+	Length = 9.250 ft	1	0.443	0.334	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	10.52	1,700.7	3,840.0	4.68	141.8	424.0
	Length = 9.250 ft	2	0.443	0.334	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	10.52	1,700.7	3,840.0	4.68	141.8	424.0
+D+0.750L+0.750S+0.450W+	Length = 9.250 ft	1	0.320	0.312	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	7.60	1,227.6	3,840.0	4.36	132.2	424.0
	Length = 9.250 ft	2	0.337	0.312	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	8.02	1,295.8	3,840.0	4.36	132.2	424.0
+D+0.750L+0.750S+0.450W+	Length = 9.250 ft	1	0.337	0.312	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	8.02	1,295.8	3,840.0	4.36	132.2	424.0
	Length = 9.250 ft	2	0.320	0.312	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	7.60	1,227.6	3,840.0	2.52	132.2	424.0
+D+0.750L+0.750S+0.450W+	Length = 9.250 ft	1	0.443	0.334	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	10.52	1,700.7	3,840.0	4.68	141.8	424.0
	Length = 9.250 ft	2	0.443	0.334	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	10.52	1,700.7	3,840.0	4.68	141.8	424.0
+D+0.750L+0.750S+0.5250E-	Length = 9.250 ft	1	0.320	0.312	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	7.60	1,227.6	3,840.0	4.36	132.2	424.0
	Length = 9.250 ft	2	0.337	0.312	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	8.02	1,295.8	3,840.0	4.36	132.2	424.0
+D+0.750L+0.750S+0.5250E-	Length = 9.250 ft	1	0.337	0.312	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	8.02	1,295.8	3,840.0	4.36	132.2	424.0
	Length = 9.250 ft	2	0.320	0.312	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	7.60	1,227.6	3,840.0	2.52	132.2	424.0
+D+0.750L+0.750S+0.5250E-	Length = 9.250 ft	1	0.443	0.334	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	10.52	1,700.7	3,840.0	4.68	141.8	424.0
	Length = 9.250 ft	2	0.443	0.334	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	10.52	1,700.7	3,840.0	4.68	141.8	424.0
+0.60D+0.60W+0.60H	Length = 9.250 ft	1	0.118	0.095	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.80	452.7	3,840.0	1.32	40.1	424.0
	Length = 9.250 ft	2	0.118	0.095	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.80	452.7	3,840.0	1.32	40.1	424.0
+0.60D+0.70E+0.60H	Length = 9.250 ft	1	0.118	0.095	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.80	452.7	3,840.0	1.32	40.1	424.0
	Length = 9.250 ft	2	0.118	0.095	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.80	452.7	3,840.0	1.32	40.1	424.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L+H, LL Comb Run (L*)	1	0.2001	4.289		0.0000	0.000
+D+L+H, LL Comb Run (*L)	2	0.1991	5.013		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Max Upward from all Load Conditions	3.718	11.986	3.718
Max Upward from Load Combinations	3.718	11.986	3.718
Max Upward from Load Cases	2.203	6.938	2.203
Max Downward from all Load Conditions	-0.422		-0.422
Max Downward from Load Cases (Resis)	-0.422		-0.422
+D+H	1.514	5.047	1.514
+D+L+H, LL Comb Run (*L)	1.092	8.517	3.718
+D+L+H, LL Comb Run (L*)	3.718	8.517	1.092
+D+L+H, LL Comb Run (LL)	3.296	11.986	3.296
+D+Lr+H, LL Comb Run (*L)	1.514	5.047	1.514
+D+Lr+H, LL Comb Run (L*)	1.514	5.047	1.514
+D+Lr+H, LL Comb Run (LL)	1.514	5.047	1.514
+D+S+H	1.514	5.047	1.514
+D+0.750Lr+0.750L+H, LL Comb Run (*)	1.198	7.649	3.167
+D+0.750Lr+0.750L+H, LL Comb Run (L)	3.167	7.649	1.198
+D+0.750Lr+0.750L+H, LL Comb Run (L)	2.850	10.251	2.850

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

(c) ENERCALC INC 1983-2022

DESCRIPTION: FB1 (Concentrated)**Vertical Reactions**

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3
+D+0.750L+0.750S+H, LL Comb Run (*L	1.198	7.649	3.167
+D+0.750L+0.750S+H, LL Comb Run (L*	3.167	7.649	1.198
+D+0.750L+0.750S+H, LL Comb Run (LL	2.850	10.251	2.850
+D+0.60W+H	1.514	5.047	1.514
+D+0.70E+H	1.514	5.047	1.514
+D+0.750Lr+0.750L+0.450W+H, LL Comb	1.198	7.649	3.167
+D+0.750Lr+0.750L+0.450W+H, LL Comb	3.167	7.649	1.198
+D+0.750Lr+0.750L+0.450W+H, LL Comb	2.850	10.251	2.850
+D+0.750L+0.750S+0.450W+H, LL Comb	1.198	7.649	3.167
+D+0.750L+0.750S+0.450W+H, LL Comb	3.167	7.649	1.198
+D+0.750L+0.750S+0.450W+H, LL Comb	2.850	10.251	2.850
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.198	7.649	3.167
+D+0.750L+0.750S+0.5250E+H, LL Comb	3.167	7.649	1.198
+D+0.750L+0.750S+0.5250E+H, LL Comb	2.850	10.251	2.850
+0.60D+0.60W+0.60H	0.909	3.028	0.909
+0.60D+0.70E+0.60H	0.909	3.028	0.909
D Only	1.514	5.047	1.514
L Only, LL Comb Run (*L)	-0.422	3.469	2.203
L Only, LL Comb Run (L*)	2.203	3.469	-0.422
L Only, LL Comb Run (LL)	1.782	6.938	1.782
H Only			

Wood Beam

Project File: 2247 5th ave.ec6

LIC#: KW-06014810, Build:20.22.12.28

(c) ENERCALC INC 1983-2022

DESCRIPTION: FB1 (Distributed)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2018

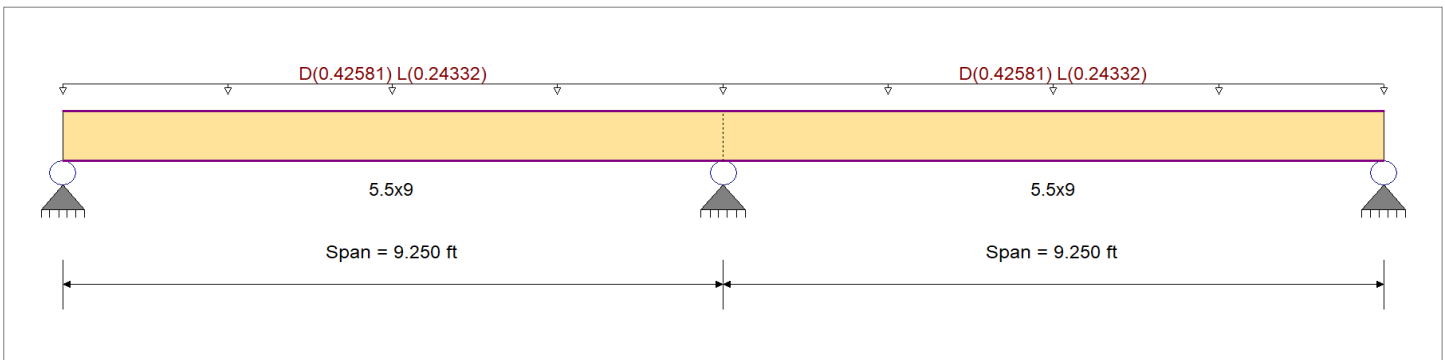
Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2018

Wood Species : DF/DF
Wood Grade : 24F-V8

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	2,400.0 psi	E : Modulus of Elasticity	
Fb -	2,400.0 psi	Ebend- xx	1,800.0ksi
Fc - Prll	1,650.0 psi	Eminbend - xx	950.0ksi
Fc - Perp	650.0 psi	Ebend- yy	1,600.0ksi
Fv	265.0 psi	Eminbend - yy	850.0ksi
Ft	1,100.0 psi	Density	31.210pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading

Load for Span Number 1

Uniform Load : D = 0.070, L = 0.040 ksf, Tributary Width = 6.083 ft, (GARAGE)

Load for Span Number 2

Uniform Load : D = 0.070, L = 0.040 ksf, Tributary Width = 6.083 ft, (GARAGE)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.490 : 1	Maximum Shear Stress Ratio	=	0.393 : 1
Section used for this span		5.5x9	Section used for this span		5.5x9
fb: Actual	=	1,175.16psi	fv: Actual	=	104.20 psi
F'b	=	2,400.00psi	F'v	=	265.00 psi
Load Combination		+D+L+H, LL Comb Run (LL)	Load Combination		+D+L+H, LL Comb Run (LL)
Location of maximum on span	=	9.250ft	Location of maximum on span	=	8.527 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1
Maximum Deflection					
Max Downward Transient Deflection		0.047 in Ratio = 2347 >=360	Span: 2 : L Only, LL Comb Run (*L)		
Max Upward Transient Deflection		-0.021 in Ratio = 5331 >=360	Span: 2 : L Only, LL Comb Run (L*)		
Max Downward Total Deflection		0.097 in Ratio = 1142 >=240	Span: 2 : +D+L+H, LL Comb Run (*L)		
Max Upward Total Deflection		-0.005 in Ratio = 23781 >=240	Span: 2 : +D+L+H, LL Comb Run (L*)		

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios										Moment Values			Shear Values				
			M	V	CD	CM	C _t	CLx	C _v	C _{fu}	C _i	C _r	M	fb	F'b	V	fv	F'v		
+D+H	Length = 9.250 ft	1	0.349	0.281	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.0	0.00	0.0	0.0	
	Length = 9.250 ft	2	0.349	0.281	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	4.67	754.6	2,160.0	2.21	66.9
+D+L+H, LL Comb Run (*L)	Length = 9.250 ft	1	0.402	0.377	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.0	0.00	0.0	0.0	
	Length = 9.250 ft	2	0.402	0.377	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	5.97	964.9	2,400.0	3.30	99.9
+D+L+H, LL Comb Run (L*)	Length = 9.250 ft	1	0.402	0.377	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.0	0.00	0.0	0.0	
	Length = 9.250 ft	2	0.402	0.377	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	5.97	964.9	2,400.0	3.30	99.9

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

(c) ENERCALC INC 1983-2022

DESCRIPTION: FB1 (Distributed)

Maximum Forces & Stresses for Load Combinations

Load Combination	Max Stress Ratios												Moment Values			Shear Values		
	Segment Length	Span #	M	V	CD	CM	C _t	CLx	C _v	C _{fu}	C _i	C _r	M	fb	F ^b	V	f _v	F ^v
Length = 9.250 ft	2	0.402	0.377	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.97	964.9	2,400.0	2.35	99.9	265.0	
+D+L+H, LL Comb Run (LL)								1.00	1.00	1.00	1.00			0.0	0.00	0.0	0.0	
Length = 9.250 ft	1	0.490	0.393	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	7.27	1,175.2	2,400.0	3.44	104.2	265.0	
Length = 9.250 ft	2	0.490	0.393	1.00	1.00	1.00	1.00	1.000	1.00	1.00	1.00	7.27	1,175.2	2,400.0	3.44	104.2	265.0	
+D+Lr+H, LL Comb Run (*L)								1.00	1.00	1.00	1.00			0.0	0.00	0.0	0.0	
Length = 9.250 ft	1	0.252	0.202	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	3,000.0	2.21	66.9	331.3	
Length = 9.250 ft	2	0.252	0.202	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	3,000.0	2.21	66.9	331.3	
+D+Lr+H, LL Comb Run (L*)								1.00	1.00	1.00	1.00			0.0	0.00	0.0	0.0	
Length = 9.250 ft	1	0.252	0.202	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	3,000.0	2.21	66.9	331.3	
Length = 9.250 ft	2	0.252	0.202	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	3,000.0	2.21	66.9	331.3	
+D+Lr+H, LL Comb Run (LL)								1.00	1.00	1.00	1.00			0.0	0.00	0.0	0.0	
Length = 9.250 ft	1	0.252	0.202	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	3,000.0	2.21	66.9	331.3	
Length = 9.250 ft	2	0.252	0.202	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	3,000.0	2.21	66.9	331.3	
+D+S+H								1.00	1.00	1.00	1.00			0.0	0.00	0.0	0.0	
Length = 9.250 ft	1	0.273	0.220	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	2,760.0	2.21	66.9	304.8	
Length = 9.250 ft	2	0.273	0.220	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	2,760.0	2.21	66.9	304.8	
+D+0.750Lr+0.750L+H, LL Cc								1.00	1.00	1.00	1.00			0.0	0.00	0.0	0.0	
Length = 9.250 ft	1	0.304	0.277	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.64	912.3	3,000.0	3.03	91.7	331.3	
Length = 9.250 ft	2	0.304	0.277	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.64	912.3	3,000.0	3.03	91.7	331.3	
+D+0.750Lr+0.750L+H, LL Cc								1.00	1.00	1.00	1.00			0.0	0.00	0.0	0.0	
Length = 9.250 ft	1	0.304	0.277	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.64	912.3	3,000.0	3.03	91.7	331.3	
Length = 9.250 ft	2	0.304	0.277	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.64	912.3	3,000.0	2.31	91.7	331.3	
+D+0.750Lr+0.750L+H, LL Cc								1.00	1.00	1.00	1.00			0.0	0.00	0.0	0.0	
Length = 9.250 ft	1	0.357	0.286	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	6.62	1,070.0	3,000.0	3.13	94.9	331.3	
Length = 9.250 ft	2	0.357	0.286	1.25	1.00	1.00	1.00	1.000	1.00	1.00	1.00	6.62	1,070.0	3,000.0	3.13	94.9	331.3	
+D+0.750L+0.750S+H, LL Co								1.00	1.00	1.00	1.00			0.0	0.00	0.0	0.0	
Length = 9.250 ft	1	0.331	0.301	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.64	912.3	2,760.0	3.03	91.7	304.8	
Length = 9.250 ft	2	0.331	0.301	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.64	912.3	2,760.0	3.03	91.7	304.8	
+D+0.750L+0.750S+H, LL Co								1.00	1.00	1.00	1.00			0.0	0.00	0.0	0.0	
Length = 9.250 ft	1	0.331	0.301	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.64	912.3	2,760.0	3.03	91.7	304.8	
Length = 9.250 ft	2	0.331	0.301	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.64	912.3	2,760.0	2.31	91.7	304.8	
+D+0.750L+0.750S+H, LL Co								1.00	1.00	1.00	1.00			0.0	0.00	0.0	0.0	
Length = 9.250 ft	1	0.388	0.311	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	6.62	1,070.0	2,760.0	3.13	94.9	304.8	
Length = 9.250 ft	2	0.388	0.311	1.15	1.00	1.00	1.00	1.000	1.00	1.00	1.00	6.62	1,070.0	2,760.0	3.13	94.9	304.8	
+D+0.60W+H								1.00	1.00	1.00	1.00			0.0	0.00	0.0	0.0	
Length = 9.250 ft	1	0.197	0.158	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	3,840.0	2.21	66.9	424.0	
Length = 9.250 ft	2	0.197	0.158	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	3,840.0	2.21	66.9	424.0	
+D+0.70E+H								1.00	1.00	1.00	1.00			0.0	0.00	0.0	0.0	
Length = 9.250 ft	1	0.197	0.158	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	3,840.0	2.21	66.9	424.0	
Length = 9.250 ft	2	0.197	0.158	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	4.67	754.6	3,840.0	2.21	66.9	424.0	
+D+0.750Lr+0.750L+0.450W-								1.00	1.00	1.00	1.00			0.0	0.00	0.0	0.0	
Length = 9.250 ft	1	0.238	0.216	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.64	912.3	3,840.0	3.03	91.7	424.0	
Length = 9.250 ft	2	0.238	0.216	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.64	912.3	3,840.0	3.03	91.7	424.0	
+D+0.750Lr+0.750L+0.450W-								1.00	1.00	1.00	1.00			0.0	0.00	0.0	0.0	
Length = 9.250 ft	1	0.238	0.216	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.64	912.3	3,840.0	3.03	91.7	424.0	
Length = 9.250 ft	2	0.238	0.216	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.64	912.3	3,840.0	2.31	91.7	424.0	
+D+0.750Lr+0.750L+0.450W-								1.00	1.00	1.00	1.00			0.0	0.00	0.0	0.0	

