



CITY OF  
**West Linn**

**PLANNING MANAGER DECISION**

DATE: August 16, 2023  
FILE NO.: MISC-23-02  
REQUEST: Approval for the expansion of a non-conforming structure at 2247 5<sup>th</sup> Ave.  
PLANNER: Ben Gardner, Assistant Planner

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Planning Manager DSW

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## GENERAL INFORMATION

<b>APPLICANT:</b>	Thomas Watton - Watton Design Works, Inc. 1880 Willamette Falls Dr. Ste 200-D West Linn, OR 97068
<b>OWNER:</b>	Jim Walsh 2247 5 <sup>th</sup> Ave West Linn, OR 97068
<b>SITE LOCATION:</b>	2247 5 <sup>th</sup> Ave West Linn, OR 97068
<b>SITE SIZE:</b>	15,661 Square Feet
<b>LEGAL DESCRIPTION:</b>	Eastern Portion of Lot A on Tract 62 of Willamette Tracts Assessors Map 31E02AB Tax lot 6600
<b>COMP PLAN DESIGNATION:</b>	Low Density Residential
<b>ZONING:</b>	Residential, R-10
<b>APPROVAL CRITERIA:</b>	Community Development Code (CDC) Chapter 12: Residential R-7, Chapter 66: Non-Conforming Structures; Chapter 99: Procedures for Decision-Making: Quasi-Judicial.
<b>120-DAY RULE:</b>	The application became complete on June 15, 2023. The 120-day period therefore ends on October 13, 2023.
<b>PUBLIC NOTICE:</b>	Notice was mailed to property owners within 300 feet of the subject property and to the affected neighborhood association on July 11, 2023. A sign was placed on the property on July 12, 2023. The notice was also posted on the City's website on July 11, 2023. Therefore, public notice requirements of CDC Chapter 99 have been met.

## EXECUTIVE SUMMARY

The applicant requests approval for the enlargement of a non-conforming accessory structure containing a conforming use located at 2247 5<sup>th</sup> Ave. The existing accessory structure is a two-story garage that is located 3.5 feet from the internal side property line to the East, which does not meet the 7.5-foot setback required by the underlying R-10 zone.

The applicant proposes expanding the top ground-level floor of the given structure an additional 6 feet towards the Northernmost / front property line while maintaining the 3.5-foot internal side setback distance. It is proposed to meet the front setback of 20 feet by having a total distance from the face of the garage to the front property line of 33.5 feet. The structure meets all other dimensional standards, setbacks, lot coverage, and other provisions of the underlying R-10 zone.

### **Public Comments:**


No public comments received for this application

## DECISION

The Planning Manager (designee) approves this application (MISC-23-02), based on: 1) the findings submitted by the applicant, which are incorporated by this reference, 2) supplementary staff findings included in the Addendum below, and 3) the addition of conditions of approval below. With these findings, the applicable approval criteria are met. The conditions are as follows:

- 1. Site Plan, Elevations, and Narrative. The project shall conform to the submitted plans, elevations, and narrative submitted in Exhibit PD-1 dated March 9, 2023.**

The provisions of the Community Development Code Chapter 99 have been met.

  
\_\_\_\_\_  
Ben Gardner, Assistant Planner

August 16, 2023  
Date

Appeals to this decision must be filed with the West Linn Planning Department within 14 days of mailing date. Cost is \$400. An appeal to City Council of a decision by the Planning Director shall be heard on the record. The appeal must be filed by an individual who has established standing by submitting comments prior to the decision date. Approval will lapse 3 years from effective approval date if the final plat is not recorded.

Mailed this 16<sup>th</sup> day of August, 2023.

Therefore, the 14-day appeal period ends at 5 p.m., on August 30<sup>th</sup>, 2023.

## ADDENDUM

### APPROVAL CRITERIA AND FINDINGS MISC-23-02

This decision adopts the findings for approval contained within the applicant’s submittal, with the following exceptions and additions:

**11.030 PERMITTED USES**

The following are uses permitted outright in this zoning district:

1. Single-family attached and detached residential unit.

...

**11.040 ACCESSORY USES**

Accessory uses are allowed in this zone as provided by Chapter 34 CDC.

**Staff Finding 1: The applicant proposes to expand an existing non-conforming accessory structure garage containing a conforming use associated with a single-family home. The criteria are met.**

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

Except as may be otherwise provided by the provisions of this code, the following are the requirements for uses within this zone:

STANDARD	REQUIREMENT	ADDITIONAL NOTES
Minimum lot size Average minimum lot or parcel size for a townhouse project	10,000 sf 1,500 sf	For a single-family attached or detached unit
Minimum lot width at front lot line	35 ft	Does not apply to townhouses or cottage clusters
Average minimum lot width	50 ft	Does not apply to townhouses or cottage clusters
Minimum yard dimensions or minimum building setbacks		Except as specified in CDC 25.070(C)(1) through (4) for the Willamette Historic District. Front, rear, and side yard setbacks in a cottage cluster project are 10 ft. There are no additional setbacks for individual structures on individual lots, but minimum distance between structures shall follow applicable building code requirements.
Front yard	20 ft	Except for steeply sloped lots where the provisions of CDC 41.010 shall apply
Interior side yard	7.5 ft	Townhouse common walls that are attached may have a 0-ft side setback.
Street side yard	15 ft	
Rear yard	20 ft	

<b>STANDARD</b>	<b>REQUIREMENT</b>	<b>ADDITIONAL NOTES</b>
Maximum building height	35 ft	Except for steeply sloped lots in which case the provisions of Chapter 41 CDC shall apply.
Maximum lot coverage	35%	Maximum lot coverage does not apply to cottage clusters. However, the maximum building footprint for a cottage cluster is less than 900 sf per dwelling unit. <ul style="list-style-type: none"> <li>This does not include detached garages, carports, or accessory structures.</li> <li>A developer may deduct up to 200 sf for an attached garage or carport.</li> </ul>
Minimum accessway width to a lot which does not abut a street or a flag lot	15 ft	
Maximum floor area ratio	0.45	Maximum FAR does not apply to cottage clusters.
Duplex, triplex, and quadplex	0.60	Type I and II lands shall not be counted toward lot area when determining allowable floor area ratio, except that a minimum floor area ratio of 0.30 shall be allowed regardless of the classification of lands within the property. That 30 percent shall be based upon the entire property, including Type I and II lands. Existing residences in excess of this standard may be replaced to their prior dimensions when damaged without the requirement that the homeowner obtain a non-conforming structures permit under Chapter 66 CDC.

...

**Staff Finding 2:** The subject property is 15,661 square feet in area with a 75.39-foot front lot line. The average lot width is 75.39 feet. The applicant proposes an enlargement of an existing accessory structure. The given structure is currently, at its nearest points, 33.5 feet from the Northernmost / front property line, approximately 145 feet from the Southernmost / rear property line, approximately 48 feet from the Westernmost internal side property line, and 3.5 feet from the Easternmost internal side property line. Its proximity to the Easternmost internal side property line is non-conforming, and thus requires an application for its enlargement as a non-conforming structure. The height of the accessory structure is 12 ft. 6-1/2 in. The total lot coverage including the proposed modification is approximately 4,100 square feet of 15,661 or 26.1%, and the total floor area ratio, that which will be unchanged by the proposed modification, is approximately 4,919 square feet of 15,661 or 0.31. The criteria are met.

*66.040 DETERMINATION OF STATUS*

A. The Planning Director shall make a determination regarding non-conforming status without giving notice.

...

**Staff Finding 3:** The Planning Director determined the existing structure is non-conforming based on its proximity to the Eastern side lot line. The criteria is met.

*66.080 Enlargement of or Alteration to a Non-Conforming Structure: Process and Approval Standards*

...

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

...

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.

**Staff Finding 4: The proposed alteration is an enlargement of an existing non-conforming structure containing a conforming use. The enlargement does not meet the internal side setback of 7.5 feet required by the dimensional standards of the underlying R-10 zone, but it is proposed that the enlargement maintain the current non-conforming internal side setback distance of 3.5 feet. Thus, the enlargement will not change the non-conformity, and all other dimensional standards and provisions of the Community Development Code are met. The criteria are met.**

*Chapter 99: PROCEDURES FOR DECISION MAKING: QUASI-JUDICIAL  
99.060 APPROVAL AUTHORITY*

...

A. Planning Director authority. The Planning Director shall have the authority to:

1. Approve, deny, or approve with conditions the following applications:

...

h. Enlargement or alteration of a non-conforming single-family structure containing a conforming use (Chapter 66 CDC).

...

4. Make the initial determination regarding the status of the following:

a. Non-conforming structure (Chapter 66 CDC).

**Staff Finding 5: The Planning Director determined the existing structure is non-conforming. See Staff Finding 3. The proposed scope is the enlargement of a non-conforming accessory structure containing a conforming use. The criteria are met.**

*99.080 NOTICE*

*Notice shall be given in the following ways:*

...

B. Class B Notice. Notice of a proposed action on a development application pursuant to CDC 99.060 shall be given by the Director in the following manner:

1. At least 14 days prior to the decision date, a notice shall be sent by mail to:

- a. The applicant or their agent;
- b. The affected recognized neighborhood association or citizens advisory committee; and
- c. All property owners of record within 300 feet of the site perimeter;

2. *At least 10 days prior to the earliest date that the approval authority can take action on the application, the applicant shall place a sign, provided by the Community Development Department, on the subject property in plain view. The sign shall state, "This property is the subject of a land use decision," with the type of use or request indicated.*
3. *The Director shall cause an affidavit of mailing of notice and posting of notice to be filed and made part of the administrative record.*
4. *At the conclusion of the land use action the signs shall be removed.*

...

LAND USE ACTION	TYPE OF NOTICE
...	...
<i>Enlarge or Alter Non-conforming Use/Structure:</i>	
...	...
<i>Single-Family Residential</i>	<i>B</i>
...	...

**Staff Finding 6: A Class B Notice was prepared. The notice was sent via mail to the applicant, the affected neighborhood association, and all property owners within 300 ft. of the site perimeter of 2247 5<sup>th</sup> Ave on 7/11/23. A sign detailing the property’s status as being the subject of a land use decision with case details was placed on the property on 7/12/23. An affidavit of mailing of notice and posting of notice was filed in the land use case record. The sign was removed at the conclusion of the action on 8/17/23. The criteria are met.**

**EXHIBIT PD-1: APPLICANT SUBMITTAL**



## DEVELOPMENT REVIEW APPLICATION

For Office Use Only			
STAFF CONTACT	Ben Gardner	PROJECT NO(S)	PRE-APPLICATION NO.
		MISC-23-02	
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"/> Historic Review                                   | <input type="checkbox"/> Subdivision (SUB)                               |
| <input type="checkbox"/> Appeal and Review (AP)  | <input type="checkbox"/> Legislative Plan or Change                        | <input type="checkbox"/> Temporary Uses                                  |
| <input type="checkbox"/> Code Interpretation     | <input type="checkbox"/> Lot Line Adjustment (LLA)                         | <input type="checkbox"/> Time Extension                                  |
| <input type="checkbox"/> Conditional Use (CUP)   | <input type="checkbox"/> Minor Partition (MIP) (Preliminary Plat or Plan)  | <input type="checkbox"/> Variance (VAR)                                  |
| <input type="checkbox"/> Design Review (DR)      | <input type="checkbox"/> Modification of Approval                          | <input type="checkbox"/> Water Resource Area Protection/Single Lot (WAP) |
| <input type="checkbox"/> Tree Easement Vacation  | <input checked="" type="checkbox"/> Non-Conforming Lots, Uses & Structures | <input type="checkbox"/> Water Resource Area Protection/Wetland (WAP)    |
| <input type="checkbox"/> Final Plat or Plan (FP) | <input type="checkbox"/> Planned Unit Development (PUD)                    | <input type="checkbox"/> Willamette & Tualatin River Greenway (WRG)      |
| <input type="checkbox"/> Flood Management Area   | <input type="checkbox"/> Street Vacation                                   | <input type="checkbox"/> Zone Change                                     |



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

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

**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.


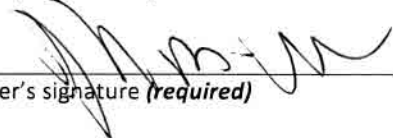
<b>Applicant Name:</b> (please print) Watton Design Works, Inc. Thomas Watton	Phone: 503.655.1001
Address: 1880 Willamette Falls Dr. Suite 200-D	Email: thomas@wattondesign.com
City State Zip: West Linn, Or. 97068	

<b>Owner Name</b> (required): (please print) Jim Walsh	Phone: 503.816.4997
Address: 2247 5th Ave.	Email: jim@walsh-industries.com
City State Zip: West Linn, Or. 97068	

<b>Consultant Name:</b> (please print)	Phone:
Address:	Email:
City State Zip:	

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.

Applicant's signature Thomas P. Watton 	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

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**Client Information:**

Jim Walsh  
2247 5<sup>th</sup> Ave.  
West Linn, Or. 97068

**Project:**

Non-Conforming Review  
Garage Addition; 2247 5<sup>th</sup> 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.*

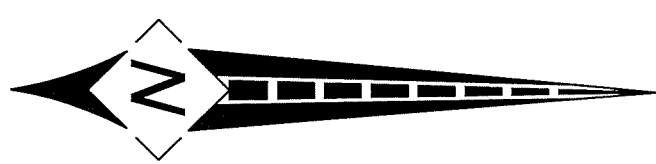
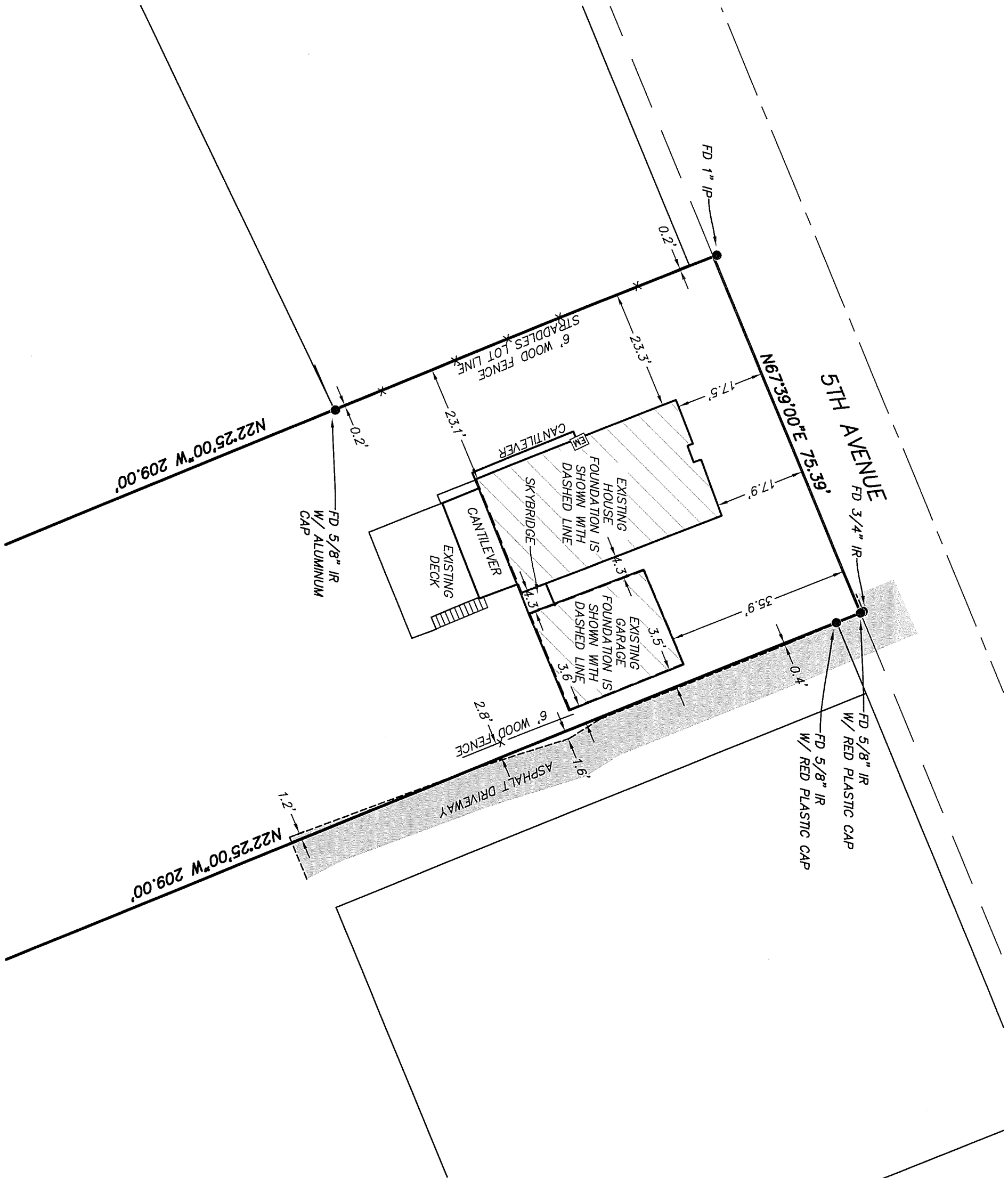
## **11.070 DIMENSIONAL REQUIREMENTS, USES PERMITTED OUTRIGHT AND USES PERMITTED UNDER PRESCRIBED CONDITIONS**

*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

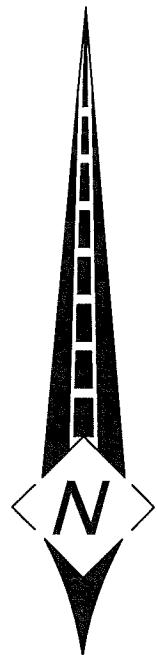
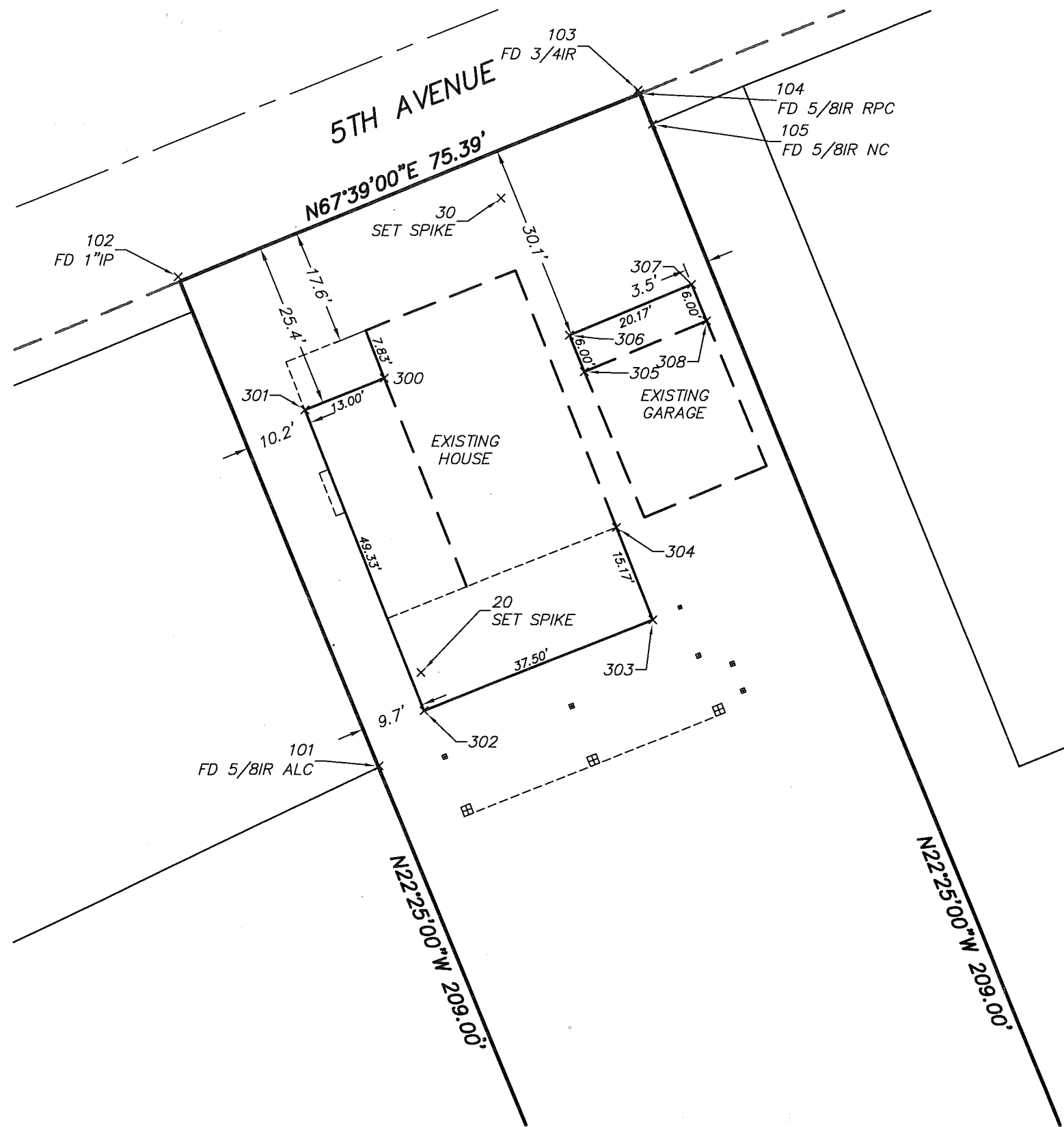
OREGON  
 NOVEMBER 30, 2007  
 JAMES BURTON BROWN  
 60379

RENEWALS: DECEMBER 31, 2023

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

**SCALE MAP**  
**TAX LOT 6600, MAP 32, 1E, 02AB (2247 5TH AVENUE)**  
 CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON  
 Scale: 1"=20'

  
**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

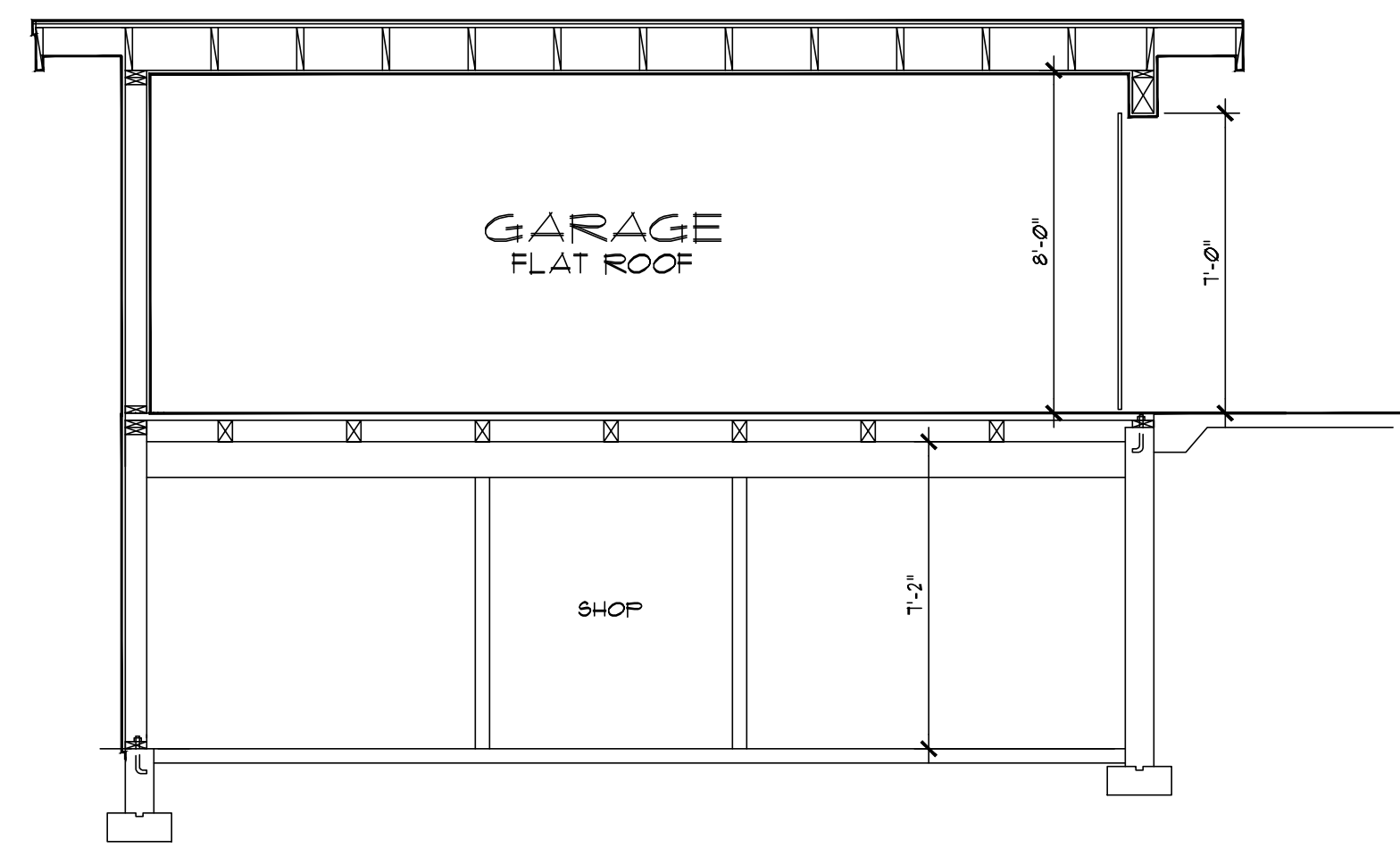
**STAKEOUT DISCLAIMER:**

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

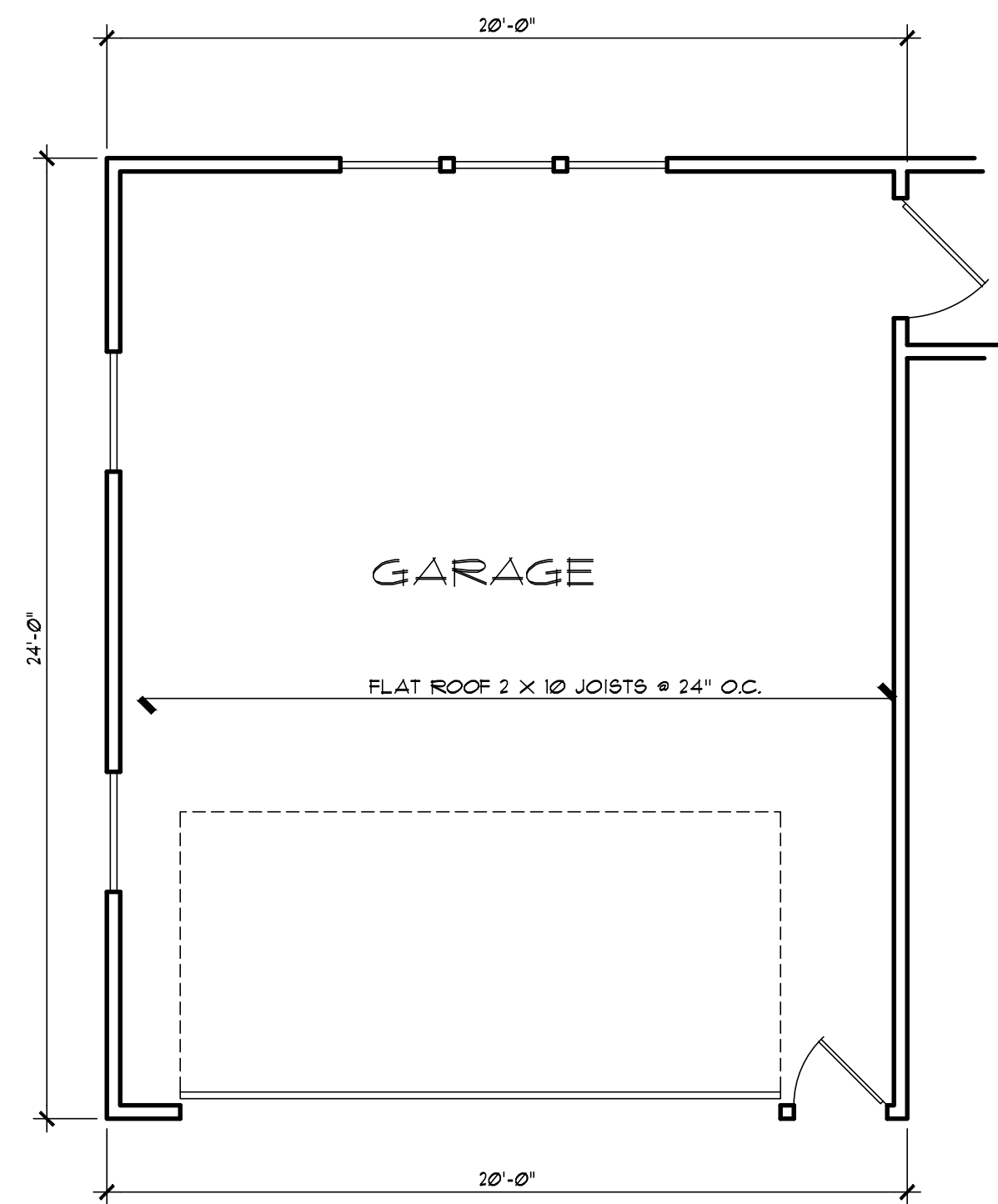
**STAKEOUT**  
**TAX LOT 6600, MAP 3S, 1E, 02AB (2247 5TH AVENUE)**  
CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON  
Scale: 1"=20'

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



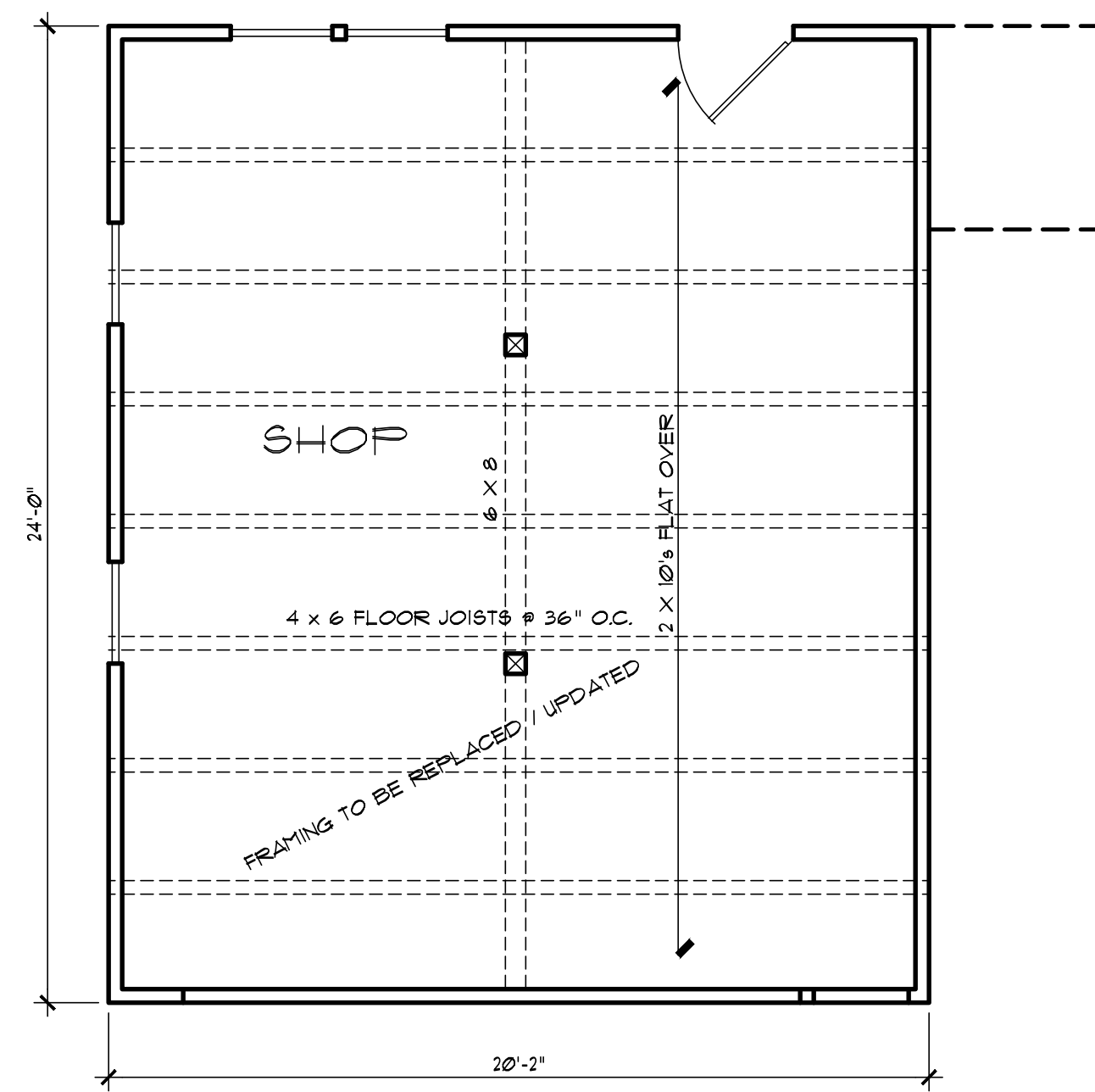
EXISTING SECTION

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



EXISTING GARAGE LEVEL

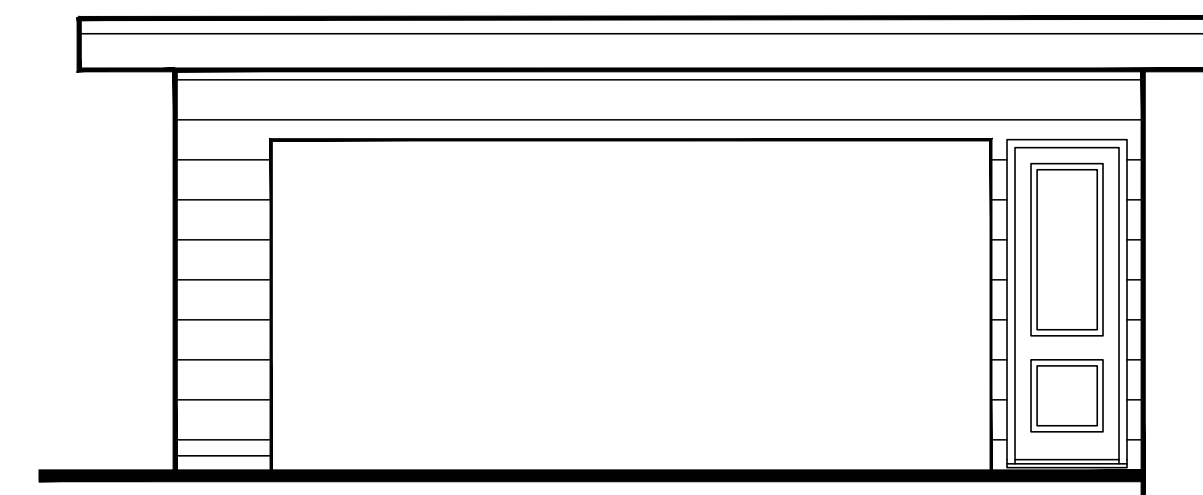
SCALE : 1/4" = 1'-0"



EXISTING SHOP LEVEL

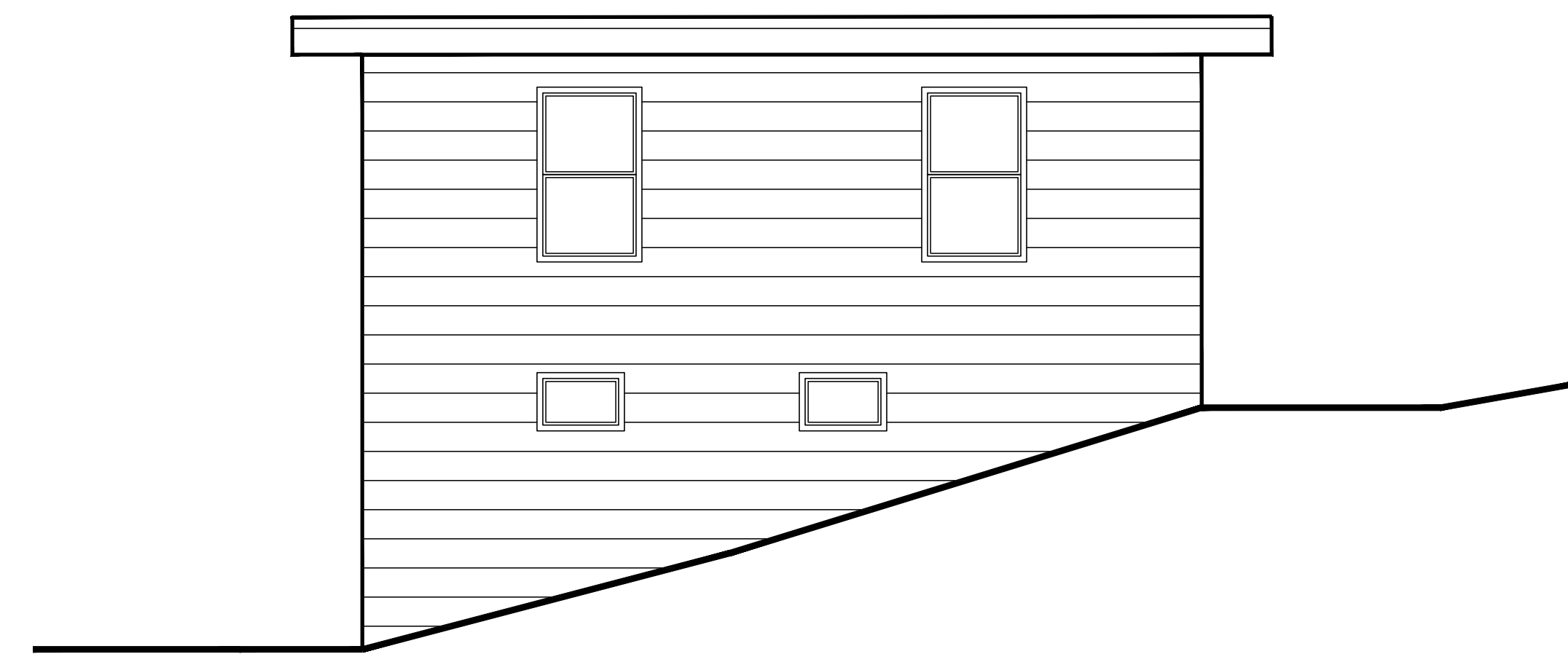
SCALE : 1/4" = 1'-0"

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  
 CITY OF CLACKAMAS  
 PROJECT NO. 22054  
 DATE: 4-10-2023  
 SCALE: 1/4" = 1'-0"  
 SHEET NO. 1  
 DRAWN BY: JIM WALSH  
 CHECKED BY: JIM WALSH  
 WITH REVIEWER OF WATSON WORKS



**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.  
 EXISTING GARAGE  
 PROPOSED GARAGE  
 TOTAL AREA  
 480 S.F.  
 120 S.F.  
 600 S.F.  
 NOAH KAMP 503.709.3922 noah@concretetail.com  
**WALSH RESIDENCE**  
 JIM WALSH 503.816.4997 jim@walsh-industries.com

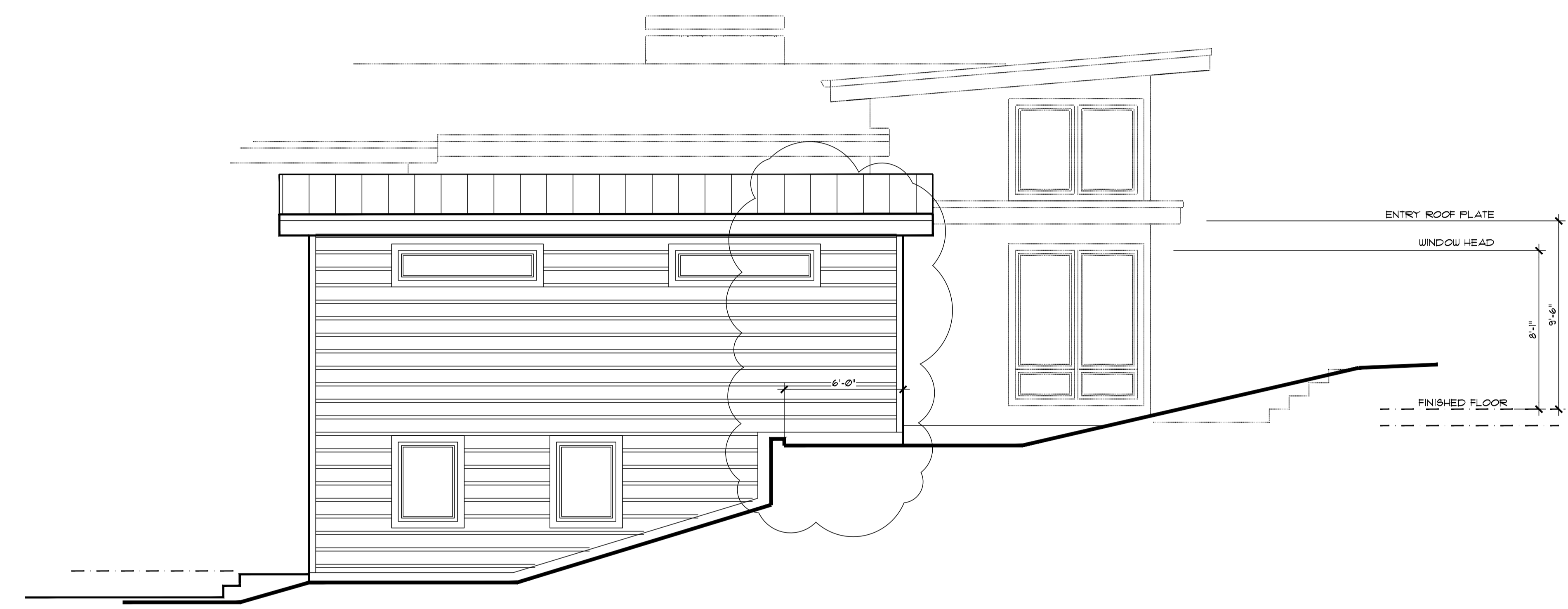
ADU STUDIO BELOW UNCHANGED

DATE:  
 Est. 4-10-2023  
 Rev.

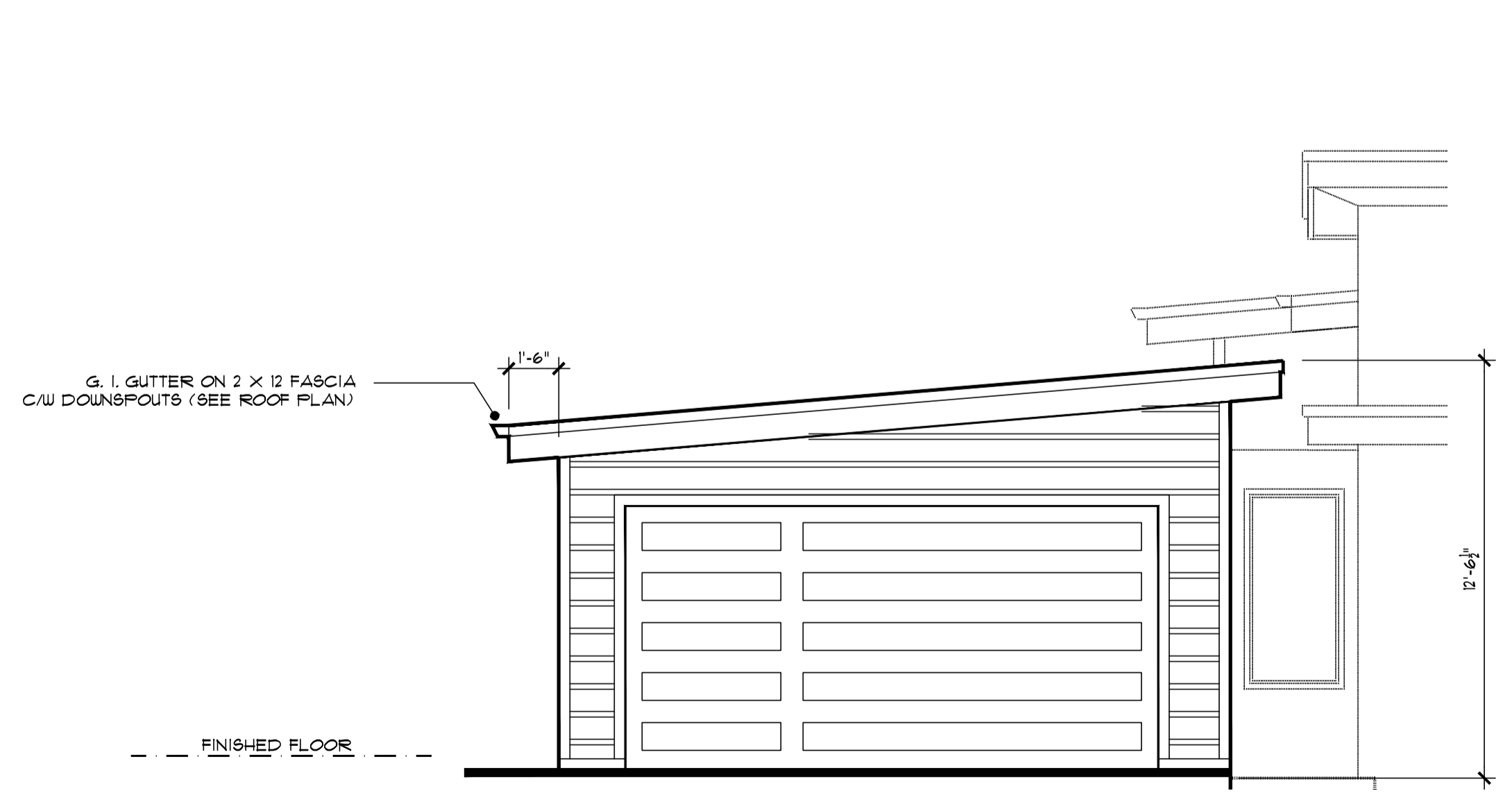
PLANS VOID 1YR. FROM EST. DATE  
 JOB No.