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

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DESCRIPTION: FB1 (Distributed)

Maximum Forces & Stresses for Load Combinations

Load Combination	Max Stress Ratios											Moment Values			Shear Values		
	Segment Length	Span #	M	V	CD	CM	C _t	CLx	C _v	C _{fu}	C _i	C _r	M	fb	F'b	V	fv
Length = 9.250 ft	1	0.279	0.224	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	6.62	1,070.0	3,840.0	3.13	94.9	424.0
Length = 9.250 ft	2	0.279	0.224	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	6.62	1,070.0	3,840.0	3.13	94.9	424.0
+D+0.750L+0.750S+0.450W+						1.00	1.00	1.00	1.000	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.238	0.216	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.64	912.3	3,840.0	3.03	91.7	424.0
Length = 9.250 ft	2	0.238	0.216	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.64	912.3	3,840.0	3.03	91.7	424.0
+D+0.750L+0.750S+0.450W+						1.00	1.00	1.00	1.000	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.238	0.216	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.64	912.3	3,840.0	3.03	91.7	424.0
Length = 9.250 ft	2	0.238	0.216	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.64	912.3	3,840.0	2.31	91.7	424.0
+D+0.750L+0.750S+0.450W+						1.00	1.00	1.00	1.000	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.279	0.224	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	6.62	1,070.0	3,840.0	3.13	94.9	424.0
Length = 9.250 ft	2	0.279	0.224	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	6.62	1,070.0	3,840.0	3.13	94.9	424.0
+D+0.750L+0.750S+0.5250E-						1.00	1.00	1.00	1.000	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.238	0.216	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.64	912.3	3,840.0	3.03	91.7	424.0
Length = 9.250 ft	2	0.238	0.216	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.64	912.3	3,840.0	3.03	91.7	424.0
+D+0.750L+0.750S+0.5250E-						1.00	1.00	1.00	1.000	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.238	0.216	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.64	912.3	3,840.0	3.03	91.7	424.0
Length = 9.250 ft	2	0.238	0.216	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	5.64	912.3	3,840.0	2.31	91.7	424.0
+D+0.750L+0.750S+0.5250E-						1.00	1.00	1.00	1.000	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.279	0.224	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	6.62	1,070.0	3,840.0	3.13	94.9	424.0
Length = 9.250 ft	2	0.279	0.224	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	6.62	1,070.0	3,840.0	3.13	94.9	424.0
+0.60D+0.60W+0.60H						1.00	1.00	1.00	1.000	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.118	0.095	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.80	452.7	3,840.0	1.32	40.1	424.0
Length = 9.250 ft	2	0.118	0.095	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.80	452.7	3,840.0	1.32	40.1	424.0
+0.60D+0.70E+0.60H						1.00	1.00	1.00	1.000	1.00	1.00			0.0	0.00	0.0	0.0
Length = 9.250 ft	1	0.118	0.095	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.80	452.7	3,840.0	1.32	40.1	424.0
Length = 9.250 ft	2	0.118	0.095	1.60	1.00	1.00	1.00	1.000	1.00	1.00	1.00	2.80	452.7	3,840.0	1.32	40.1	424.0

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L+H, LL Comb Run (L*)	1	0.0972	4.134		0.0000	0.000
+D+L+H, LL Comb Run (*L)	2	0.0965	5.168		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Max Upward from all Load Conditions	2.499	7.861	2.499
Max Upward from Load Combinations	2.499	7.861	2.499
Max Upward from Load Cases	1.514	5.047	1.514
Max Downward from all Load Conditions	-0.141		-0.141
Max Downward from Load Cases (Resis)	-0.141		-0.141
+D+H	1.514	5.047	1.514
+D+L+H, LL Comb Run (*L)	1.374	6.454	2.499
+D+L+H, LL Comb Run (L*)	2.499	6.454	1.374
+D+L+H, LL Comb Run (LL)	2.358	7.861	2.358
+D+Lr+H, LL Comb Run (*L)	1.514	5.047	1.514
+D+Lr+H, LL Comb Run (L*)	1.514	5.047	1.514
+D+Lr+H, LL Comb Run (LL)	1.514	5.047	1.514
+D+S+H	1.514	5.047	1.514
+D+0.750Lr+0.750L+H, LL Comb Run (*)	1.409	6.102	2.253
+D+0.750Lr+0.750L+H, LL Comb Run (L)	2.253	6.102	1.409
+D+0.750Lr+0.750L+H, LL Comb Run (L)	2.147	7.158	2.147
+D+0.750L+0.750S+H, LL Comb Run (*L)	1.409	6.102	2.253
+D+0.750L+0.750S+H, LL Comb Run (L*)	2.253	6.102	1.409
+D+0.750L+0.750S+H, LL Comb Run (LL)	2.147	7.158	2.147

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

(c) ENERCALC INC 1983-2022

DESCRIPTION: FB1 (Distributed)**Vertical Reactions**

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3
+D+0.60W+H	1.514	5.047	1.514
+D+0.70E+H	1.514	5.047	1.514
+D+0.750Lr+0.750L+0.450W+H, LL Comb	1.409	6.102	2.253
+D+0.750Lr+0.750L+0.450W+H, LL Comb	2.253	6.102	1.409
+D+0.750Lr+0.750L+0.450W+H, LL Comb	2.147	7.158	2.147
+D+0.750L+0.750S+0.450W+H, LL Comb	1.409	6.102	2.253
+D+0.750L+0.750S+0.450W+H, LL Comb	2.253	6.102	1.409
+D+0.750L+0.750S+0.450W+H, LL Comb	2.147	7.158	2.147
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.409	6.102	2.253
+D+0.750L+0.750S+0.5250E+H, LL Comb	2.253	6.102	1.409
+D+0.750L+0.750S+0.5250E+H, LL Comb	2.147	7.158	2.147
+0.60D+0.60W+0.60H	0.909	3.028	0.909
+0.60D+0.70E+0.60H	0.909	3.028	0.909
D Only	1.514	5.047	1.514
L Only, LL Comb Run (*L)	-0.141	1.407	0.985
L Only, LL Comb Run (L*)	0.985	1.407	-0.141
L Only, LL Comb Run (LL)	0.844	2.813	0.844
H Only			

Wood Beam

Project File: 2247 5th ave.ec6

LIC#: KW-06014810, Build:20.22.12.28

(c) ENERCALC INC 1983-2022

DESCRIPTION: FB2 (Concentrated)

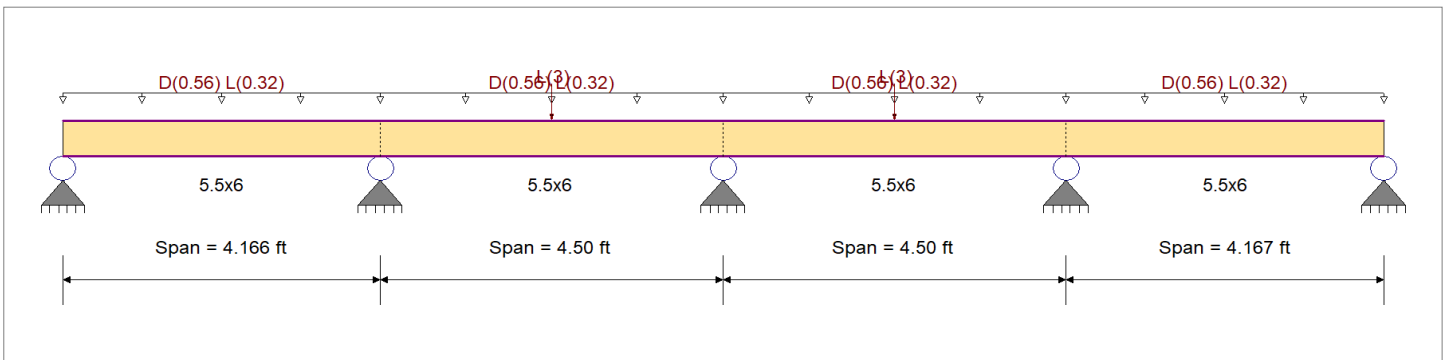
CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2018

Material Properties

Analysis Method : Allowable Stress Design	Fb +	2,400.0 psi	E : Modulus of Elasticity
Load Combination : IBC 2018	Fb -	2,400.0 psi	Ebend- xx
	Fc - Prll	1,650.0 psi	Eminbend - xx
Wood Species : DF/DF	Fc - Perp	650.0 psi	Ebend- yy
Wood Grade : 24F-V8	Fv	265.0 psi	Eminbend - yy
	Ft	1,100.0 psi	Density
			31.210pcf

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading

Load for Span Number 1

Uniform Load : D = 0.070, L = 0.040 ksf, Tributary Width = 8.0 ft, (GARAGE)

Load for Span Number 2

Uniform Load : D = 0.070, L = 0.040 ksf, Tributary Width = 8.0 ft, (GARAGE)

Point Load : L = 3.0 k @ 2.250 ft, (Pt Load)

Load for Span Number 3

Uniform Load : D = 0.070, L = 0.040 ksf, Tributary Width = 8.0 ft, (GARAGE)

Point Load : L = 3.0 k @ 2.250 ft, (Pt Load)

Load for Span Number 4

Uniform Load : D = 0.070, L = 0.040 ksf, Tributary Width = 8.0 ft, (GARAGE)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.564 : 1	Maximum Shear Stress Ratio	=	0.592 : 1
Section used for this span		5.5x6	Section used for this span		5.5x6
fb: Actual	=	1,354.30psi	fv: Actual	=	156.89 psi
F'b	=	2,400.00psi	F'v	=	265.00 psi
Load Combination	+D+L+H, LL Comb Run (*LL*)		Load Combination	+D+L+H, LL Comb Run (*LL*)	
Location of maximum on span	=	4.500ft	Location of maximum on span	=	4.044 ft
Span # where maximum occurs	=	Span # 2	Span # where maximum occurs	=	Span # 2
Maximum Deflection					
Max Downward Transient Deflection	0.039 in	Ratio = 1384 >=360	Span: 4 : L Only, LL Comb Run (*L*L*)		
Max Upward Transient Deflection	-0.017 in	Ratio = 3152 >=360	Span: 4 : L Only, LL Comb Run (L*L*)		
Max Downward Total Deflection	0.044 in	Ratio = 1228 >=240	Span: 4 : +D+L+H, LL Comb Run (*L*L*)		
Max Upward Total Deflection	-0.012 in	Ratio = 4332 >=240	Span: 4 : +D+L+H, LL Comb Run (L*L*)		

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L+H, LL Comb Run (L*L*)	1	0.0228	1.951	L Only, LL Comb Run (*L*L*)	-0.0109	3.428
+D+L+H, LL Comb Run (*L*L*)	2	0.0439	2.278		0.0000	3.428
+D+L+H, LL Comb Run (L*L*)	3	0.0440	2.278	+D+L+H, LL Comb Run (*L*L*)	-0.0011	0.057
+D+L+H, LL Comb Run (*L*L*)	4	0.0226	2.268	L Only, LL Comb Run (L*L*)	-0.0120	0.897

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

(c) ENERCALC INC 1983-2022

DESCRIPTION: FB2 (Concentrated)

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4	Support 5
Max Upward from all Load Conditions	1.584	6.196	7.712	6.196	1.585
Max Upward from Load Combinations	1.584	6.196	7.712	6.196	1.585
Max Upward from Load Cases	0.915	3.422	5.260	3.422	0.916
Max Downward from all Load Conditions	-0.334	-0.486	-0.256	-0.486	-0.334
Max Downward from Load Cases (Resis)	-0.334	-0.486	-0.256	-0.486	-0.334
+D+H	0.915	2.774	2.451	2.774	0.916
+D+L+H, LL Comb Run (**L)	0.909	2.807	2.324	3.628	1.496
+D+L+H, LL Comb Run (**L*)	1.004	2.287	5.082	5.309	0.588
+D+L+H, LL Comb Run (**LL)	0.998	2.320	4.954	6.163	1.168
+D+L+H, LL Comb Run (*L**)	0.588	5.309	5.082	2.288	1.004
+D+L+H, LL Comb Run (*L*L)	0.582	5.342	4.954	3.141	1.585
+D+L+H, LL Comb Run (*L*L*)	0.676	4.823	7.712	4.823	0.676
+D+L+H, LL Comb Run (*LLL)	0.670	4.856	7.584	5.677	1.257
+D+L+H, LL Comb Run (L***)	1.496	3.627	2.324	2.807	0.910
+D+L+H, LL Comb Run (L**L)	1.490	3.660	2.196	3.661	1.490
+D+L+H, LL Comb Run (L*L*)	1.584	3.141	4.954	5.342	0.582
+D+L+H, LL Comb Run (L*LL)	1.578	3.174	4.826	6.196	1.162
+D+L+H, LL Comb Run (LL**)	1.168	6.163	4.954	2.320	0.998
+D+L+H, LL Comb Run (LL*L)	1.162	6.196	4.826	3.174	1.579
+D+L+H, LL Comb Run (LLL*)	1.257	5.677	7.584	4.856	0.670
+D+L+H, LL Comb Run (LLLL)	1.251	5.709	7.456	5.710	1.251
+D+Lr+H, LL Comb Run (**L)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (**L*)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (**LL)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (*L**)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (*L*L)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (*L*LL)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (*LLL)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (L***)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (L**L)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (L*L*)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (L*LL)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (LL**)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (LL*L)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (LLL*)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (LLLL)	0.915	2.774	2.451	2.774	0.916
+D+S+H	0.915	2.774	2.451	2.774	0.916
+D+0.750Lr+0.750L+H, LL Comb Run (*)	0.911	2.798	2.356	3.414	1.351
+D+0.750Lr+0.750L+H, LL Comb Run (*	0.982	2.409	4.424	4.676	0.670
+D+0.750Lr+0.750L+H, LL Comb Run (*	0.977	2.434	4.328	5.316	1.105
+D+0.750Lr+0.750L+H, LL Comb Run (*	0.669	4.675	4.424	2.409	0.982
+D+0.750Lr+0.750L+H, LL Comb Run (*	0.665	4.700	4.328	3.050	1.417
+D+0.750Lr+0.750L+H, LL Comb Run (*	0.736	4.311	6.397	4.311	0.736
+D+0.750Lr+0.750L+H, LL Comb Run (*	0.731	4.335	6.301	4.951	1.172
+D+0.750Lr+0.750L+H, LL Comb Run (L	1.351	3.414	2.356	2.799	0.911
+D+0.750Lr+0.750L+H, LL Comb Run (L	1.346	3.439	2.260	3.439	1.346
+D+0.750Lr+0.750L+H, LL Comb Run (L	1.417	3.049	4.328	4.700	0.665
+D+0.750Lr+0.750L+H, LL Comb Run (L	1.413	3.074	4.232	5.341	1.101
+D+0.750Lr+0.750L+H, LL Comb Run (L	1.105	5.316	4.328	2.434	0.978
+D+0.750Lr+0.750L+H, LL Comb Run (L	1.100	5.340	4.232	3.074	1.413
+D+0.750Lr+0.750L+H, LL Comb Run (L	1.171	4.951	6.301	4.335	0.732
+D+0.750Lr+0.750L+H, LL Comb Run (L	1.167	4.975	6.205	4.976	1.167
+D+0.750L+0.750S+H, LL Comb Run (**	0.911	2.798	2.356	3.414	1.351
+D+0.750L+0.750S+H, LL Comb Run (**	0.982	2.409	4.424	4.676	0.670
+D+0.750L+0.750S+H, LL Comb Run (**	0.977	2.434	4.328	5.316	1.105
+D+0.750L+0.750S+H, LL Comb Run (*L	0.669	4.675	4.424	2.409	0.982
+D+0.750L+0.750S+H, LL Comb Run (*L	0.665	4.700	4.328	3.050	1.417
+D+0.750L+0.750S+H, LL Comb Run (*L	0.736	4.311	6.397	4.311	0.736
+D+0.750L+0.750S+H, LL Comb Run (*L	0.731	4.335	6.301	4.951	1.172
+D+0.750L+0.750S+H, LL Comb Run (L*	1.351	3.414	2.356	2.799	0.911