22054

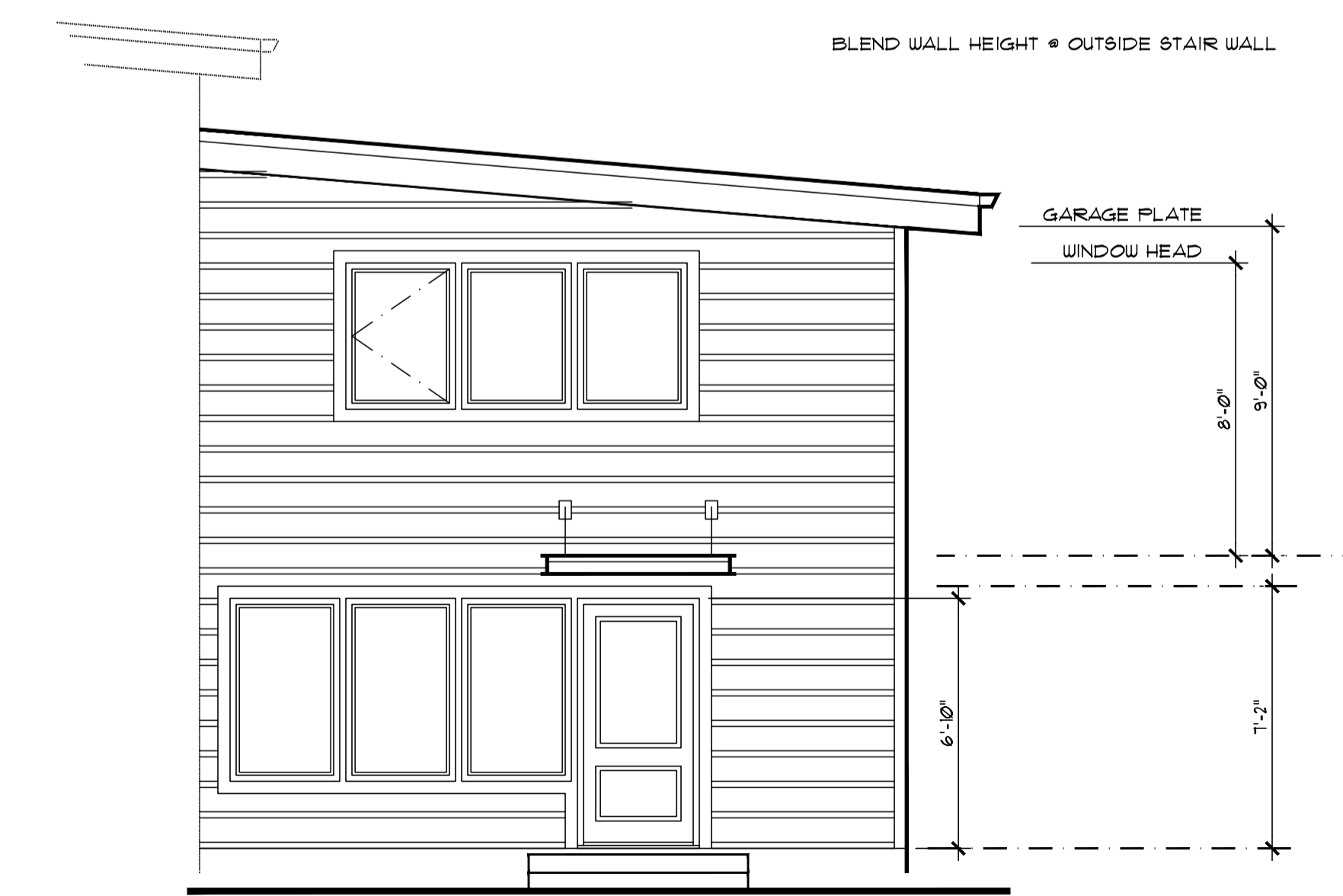
SHEET



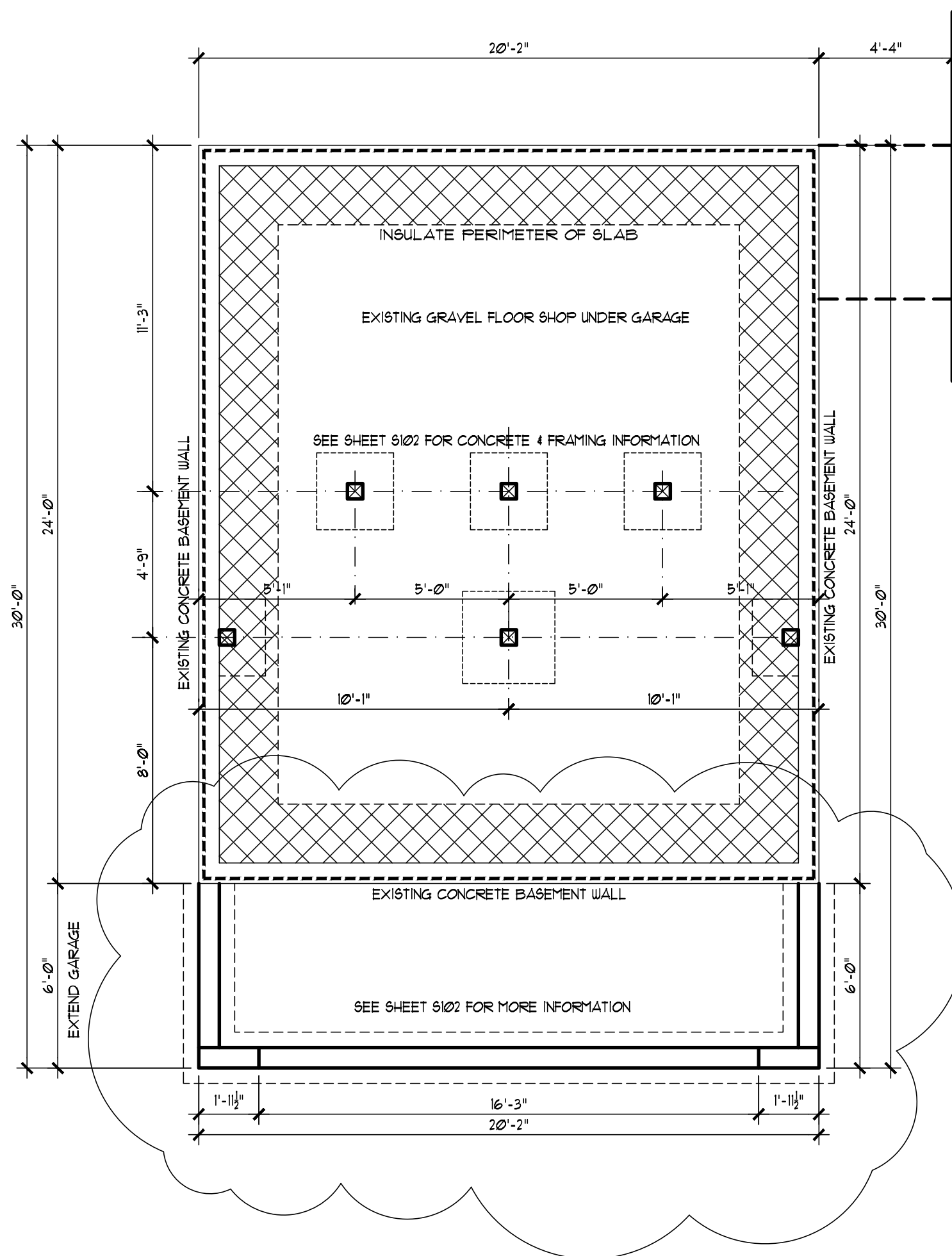
LEFT ELEVATION  
 SCALE: 1/4" = 1'-0"



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

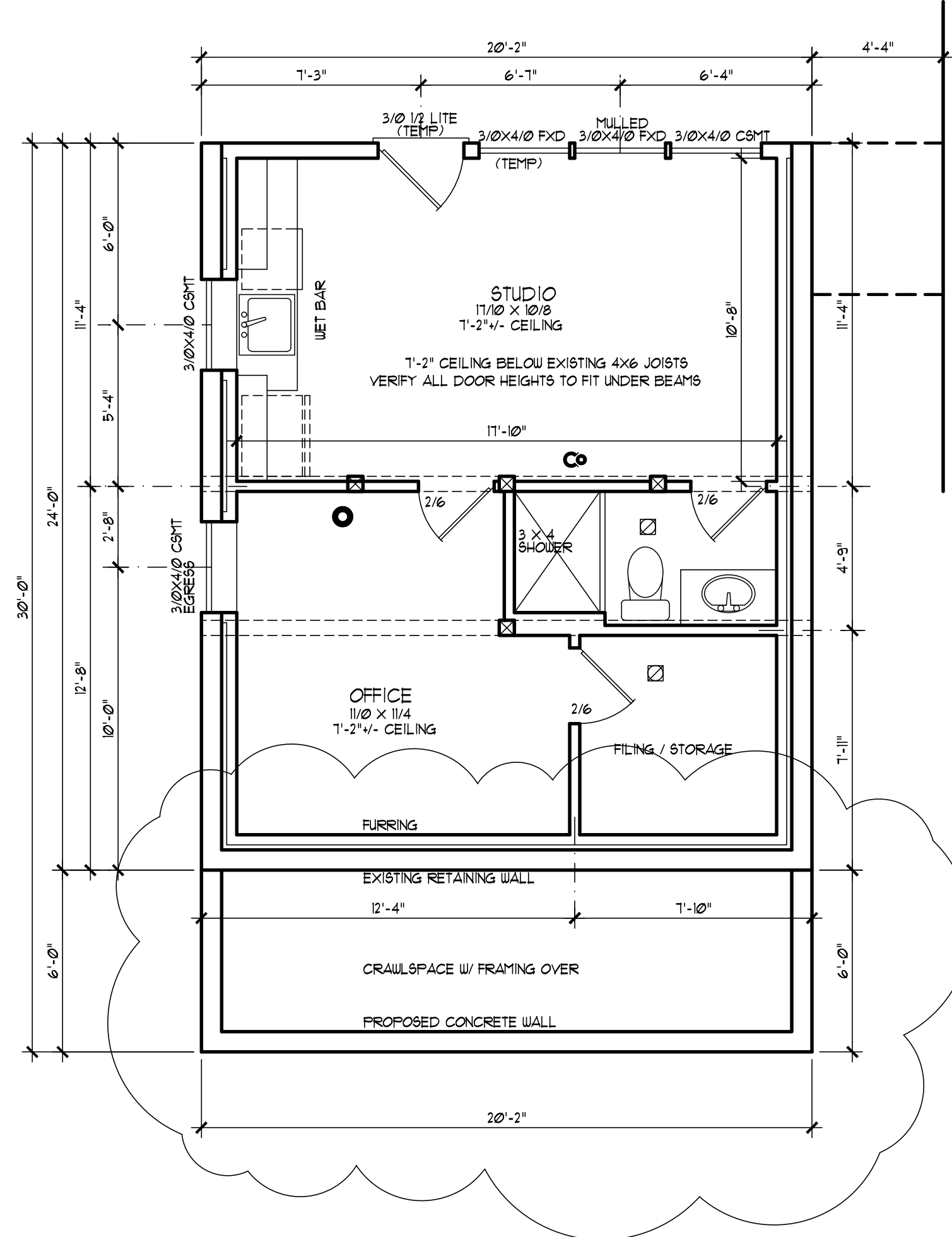


REAR ELEVATION  
 SCALE: 1/4" = 1'-0"



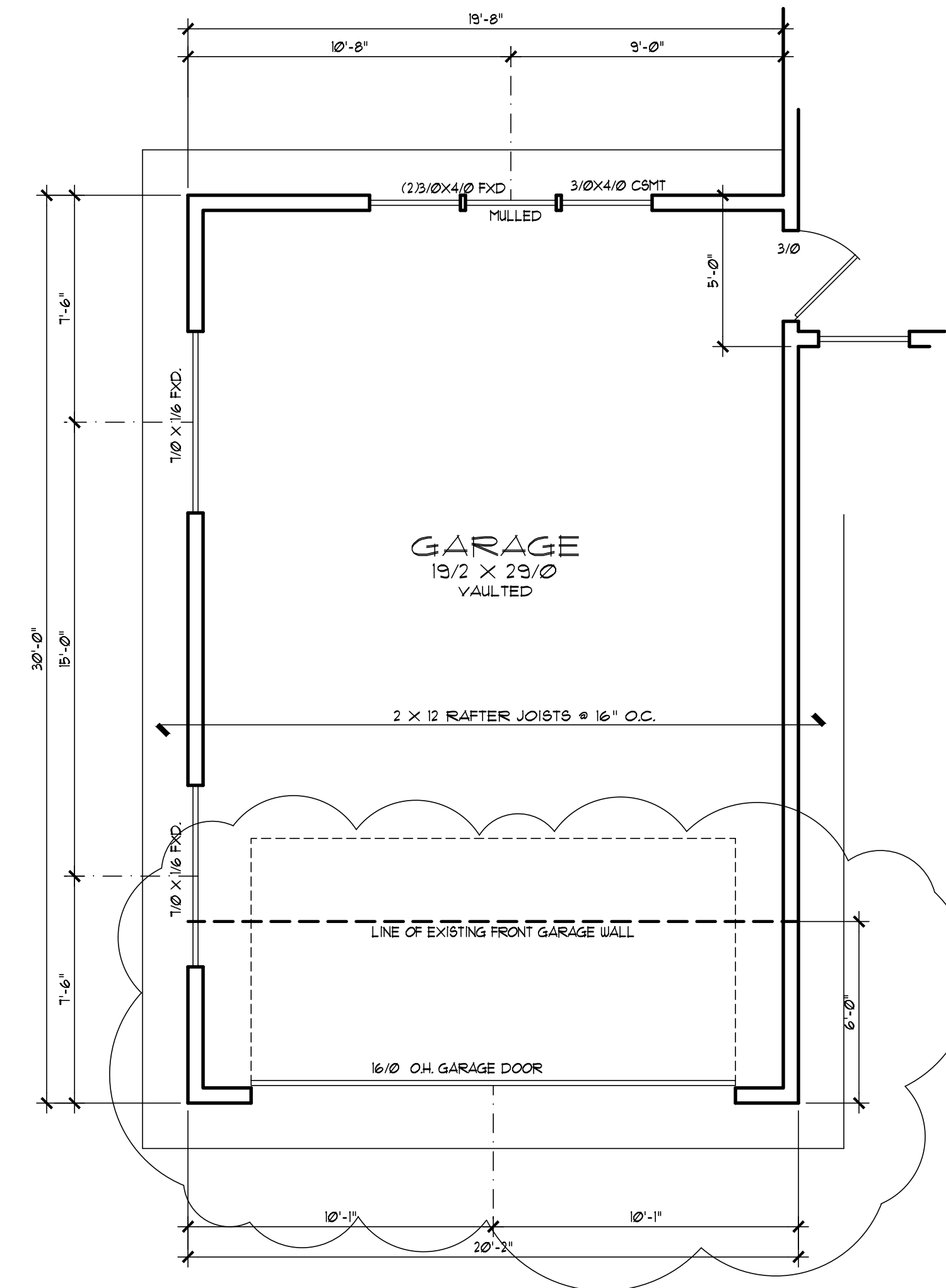
FOUNDATION PLAN

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



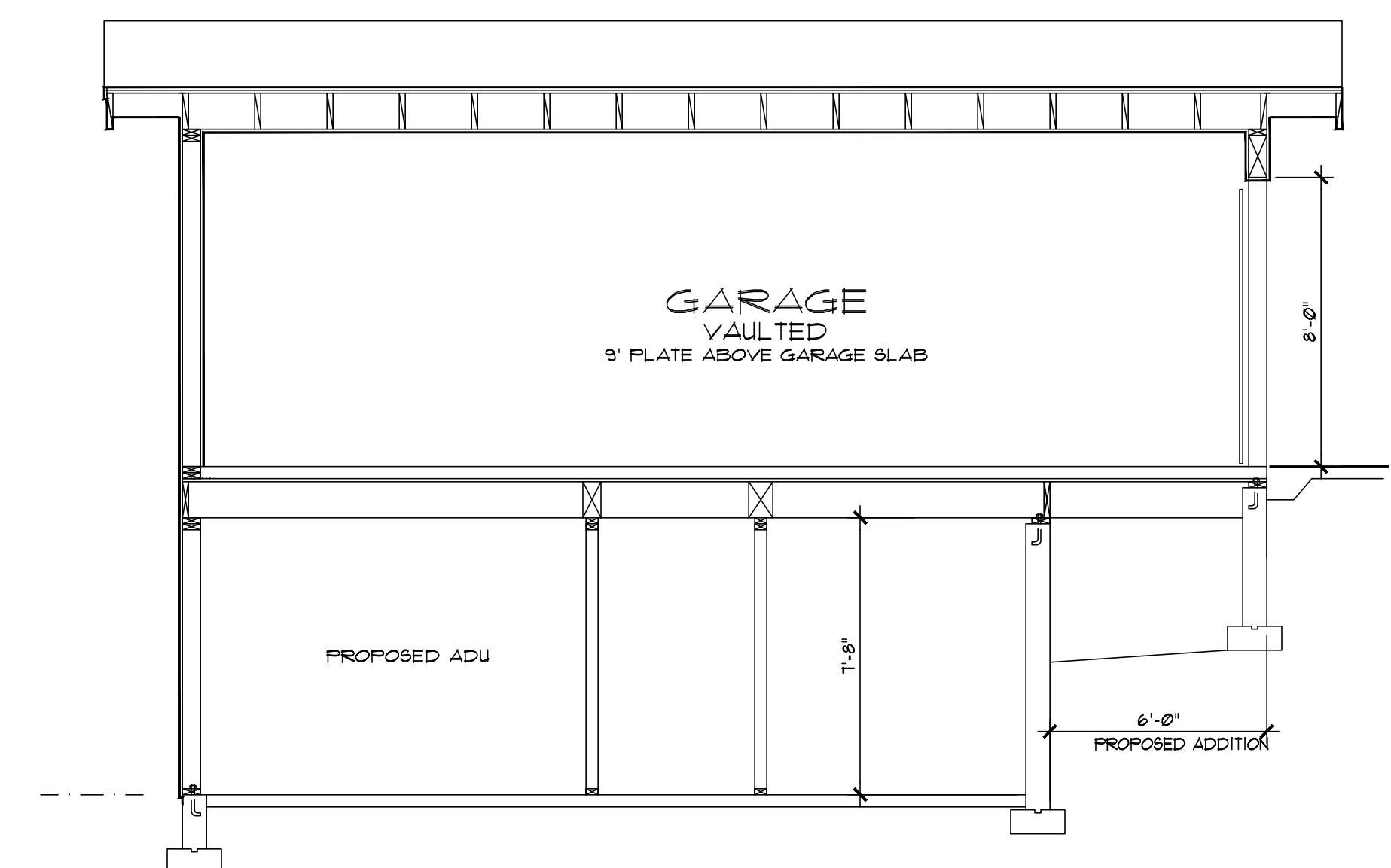
LOWER SHOP LEVEL

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 LATERAL LOAD
6. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE, WORKMEN, AND ALL OTHER PERSONS DURING CONSTRUCTION.
7. 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 (Sbr) = 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 = CvW) = 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 A572
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 E70XX, E70TXX, 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 IRLARCH, 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 = 2,322psi, 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 ANSI/TPI 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 GREATER, 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 3/8" THICK, MINIMUM, 2/6" 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, 2/6" 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, Full Name, Abbreviation, Full Name. Includes entries like AB ANCHOR BOLT, ARCHL ARCHITECTURAL, CONN CONNECTION, etc.

**DRAWING LIST:**

Table with 2 columns: Drawing Number, Description. Lists drawings S100 through S203 including General Structural Notes, Foundation Plan, and Structural Details.

Professional Engineer Information: MATT GALVIN, P.E., 427 NW SKYLINE BOULEVARD, PORTLAND, OREGON 97229, 503-484-6494, galvin.matt@gmail.com. Includes registration seal and stamp: STAMPED: 2/5/2023, EXPIRES: 06/30/23.

Project Information: WALSH RESIDENCE - GARAGE REMODEL, 2247 5TH AVENUE, WEST LINN, OR 97068, GENERAL STRUCTURAL NOTES, DRAWN: M. GALVIN, FEBRUARY 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 FT <sup>2</sup> 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 7.6 PROTECTION OF REINFORCEMENT PER ACI 7.7
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: 8.1.3 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:**

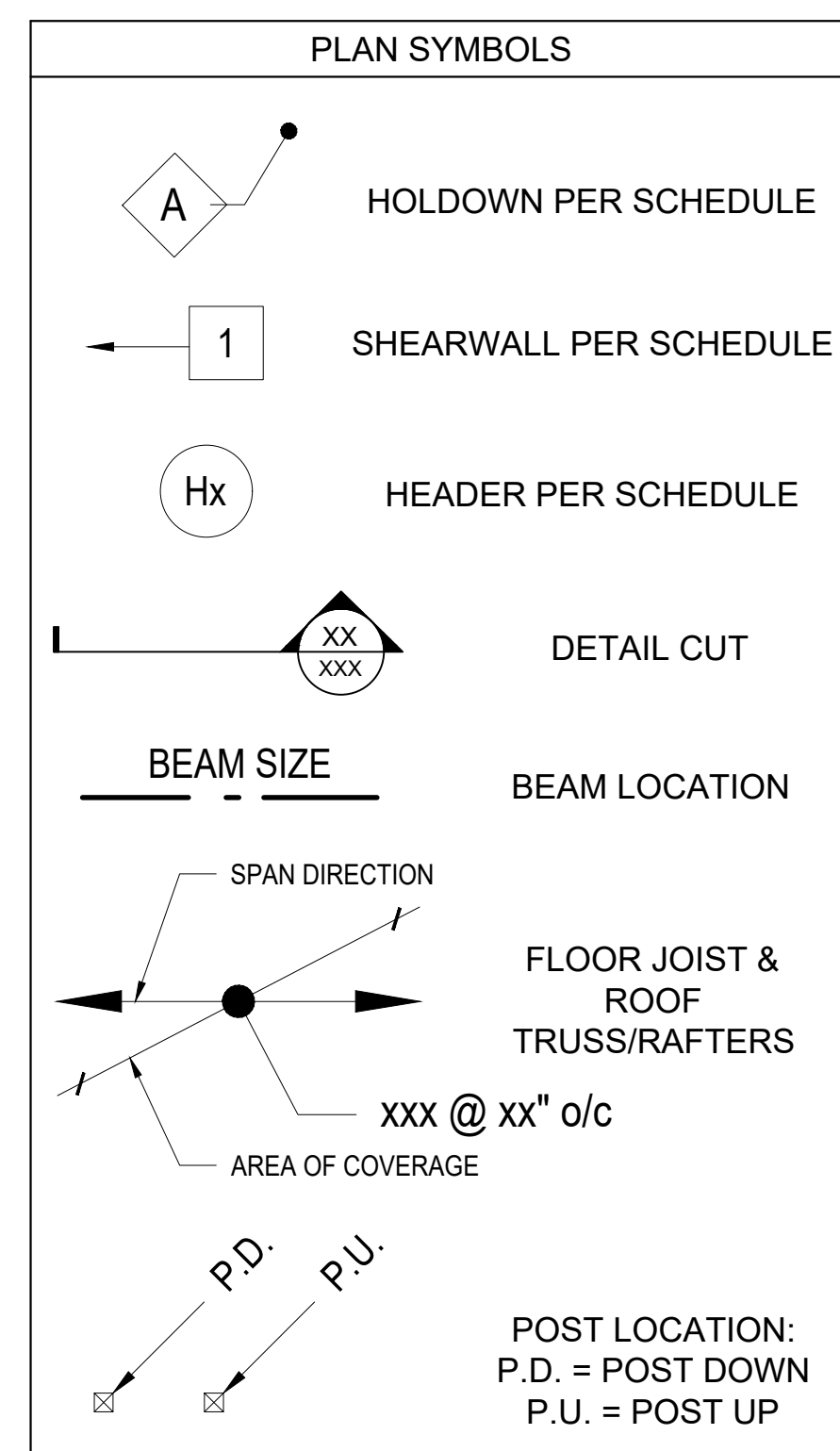
- HOLDOWNS SHOWN ARE MANUFACTURED BY SIMPSON STRONG-TIE.
- THREADED RODS SHALL BE ASTM F1554 GR. 36. PROVIDE DOUBLE NUTS AT EMBEDDED END ROD WITH PLATE WASHERS (ASTM A36) OF THE FOLLOWING SIZES INSTALLED BETWEEN THE NUTS:

AB DIA	PL SIZE
5/8"	3/8" x 2 1/2" x 2 1/2"
7/8"	3/8" x 3" x 3"

- 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"

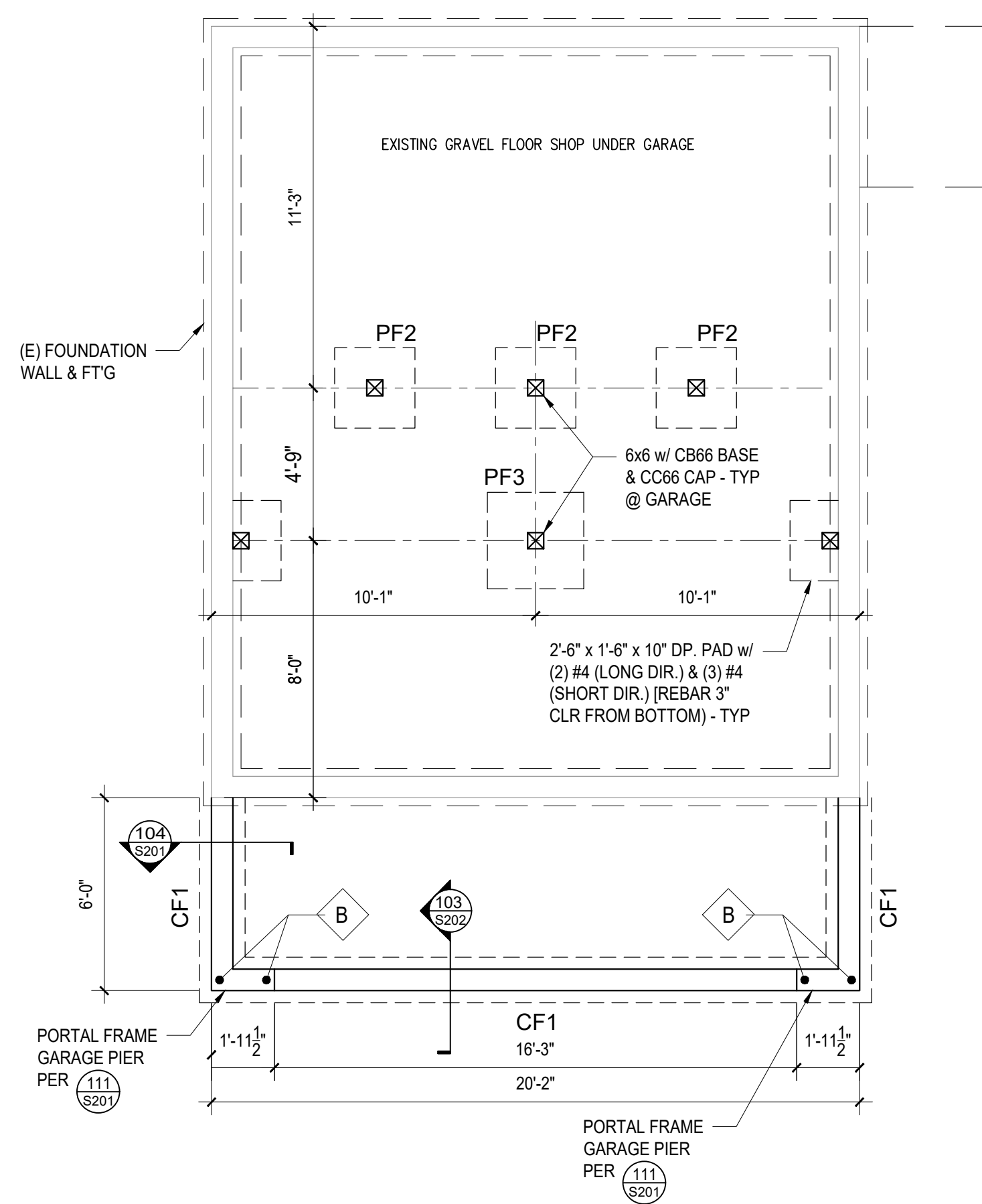
REVISIONS									
NO.	DATE	BY	CHKD	APP'D	REMARKS				

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REGISTERED PROFESSIONAL ENGINEER  
89169PE  
DIGITALLY SIGNED  
OREGON  
MAY 08, 2018  
MATT GALVIN  
EXPIRES: 06/30/23  
STAMPED: 2/5/2023

WALSH RESIDENCE - GARAGE REMODEL  
2247 5TH AVENUE, WEST LINN, OR 97068  
SCHEDULES & SPECIAL INSPECTIONS

DATE: FEBRUARY 2023  
DRAWN: M. GALVIN  
JOB NUMBER: 22.037  
DRAWING NUMBER: S101



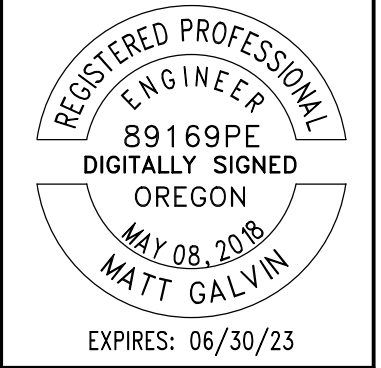
**FOUNDATION NOTES:**

1. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO COMMENCING WORK. ALL EXISTING DIMENSIONS TO BE FIELD VERIFIED PRIOR TO COMMENCING WORK.
2. REFER TO SHEETS S100 & S101 FOR SPECIFICATIONS, SCHEDULES, NOTES AND SYMBOLS NOT SHOWN HERE BUT APPLYING TO WORK SHOWN THIS SHEET
3. TYPICAL PERIMETER/EXTERIOR FOOTING SHALL BE MARK 'CF1' PER FOOTING SCHEDULE. UNLESS NOTED OTHERWISE, PROVIDE 6" CONC. STEM WALL w/ #4 VERTS AT 24" o/c & MIN. (2) #4 CONTINUOUS HORIZONTAL BARS (TOP & BOTTOM OF WALL), TYPICAL UNLESS NOTED OTHERWISE. AT EXTERIOR, 2-STORY CONCRETE WALL PROVIDE MARK 'CF2' FOOTING.
4. WALL FRAMING SHALL BE 2x STUDS AT 16" ON CENTER, UNLESS NOTED OTHERWISE.
5. TOP PLATES SHALL BE SPLICED PER DETAIL 111/S202
6. CONSTRUCT SHEARWALLS PER DETAIL 109/S202
7. HOLD-DOWNS SHOWN THIS LEVEL OCCUR AT THE BOTTOM OF THE MAIN FLOOR FRAMING/TOP OF FOUNDATION

**A** FOUNDATION PLAN  
 S102 SCALE: 3/16" = 1'-0"

REV#	DATE	REVISIONS

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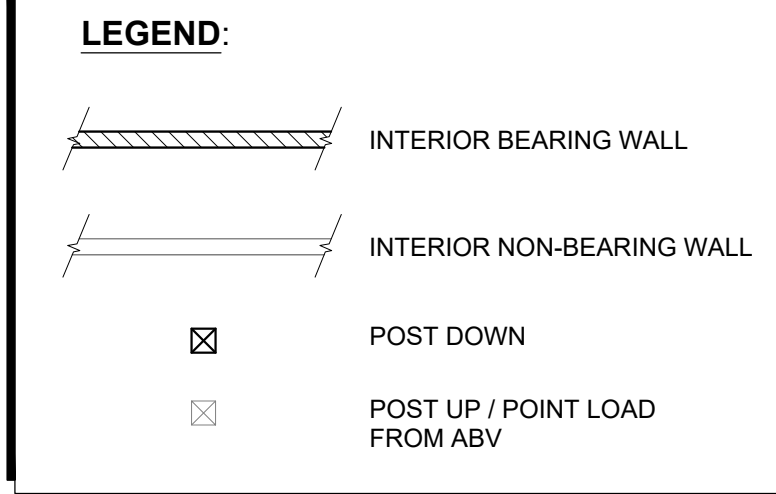
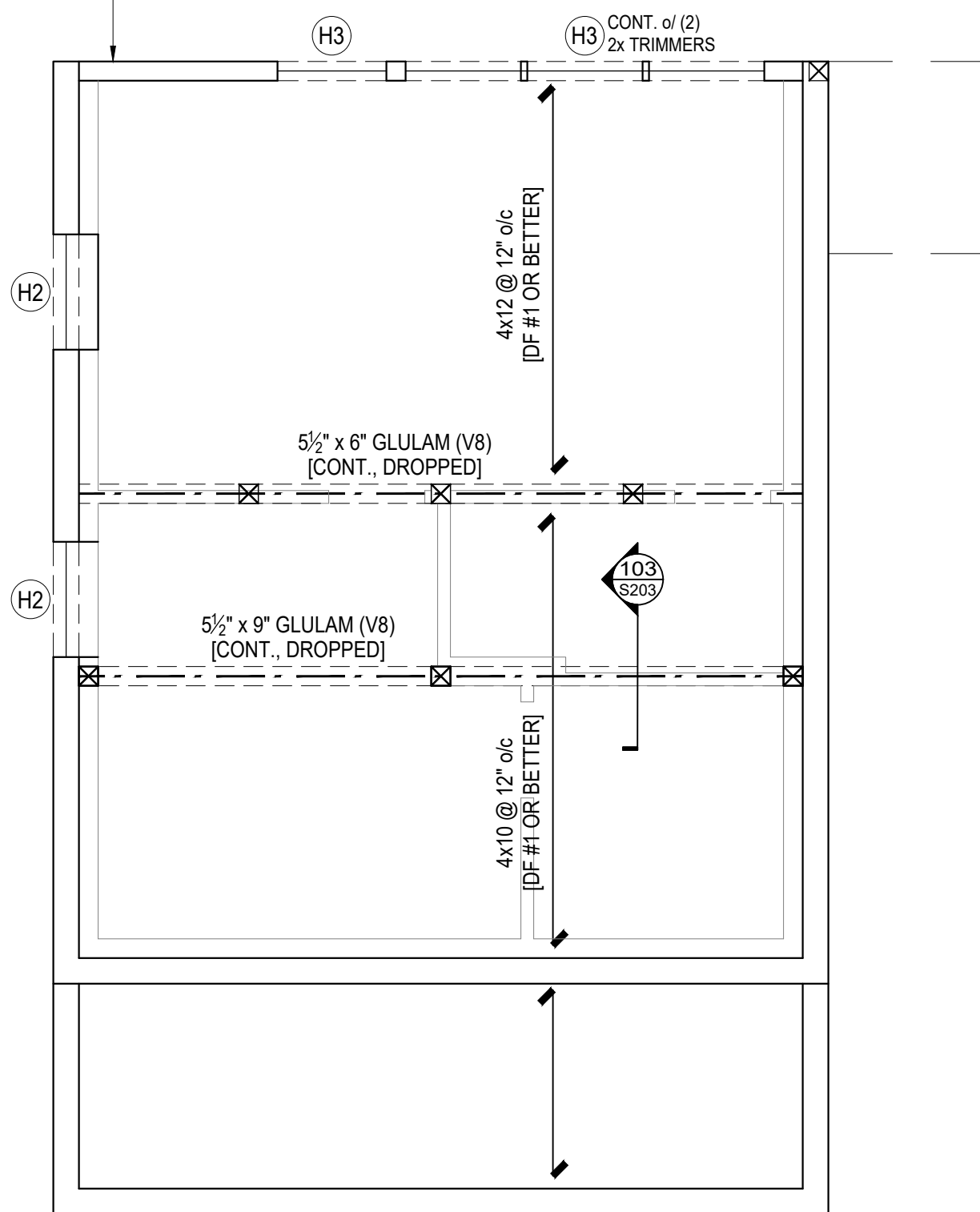
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WALSH RESIDENCE - GARAGE REMODEL  
 2247 5TH AVENUE, WEST LINN, OR 97068  
 FOUNDATION & MAIN FLOOR FRAMING PLAN  
 DATE: FEBRUARY 2023  
 DRAWN: M. GALVIN  
 COPYRIGHT: 2023

JOB NUMBER  
**22.037**

DRAWING NUMBER  
**S102**

TYP. ALL EXT. WALLS UNO



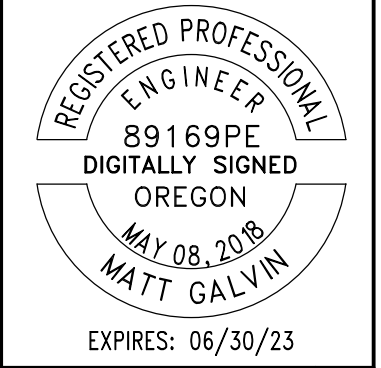
**FLOOR FRAMING NOTES:**

1. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO COMMENCING WORK. ALL EXISTING DIMENSIONS TO BE FIELD VERIFIED PRIOR TO COMMENCING WORK.
2. REFER TO SHEETS S100 & S101 FOR SPECIFICATIONS, SCHEDULES, NOTES AND SYMBOLS NOT SHOWN HERE BUT APPLYING TO WORK SHOWN THIS SHEET
3. FLOOR SHEATHING SHALL BE MIN. 3/8" WITH 8d NAILS 6" ON CENTER (EDGES/FIELD).
4. WALL FRAMING SHALL BE 2x STUDS AT 16" ON CENTER, UNLESS NOTED OTHERWISE.
5. TOP PLATES SHALL BE SPLICED PER DETAIL 111/S202
6. UNLESS NOTED OTHERWISE, ALL NEW HEADERS SHALL BE FRAMED PER DETAIL 108/S202
7. HOLDOWNS SHOWN THIS LEVEL OCCUR AT THE BOTTOM OF THE MAIN FLOOR FRAMING/TOP OF FOUNDATION
8. CONSTRUCT SHEARWALLS PER DETAIL 109/S202
9. UNLESS NOTED OTHERWISE, POST UP/DOWN SHALL BE BUILT-UP 2x STUDS TO MATCH OR EXCEED CARRIED BEAM WIDTH. FASTEN EACH PLY WITH MIN. (2) 16d NAILS @ 8" o/c.
10. ALL BEAM HANGERS ARE MANUFACTURED BY SIMPSON STRONG-TIE, UNLESS NOTED OR DETAILED OTHERWISE
11. TYPICAL FLOOR HANGERS SHALL BE:  
 1 1/2" TJI 110 = SIMPSON ITS1.81/11.88  
 1 1/2" TJI 210 = SIMPSON ITS2.06/11.88  
 1 1/2" TJI 230 = SIMPSON ITS2.37/11.88  
 2x8 = SIMPSON LUS28

**A** FLOOR FRAMING PLAN  
**S103** SCALE: 3/16" = 1'-0"

REVISIONS	
NO.	DESCRIPTION


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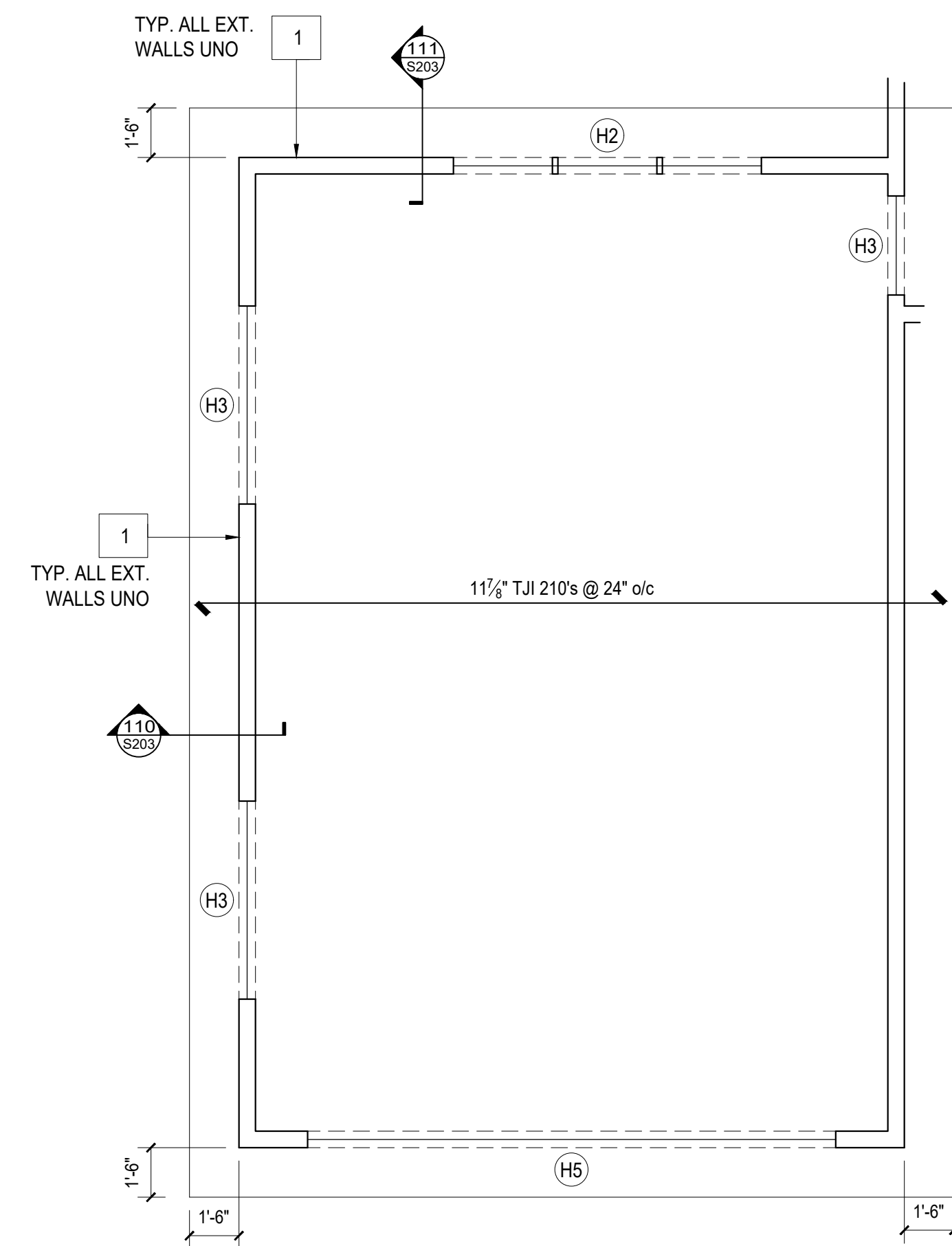


STAMPED: 2/5/2023

WALSH RESIDENCE - GARAGE REMODEL  
 2247 5TH AVENUE, WEST LINN, OR 97068  
 UPPER FLOOR & LOWER ROOF FRAMING PLAN  
 DATE: FEBRUARY 2023  
 DRAWN: M. GALVIN  
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JOB NUMBER  
**22.037**

DRAWING NUMBER  
**S103**



**LEGEND:**

INTERIOR BEARING WALL

INTERIOR NON-BEARING WALL

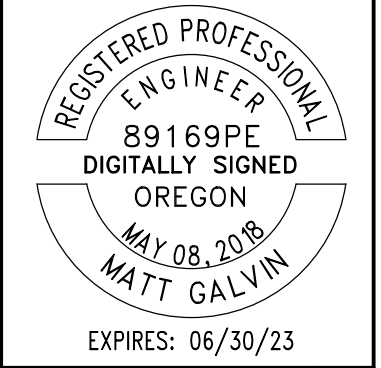
POST DOWN

- ROOF FRAMING NOTES:**
1. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO COMMENCING WORK. ALL EXISTING DIMENSIONS TO BE FIELD VERIFIED PRIOR TO COMMENCING WORK.
  2. REFER TO SHEETS S100 & S101 FOR SPECIFICATIONS, SCHEDULES, NOTES AND SYMBOLS NOT SHOWN HERE BUT APPLYING TO WORK SHOWN THIS SHEET
  3. ROOF SHEATHING SHALL BE MIN. 1/2" WITH 8d NAILS 6" ON CENTER (EDGES/FIELD).
  4. TOP PLATES SHALL BE SPLICED PER DETAIL 111/S202
  5. HOLDDOWNS SHOWN THIS LEVEL OCCUR AT THE BOTTOM OF THE SECOND FLOOR FRAMING / TOP OF FIRST FLOOR FRAMING (i.e. STRAPS FROM UPPER FLOOR STUDS TO LOWER FLOOR STUDS)

**A** ROOF FRAMING PLAN  
**S104** SCALE: 3/16" = 1'-0"

REV#	DATE	REMARKS

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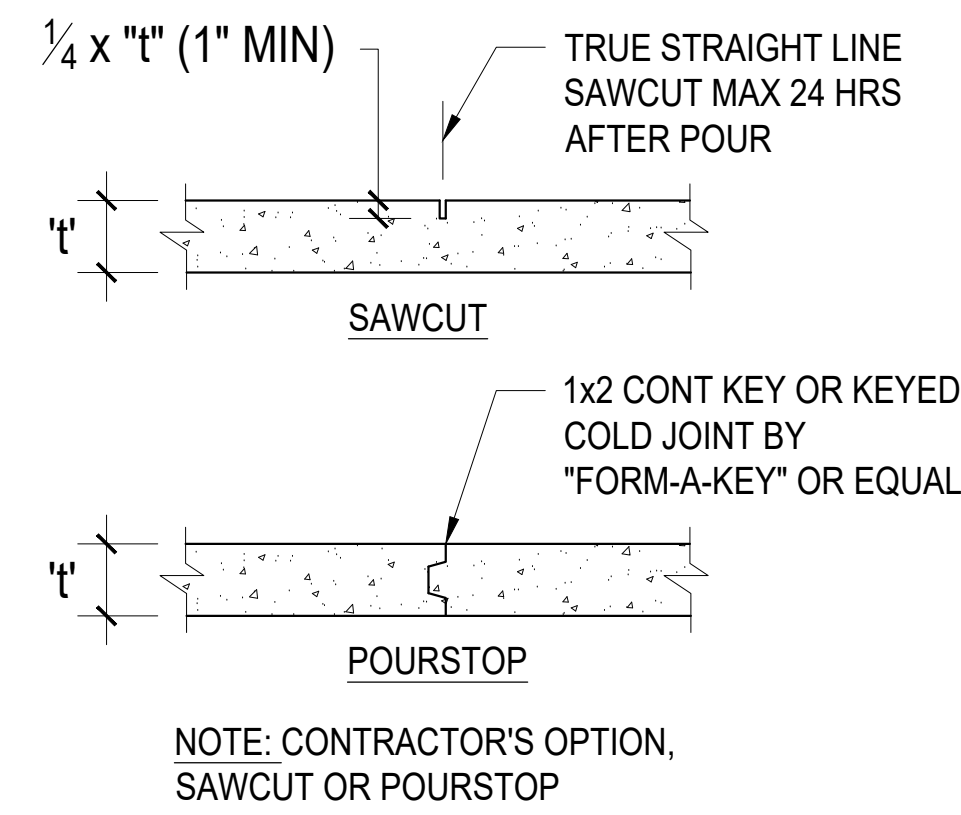