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

(c) ENERCALC INC 1983-2022

DESCRIPTION: FB2 (Concentrated)

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4	Support 5
+D+0.750L+0.750S+H, LL Comb Run (L*	1.346	3.439	2.260	3.439	1.346
+D+0.750L+0.750S+H, LL Comb Run (L*	1.417	3.049	4.328	4.700	0.665
+D+0.750L+0.750S+H, LL Comb Run (L*	1.413	3.074	4.232	5.341	1.101
+D+0.750L+0.750S+H, LL Comb Run (LL	1.105	5.316	4.328	2.434	0.978
+D+0.750L+0.750S+H, LL Comb Run (LL	1.100	5.340	4.232	3.074	1.413
+D+0.750L+0.750S+H, LL Comb Run (LL	1.171	4.951	6.301	4.335	0.732
+D+0.750L+0.750S+H, LL Comb Run (LL	1.167	4.975	6.205	4.976	1.167
+D+0.60W+H	0.915	2.774	2.451	2.774	0.916
+D+0.70E+H	0.915	2.774	2.451	2.774	0.916
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.911	2.798	2.356	3.414	1.351
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.982	2.409	4.424	4.676	0.670
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.977	2.434	4.328	5.316	1.105
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.669	4.675	4.424	2.409	0.982
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.665	4.700	4.328	3.050	1.417
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.736	4.311	6.397	4.311	0.736
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.731	4.335	6.301	4.951	1.172
+D+0.750Lr+0.750L+0.450W+H, LL Comb	1.351	3.414	2.356	2.799	0.911
+D+0.750Lr+0.750L+0.450W+H, LL Comb	1.346	3.439	2.260	3.439	1.346
+D+0.750Lr+0.750L+0.450W+H, LL Comb	1.417	3.049	4.328	4.700	0.665
+D+0.750Lr+0.750L+0.450W+H, LL Comb	1.413	3.074	4.232	5.341	1.101
+D+0.750Lr+0.750L+0.450W+H, LL Comb	1.105	5.316	4.328	2.434	0.978
+D+0.750Lr+0.750L+0.450W+H, LL Comb	1.100	5.340	4.232	3.074	1.413
+D+0.750Lr+0.750L+0.450W+H, LL Comb	1.171	4.951	6.301	4.335	0.732
+D+0.750Lr+0.750L+0.450W+H, LL Comb	1.167	4.975	6.205	4.976	1.167
+D+0.750L+0.750S+0.450W+H, LL Comb	0.911	2.798	2.356	3.414	1.351
+D+0.750L+0.750S+0.450W+H, LL Comb	0.982	2.409	4.424	4.676	0.670
+D+0.750L+0.750S+0.450W+H, LL Comb	0.977	2.434	4.328	5.316	1.105
+D+0.750L+0.750S+0.450W+H, LL Comb	0.669	4.675	4.424	2.409	0.982
+D+0.750L+0.750S+0.450W+H, LL Comb	0.665	4.700	4.328	3.050	1.417
+D+0.750L+0.750S+0.450W+H, LL Comb	0.736	4.311	6.397	4.311	0.736
+D+0.750L+0.750S+0.450W+H, LL Comb	0.731	4.335	6.301	4.951	1.172
+D+0.750L+0.750S+0.450W+H, LL Comb	1.351	3.414	2.356	2.799	0.911
+D+0.750L+0.750S+0.450W+H, LL Comb	1.346	3.439	2.260	3.439	1.346
+D+0.750L+0.750S+0.450W+H, LL Comb	1.417	3.049	4.328	4.700	0.665
+D+0.750L+0.750S+0.450W+H, LL Comb	1.413	3.074	4.232	5.341	1.101
+D+0.750L+0.750S+0.450W+H, LL Comb	1.105	5.316	4.328	2.434	0.978
+D+0.750L+0.750S+0.450W+H, LL Comb	1.100	5.340	4.232	3.074	1.413
+D+0.750L+0.750S+0.450W+H, LL Comb	1.171	4.951	6.301	4.335	0.732
+D+0.750L+0.750S+0.450W+H, LL Comb	1.167	4.975	6.205	4.976	1.167
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.911	2.798	2.356	3.414	1.351
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.982	2.409	4.424	4.676	0.670
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.977	2.434	4.328	5.316	1.105
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.669	4.675	4.424	2.409	0.982
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.665	4.700	4.328	3.050	1.417
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.736	4.311	6.397	4.311	0.736
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.731	4.335	6.301	4.951	1.172
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.351	3.414	2.356	2.799	0.911
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.346	3.439	2.260	3.439	1.346
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.417	3.049	4.328	4.700	0.665
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.413	3.074	4.232	5.341	1.101
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.105	5.316	4.328	2.434	0.978
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.100	5.340	4.232	3.074	1.413
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.171	4.951	6.301	4.335	0.732
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.167	4.975	6.205	4.976	1.167
+0.60D+0.60W+0.60H	0.549	1.664	1.471	1.664	0.549
+0.60D+0.70E+0.60H	0.549	1.664	1.471	1.664	0.549
D Only	0.915	2.774	2.451	2.774	0.916
L Only, LL Comb Run (**L)	-0.006	0.033	-0.128	0.854	0.581
L Only, LL Comb Run (**L*)	0.089	-0.486	2.630	2.535	-0.328
L Only, LL Comb Run (**LL)	0.083	-0.454	2.502	3.389	0.253

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

(c) ENERCALC INC 1983-2022

DESCRIPTION: FB2 (Concentrated)**Vertical Reactions**

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4	Support 5
L Only, LL Comb Run (*L**)	-0.328	2.536	2.630	-0.486	0.089
L Only, LL Comb Run (*L*L)	-0.334	2.568	2.502	0.367	0.669
L Only, LL Comb Run (*LL*)	-0.239	2.049	5.260	2.049	-0.239
L Only, LL Comb Run (*LLL)	-0.245	2.082	5.133	2.903	0.341
L Only, LL Comb Run (L***)	0.580	0.854	-0.128	0.033	-0.006
L Only, LL Comb Run (L**L)	0.574	0.886	-0.256	0.887	0.575
L Only, LL Comb Run (L*L*)	0.669	0.367	2.502	2.568	-0.334
L Only, LL Comb Run (L*LL)	0.663	0.400	2.375	3.422	0.247
L Only, LL Comb Run (LL**)	0.253	3.389	2.502	-0.454	0.083
L Only, LL Comb Run (LL*L)	0.247	3.422	2.374	0.400	0.663
L Only, LL Comb Run (LLL*)	0.341	2.903	5.133	2.082	-0.245
L Only, LL Comb Run (LLLL)	0.335	2.936	5.005	2.936	0.335
H Only					

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

(c) ENERCALC INC 1983-2022

DESCRIPTION: FB2 (Distributed)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2018

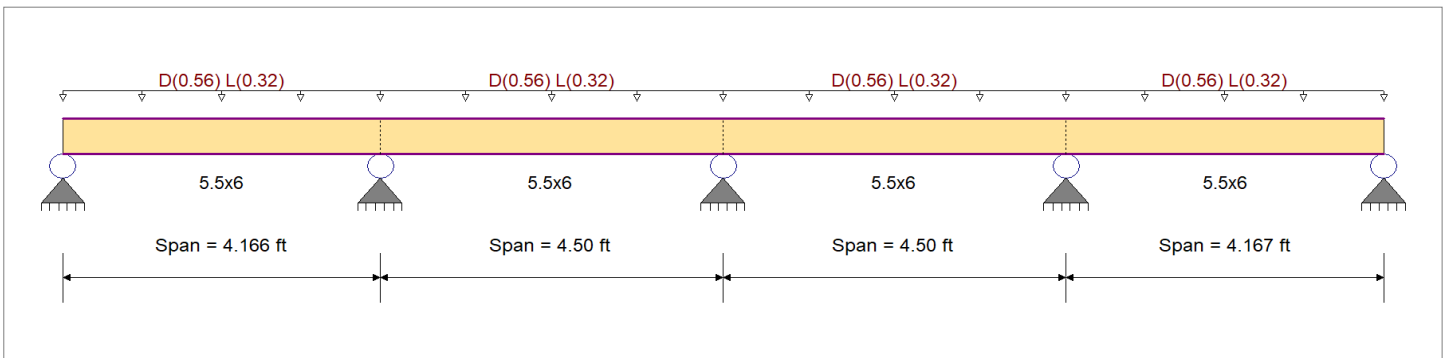
Material Properties

Analysis Method : Allowable Stress Design
Load Combination : IBC 2018

Wood Species : DF/DF
Wood Grade : 24F-V8

Fb +	2,400.0 psi	E : Modulus of Elasticity	
Fb -	2,400.0 psi	Ebend- xx	1,800.0ksi
Fc - Prll	1,650.0 psi	Eminbend - xx	950.0ksi
Fc - Perp	650.0 psi	Ebend- yy	1,600.0ksi
Fv	265.0 psi	Eminbend - yy	850.0ksi
Ft	1,100.0 psi	Density	31.210pcf

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading

Load for Span Number 1

Uniform Load : D = 0.070, L = 0.040 ksf, Tributary Width = 8.0 ft, (GARAGE)

Load for Span Number 2

Uniform Load : D = 0.070, L = 0.040 ksf, Tributary Width = 8.0 ft, (GARAGE)

Load for Span Number 3

Uniform Load : D = 0.070, L = 0.040 ksf, Tributary Width = 8.0 ft, (GARAGE)

Load for Span Number 4

Uniform Load : D = 0.070, L = 0.040 ksf, Tributary Width = 8.0 ft, (GARAGE)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.276	1	Maximum Shear Stress Ratio	=	0.320	: 1
Section used for this span		5.5x6		Section used for this span		5.5x6	
fb: Actual	=	662.92psi		fv: Actual	=	84.76 psi	
F'b	=	2,400.00psi		F'v	=	265.00 psi	
Load Combination	+D+L+H, LL Comb Run (L*LL)			Load Combination	+D+L+H, LL Comb Run (L*LL)		
Location of maximum on span	=	4.500ft		Location of maximum on span	=	4.500 ft	
Span # where maximum occurs	=	Span # 3		Span # where maximum occurs	=	Span # 3	
Maximum Deflection							
Max Downward Transient Deflection	0.010 in	Ratio =	5230	>=360	Span: 4 : L Only, LL Comb Run (*L*L)		
Max Upward Transient Deflection	-0.007 in	Ratio =	8282	>=360	Span: 4 : L Only, LL Comb Run (L*L*)		
Max Downward Total Deflection	0.020 in	Ratio =	2510	>=240	Span: 4 : +D+L+H, LL Comb Run (*L*L)		
Max Upward Total Deflection	-0.003 in	Ratio =	18898	>=240	Span: 4 : +D+L+H, LL Comb Run (L*L*)		

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L+H, LL Comb Run (L*L*)	1	0.0199	1.898		0.0000	0.000
+D+L+H, LL Comb Run (*L*L)	2	0.0142	2.335	+D+L+H, LL Comb Run (L*L*)	-0.0021	0.399
+D+L+H, LL Comb Run (L*L*)	3	0.0143	2.222	+D+L+H, LL Comb Run (*L*L)	-0.0019	4.215
+D+L+H, LL Comb Run (*L*L)	4	0.0197	2.321		0.0000	4.215

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

(c) ENERCALC INC 1983-2022

DESCRIPTION: FB2 (Distributed)

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4	Support 5
Max Upward from all Load Conditions	1.517	4.457	4.090	4.457	1.518
Max Upward from Load Combinations	1.517	4.457	4.090	4.457	1.518
Max Upward from Load Cases	0.915	2.774	2.451	2.774	0.916
Max Downward from all Load Conditions	-0.085	-0.118	-0.256	-0.118	-0.085
Max Downward from Load Cases (Resis)	-0.085	-0.118	-0.256	-0.118	-0.085
+D+H	0.915	2.774	2.451	2.774	0.916
+D+L+H, LL Comb Run (**L)	0.909	2.807	2.324	3.628	1.496
+D+L+H, LL Comb Run (**L*)	0.937	2.656	3.271	3.570	0.836
+D+L+H, LL Comb Run (**LL)	0.931	2.689	3.143	4.424	1.417
+D+L+H, LL Comb Run (*L**)	0.836	3.570	3.271	2.656	0.937
+D+L+H, LL Comb Run (*L*L)	0.830	3.603	3.143	3.510	1.518
+D+L+H, LL Comb Run (*L*L*)	0.857	3.452	4.090	3.453	0.858
+D+L+H, LL Comb Run (*LLL)	0.851	3.485	3.962	4.306	1.438
+D+L+H, LL Comb Run (L***)	1.496	3.627	2.324	2.807	0.910
+D+L+H, LL Comb Run (L**L)	1.490	3.660	2.196	3.661	1.490
+D+L+H, LL Comb Run (L*L*)	1.517	3.510	3.143	3.603	0.830
+D+L+H, LL Comb Run (L*LL)	1.511	3.542	3.015	4.457	1.411
+D+L+H, LL Comb Run (LL**)	1.416	4.424	3.143	2.689	0.931
+D+L+H, LL Comb Run (LL*L)	1.410	4.457	3.015	3.543	1.512
+D+L+H, LL Comb Run (LLL*)	1.438	4.306	3.962	3.485	0.852
+D+L+H, LL Comb Run (LLLL)	1.432	4.339	3.835	4.339	1.432
+D+Lr+H, LL Comb Run (**L)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (**L*)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (**LL)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (*L**)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (*L*L)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (*L*L*)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (*LL*)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (*LLL)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (L***)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (L**L)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (L*L*)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (L*LL)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (LL**)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (LL*L)	0.915	2.774	2.451	2.774	0.916
+D+Lr+H, LL Comb Run (LLL*)	0.915	2.774	2.451	2.774	0.916
+D+S+H	0.915	2.774	2.451	2.774	0.916
+D+0.750Lr+0.750L+H, LL Comb Run (*)	0.911	2.798	2.356	3.414	1.351
+D+0.750Lr+0.750L+H, LL Comb Run (*	0.932	2.685	3.066	3.371	0.856
+D+0.750Lr+0.750L+H, LL Comb Run (*	0.927	2.710	2.970	4.012	1.291
+D+0.750Lr+0.750L+H, LL Comb Run (*	0.856	3.371	3.066	2.686	0.932
+D+0.750Lr+0.750L+H, LL Comb Run (*	0.851	3.396	2.970	3.326	1.367
+D+0.750Lr+0.750L+H, LL Comb Run (*	0.872	3.283	3.681	3.283	0.872
+D+0.750Lr+0.750L+H, LL Comb Run (*	0.867	3.307	3.585	3.923	1.307
+D+0.750Lr+0.750L+H, LL Comb Run (L	1.351	3.414	2.356	2.799	0.911
+D+0.750Lr+0.750L+H, LL Comb Run (L	1.346	3.439	2.260	3.439	1.346
+D+0.750Lr+0.750L+H, LL Comb Run (L	1.367	3.326	2.970	3.396	0.851
+D+0.750Lr+0.750L+H, LL Comb Run (L	1.362	3.350	2.874	4.036	1.287
+D+0.750Lr+0.750L+H, LL Comb Run (L	1.291	4.011	2.970	2.710	0.927
+D+0.750Lr+0.750L+H, LL Comb Run (L	1.287	4.036	2.874	3.351	1.363
+D+0.750Lr+0.750L+H, LL Comb Run (L	1.307	3.923	3.585	3.308	0.868
+D+0.750Lr+0.750L+H, LL Comb Run (L	1.303	3.948	3.489	3.948	1.303
+D+0.750L+0.750S+H, LL Comb Run (**	0.911	2.798	2.356	3.414	1.351
+D+0.750L+0.750S+H, LL Comb Run (**	0.932	2.685	3.066	3.371	0.856
+D+0.750L+0.750S+H, LL Comb Run (**	0.927	2.710	2.970	4.012	1.291
+D+0.750L+0.750S+H, LL Comb Run (*L	0.856	3.371	3.066	2.686	0.932
+D+0.750L+0.750S+H, LL Comb Run (*L	0.851	3.396	2.970	3.326	1.367
+D+0.750L+0.750S+H, LL Comb Run (*L	0.872	3.283	3.681	3.283	0.872
+D+0.750L+0.750S+H, LL Comb Run (*L	0.867	3.307	3.585	3.923	1.307
+D+0.750L+0.750S+H, LL Comb Run (L*	1.351	3.414	2.356	2.799	0.911

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

(c) ENERCALC INC 1983-2022

DESCRIPTION: FB2 (Distributed)

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4	Support 5
+D+0.750L+0.750S+H, LL Comb Run (L*	1.346	3.439	2.260	3.439	1.346
+D+0.750L+0.750S+H, LL Comb Run (L*	1.367	3.326	2.970	3.396	0.851
+D+0.750L+0.750S+H, LL Comb Run (L*	1.362	3.350	2.874	4.036	1.287
+D+0.750L+0.750S+H, LL Comb Run (LL	1.291	4.011	2.970	2.710	0.927
+D+0.750L+0.750S+H, LL Comb Run (LL	1.287	4.036	2.874	3.351	1.363
+D+0.750L+0.750S+H, LL Comb Run (LL	1.307	3.923	3.585	3.308	0.868
+D+0.750L+0.750S+H, LL Comb Run (LL	1.303	3.948	3.489	3.948	1.303
+D+0.60W+H	0.915	2.774	2.451	2.774	0.916
+D+0.70E+H	0.915	2.774	2.451	2.774	0.916
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.911	2.798	2.356	3.414	1.351
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.932	2.685	3.066	3.371	0.856
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.927	2.710	2.970	4.012	1.291
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.856	3.371	3.066	2.686	0.932
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.851	3.396	2.970	3.326	1.367
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.872	3.283	3.681	3.283	0.872
+D+0.750Lr+0.750L+0.450W+H, LL Comb	0.867	3.307	3.585	3.923	1.307
+D+0.750Lr+0.750L+0.450W+H, LL Comb	1.351	3.414	2.356	2.799	0.911
+D+0.750Lr+0.750L+0.450W+H, LL Comb	1.346	3.439	2.260	3.439	1.346
+D+0.750Lr+0.750L+0.450W+H, LL Comb	1.367	3.326	2.970	3.396	0.851
+D+0.750Lr+0.750L+0.450W+H, LL Comb	1.362	3.350	2.874	4.036	1.287
+D+0.750Lr+0.750L+0.450W+H, LL Comb	1.291	4.011	2.970	2.710	0.927
+D+0.750Lr+0.750L+0.450W+H, LL Comb	1.287	4.036	2.874	3.351	1.363
+D+0.750Lr+0.750L+0.450W+H, LL Comb	1.307	3.923	3.585	3.308	0.868
+D+0.750Lr+0.750L+0.450W+H, LL Comb	1.303	3.948	3.489	3.948	1.303
+D+0.750L+0.750S+0.450W+H, LL Comb	0.911	2.798	2.356	3.414	1.351
+D+0.750L+0.750S+0.450W+H, LL Comb	0.932	2.685	3.066	3.371	0.856
+D+0.750L+0.750S+0.450W+H, LL Comb	0.927	2.710	2.970	4.012	1.291
+D+0.750L+0.750S+0.450W+H, LL Comb	0.856	3.371	3.066	2.686	0.932
+D+0.750L+0.750S+0.450W+H, LL Comb	0.851	3.396	2.970	3.326	1.367
+D+0.750L+0.750S+0.450W+H, LL Comb	0.872	3.283	3.681	3.283	0.872
+D+0.750L+0.750S+0.450W+H, LL Comb	0.867	3.307	3.585	3.923	1.307
+D+0.750L+0.750S+0.450W+H, LL Comb	1.351	3.414	2.356	2.799	0.911
+D+0.750L+0.750S+0.450W+H, LL Comb	1.346	3.439	2.260	3.439	1.346
+D+0.750L+0.750S+0.450W+H, LL Comb	1.367	3.326	2.970	3.396	0.851
+D+0.750L+0.750S+0.450W+H, LL Comb	1.362	3.350	2.874	4.036	1.287
+D+0.750L+0.750S+0.450W+H, LL Comb	1.291	4.011	2.970	2.710	0.927
+D+0.750L+0.750S+0.450W+H, LL Comb	1.287	4.036	2.874	3.351	1.363
+D+0.750L+0.750S+0.450W+H, LL Comb	1.307	3.923	3.585	3.308	0.868
+D+0.750L+0.750S+0.450W+H, LL Comb	1.303	3.948	3.489	3.948	1.303
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.911	2.798	2.356	3.414	1.351
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.932	2.685	3.066	3.371	0.856
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.927	2.710	2.970	4.012	1.291
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.856	3.371	3.066	2.686	0.932
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.851	3.396	2.970	3.326	1.367
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.872	3.283	3.681	3.283	0.872
+D+0.750L+0.750S+0.5250E+H, LL Comb	0.867	3.307	3.585	3.923	1.307
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.351	3.414	2.356	2.799	0.911
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.346	3.439	2.260	3.439	1.346
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.367	3.326	2.970	3.396	0.851
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.362	3.350	2.874	4.036	1.287
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.291	4.011	2.970	2.710	0.927
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.287	4.036	2.874	3.351	1.363
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.307	3.923	3.585	3.308	0.868
+D+0.750L+0.750S+0.5250E+H, LL Comb	1.303	3.948	3.489	3.948	1.303
+0.60D+0.60W+0.60H	0.549	1.664	1.471	1.664	0.549
+0.60D+0.70E+0.60H	0.549	1.664	1.471	1.664	0.549
D Only	0.915	2.774	2.451	2.774	0.916
L Only, LL Comb Run (**L)	-0.006	0.033	-0.128	0.854	0.581
L Only, LL Comb Run (**L*)	0.021	-0.118	0.819	0.796	-0.079
L Only, LL Comb Run (**LL)	0.015	-0.085	0.692	1.650	0.501

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

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DESCRIPTION: FB2 (Distributed)**Vertical Reactions**

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4	Support 5
L Only, LL Comb Run (*L**)	-0.079	0.797	0.819	-0.118	0.021
L Only, LL Comb Run (*L*L)	-0.085	0.829	0.692	0.736	0.602
L Only, LL Comb Run (*LL*)	-0.058	0.679	1.639	0.679	-0.058
L Only, LL Comb Run (*LLL)	-0.064	0.711	1.511	1.532	0.523
L Only, LL Comb Run (L***)	0.580	0.854	-0.128	0.033	-0.006
L Only, LL Comb Run (L**L)	0.574	0.886	-0.256	0.887	0.575
L Only, LL Comb Run (L*L*)	0.602	0.736	0.692	0.829	-0.085
L Only, LL Comb Run (L*LL)	0.596	0.769	0.564	1.683	0.495
L Only, LL Comb Run (LL**)	0.501	1.650	0.692	-0.085	0.015
L Only, LL Comb Run (LL*L)	0.495	1.683	0.564	0.769	0.596
L Only, LL Comb Run (LLL*)	0.522	1.532	1.511	0.711	-0.064
L Only, LL Comb Run (LLLL)	0.516	1.565	1.383	1.565	0.517
H Only					

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

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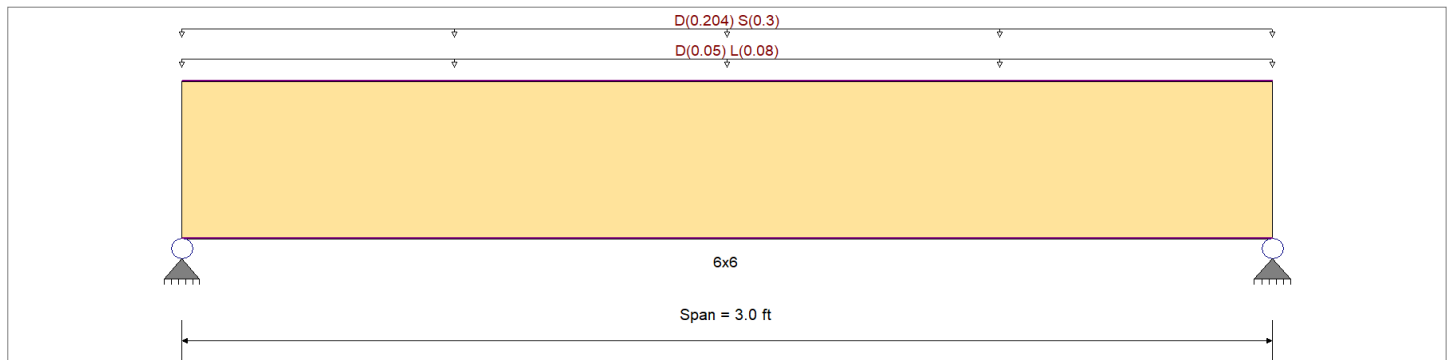
DESCRIPTION: FH1

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2018

Material Properties

Analysis Method : Allowable Stress Design	Fb +	900.0 psi	E : Modulus of Elasticity	
Load Combination : IBC 2018	Fb -	900.0 psi	Ebend- xx	1,600.0ksi
	Fc - Prll	1,350.0 psi	Eminbend - xx	580.0ksi
Wood Species : Douglas Fir-Larch	Fc - Perp	625.0 psi		
Wood Grade : No.2	Fv	180.0 psi		
	Ft	575.0 psi	Density	31.210pcf
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling				



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added

Uniform Load : D = 0.0250, L = 0.040 ksf, Tributary Width = 2.0 ft, (FLOOR)

Uniform Load : D = 0.0170, S = 0.0250 ksf, Tributary Width = 12.0 ft, (ROOF)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.261 : 1	Maximum Shear Stress Ratio	=	0.139 : 1
Section used for this span		6x6	Section used for this span		6x6
fb: Actual	=	269.72psi	fv: Actual	=	28.87 psi
F'b	=	1,035.00psi	F'v	=	207.00 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	1.500ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1
Maximum Deflection					
Max Downward Transient Deflection	0.005 in	Ratio = 7986 >=360	Span: 1 : S Only		
Max Upward Transient Deflection	0 in	Ratio = 0 <360	n/a		
Max Downward Total Deflection	0.008 in	Ratio = 4324 >=240	Span: 1 : +D+S		
Max Upward Total Deflection	0 in	Ratio = 0 <240	n/a		

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.0083	1.511		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	0.831	0.831
Max Upward from Load Combinations	0.831	0.831
Max Upward from Load Cases	0.450	0.450
D Only	0.381	0.381
+D+L	0.501	0.501
+D+S	0.831	0.831
+D+0.750L	0.471	0.471
+D+0.750L+0.750S	0.809	0.809
+0.60D	0.229	0.229

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

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DESCRIPTION: FH1

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
L Only	0.120	0.120
S Only	0.450	0.450

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

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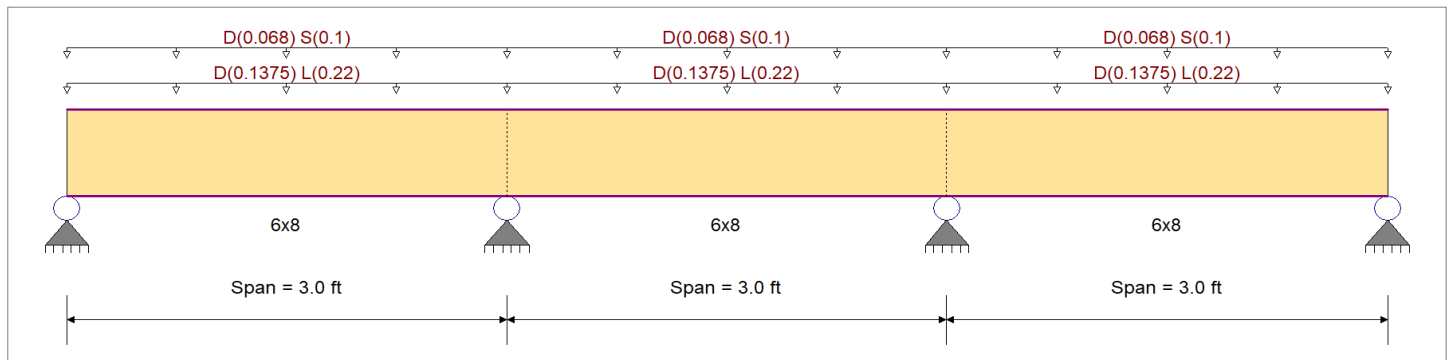
DESCRIPTION: FH2

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2018

Material Properties

Analysis Method : Allowable Stress Design	Fb +	900.0 psi	E : Modulus of Elasticity
Load Combination : IBC 2018	Fb -	900.0 psi	Ebend- xx
	Fc - Prll	1,350.0 psi	Eminbend - xx
Wood Species : Douglas Fir-Larch	Fc - Perp	625.0 psi	
Wood Grade : No.2	Fv	180.0 psi	Density
	Ft	575.0 psi	31.210pcf
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling			



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added

Load for Span Number 1

Uniform Load : D = 0.0250, L = 0.040 ksf, Tributary Width = 5.50 ft, (FLOOR)

Uniform Load : D = 0.0170, S = 0.0250 ksf, Tributary Width = 4.0 ft, (ROOF)

Load for Span Number 2

Uniform Load : D = 0.0250, L = 0.040 ksf, Tributary Width = 5.50 ft, (FLOOR)

Uniform Load : D = 0.0170, S = 0.0250 ksf, Tributary Width = 4.0 ft, (ROOF)

Load for Span Number 3

Uniform Load : D = 0.0250, L = 0.040 ksf, Tributary Width = 5.50 ft, (FLOOR)

Uniform Load : D = 0.0170, S = 0.0250 ksf, Tributary Width = 4.0 ft, (ROOF)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.099 : 1	Maximum Shear Stress Ratio	=	0.103 : 1
Section used for this span	=	6x8	Section used for this span	=	6x8
fb: Actual	=	89.12psi	fv: Actual	=	18.49 psi
F'b	=	900.00psi	F'v	=	180.00 psi
Load Combination	=	+D+L	Load Combination	=	+D+L
Location of maximum on span	=	3.000ft	Location of maximum on span	=	3.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 2
Maximum Deflection					
Max Downward Transient Deflection		0 in Ratio =	<360	n/a	
Max Upward Transient Deflection		0 in Ratio =	<360	n/a	
Max Downward Total Deflection		0.001 in Ratio =	25554	>=240	Span: 3 : +D+0.750L+0.750S
Max Upward Total Deflection		-0.000 in Ratio =	394841	>=240	Span: 2 : +D+0.750L+0.750S

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+0.750L+0.750S	1	0.0014	1.361		0.0000	0.000
+D+0.750L+0.750S	2	0.0001	1.513	+D+0.750L+0.750S	-0.0001	0.353
+D+0.750L+0.750S	3	0.0014	1.664		0.0000	0.353

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

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DESCRIPTION: FH2**Vertical Reactions**