STAMPED: 2/5/2023

WALSH RESIDENCE - GARAGE REMODEL  
 2247 5TH AVENUE, WEST LINN, OR 97068  
 UPPER ROOF FRAMING PLAN  
 DRAWN: M. GALVIN  
 DATE: FEBRUARY 2023  
 COPYRIGHT: 2023

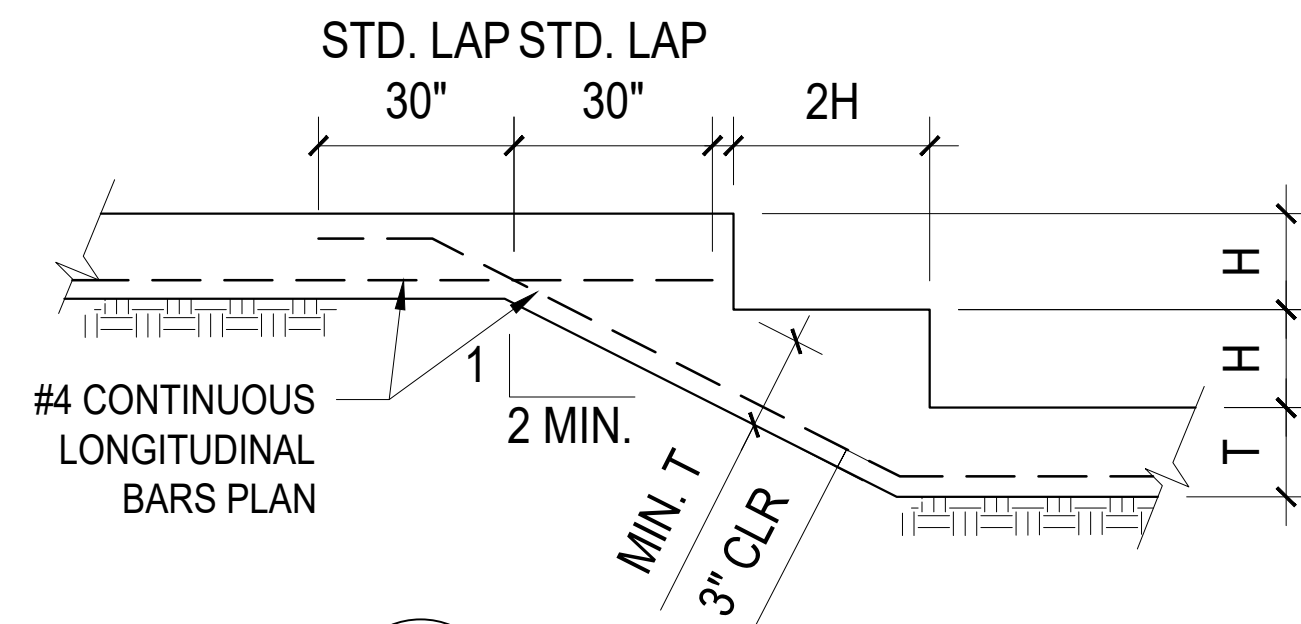
JOB NUMBER  
**22.037**

DRAWING NUMBER  
**S104**

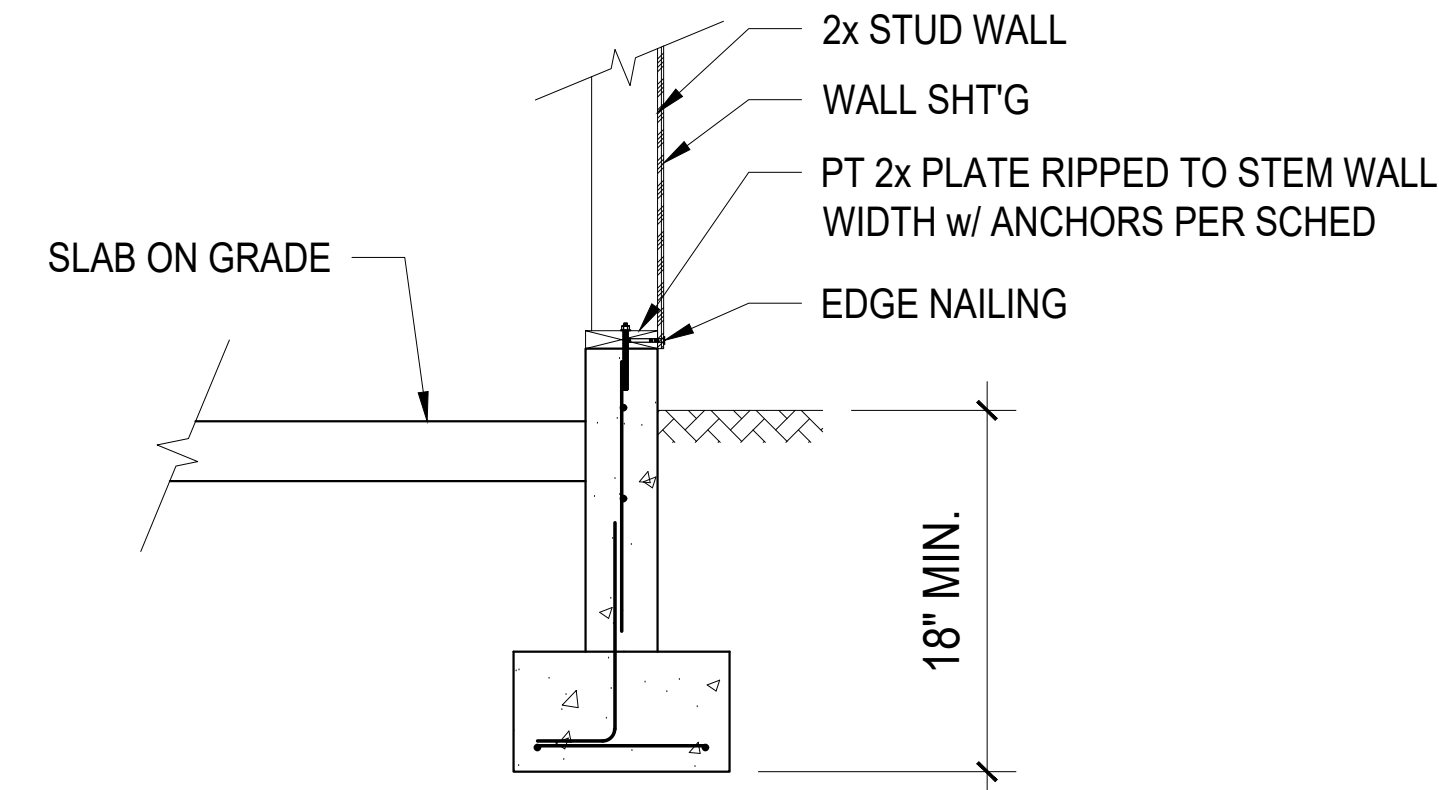


**110**  
S201 SCALE: 3/4" = 1'-0"

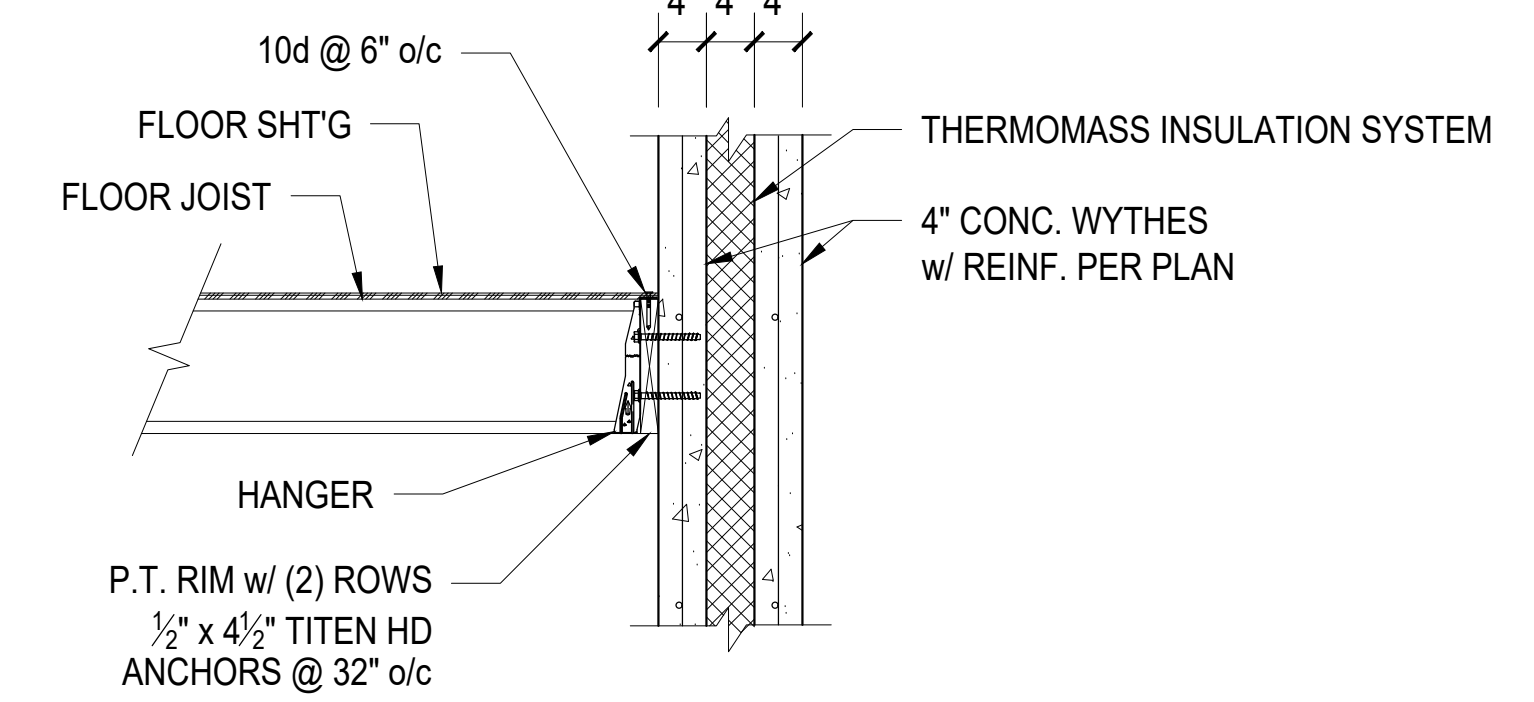
- NOTES:  
 1. MAXIMUM FOOTING STEP 'H' SHALL BE 16"  
 2. FOOTING THICKNESS 'T' PER PLAN



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



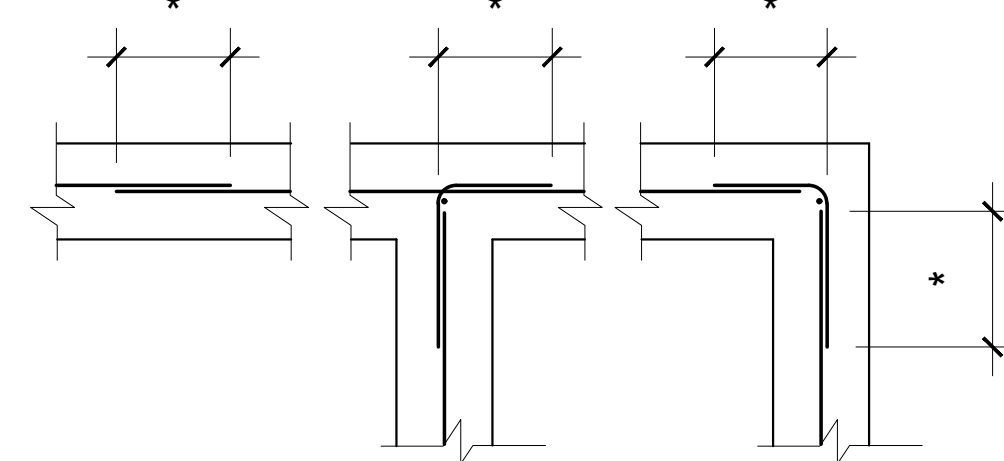
**104**  
S201 SCALE: 3/4" = 1'-0"



**101**  
S201 SCALE: 3/4" = 1'-0"

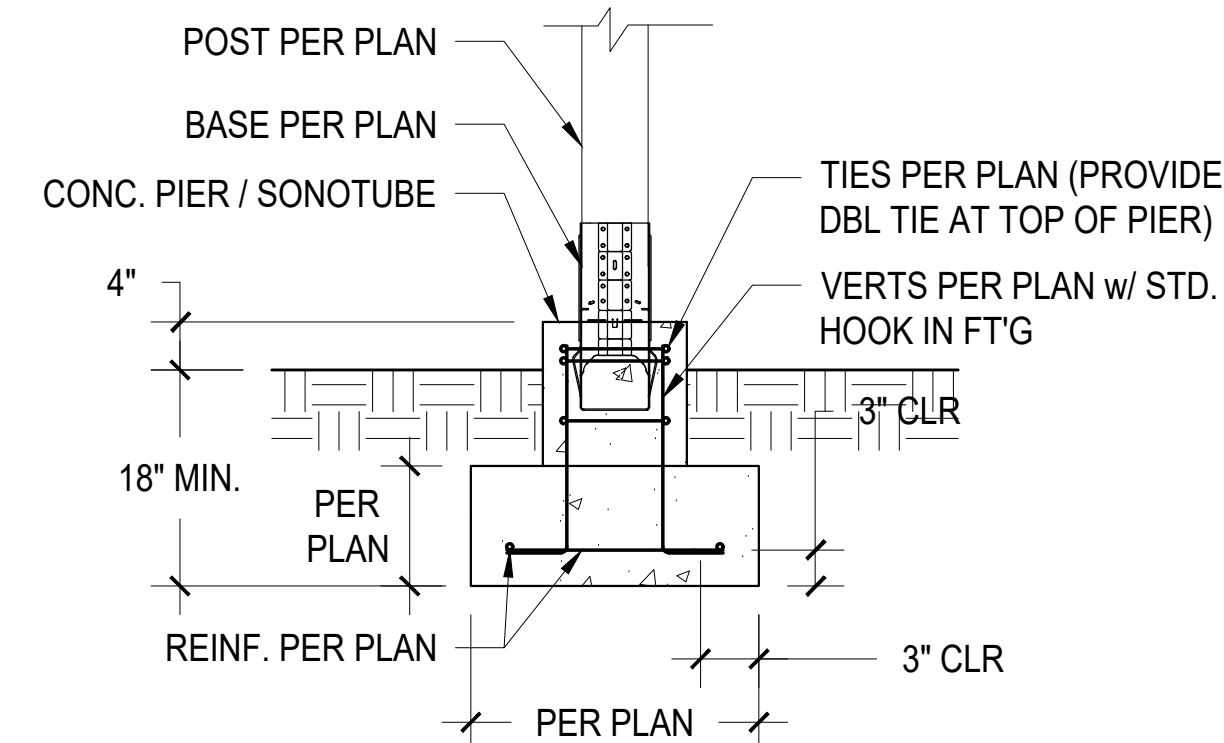
- NOTE: #3 BAR GRADE 40; ALL OTHER BARS GRADE 60;  $f_c = 2500\text{psi}$

\*USE LAP LENGTHS SHOWN UNLESS NOTED OTHERWISE IN DRAWINGS

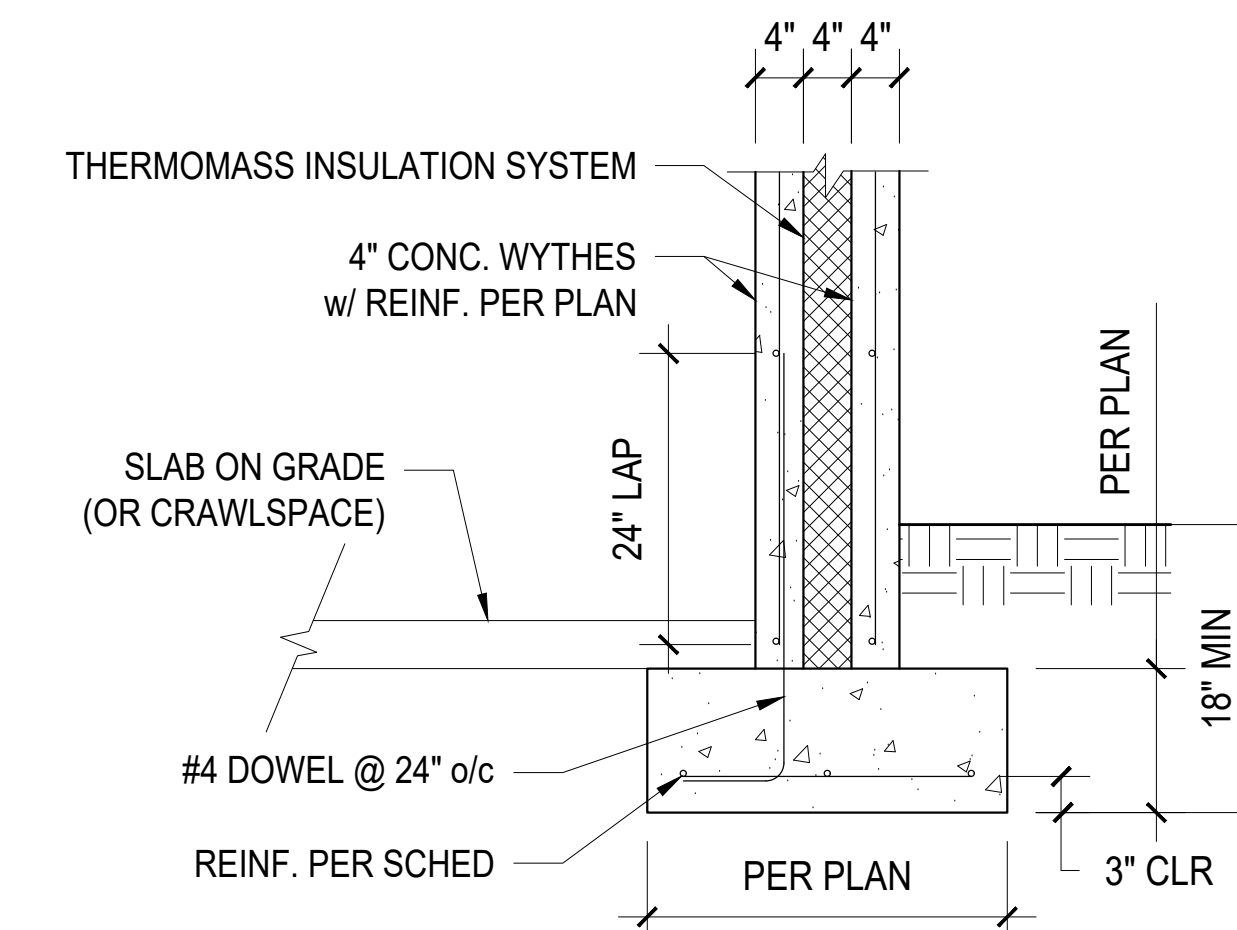


BAR SIZE	LAP LENGTH
#3	24"
#4	32"
#5	39"
#6	47"

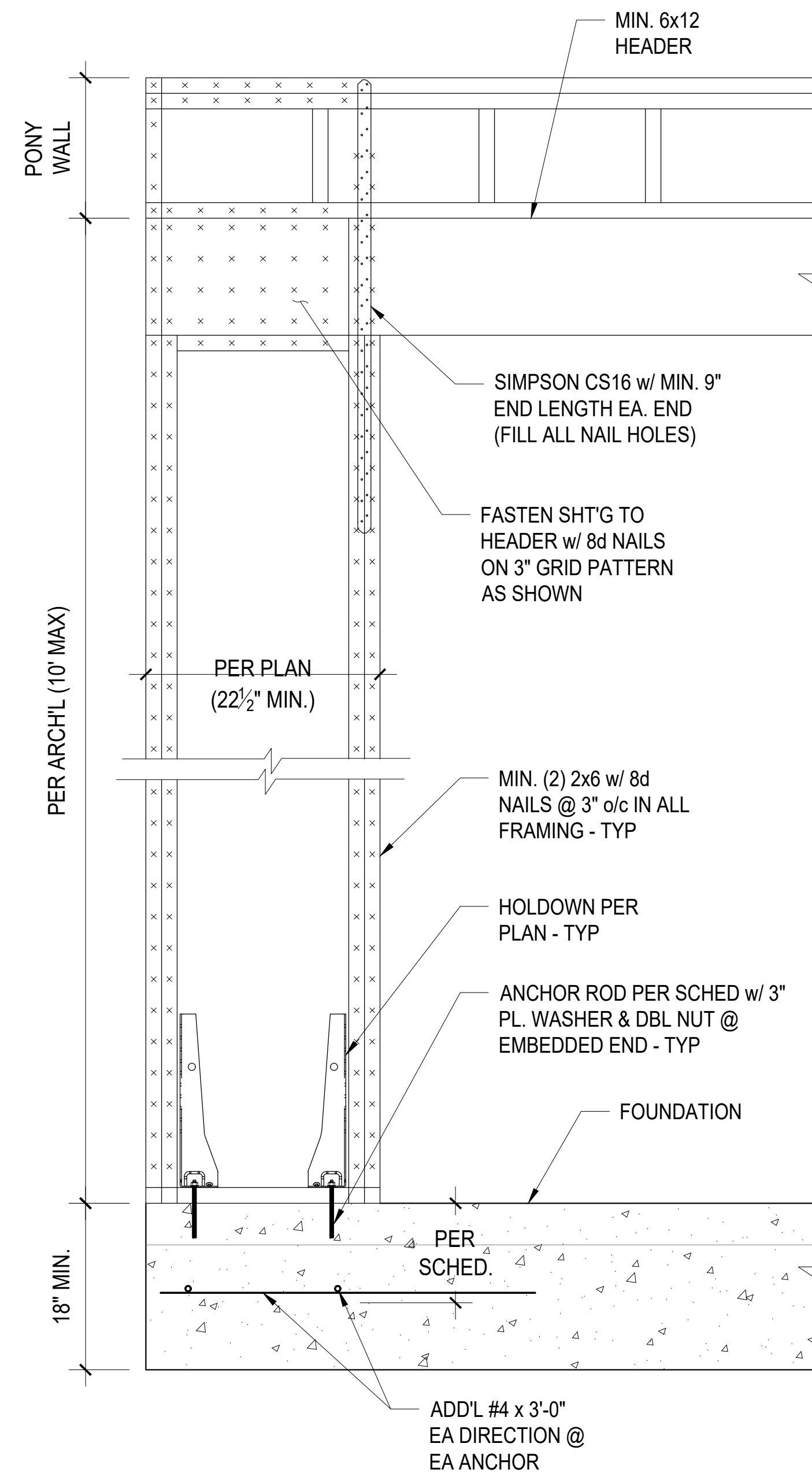
**108**  
S201 SCALE: 3/4" = 1'-0"



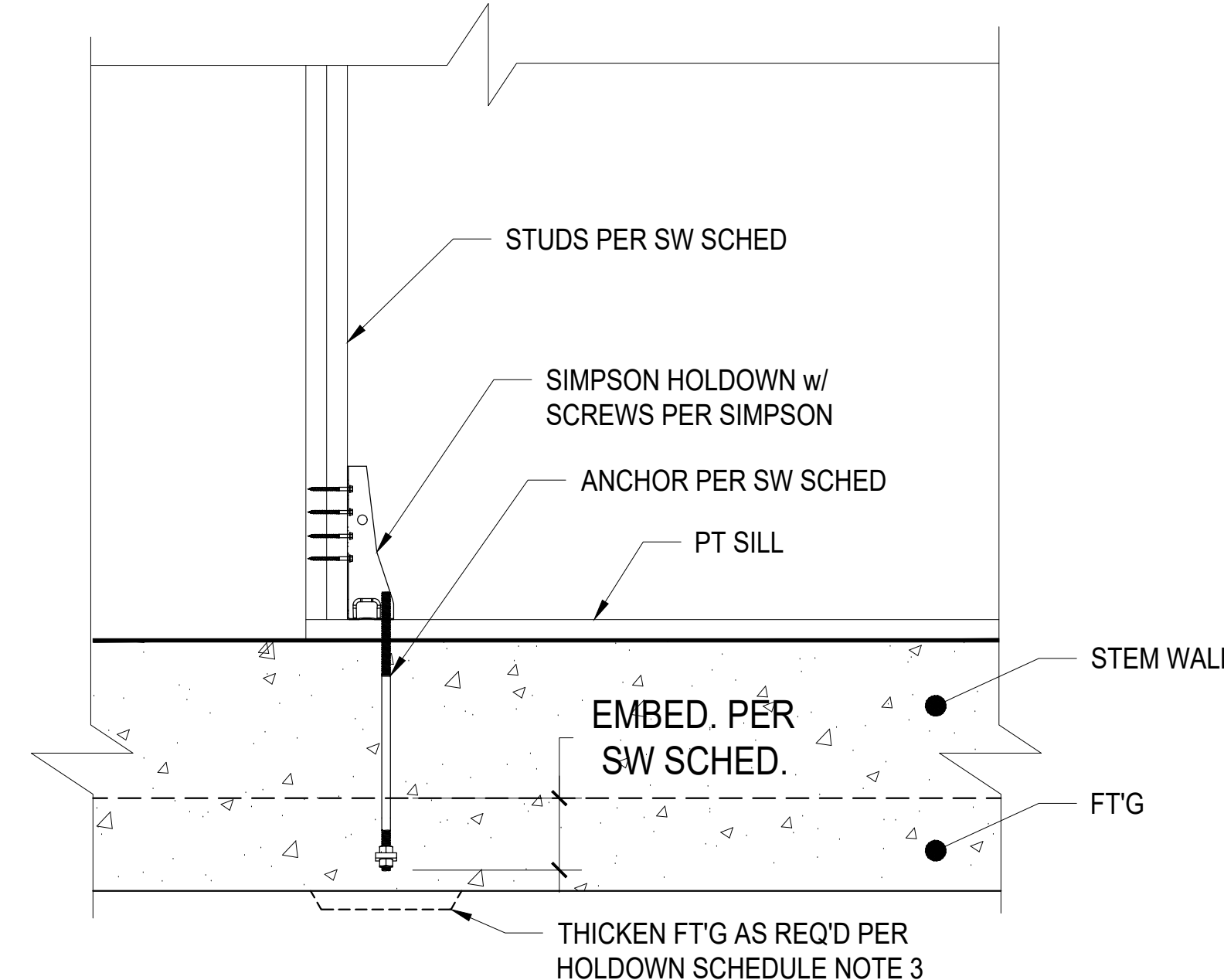
**105**  
S201 SCALE: 3/4" = 1'-0"



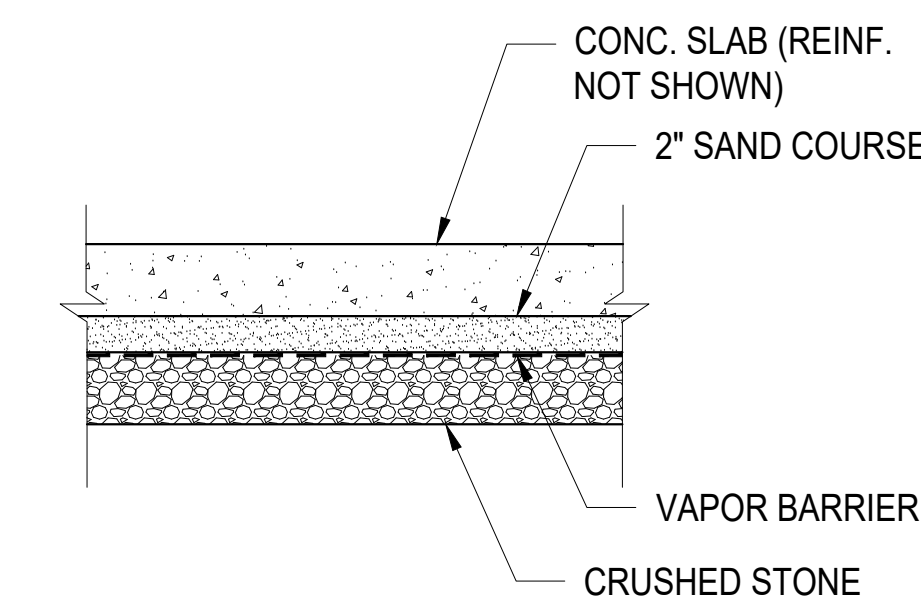
**102**  
S201 SCALE: 3/4" = 1'-0"



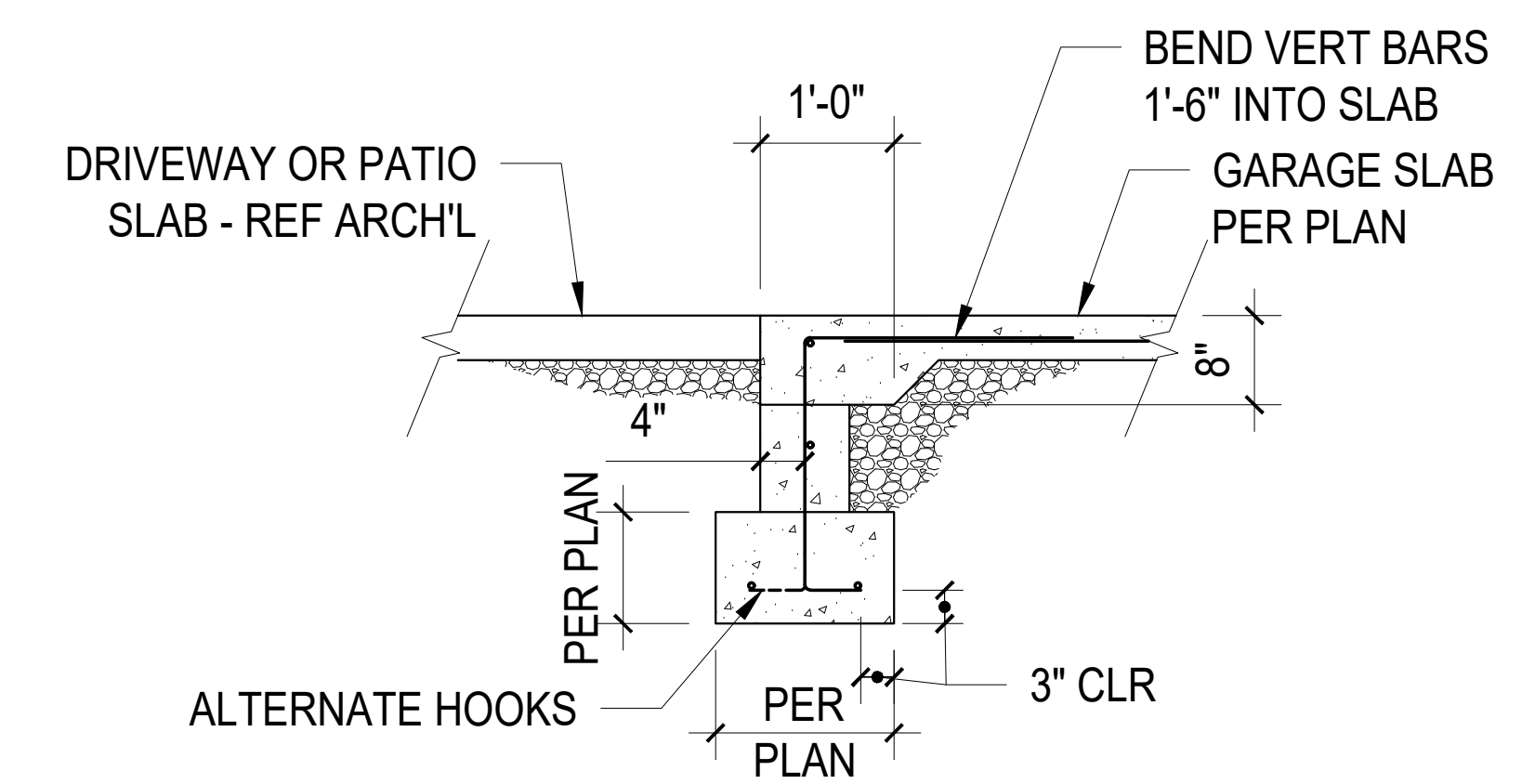
**111**  
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**109**  
S201 SCALE: 3/4" = 1'-0"



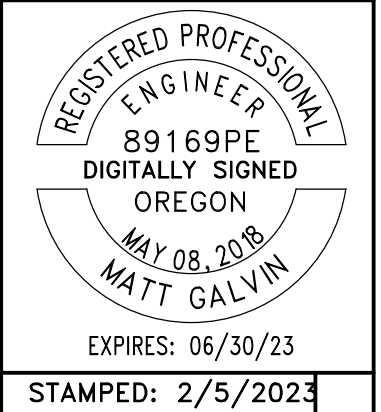
**106**  
S201 SCALE: 3/4" = 1'-0"



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

REV	DATE	BY	CHKD	REMARKS

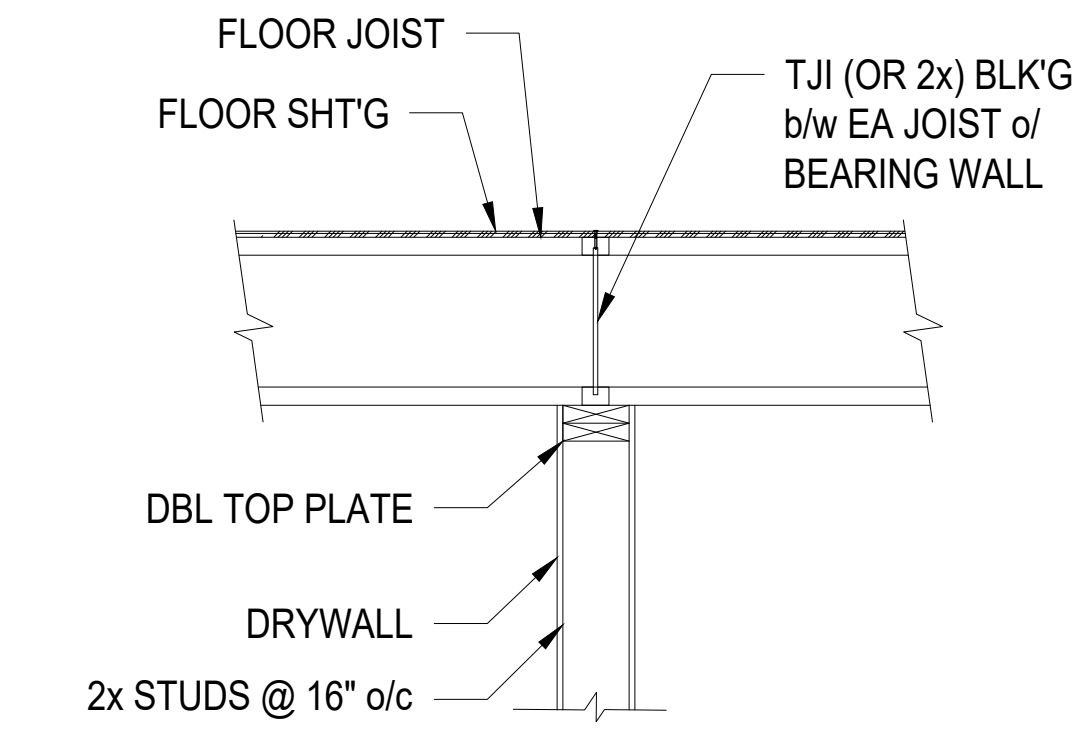
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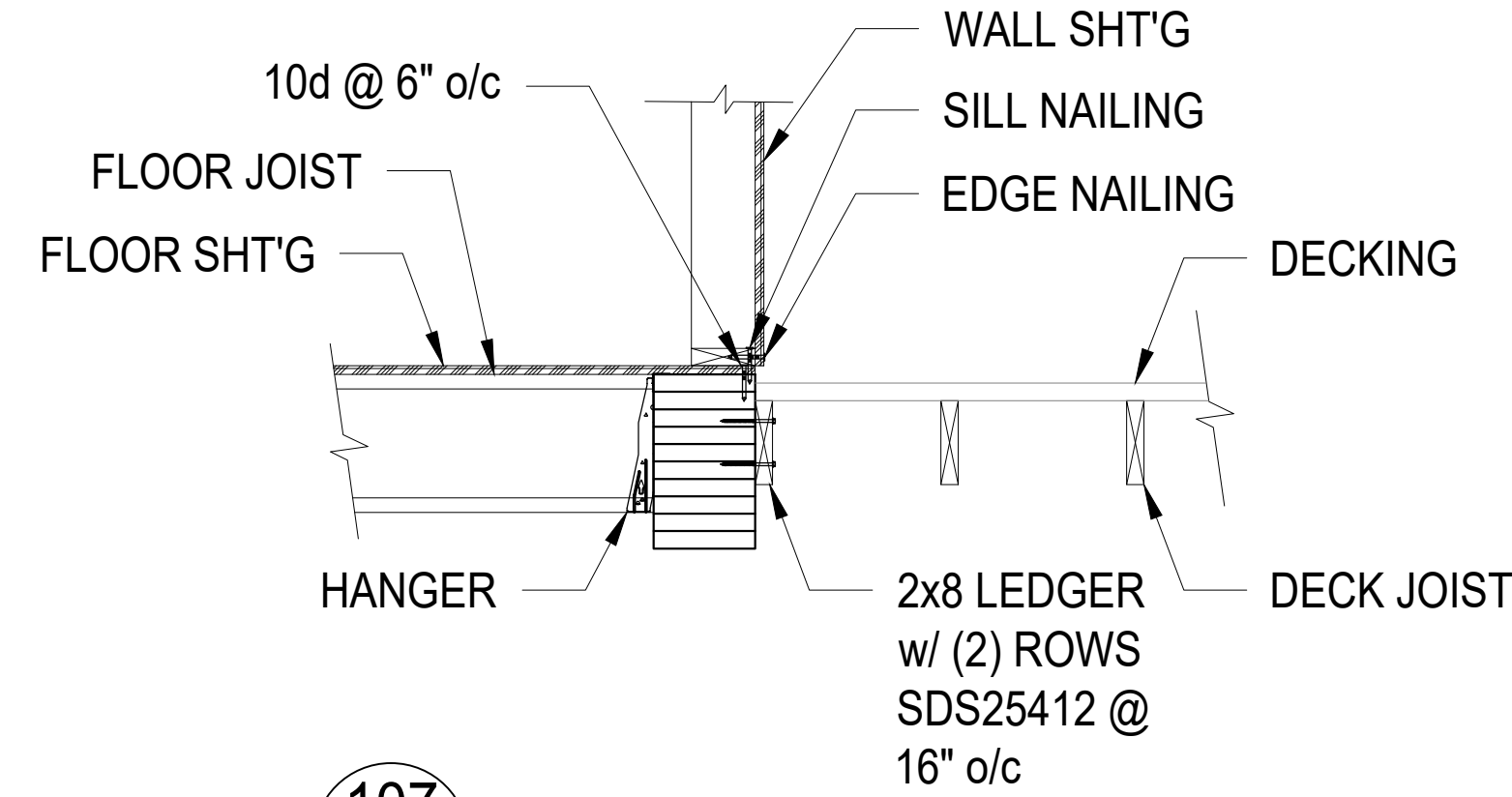
STAMPED: 2/5/2023

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

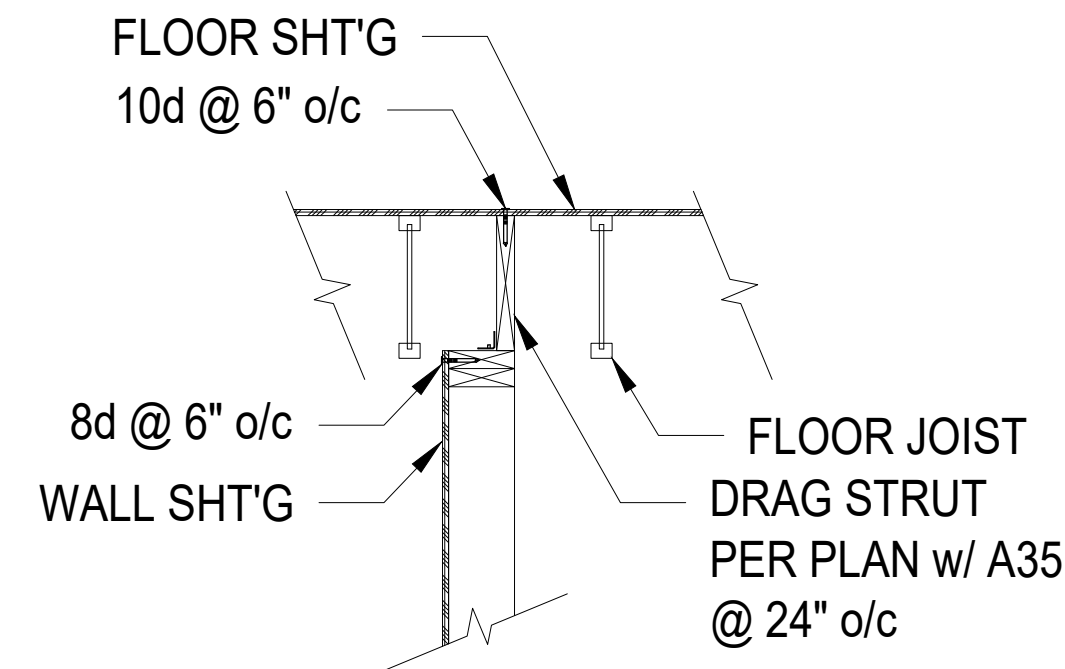
JOB NUMBER  
**22.037**  
 DRAWING NUMBER  
**S201**  
 REV



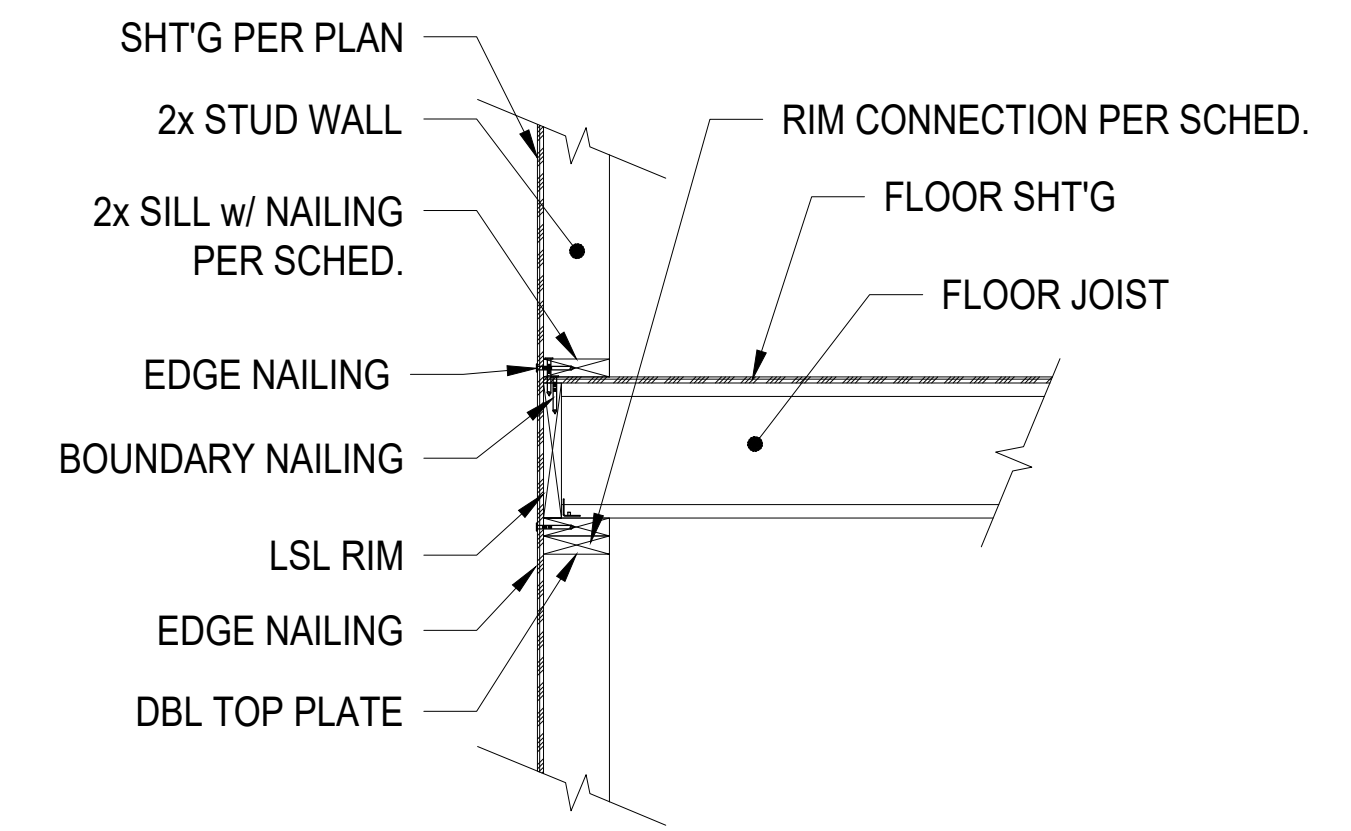
110  
S202 SCALE: 3/4" = 1'-0"