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
Max Upward from all Load Conditions	0.535	1.470	1.470	0.535
Max Upward from Load Combinations	0.535	1.470	1.470	0.535
Max Upward from Load Cases	0.264	0.726	0.726	0.264
D Only	0.247	0.678	0.678	0.247
+D+L	0.511	1.404	1.404	0.511
+D+S	0.367	1.008	1.008	0.367
+D+0.750L	0.445	1.223	1.223	0.445
+D+0.750L+0.750S	0.535	1.470	1.470	0.535
+0.60D	0.148	0.407	0.407	0.148
L Only	0.264	0.726	0.726	0.264
S Only	0.120	0.330	0.330	0.120

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

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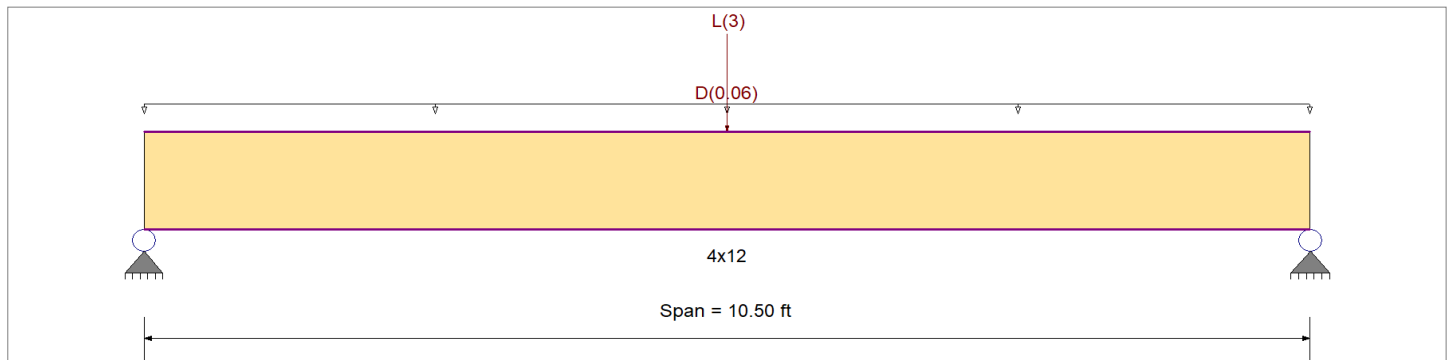
DESCRIPTION: FJ1 (Concentrated Load)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2018

Material Properties

Analysis Method : Allowable Stress Design	Fb +	1,200.0 psi	E : Modulus of Elasticity
Load Combination : IBC 2018	Fb -	1,200.0 psi	Ebend- xx
	Fc - Prll	1,550.0 psi	Eminbend - xx
Wood Species : Douglas Fir-Larch	Fc - Perp	625.0 psi	
Wood Grade : No.1 & Better	Fv	180.0 psi	Density
	Ft	800.0 psi	Repetitive Member Stress Increase
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling			



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added
Uniform Load : D = 0.060 ksf, Tributary Width = 1.0 ft, (FLOOR)
Point Load : L = 3.0 k @ 5.250 ft, (Garage Pt Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.932	1	Maximum Shear Stress Ratio	=	0.372	: 1
Section used for this span		4x12		Section used for this span		4x12	
fb: Actual	=	1,414.40psi		fv: Actual	=	67.04 psi	
F'b	=	1,518.00psi		F'v	=	180.00 psi	
Load Combination		+D+L		Load Combination		+D+L	
Location of maximum on span	=	5.250ft		Location of maximum on span	=	0.000 ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection		0.168 in	Ratio =	749	>=360	Span: 1 : L Only	
Max Upward Transient Deflection		0 in	Ratio =	0	<360	n/a	
Max Downward Total Deflection		0.190 in	Ratio =	662	>=240	Span: 1 : +D+L	
Max Upward Total Deflection		0 in	Ratio =	0	<240	n/a	

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios									Moment Values			Shear Values			
			M	V	CD	CM	C _t	CLx	C _F	C _{fu}	C _i	C _r	M	fb	F'b	V	fv	F'v
D Only															0.0	0.00	0.0	0.0
Length = 10.50 ft	1	0.098	0.061	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.15	0.83	134.4	1,366.2	0.26	9.9	162.0	
+D+L															0.0	0.00	0.0	0.0
Length = 10.50 ft	1	0.932	0.372	1.00	1.00	1.00	1.00	1.100	1.00	1.00	1.15	8.70	1,414.4	1,518.0	1.76	67.0	180.0	
+D+0.750L															0.0	0.00	0.0	0.0
Length = 10.50 ft	1	0.577	0.234	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.15	6.73	1,094.4	1,897.5	1.38	52.8	225.0	
+0.60D															0.0	0.00	0.0	0.0
Length = 10.50 ft	1	0.033	0.021	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.15	0.50	80.6	2,428.8	0.16	5.9	288.0	

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

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DESCRIPTION: FJ1 (Concentrated Load)**Overall Maximum Deflections**

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.1902	5.288		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	1.815	1.815
Max Upward from Load Combinations	1.815	1.815
Max Upward from Load Cases	1.500	1.500
D Only	0.315	0.315
+D+L	1.815	1.815
+D+0.750L	1.440	1.440
+0.60D	0.189	0.189
L Only	1.500	1.500

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

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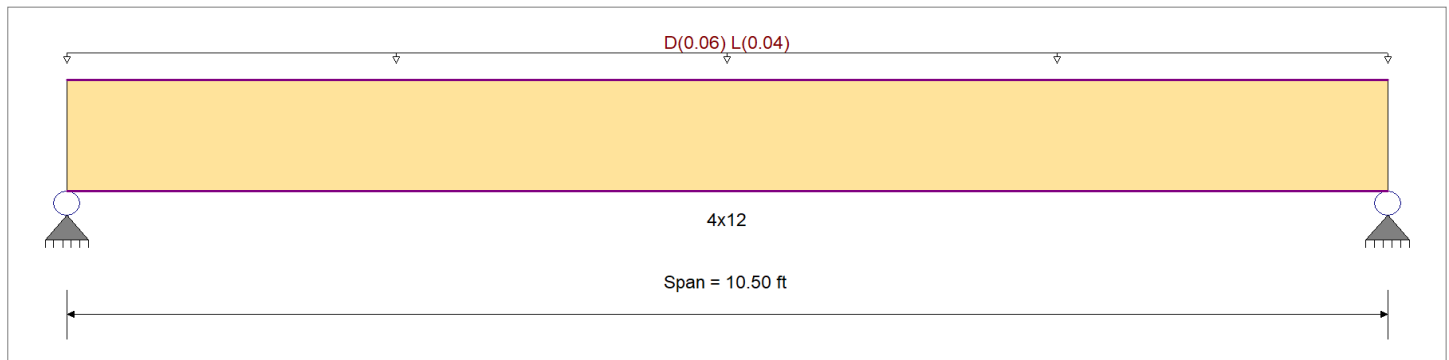
DESCRIPTION: FJ1 (Distributed Load)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2018

Material Properties

Analysis Method : Allowable Stress Design	Fb +	900.0 psi	E : Modulus of Elasticity
Load Combination : IBC 2018	Fb -	900.0 psi	Ebend- xx
	Fc - Prll	1,350.0 psi	Eminbend - xx
Wood Species : Douglas Fir-Larch	Fc - Perp	625.0 psi	
Wood Grade : No.2	Fv	180.0 psi	
	Ft	575.0 psi	Density
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling			Repetitive Member Stress Increase



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added
Uniform Load : D = 0.060, L = 0.040 ksf, Tributary Width = 1.0 ft, (FLOOR)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.197 : 1	Maximum Shear Stress Ratio	=	0.092 : 1
Section used for this span		4x12	Section used for this span		4x12
fb: Actual	=	224.00psi	fv: Actual	=	16.50 psi
F'b	=	1,138.50psi	F'v	=	180.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	5.250ft	Location of maximum on span	=	0.000ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1
Maximum Deflection					
Max Downward Transient Deflection	0.017 in	Ratio = 7608 >=360	Span: 1 : L Only		
Max Upward Transient Deflection	0 in	Ratio = 0 <360	n/a		
Max Downward Total Deflection	0.041 in	Ratio = 3043 >=240	Span: 1 : +D+L		
Max Upward Total Deflection	0 in	Ratio = 0 <240	n/a		

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios										Moment Values			Shear Values				
			M	V	CD	CM	C _t	CLx	C _F	C _{fu}	C _i	C _r	M	fb	F'b	V	fv	F'v		
D Only																				
Length = 10.50 ft	1		0.131	0.061	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.15	0.83	134.4	1,024.7	0.00	0.00	0.0	0.0	0.0
+D+L																				
Length = 10.50 ft	1		0.197	0.092	1.00	1.00	1.00	1.00	1.100	1.00	1.00	1.15	1.38	224.0	1,138.5	0.43	0.00	16.5	0.0	180.0
+D+0.750L																				
Length = 10.50 ft	1		0.142	0.066	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.15	1.24	201.6	1,423.1	0.39	0.00	14.8	0.0	225.0
+0.60D																				
Length = 10.50 ft	1		0.044	0.021	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.15	0.50	80.6	1,821.6	0.16	0.00	5.9	0.0	288.0

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

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DESCRIPTION: FJ1 (Distributed Load)**Overall Maximum Deflections**

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.0414	5.288		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	0.525	0.525
Max Upward from Load Combinations	0.525	0.525
Max Upward from Load Cases	0.315	0.315
D Only	0.315	0.315
+D+L	0.525	0.525
+D+0.750L	0.473	0.473
+0.60D	0.189	0.189
L Only	0.210	0.210

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

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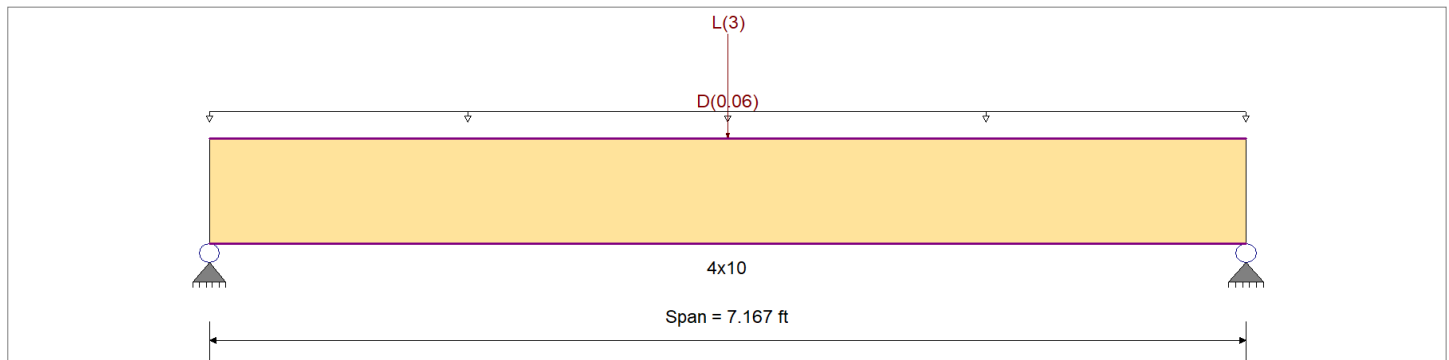
DESCRIPTION: FJ2 (Concentrated Load)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2018

Material Properties

Analysis Method : Allowable Stress Design	Fb +	1,200.0 psi	E : Modulus of Elasticity
Load Combination : IBC 2018	Fb -	1,200.0 psi	Ebend- xx
	Fc - Prll	1,550.0 psi	Eminbend - xx
Wood Species : Douglas Fir-Larch	Fc - Perp	625.0 psi	
Wood Grade : No.1 & Better	Fv	180.0 psi	Density
	Ft	800.0 psi	Repetitive Member Stress Increase
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling			



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added
Uniform Load : D = 0.060 ksf, Tributary Width = 1.0 ft, (FLOOR)
Point Load : L = 3.0 k @ 3.583 ft, (Garage Pt Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.836	1	Maximum Shear Stress Ratio	=	0.430	: 1
Section used for this span		4x10		Section used for this span		4x10	
fb: Actual	=	1,384.78psi		fv: Actual	=	77.36 psi	
F'b	=	1,656.00psi		F'v	=	180.00 psi	
Load Combination		+D+L		Load Combination		+D+L	
Location of maximum on span	=	3.583ft		Location of maximum on span	=	0.000 ft	
Span # where maximum occurs	=	Span # 1		Span # where maximum occurs	=	Span # 1	
Maximum Deflection							
Max Downward Transient Deflection	0.096 in	Ratio =	894	>=360	Span: 1 : L Only		
Max Upward Transient Deflection	0 in	Ratio =	0	<360	n/a		
Max Downward Total Deflection	0.105 in	Ratio =	820	>=240	Span: 1 : +D+L		
Max Upward Total Deflection	0 in	Ratio =	0	<240	n/a		

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios										Moment Values			Shear Values			
			M	V	CD	CM	C _t	CLx	C _F	C _{fu}	C _i	C _r	M	fb	F'b	V	fv	F'v	
D Only	Length = 7.167 ft	1	0.062	0.048	0.90	1.00	1.00	1.00	1.200	1.00	1.00	1.15	0.39	92.6	1,490.4	0.0	0.00	0.0	0.0
+D+L	Length = 7.167 ft	1	0.836	0.430	1.00	1.00	1.00	1.00	1.200	1.00	1.00	1.15	5.76	1,384.8	1,656.0	1.67	77.4	180.0	
+D+0.750L	Length = 7.167 ft	1	0.513	0.267	1.25	1.00	1.00	1.00	1.200	1.00	1.00	1.15	4.42	1,061.7	2,070.0	1.29	60.0	225.0	
+0.60D	Length = 7.167 ft	1	0.021	0.016	1.60	1.00	1.00	1.00	1.200	1.00	1.00	1.15	0.23	55.6	2,649.6	0.10	4.7	288.0	

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

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DESCRIPTION: FJ2 (Concentrated Load)**Overall Maximum Deflections**

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.1048	3.583		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	1.715	1.715
Max Upward from Load Combinations	1.715	1.715
Max Upward from Load Cases	1.500	1.500
D Only	0.215	0.215
+D+L	1.715	1.715
+D+0.750L	1.340	1.340
+0.60D	0.129	0.129
L Only	1.500	1.500

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

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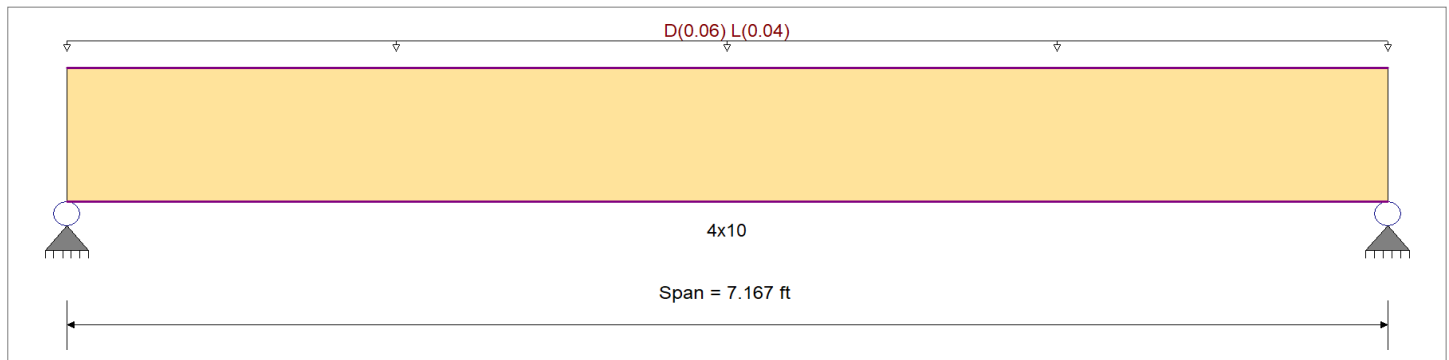
DESCRIPTION: FJ2 (Distributed Load)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : IBC 2018