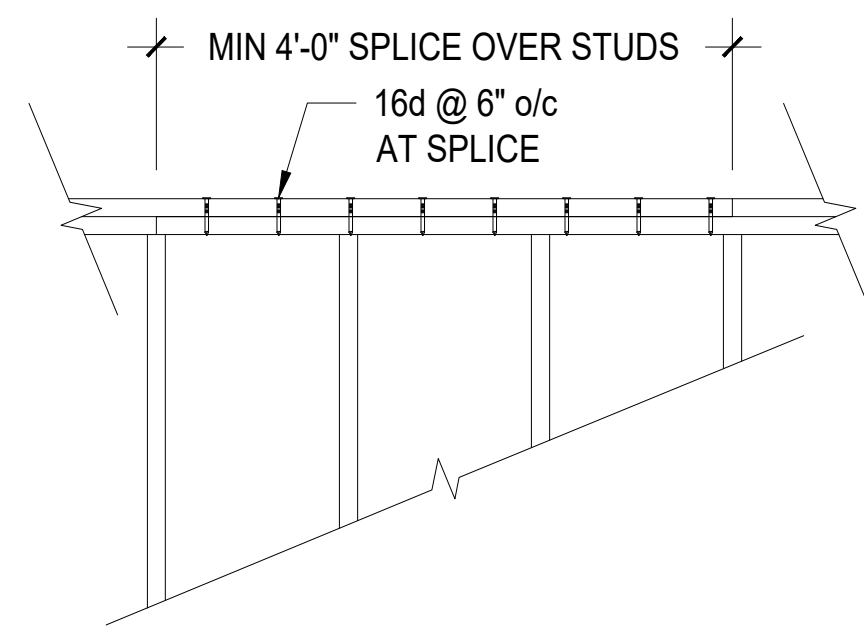
107  
S202 SCALE: 3/4" = 1'-0"



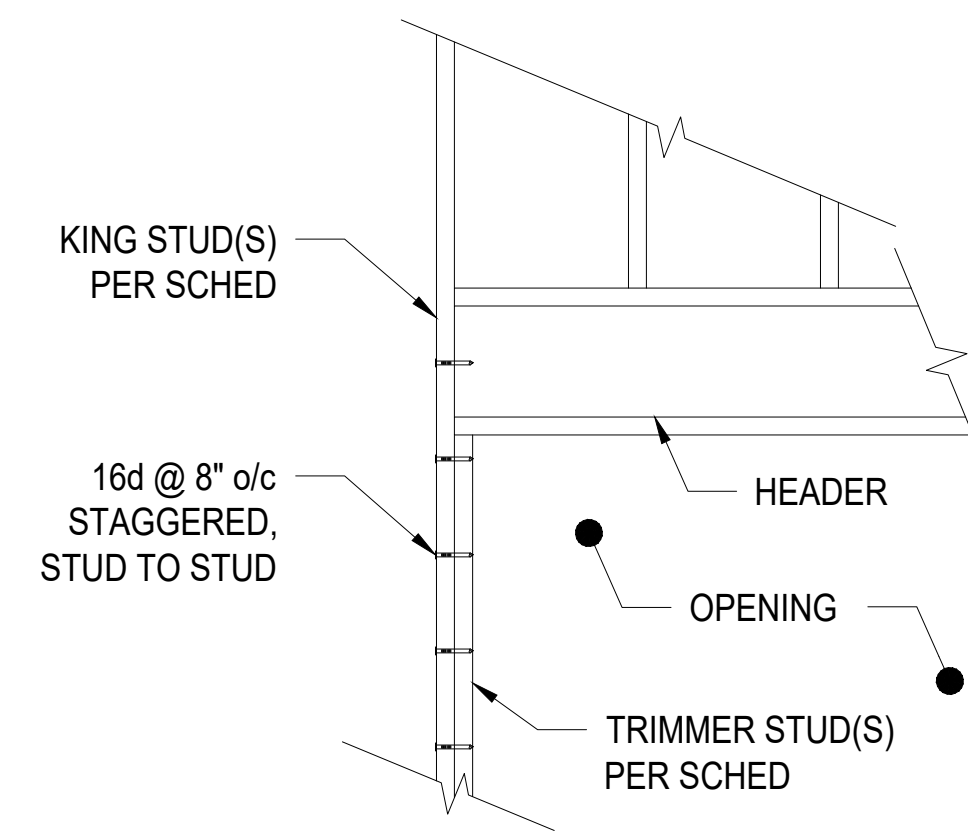
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S202 SCALE: 3/4" = 1'-0"



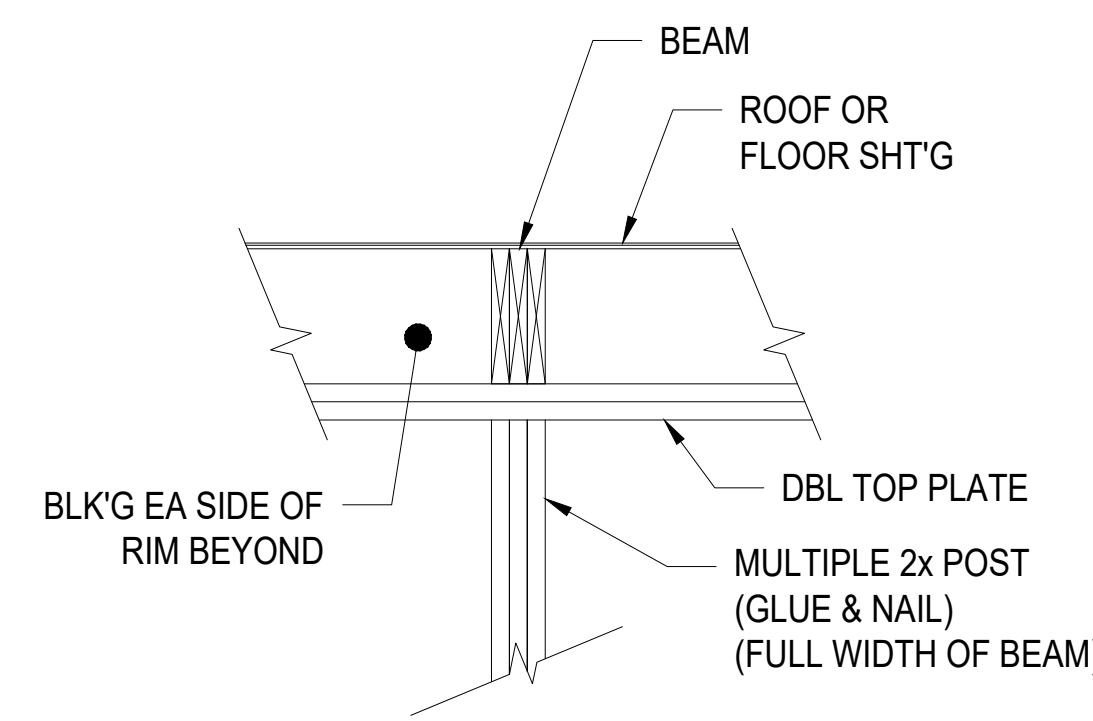
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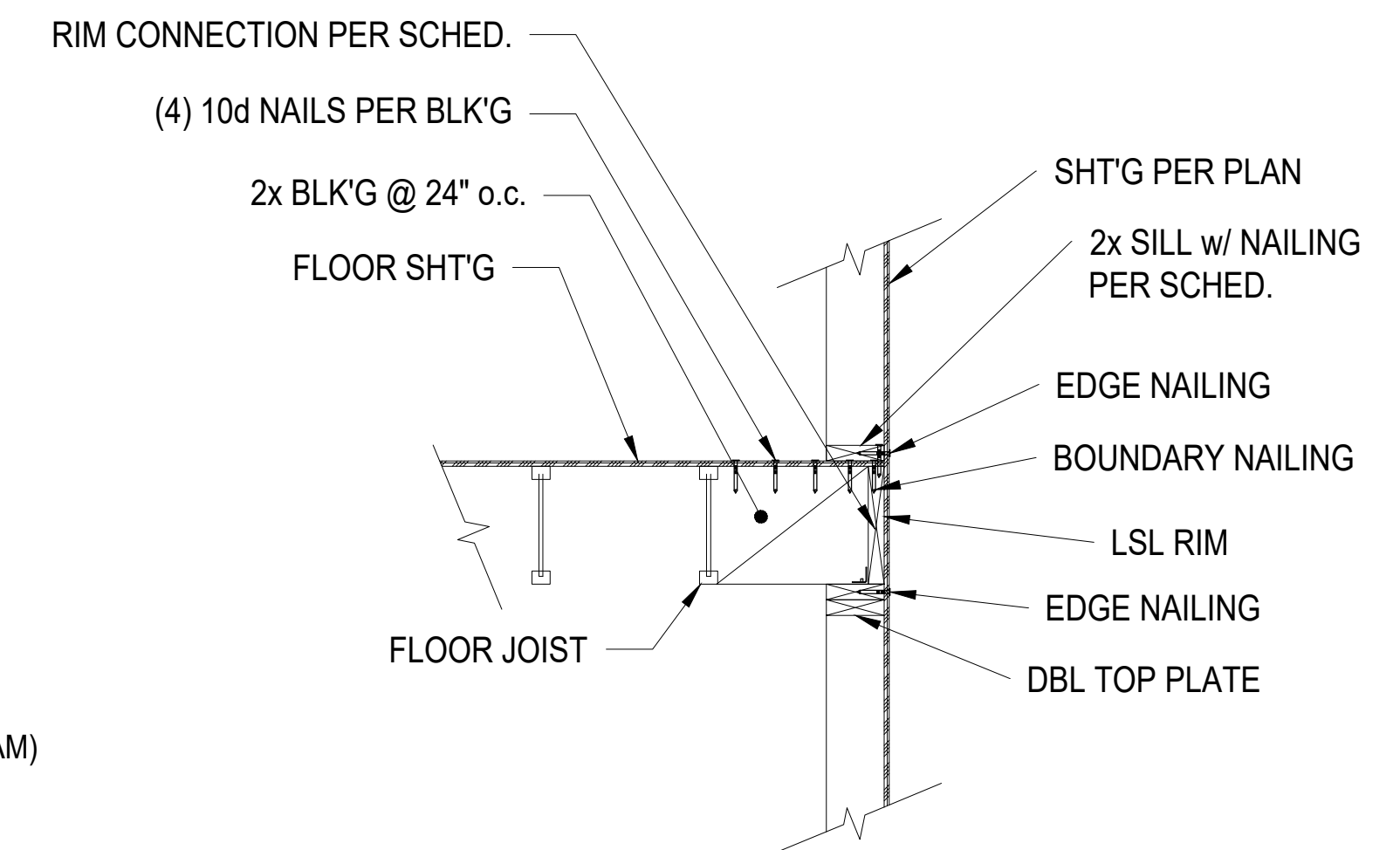
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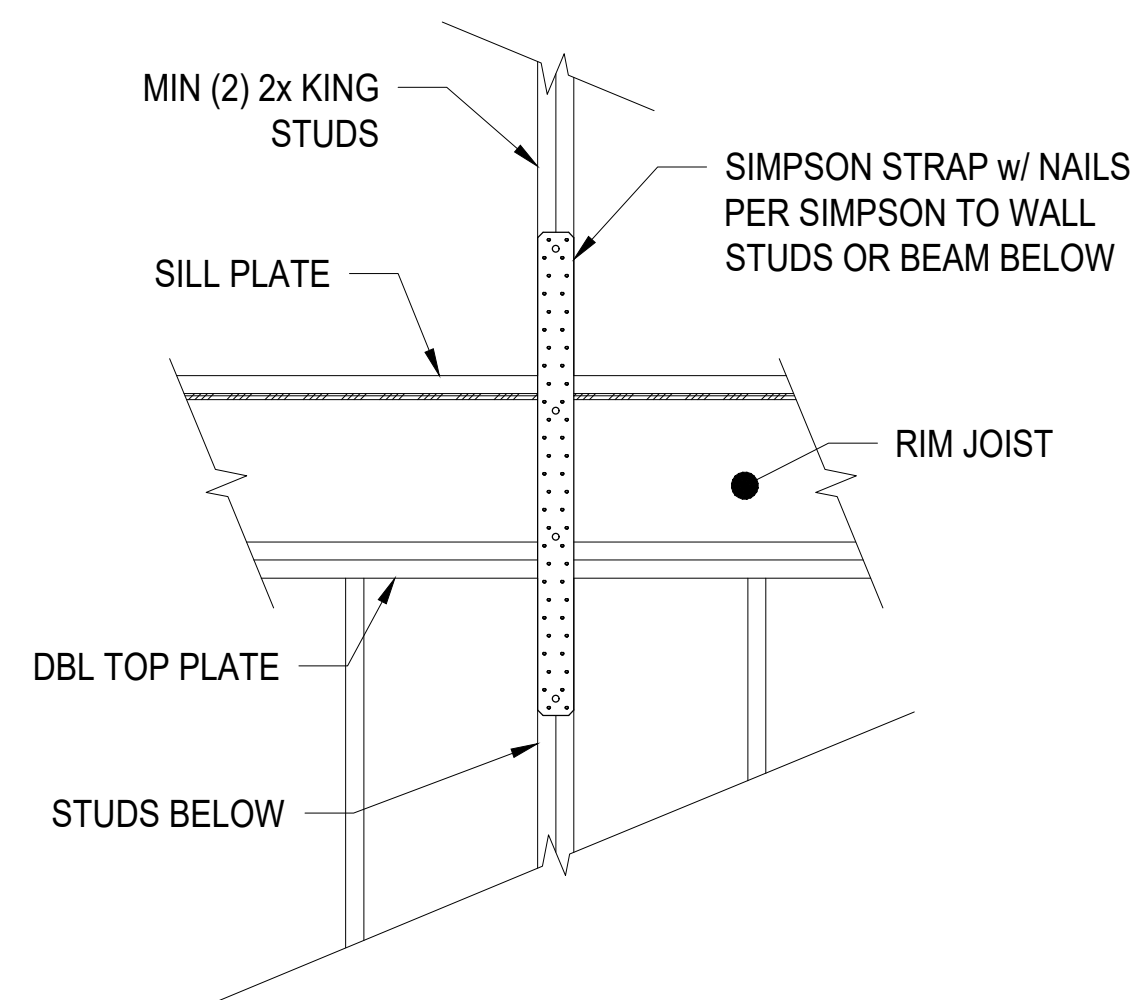
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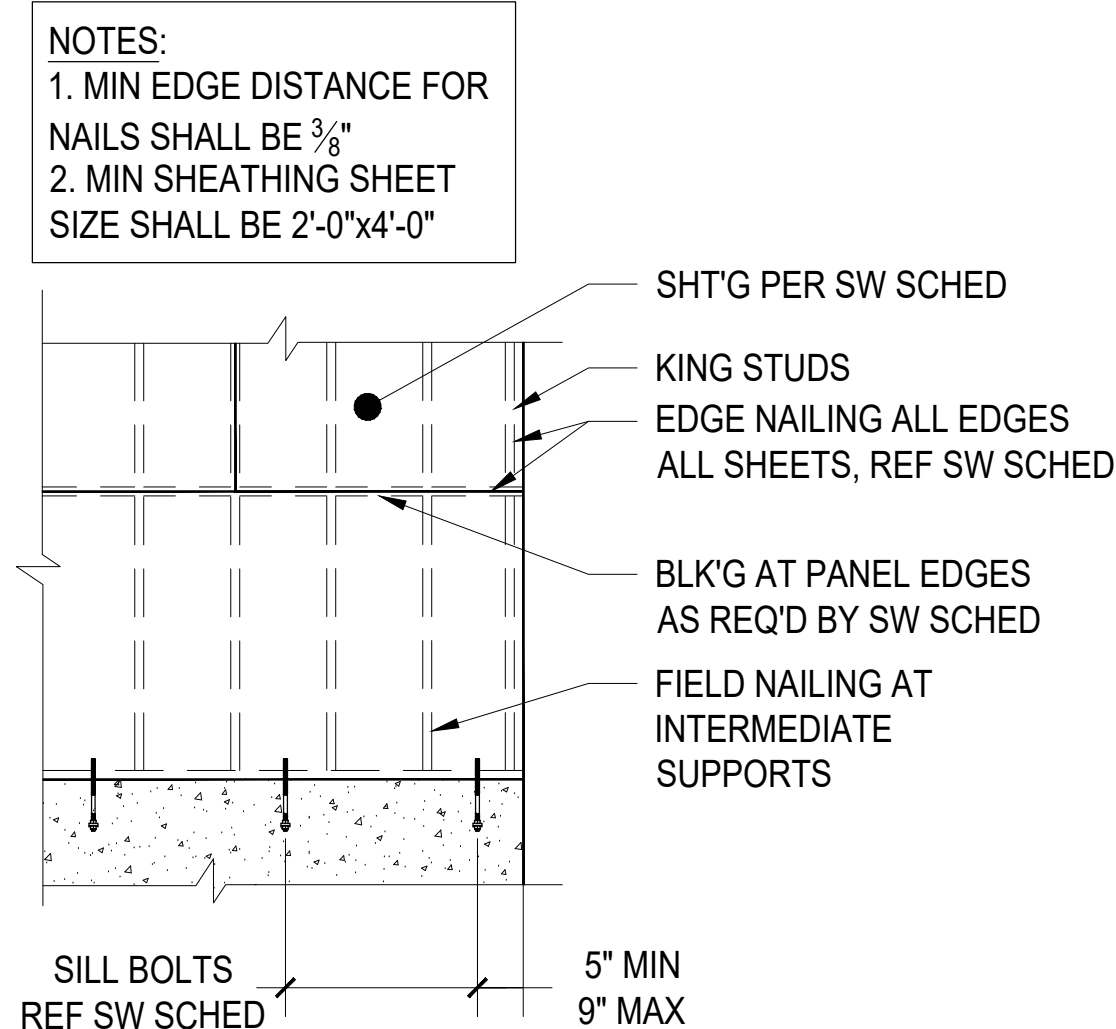
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S202 SCALE: 3/4" = 1'-0"



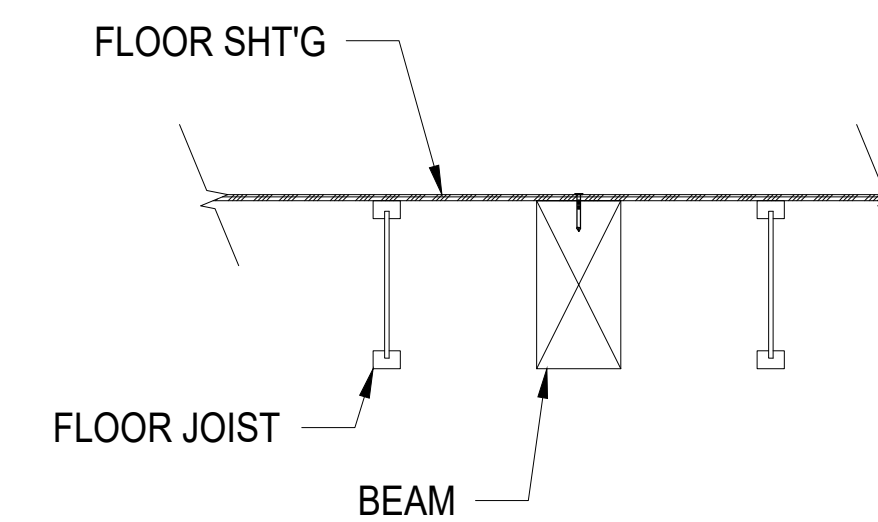
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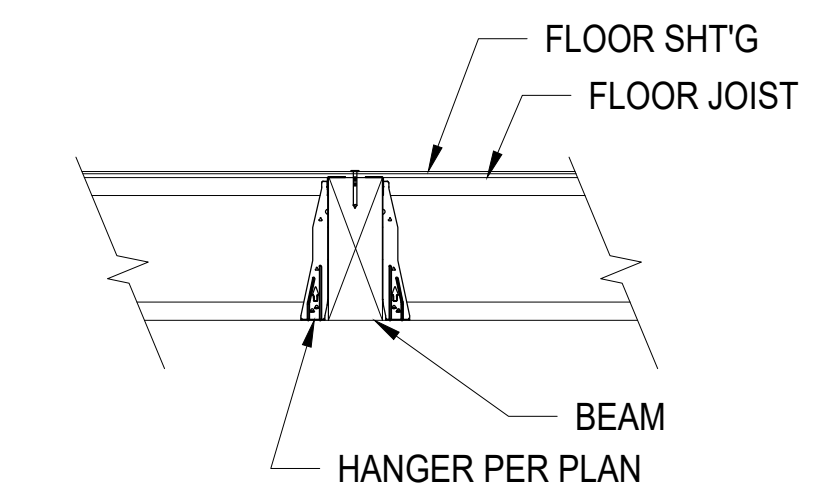
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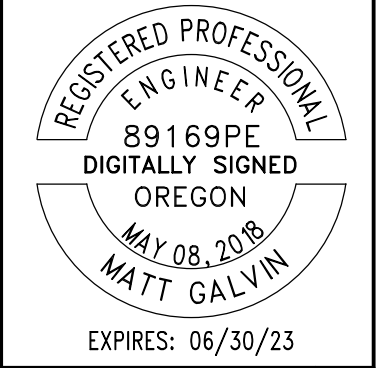
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103  
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REV#	DATE	BY	CHKD	REMARKS

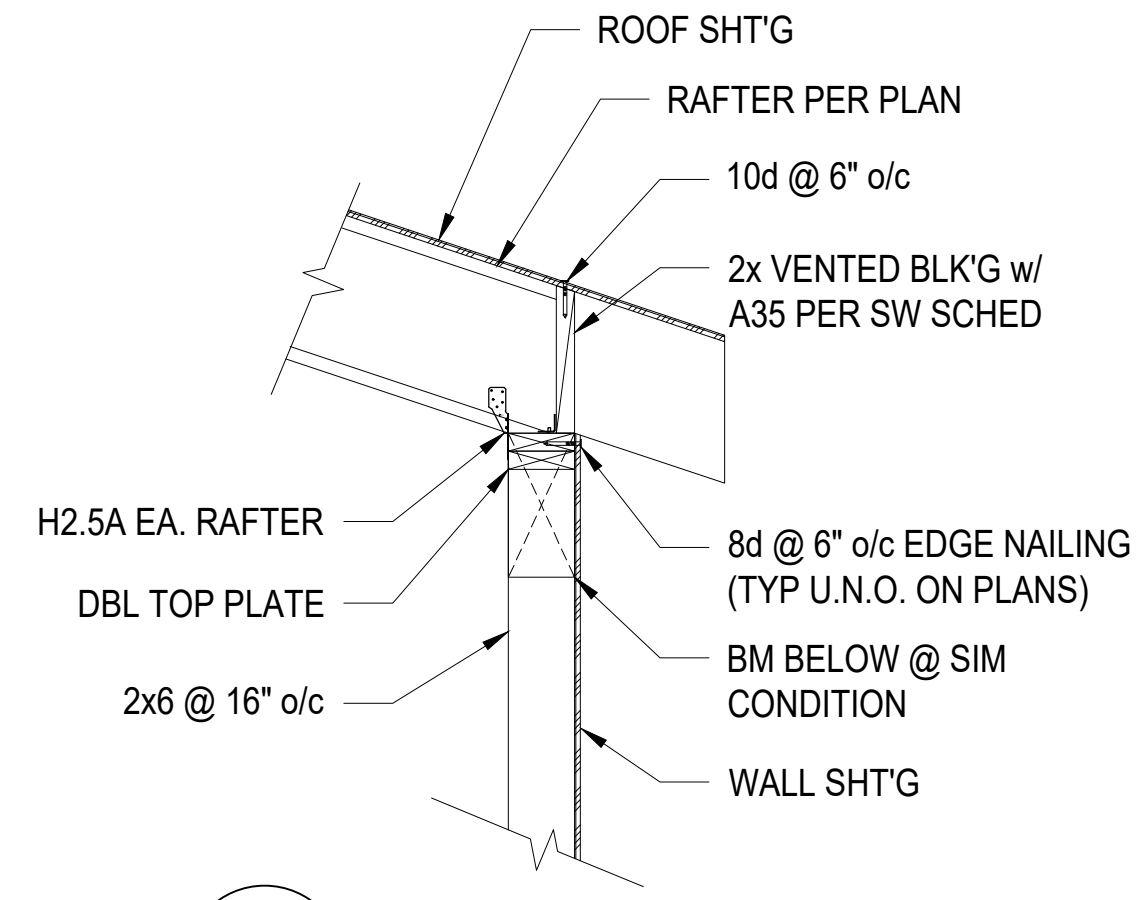
**MATT GALVIN, P.E.**  
 427 NW SKYLINE BOULEVARD  
 PORTLAND, OREGON 97229  
 503-484-6494  
 galvin.matt@gmail.com