Material Properties

Analysis Method : Allowable Stress Design	Fb +	1,200.0 psi	E : Modulus of Elasticity
Load Combination : IBC 2018	Fb -	1,200.0 psi	Ebend- xx
	Fc - Prll	1,550.0 psi	Eminbend - xx
Wood Species : Douglas Fir-Larch	Fc - Perp	625.0 psi	
Wood Grade : No.1 & Better	Fv	180.0 psi	
	Ft	800.0 psi	Density
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling			Repetitive Member Stress Increase



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added
Uniform Load : D = 0.060, L = 0.040 ksf, Tributary Width = 1.0 ft, (FLOOR)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.093 1	Maximum Shear Stress Ratio	=	0.073 : 1
Section used for this span		4x10	Section used for this span		4x10
fb: Actual	=	154.35psi	fv: Actual	=	13.09 psi
F'b	=	1,656.00psi	F'v	=	180.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	3.583ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1
Maximum Deflection					
Max Downward Transient Deflection	0.006 in	Ratio = 14964	>=360	Span: 1 : L Only	
Max Upward Transient Deflection	0 in	Ratio = 0	<360	n/a	
Max Downward Total Deflection	0.014 in	Ratio = 5985	>=240	Span: 1 : +D+L	
Max Upward Total Deflection	0 in	Ratio = 0	<240	n/a	

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios										Moment Values			Shear Values				
			M	V	CD	CM	C _t	CLx	C _F	C _{fu}	C _i	C _r	M	fb	F'b	V	fv	F'v		
D Only	Length = 7.167 ft	1	0.062	0.048	0.90	1.00	1.00	1.00	1.200	1.00	1.00	1.15	0.39	92.6	1,490.4	0.00	0.00	0.0	0.0	0.0
+D+L	Length = 7.167 ft	1	0.093	0.073	1.00	1.00	1.00	1.00	1.200	1.00	1.00	1.15	0.64	154.4	1,656.0	0.00	0.00	0.0	0.0	0.0
+D+0.750L	Length = 7.167 ft	1	0.067	0.052	1.25	1.00	1.00	1.00	1.200	1.00	1.00	1.15	0.58	138.9	2,070.0	0.00	0.00	0.0	0.0	0.0
+0.60D	Length = 7.167 ft	1	0.021	0.016	1.60	1.00	1.00	1.00	1.200	1.00	1.00	1.15	0.23	55.6	2,649.6	0.00	0.00	0.0	0.0	0.0

Wood Beam

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

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DESCRIPTION: FJ2 (Distributed Load)**Overall Maximum Deflections**

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.0144	3.609		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

Load Combination	Support 1	Support 2
Max Upward from all Load Conditions	0.358	0.358
Max Upward from Load Combinations	0.358	0.358
Max Upward from Load Cases	0.215	0.215
D Only	0.215	0.215
+D+L	0.358	0.358
+D+0.750L	0.322	0.322
+0.60D	0.129	0.129
L Only	0.143	0.143

General Footing

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

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DESCRIPTION: PF3

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16

Load Combinations Used : IBC 2018

General Information

Material Properties

f'c : Concrete 28 day strength	=	3.0 ksi
fy : Rebar Yield	=	60.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Soil Design Values

Allowable Soil Bearing	=	1.50 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Increases based on footing depth

Footing base depth below soil surface	=	ft
Allow press. increase per foot of depth when footing base is below	=	ksf

Increases based on footing plan dimension

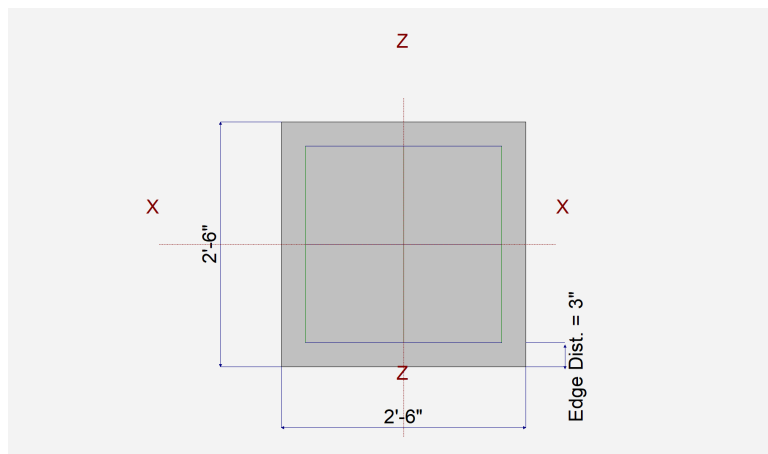
Allowable pressure increase per foot of depth when max. length or width is greater than	=	ksf
	=	ft

Dimensions

Width parallel to X-X Axis	=	2.50 ft
Length parallel to Z-Z Axis	=	2.50 ft
Footing Thickness	=	10.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	in
pz : parallel to Z-Z Axis	=	in
Height	=	in
Rebar Centerline to Edge of Concrete... at Bottom of footing	=	3.0 in



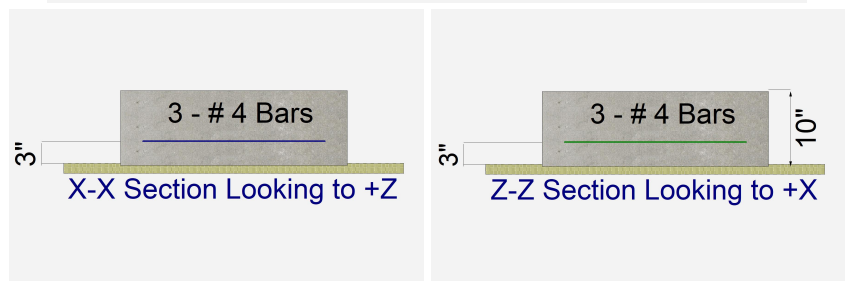
Reinforcing

Bars parallel to X-X Axis	=	
Number of Bars	=	3.0
Reinforcing Bar Size	=	# 4

Bars parallel to Z-Z Axis	=	
Number of Bars	=	3.0
Reinforcing Bar Size	=	# 4

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	=	n/a
# Bars required within zone	=	n/a
# Bars required on each side of zone	=	n/a



Applied Loads

	D	Lr	L	S	W	E	H
P : Column Load	=	4.212		3.50			k
OB : Overburden	=						ksf
M-xx	=						k-ft
M-zz	=						k-ft
V-x	=						k
V-z	=						k

General Footing

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

(c) ENERCALC INC 1983-2022

DESCRIPTION: PF3

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.9033	Soil Bearing	1.355 ksf	1.50 ksf	+D+L about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.1823	Z Flexure (+X)	1.332 k-ft/ft	7.306 k-ft/ft	+1.20D+1.60L
PASS	0.1823	Z Flexure (-X)	1.332 k-ft/ft	7.306 k-ft/ft	+1.20D+1.60L
PASS	0.1823	X Flexure (+Z)	1.332 k-ft/ft	7.306 k-ft/ft	+1.20D+1.60L
PASS	0.1823	X Flexure (-Z)	1.332 k-ft/ft	7.306 k-ft/ft	+1.20D+1.60L
PASS	0.1667	1-way Shear (+X)	13.699 psi	82.158 psi	+1.20D+1.60L
PASS	0.1667	1-way Shear (-X)	13.699 psi	82.158 psi	+1.20D+1.60L
PASS	0.1667	1-way Shear (+Z)	13.699 psi	82.158 psi	+1.20D+1.60L
PASS	0.1667	1-way Shear (-Z)	13.699 psi	82.158 psi	+1.20D+1.60L
PASS	0.3118	2-way Punching	51.228 psi	164.317 psi	+1.20D+1.60L

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc		Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
		Zecc (in)		Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, D Only	1.50	n/a	0.0	0.7948	0.7948	n/a	n/a	0.530
X-X, +D+L	1.50	n/a	0.0	1.355	1.355	n/a	n/a	0.903
X-X, +D+0.750L	1.50	n/a	0.0	1.215	1.215	n/a	n/a	0.810
X-X, +0.60D	1.50	n/a	0.0	0.4769	0.4769	n/a	n/a	0.318
Z-Z, D Only	1.50	0.0	n/a	n/a	n/a	0.7948	0.7948	0.530
Z-Z, +D+L	1.50	0.0	n/a	n/a	n/a	1.355	1.355	0.903
Z-Z, +D+0.750L	1.50	0.0	n/a	n/a	n/a	1.215	1.215	0.810
Z-Z, +0.60D	1.50	0.0	n/a	n/a	n/a	0.4769	0.4769	0.318

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
Footing Has NO Overturning				
All units k				

Sliding Stability

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
Footing Has NO Sliding				

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	0.7371	+Z	Bottom	0.2160	AsMin	0.240	7.306	OK
X-X, +1.40D	0.7371	-Z	Bottom	0.2160	AsMin	0.240	7.306	OK
X-X, +1.20D+1.60L	1.332	+Z	Bottom	0.2160	AsMin	0.240	7.306	OK
X-X, +1.20D+1.60L	1.332	-Z	Bottom	0.2160	AsMin	0.240	7.306	OK
X-X, +1.20D+0.50L	0.8506	+Z	Bottom	0.2160	AsMin	0.240	7.306	OK
X-X, +1.20D+0.50L	0.8506	-Z	Bottom	0.2160	AsMin	0.240	7.306	OK
X-X, +1.20D	0.6318	+Z	Bottom	0.2160	AsMin	0.240	7.306	OK
X-X, +1.20D	0.6318	-Z	Bottom	0.2160	AsMin	0.240	7.306	OK
X-X, +0.90D	0.4739	+Z	Bottom	0.2160	AsMin	0.240	7.306	OK
X-X, +0.90D	0.4739	-Z	Bottom	0.2160	AsMin	0.240	7.306	OK
Z-Z, +1.40D	0.7371	-X	Bottom	0.2160	AsMin	0.240	7.306	OK
Z-Z, +1.40D	0.7371	+X	Bottom	0.2160	AsMin	0.240	7.306	OK
Z-Z, +1.20D+1.60L	1.332	-X	Bottom	0.2160	AsMin	0.240	7.306	OK
Z-Z, +1.20D+1.60L	1.332	+X	Bottom	0.2160	AsMin	0.240	7.306	OK
Z-Z, +1.20D+0.50L	0.8506	-X	Bottom	0.2160	AsMin	0.240	7.306	OK
Z-Z, +1.20D+0.50L	0.8506	+X	Bottom	0.2160	AsMin	0.240	7.306	OK
Z-Z, +1.20D	0.6318	-X	Bottom	0.2160	AsMin	0.240	7.306	OK

General Footing

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

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DESCRIPTION: PF3

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in ²	Gvrn. As in ²	Actual As in ²	Phi*Mn k-ft	Status
Z-Z, +1.20D	0.6318	+X	Bottom	0.2160	AsMin	0.240	7.306	OK
Z-Z, +0.90D	0.4739	-X	Bottom	0.2160	AsMin	0.240	7.306	OK
Z-Z, +0.90D	0.4739	+X	Bottom	0.2160	AsMin	0.240	7.306	OK

One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	7.58 psi	7.58 psi	7.58 psi	7.58 psi	7.58 psi	82.16 psi	0.09	OK
+1.20D+1.60L	13.70 psi	13.70 psi	13.70 psi	13.70 psi	13.70 psi	82.16 psi	0.17	OK
+1.20D+0.50L	8.75 psi	8.75 psi	8.75 psi	8.75 psi	8.75 psi	82.16 psi	0.11	OK
+1.20D	6.50 psi	6.50 psi	6.50 psi	6.50 psi	6.50 psi	82.16 psi	0.08	OK
+0.90D	4.87 psi	4.87 psi	4.87 psi	4.87 psi	4.87 psi	82.16 psi	0.06	OK

All units k

Two-Way "Punching" Shear

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	28.35 psi	164.32psi	0.1726	OK
+1.20D+1.60L	51.23 psi	164.32psi	0.3118	OK
+1.20D+0.50L	32.72 psi	164.32psi	0.1991	OK
+1.20D	24.30 psi	164.32psi	0.1479	OK
+0.90D	18.23 psi	164.32psi	0.1109	OK

General Footing

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

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DESCRIPTION: PF4

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16

Load Combinations Used : IBC 2018

General Information

Material Properties

f'c : Concrete 28 day strength	=	3.0 ksi
fy : Rebar Yield	=	60.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Soil Design Values

Allowable Soil Bearing	=	1.50 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Increases based on footing depth

Footing base depth below soil surface	=	ft
Allow press. increase per foot of depth when footing base is below	=	ksf

Increases based on footing plan dimension

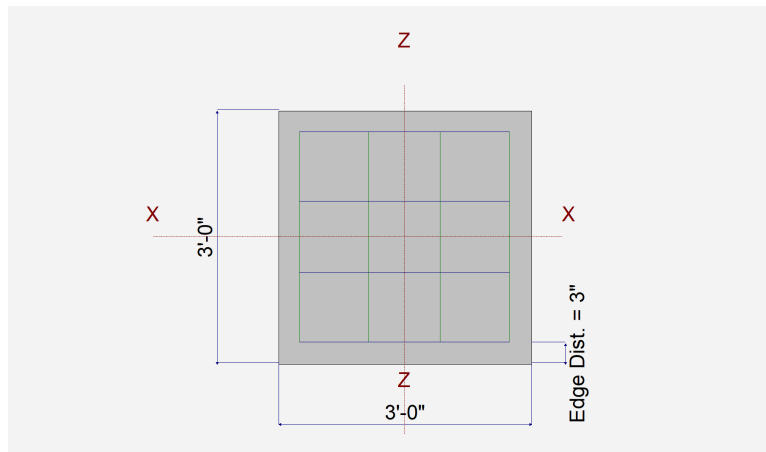
Allowable pressure increase per foot of depth when max. length or width is greater than	=	ksf
	=	ft

Dimensions

Width parallel to X-X Axis	=	3.0 ft
Length parallel to Z-Z Axis	=	3.0 ft
Footing Thickness	=	12.0 in

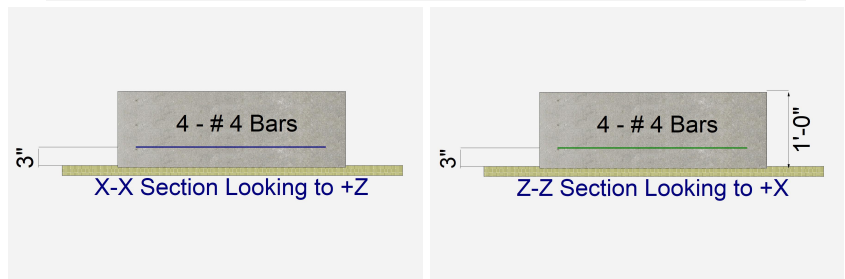
Pedestal dimensions...

px : parallel to X-X Axis	=	in
pz : parallel to Z-Z Axis	=	in
Height	=	in
Rebar Centerline to Edge of Concrete... at Bottom of footing	=	3.0 in



Reinforcing

Bars parallel to X-X Axis	=	
Number of Bars	=	4.0
Reinforcing Bar Size	=	# 4
Bars parallel to Z-Z Axis	=	
Number of Bars	=	4.0
Reinforcing Bar Size	=	# 4
Bandwidth Distribution Check (ACI 15.4.4.2)		
Direction Requiring Closer Separation		n/a
# Bars required within zone		n/a
# Bars required on each side of zone		n/a



Applied Loads

	D	Lr	L	S	W	E	H
P : Column Load	=	8.486		3.50			k
OB : Overburden	=						ksf
M-xx	=						k-ft
M-zz	=						k-ft
V-x	=						k
V-z	=						k

General Footing

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

(c) ENERCALC INC 1983-2022

DESCRIPTION: PF4

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.9847	Soil Bearing	1.477 ksf	1.50 ksf	+D+L about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.1881	Z Flexure (+X)	1.973 k-ft/ft	10.486 k-ft/ft	+1.20D+1.60L
PASS	0.1881	Z Flexure (-X)	1.973 k-ft/ft	10.486 k-ft/ft	+1.20D+1.60L
PASS	0.1881	X Flexure (+Z)	1.973 k-ft/ft	10.486 k-ft/ft	+1.20D+1.60L
PASS	0.1881	X Flexure (-Z)	1.973 k-ft/ft	10.486 k-ft/ft	+1.20D+1.60L
PASS	0.1482	1-way Shear (+X)	12.178 psi	82.158 psi	+1.20D+1.60L
PASS	0.1482	1-way Shear (-X)	12.178 psi	82.158 psi	+1.20D+1.60L
PASS	0.1482	1-way Shear (+Z)	12.178 psi	82.158 psi	+1.20D+1.60L
PASS	0.1482	1-way Shear (-Z)	12.178 psi	82.158 psi	+1.20D+1.60L
PASS	0.2779	2-way Punching	45.669 psi	164.317 psi	+1.20D+1.60L

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc		Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
		Zecc (in)		Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, D Only	1.50	n/a	0.0	1.088	1.088	n/a	n/a	0.725
X-X, +D+L	1.50	n/a	0.0	1.477	1.477	n/a	n/a	0.985
X-X, +D+0.750L	1.50	n/a	0.0	1.380	1.380	n/a	n/a	0.920
X-X, +0.60D	1.50	n/a	0.0	0.6527	0.6527	n/a	n/a	0.435
Z-Z, D Only	1.50	0.0	n/a	n/a	n/a	1.088	1.088	0.725
Z-Z, +D+L	1.50	0.0	n/a	n/a	n/a	1.477	1.477	0.985
Z-Z, +D+0.750L	1.50	0.0	n/a	n/a	n/a	1.380	1.380	0.920
Z-Z, +0.60D	1.50	0.0	n/a	n/a	n/a	0.6527	0.6527	0.435

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
Footing Has NO Overturning				

All units k

Sliding Stability

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
Footing Has NO Sliding				

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	1.485	+Z	Bottom	0.2592	AsMin	0.2667	10.486	OK
X-X, +1.40D	1.485	-Z	Bottom	0.2592	AsMin	0.2667	10.486	OK
X-X, +1.20D+1.60L	1.973	+Z	Bottom	0.2592	AsMin	0.2667	10.486	OK
X-X, +1.20D+1.60L	1.973	-Z	Bottom	0.2592	AsMin	0.2667	10.486	OK
X-X, +1.20D+0.50L	1.492	+Z	Bottom	0.2592	AsMin	0.2667	10.486	OK
X-X, +1.20D+0.50L	1.492	-Z	Bottom	0.2592	AsMin	0.2667	10.486	OK
X-X, +1.20D	1.273	+Z	Bottom	0.2592	AsMin	0.2667	10.486	OK
X-X, +1.20D	1.273	-Z	Bottom	0.2592	AsMin	0.2667	10.486	OK
X-X, +0.90D	0.9547	+Z	Bottom	0.2592	AsMin	0.2667	10.486	OK
X-X, +0.90D	0.9547	-Z	Bottom	0.2592	AsMin	0.2667	10.486	OK
Z-Z, +1.40D	1.485	-X	Bottom	0.2592	AsMin	0.2667	10.486	OK
Z-Z, +1.40D	1.485	+X	Bottom	0.2592	AsMin	0.2667	10.486	OK
Z-Z, +1.20D+1.60L	1.973	-X	Bottom	0.2592	AsMin	0.2667	10.486	OK
Z-Z, +1.20D+1.60L	1.973	+X	Bottom	0.2592	AsMin	0.2667	10.486	OK
Z-Z, +1.20D+0.50L	1.492	-X	Bottom	0.2592	AsMin	0.2667	10.486	OK
Z-Z, +1.20D+0.50L	1.492	+X	Bottom	0.2592	AsMin	0.2667	10.486	OK
Z-Z, +1.20D	1.273	-X	Bottom	0.2592	AsMin	0.2667	10.486	OK

General Footing

Project File: 2247 5th ave.ec6

LIC# : KW-06014810, Build:20.22.12.28

(c) ENERCALC INC 1983-2022

DESCRIPTION: PF4

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in ²	Gvrn. As in ²	Actual As in ²	Phi*Mn k-ft	Status
Z-Z, +1.20D	1.273	+X	Bottom	0.2592	AsMin	0.2667	10.486	OK
Z-Z, +0.90D	0.9547	-X	Bottom	0.2592	AsMin	0.2667	10.486	OK
Z-Z, +0.90D	0.9547	+X	Bottom	0.2592	AsMin	0.2667	10.486	OK

One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	9.17 psi	9.17 psi	9.17 psi	9.17 psi	9.17 psi	82.16 psi	0.11	OK
+1.20D+1.60L	12.18 psi	12.18 psi	12.18 psi	12.18 psi	12.18 psi	82.16 psi	0.15	OK
+1.20D+0.50L	9.21 psi	9.21 psi	9.21 psi	9.21 psi	9.21 psi	82.16 psi	0.11	OK
+1.20D	7.86 psi	7.86 psi	7.86 psi	7.86 psi	7.86 psi	82.16 psi	0.10	OK
+0.90D	5.89 psi	5.89 psi	5.89 psi	5.89 psi	5.89 psi	82.16 psi	0.07	OK

Two-Way "Punching" Shear

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	34.38 psi	164.32psi	0.2092	OK
+1.20D+1.60L	45.67 psi	164.32psi	0.2779	OK
+1.20D+0.50L	34.53 psi	164.32psi	0.2101	OK
+1.20D	29.47 psi	164.32psi	0.1793	OK
+0.90D	22.10 psi	164.32psi	0.1345	OK

All units k

ASCE 7-16 Seismic Base Shear

Project File: 2247 5th ave.ecf

LIC#: KW-06014810, Build:20.22.7.7

DAVE GOWERS ENGINEERING, LLC

(c) ENERCALC INC 1983-2022

DESCRIPTION: Seismic Base Shear Analysis

Specific Description: 2247 5th Ave

Risk Category

Calculations per ASCE 7-16

Risk Category of Building or Other Structure : "II" : All Buildings and other structures except those listed as Category I, III, and IV [ASCE 7-16, Page 4, Table 1.5-1](#)

Seismic Importance Factor = 1 [ASCE 7-16, Page 5, Table 1.5-2](#)

USER DEFINED Ground Motion

[ASCE 7-16 11.4.2](#)

Max. Ground Motions, 5% Damping :

$$S_S = 0.8320 \text{ g, 0.2 sec response}$$

$$S_1 = 0.3760 \text{ g, 1.0 sec response}$$

For the closest datapoint grid location . . .

$$\text{Latitude} = 0.000 \text{ deg North}$$

$$\text{Longitude} = 0.000 \text{ deg West}$$

Conforms to ASCE 7 Section 12.8.1.3: Regular structure with period of 0.5 s or less, SDS limited to max of 0.7*SDS or 1.0 for calculation of

Site Class, Site Coeff. and Design Category

Classification: "D" : Shear Wave Velocity 600 to 1,200 ft/sec = **D** (By Default per 11.4.3) [ASCE 7-16 Table 20.3-1](#)

Site Coefficients F_a & F_v $F_a = 1.20$ [ASCE 7-16 Table 11.4-1 & 11.4-2](#)
(using straight-line interpolation from table val) $F_v = 1.92$

Maximum Considered Earthquake Accelerati $S_{MS} = F_a * S_s = 0.998$ [ASCE 7-16 Eq. 11.4-1](#)

$S_{M1} = F_v * S_1 = 0.723$ [ASCE 7-16 Eq. 11.4-2](#)

Design Spectral Acceleration $S_{DS} = S_{MS}^{* 2/3} = 0.666$ [ASCE 7-16 Eq. 11.4-3](#)

$S_{D1} = S_{M1}^{* 2/3} = 0.482$ [ASCE 7-16 Eq. 11.4-4](#)

Seismic Design Category = **D** [ASCE 7-16 Table 11.6-1 & -2](#)

Resisting System

[ASCE 7-16 Table 12.2-1](#)

Basic Seismic Force Resisting System . . .

Bearing Wall Systems

15.Light-frame (wood) walls sheathed w/wood structural panels rated for shear resistance.

Response Modification Coefficient " R " = 6.50
 System Overstrength Factor " Wo " = 3.00
 Deflection Amplification Factor " Cd " = 4.00

Building height Limits :

Category "A & B" Limit: No Limit
 Category "C" Limit: No Limit
 Category "D" Limit: Limit = 65
 Category "E" Limit: Limit = 65
 Category "F" Limit: Limit = 65

NOTE! See ASCE 7-16 for all applicable footnot

Lateral Force Procedure

[ASCE 7-16 Section 12.8.2](#)

Equivalent Lateral Force Procedure

[The "Equivalent Lateral Force Procedure" is being used according to the provisions of ASCE 7-16 12.8](#)

Determine Building Period

[Use ASCE 12.8-7](#)

Structure Type for Building Period CalculaAll Other Structural Systems

" Ct " value = 0.020 " hn " : Height from base to highest level 25.0 ft

" x " value = 0.75

" Ta " Approximate fundamental period using Eq. 12.8-7 : $T_a = C_t * (h_n \wedge x) = 0.224 \text{ sec}$

"TL" : Long-period transition period per ASCE 7-16 Maps 22-14 -> 22-17 8.000 sec

Building Period " Ta " Calculated from Approximate Method selec= 0.224

ASCE 7-16 Seismic Base Shear

Project File: 2247 5th ave.ecf

LIC# : KW-06014810, Build:20.22.7.7

DAVE GOWERS ENGINEERING, LLC

(c) ENERCALC INC 1983-2022

DESCRIPTION: Seismic Base Shear Analysis

" Cs " Response Coefficient

ASCE 7-16 Section 12.8.1.1

S_{DS} : Short Period Design Spectral Response	=	0.666	From Eq. 12.8-2, Preliminary Cs	=	0.102
" R " : Response Modification Factor	=	6.50	From Eq. 12.8-3 & 12.8-4 , Cs need not exceed	=	0.332
" I " : Seismic Importance Factor	=	1	From Eq. 12.8-5 & 12.8-6, Cs not be less than	=	0.029

User has selected ASCE 12.8.1.3 : Regular structure, **Cs : Seismic Response Coefficient = 0.1024**
 Less than 5 Stories and with $T \leq 0.5$ sec, SO $S_s \leq 1.5$ for Cs calculat

Seismic Base Shear

ASCE 7-16 Section 12.8.1

Cs = 0.1024 from 12.8.1.1	W (see Sum Wi below) =	0.00 k
	Seismic Base Shear $V = Cs * W =$	0.00 k

Vertical Distribution of Seismic Forces

ASCE 7-16 Section 12.8.3

" k " : hx exponent based on $T_a = 1.00$
 Table of building Weights by Floor Level...

Level #	Wi : Weight	Hi : Height	(Wi * Hi^k)	Cvx	Fx=Cvx * V	Sum Story Shear	Sum Story Moment
Sum Wi =	0.00 k	Sum Wi * Hi =	0.00 k-ft		Total Base Shear =	0.00 k	
						Base Moment =	0.0 k-ft

Diaphragm Forces : Seismic Design Category "B" to "F"

ASCE 7-16 12.10.1.1

Level #	Wi	Fi	Sum Fi	Sum Wi	Fpx : Calcd	Fpx : Min	Fpx : Max	Fpx	Dsgn. Force
Wpx	Weight at level of diaphragm and other structure elements attached to it.								
Fi	Design Lateral Force applied at the level.								
Sum Fi	Sum of "Lat. Force" of current level plus all levels above								
MIN Req'd Force @ Level	$0.20 * S_{DS} * I * Wpx$								
MAX Req'd Force @ Level	$0.40 * S_{DS} * I * Wpx$								
Fpx : Design Force @ Level	$Wpx * \text{SUM}(x->n) Fi / \text{SUM}(x->n) wi$, x = Current level, n = Top Level								

ASCE 7-16 Wind Forces Chpt 28, Pt2 & Chpt 30, Pt2

Project File: 2247 5th ave.ecf

LIC# : KW-06014810, Build:20.22.7.14

(c) ENERCALC INC 1983-2022

DESCRIPTION: 2247 5th Avenue, West Linn, OR

General Design Values

Calculations per ASCE 7-16

V : Basic Wind Speed per Sect 26.5-1 or 2 **97.0** mph
 User specified minimum design pressur 0.0 psf
 Occupancy per Table 1.5-1 II All Buildings and other structures except those listed
 Exposure Category per 26.7 Exposure C
 Topographic Factor Kzt per 26.8 1.00

"Lambda" is interpolated between height tabular values.

Main Force Resisting System Val

Component & Cladding Values

MRH : Mean Roof Height 20.0 ft Effective Wind Area of Component & Cladd 10.0 ft^2
 Roof Slope Angle 0 to 5 degrees Roof pitch for cladding pressur Flat/Hip/Gable Roof
 LHD : Least Horizontal Dimension 37.50 ft
 a = max (0.04 * LHD, 3, min(0.10 * LHD, 0.4*MRH)) 3.75 ft

Lambda MWFRS: per Figure 26 1.29

Lambda Component & Cladding : per Figur 1.29

Design Wind Pressures

Horizontal Pressures . . .

Zone: A = 19.27 psf Zone: C = 12.77 psf
 Zone: B = -9.96 psf Zone: D = -5.93 psf

Vertical Pressures . . .

Zone: E = -23.17 psf Zone: G = -16.15 psf
 Zone: F = -13.16 psf Zone: H = -10.22 psf

Overhangs . . .

Zone: Eoh = -32.43 psf Zone: Goh = -25.34 psf

**PRESSURES ARE
 ULTIMATE,
 MULTIPLY BY 0.6
 FOR ASD**

ASCE 7-16 Section 28.5.4 Minimum Design Wind Loads requires that the load effects of the design wind pressures from Section 28.5.3 shall not be less than a minimum load defined by assuming the pressures, ps, for zones A and C equal to +16 psf, Zones B and D equal to +8 psf, while assuming ps for Zones E, F, G, and H are equal to 0 psf.

Component & Cladding Design Wind Pres

$Design\ Wind\ Pressure = \lambda * Kzt * Ps30$

Roof Pressures	Positive	Negative	Overhang Pressures	Negative
Zone 1	8.875	-34.856 psf	Zone 1	-31.476 psf
Zone 1'	8.875	-20.047 psf	Zone 1'	-31.476 psf
Zone 2	8.875	-45.898 psf	Zone 2	-42.570 psf
Zone 2e	***	*** psf	Zone 2e	*** psf
Zone 2n	***	*** psf	Zone 2n	*** psf
Zone 2r	***	*** psf	Zone 2r	*** psf
Zone 3	8.875	-62.565 psf	Zone 3	-59.237 psf
Zone 3e	***	*** psf	Zone 3e	*** psf
Zone 3r	***	*** psf	Zone 3r	*** psf

Wall Pressures

Wall Zone 4 : 21.827 -23.684 psf
 Wall Zone 5 : 21.827 -29.231 psf

*** : There is no value in Figure 30.4-1 Tabular Values

SEISMIC BASE SHEAR - GARAGE

	DL (ksf)	Length (ft)	Width (ft)	Height (ft)	Area (ft ²)	Wt. (k)
1. Mass of Roof <i>(2x framing & mtl roofing)</i>	0.017				765	13.0
2. Mass of Exterior Wall <i>(2x stud wall w/ std. finishes)</i>	0.012	100		4.5		5.4
TOTAL SEISMIC MASS FOR GARAGE ROOF (W_{RG})						18.4

REQUIRED BASE SHEAR (ELF)

$$V_{ELF} = C_s \times W$$

ALSO

$$\rho = 1.3 \quad (\text{redundancy factor per ASCE 12.3.4.1})$$

THEREFORE

$$E_h = \rho \times V_{ELF}$$

$$E_{h,ASD} = 0.7 \times E_h$$

THEREFORE $E_{h,ASD} =$ **0.093 W**

W = 18.4 KIPS

& $E_h =$ 1.71 KIPS

WIND FORCES: GARAGE

Zone	A	B	C	D
Pressure	11.6	6.0	7.7	3.6

WIND Design: Forces at Roof Diaphragm

Line	Zone A Area	Zone B Area	Zone C Area	Zone D Area	Total Wind Force
	(ft ²)	(ft ²)	(ft ²)	(ft ²)	(lbs)
X.1	26	24	39	28	842
Y.1	26	24	39	28	842

Line	Zone A Area	Zone B Area	Zone C Area	Zone D Area	Total Wind Force
	(ft ²)	(ft ²)	(ft ²)	(ft ²)	(lbs)
3.1	42	0	28	0	700
4.1	35	0	26	0	604

2247 5th Ave
West Linn, OR

Matt Galvin, P.E.
8/1/2022

Garage Shear Walls and Holdowns

Roof DL: 17 psf

Wall DL: 12 psf

Floor DL: 15 psf

Grid Line	L (ft)	L _{rot} (ft)	L _{des} (ft)	h (ft)	P _u (lb)	V (plf)	M _o (lb*ft)	R _{trib} (ft)	W _{trib} (ft)	F _{trib} (ft)	M _r (lb*ft)	T _u (lb)	Holdown / Comment	Shearwall Nailing
North - South Event														
X.1	2	4	1.5	9	854	214	3844	4	9	0	211	2422	HDU2	Portal Frame
	2	4	1.5	9	854	214	3844	4	9	0	211	2422	HDU2	
Y.1	6.5	10.333	6	9	854	83	4836	4	9	0	2231	0	n/a	6/12
	3.833	10.333	3.333	9	854	83	2852	4	9	0	776	123	n/a	6/12
East - West Event														
3.1	25	25	24.5	9	854	34	7688	12	9	0	58500	0	n/a	6/12
4.1	30	30	29.5	9	854	28	7688	12	9	0	84240	0	n/a	6/12

Search Information

Address:	2247 5th Ave, West Linn, OR 97068, USA
Coordinates:	45.34463239999999, -122.6480053
Elevation:	159 ft
Timestamp:	2022-07-17T16:55:38.190Z
Hazard Type:	Seismic
Reference Document:	ASCE7-16
Risk Category:	II
Site Class:	D-default



Basic Parameters

Name	Value	Description
S_S	0.832	MCE_R ground motion (period=0.2s)
S_1	0.376	MCE_R ground motion (period=1.0s)
S_{MS}	0.999	Site-modified spectral acceleration value
S_{M1}	* null	Site-modified spectral acceleration value
S_{DS}	0.666	Numeric seismic design value at 0.2s SA
S_{D1}	* null	Numeric seismic design value at 1.0s SA

* See Section 11.4.8

Additional Information

Name	Value	Description
SDC	* null	Seismic design category
F_a	1.2	Site amplification factor at 0.2s
F_v	* null	Site amplification factor at 1.0s
CR_S	0.891	Coefficient of risk (0.2s)
CR_1	0.865	Coefficient of risk (1.0s)
PGA	0.375	MCE_G peak ground acceleration
F_{PGA}	1.225	Site amplification factor at PGA
PGA_M	0.46	Site modified peak ground acceleration

T _L	16	Long-period transition period (s)
SsRT	0.832	Probabilistic risk-targeted ground motion (0.2s)
SsUH	0.934	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	1.5	Factored deterministic acceleration value (0.2s)
S1RT	0.376	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.434	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.6	Factored deterministic acceleration value (1.0s)
PGAd	0.5	Factored deterministic acceleration value (PGA)

* See Section 11.4.8

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

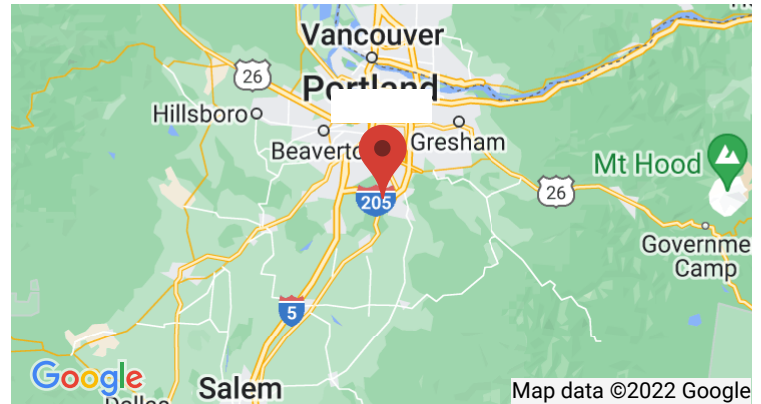
Disclaimer

Hazard loads are provided by the U.S. Geological Survey [Seismic Design Web Services](#).

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Search Information

Address: 2247 5th Ave, West Linn, OR 97068, USA
Coordinates: 45.34463239999999, -122.6480053
Elevation: 159 ft
Timestamp: 2022-07-17T16:55:19.959Z
Hazard Type: Wind



ASCE 7-16

MRI 10-Year 66 mph
 MRI 25-Year 72 mph
 MRI 50-Year 77 mph
 MRI 100-Year 82 mph
 Risk Category I 91 mph
 Risk Category II 97 mph
 Risk Category III 103 mph
 Risk Category IV 107 mph

ASCE 7-10

MRI 10-Year ASCE 7-05 Wind Speed
 MRI 25-Year
 MRI 50-Year
 MRI 100-Year
 Risk Category I 100 mph
 Risk Category II 110 mph
 Risk Category III-IV 115 mph

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Disclaimer

Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer. Per ASCE 7, islands and coastal areas outside the last contour should use the last wind speed contour of the coastal area – in some cases, this website will extrapolate past the last wind speed contour and therefore, provide a wind speed that is slightly higher. NOTE: For queries near wind-borne debris region boundaries, the resulting determination is sensitive to rounding which may affect whether or not it is considered to be within a wind-borne debris region.

Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.

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HDU/DTT

Holdowns



This product is preferable to similar connectors because of (a) easier installation, (b) higher loads, (c) lower installed cost, or a combination of these features.

HDU holdowns are pre-deflected during the manufacturing process, virtually eliminating deflection under load due to material stretch. They use Strong-Drive® SDS Heavy-Duty Connector screws which install easily, reduce fastener slip and provide a greater net section when compared to bolts.

The DTT tension ties are designed for lighter-duty holddown applications on single 2x posts. The DTT1Z is installed with nails or Strong-Drive SD Connector screws and the DTT2 installs easily with the Strong-Drive SDS Heavy-Duty Connector screws (included). The DTT1Z holdowns have been tested for use in designed shearwalls and prescriptive braced wall panels as well as prescriptive wood-deck applications (see p. 295 for deck applications).

For more information on holddown options, contact Simpson Strong-Tie.

HDU Features:

- Uses Strong-Drive SDS Heavy-Duty Connector screws which install easily, reduce fastener slip and provide a greater net section area of the post compared to bolts
- Strong-Drive SDS Heavy-Duty Connector screws are supplied with the holdowns to ensure proper fasteners are used
- No stud bolts to countersink at openings

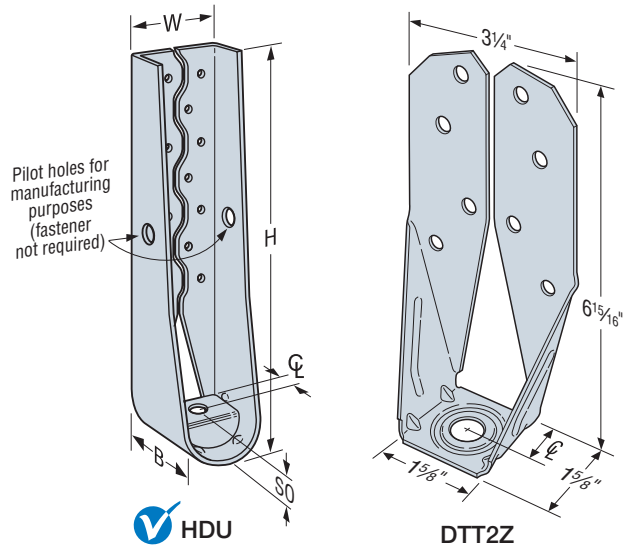
Material: See table

Finish: HDU — galvanized; DTT1Z and DTT2Z — ZMAX® coating; DTT2SS — stainless steel

Installation:

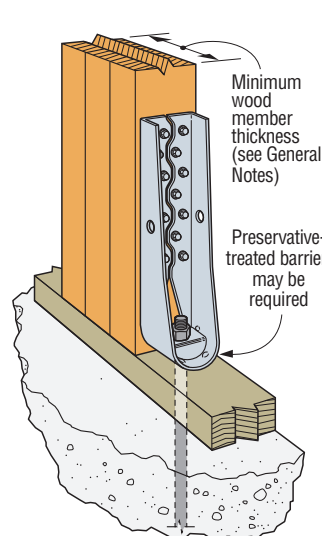
- See Holddown and Tension Tie General Notes on pp. 49–50.
- The HDU requires no additional washer; the DTT requires a standard-cut washer (included) be installed between the nut and the seat.
- Strong-Drive SDS Heavy-Duty Connector screws install best with a low-speed high-torque drill with a 3/8" hex-head driver.
- Fasteners and crescent washer are included with the holdowns. For replacements, order part no. SDS25212-HDU_ (Fill in the size needed, e.g., HDU2.)

Codes: See p. 11 for Code Reference Key Chart

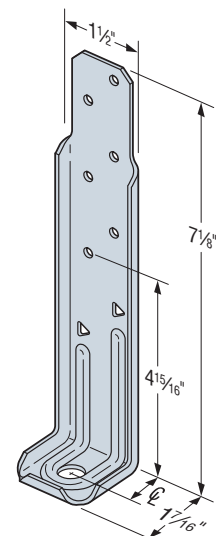


HDU

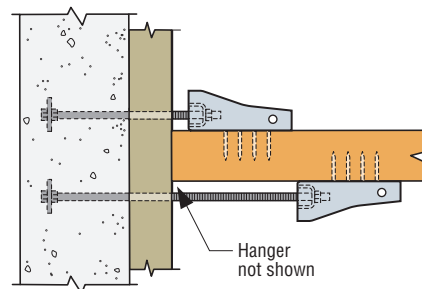
DTT2Z
US Patent
8,555,580



Vertical HDU Installation



DTT1Z
US Patent
10,865,558



Horizontal HDU Offset Installation
(plan view)

See Holddown and Tension Tie General Notes.

HDU/DTT

Holdowns (cont.)

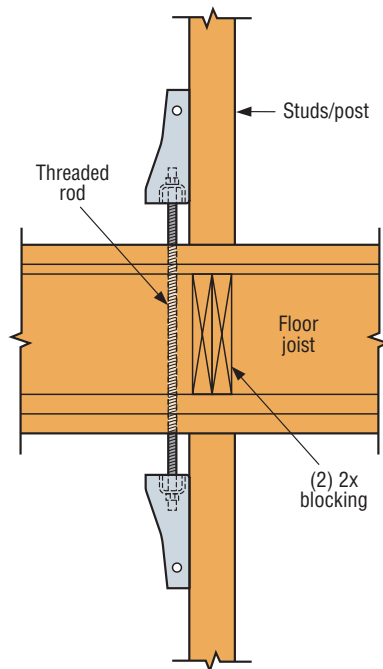
These products are available with additional corrosion protection. For more information, see p. 14.

SS For stainless-steel fasteners, see p. 21.

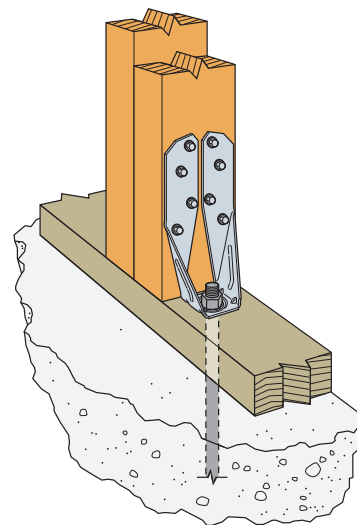
SD Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 348–352 for more information.

Model No.	Ga.	Dimensions (in.)					Fasteners (in.)		Minimum Wood Member Size (in.)	Allowable Tension Loads (160)			Code Ref.
		W	H	B	CL	SO	Anchor Bolt Dia. (in.)	Wood Fasteners		DF/SP	SPF/HF	Deflection at Allowable Load (in.)	
DTT1Z	14	1 1/2	7 1/8	1 1/16	3/4	3/16	3/8	(6) #9 x 1 1/2" SD	1 1/2 x 3 1/2	840	840	0.17	IBC, FL, LA
								(6) 0.148 x 1 1/2		910	640	0.167	
								(8) 0.148 x 1 1/2		910	850	0.167	
DTT2Z	14	3 1/4	6 15/16	1 5/8	1 1/16	3/16	1/2	(8) 1/4 x 1 1/2 SDS	1 1/2 x 3 1/2	1,825	1,800	0.105	
								(8) 1/4 x 1 1/2 SDS		3 x 3 1/2	2,145	1,835	
DTT2Z-SDS2.5								(8) 1/4 x 2 1/2 SDS	3 x 3 1/2	2,145	2,105	0.128	
HDU2-SDS2.5	14	3	8 1/16	3 1/4	1 5/16	1 1/8	5/8	(6) 1/4 x 2 1/2 SDS	3 x 3 1/2	3,075	2,215	0.088	
HDU4-SDS2.5	14	3	10 15/16	3 1/4	1 5/16	1 3/8	5/8	(10) 1/4 x 2 1/2 SDS	3 x 3 1/2	4,565	3,285	0.114	
HDU5-SDS2.5	14	3	13 3/16	3 1/4	1 5/16	1 1/8	5/8	(14) 1/4 x 2 1/2 SDS	3 x 3 1/2	5,645	4,340	0.115	
HDU8-SDS2.5	10	3	16 5/8	3 1/2	1 3/8	1 1/2	7/8	(20) 1/4 x 2 1/2 SDS	3 x 3 1/2	6,765	5,820	0.11	
									3 1/2 x 3 1/2	6,970	5,995	0.116	
									3 1/2 x 4 1/2	7,870	6,580	0.113	
HDU11-SDS2.5	10	3	22 1/4	3 1/2	1 3/8	1 1/2	1	(30) 1/4 x 2 1/2 SDS	3 1/2 x 5 1/2	9,535	8,030	0.137	
									3 1/2 x 7 1/4	11,175	9,610	0.137	
HDU14-SDS2.5	7	3	25 1/16	3 1/2	1 5/16	1 1/8	1	(36) 1/4 x 2 1/2 SDS	3 1/2 x 5 1/2	10,770	9,260	0.122	
									3 1/2 x 7 1/4	14,390	12,375	0.177	
									5 1/2 x 5 1/2	14,445	12,425	0.172	

1. HDU14 requires heavy-hex anchor nut to achieve tabulated loads (supplied with holddown).
2. HDU14 loads on 4x6 post are applicable to installation on either the narrow or the wide face of the post.
3. **Fasteners:** Nail dimensions are listed diameter by length. SD and SDS screws are Simpson Strong-Tie® Strong-Drive SD Connector and SDS Heavy-Duty Connector screws. See pp. 21–22 for fastener information.



Typical HDU Tie Between Floors



Typical DTT2Z Installation