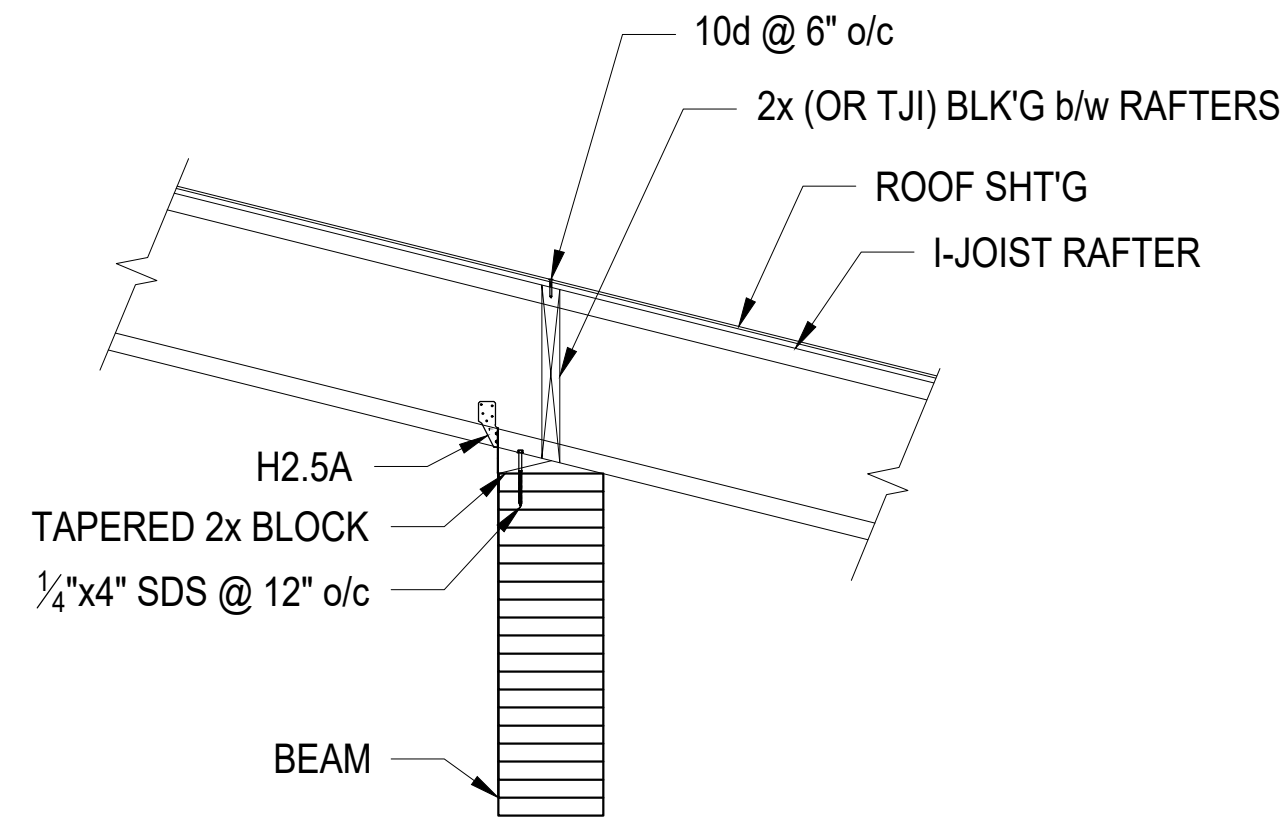
STAMPED: 2/5/2023

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

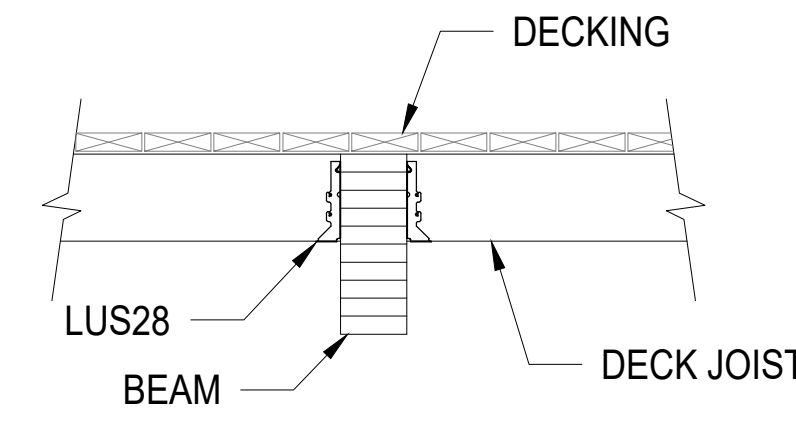
JOB NUMBER: 22.037  
 DRAWING NUMBER: S202  
 REV: S202



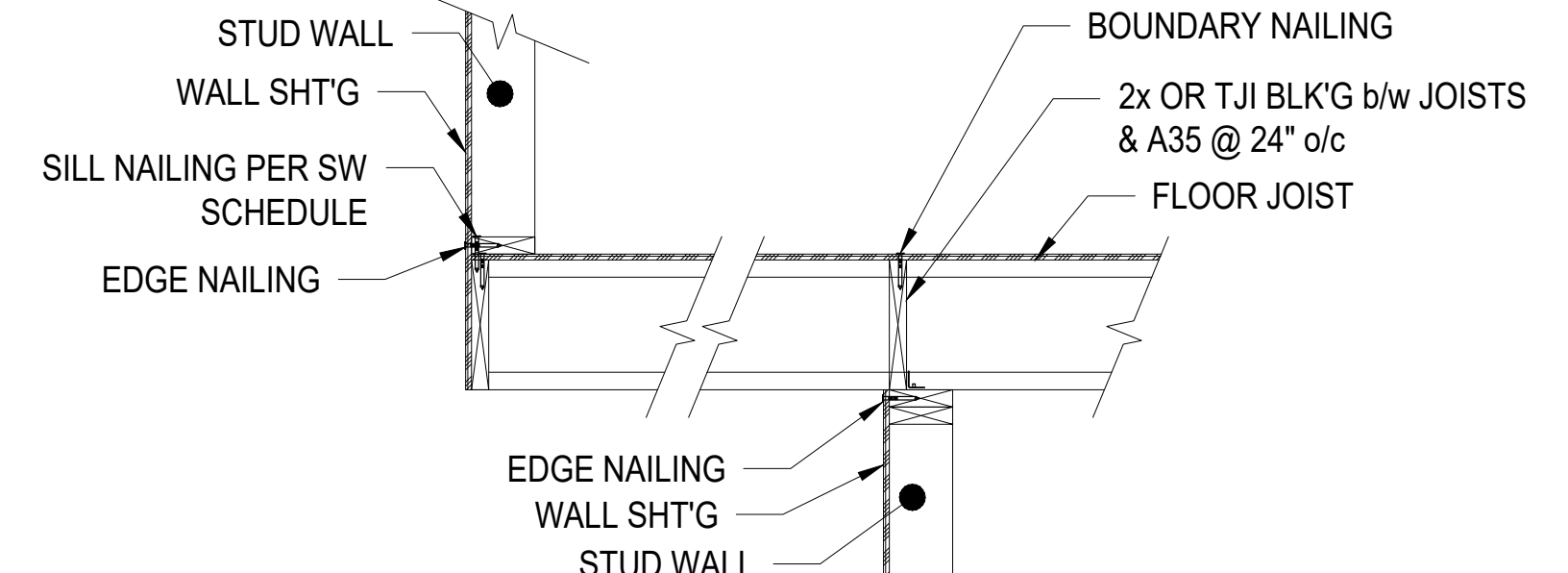
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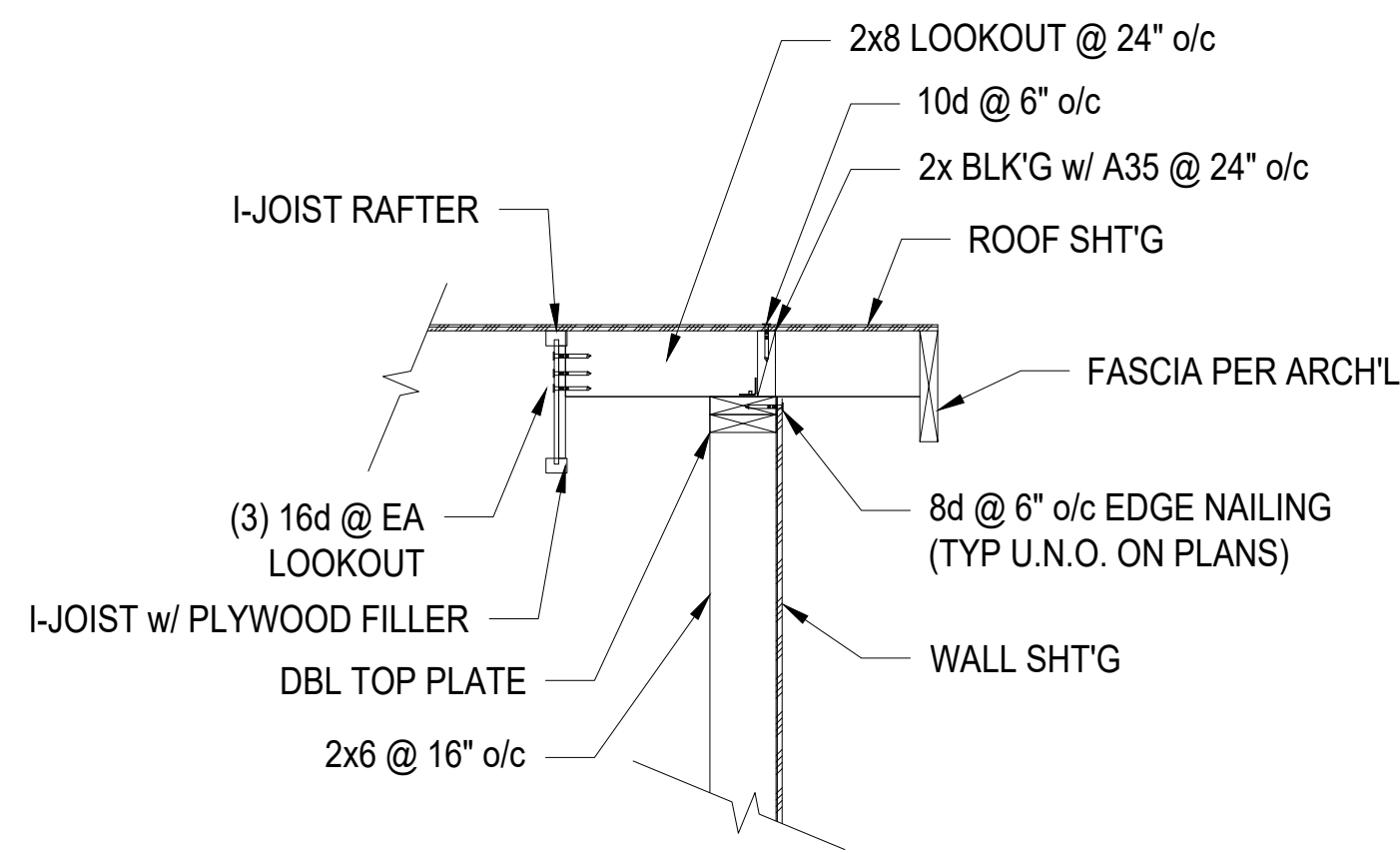
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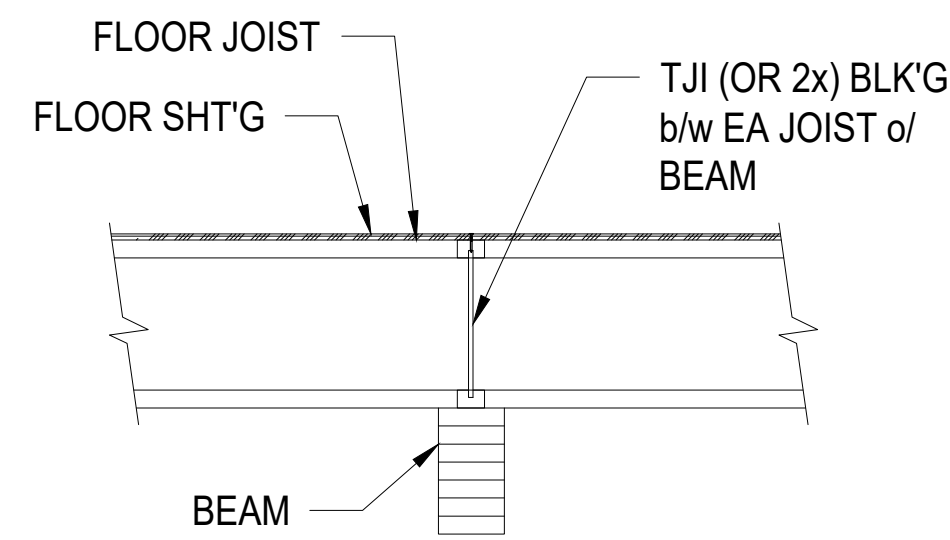
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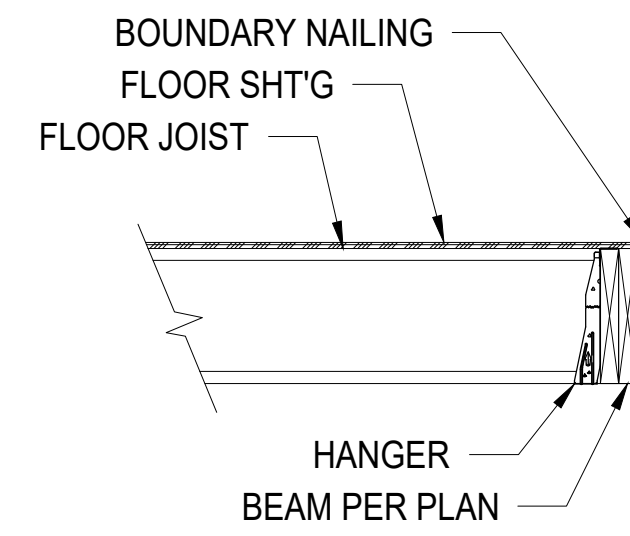
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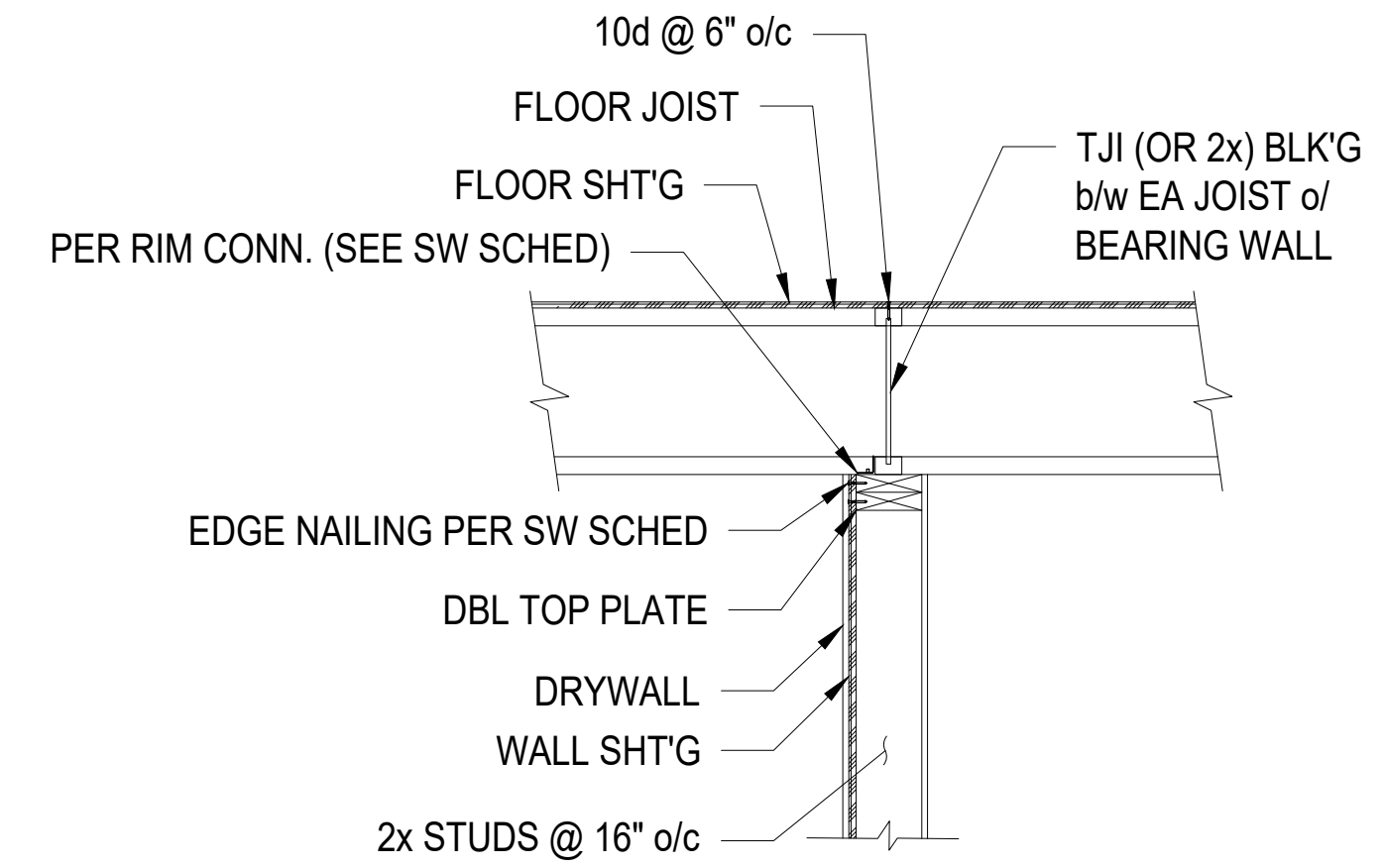
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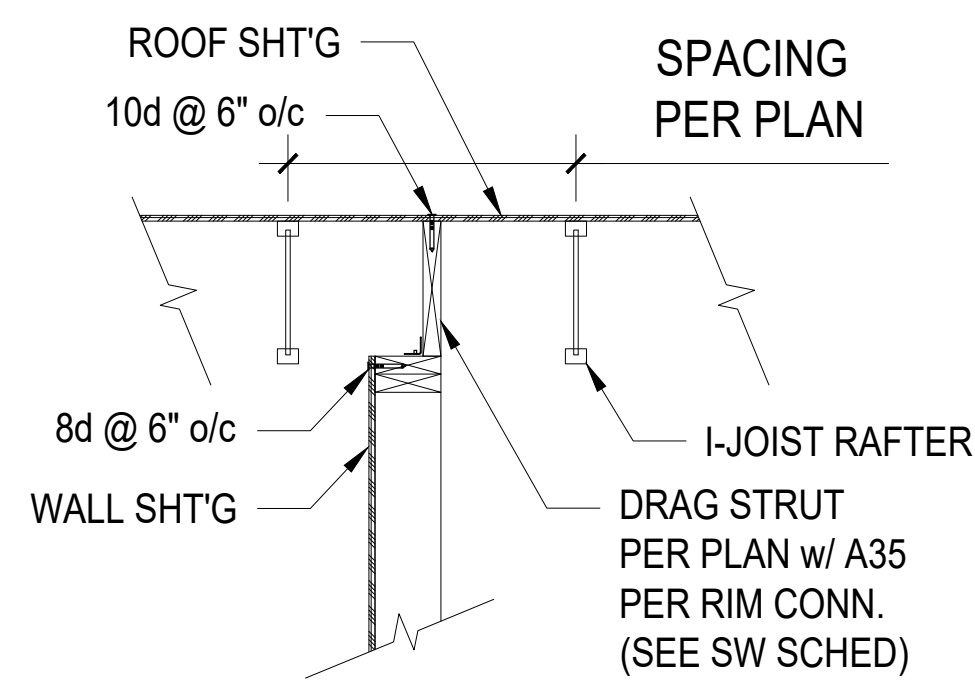
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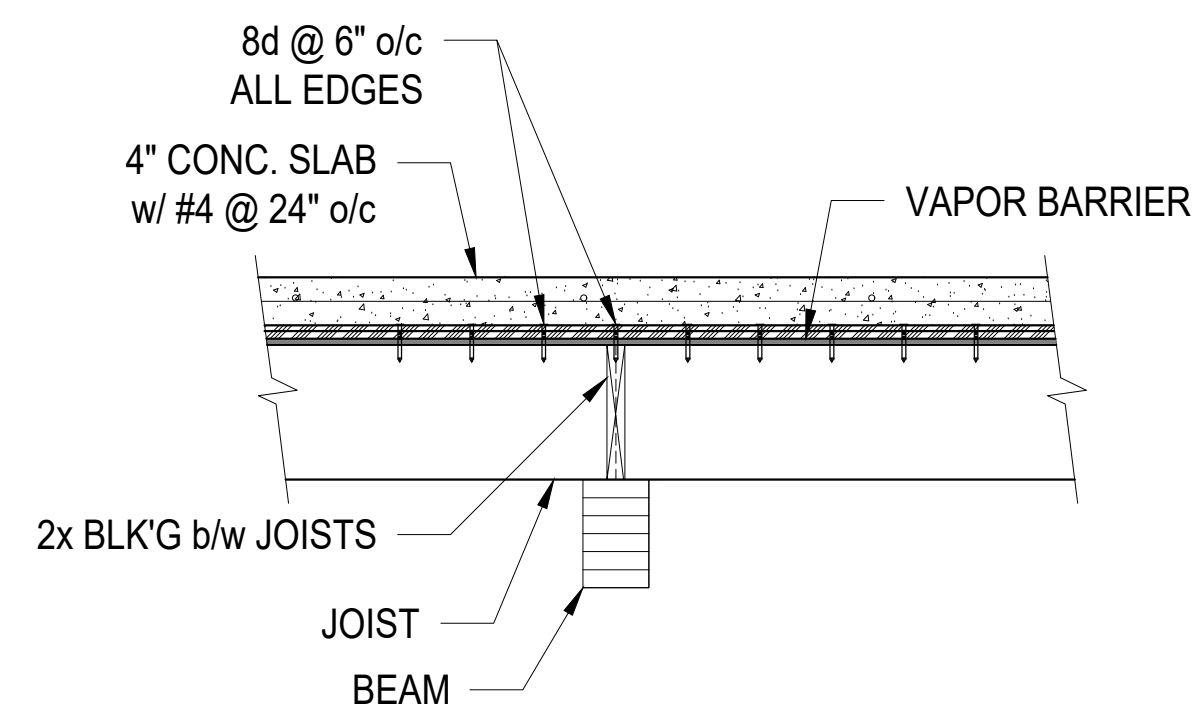
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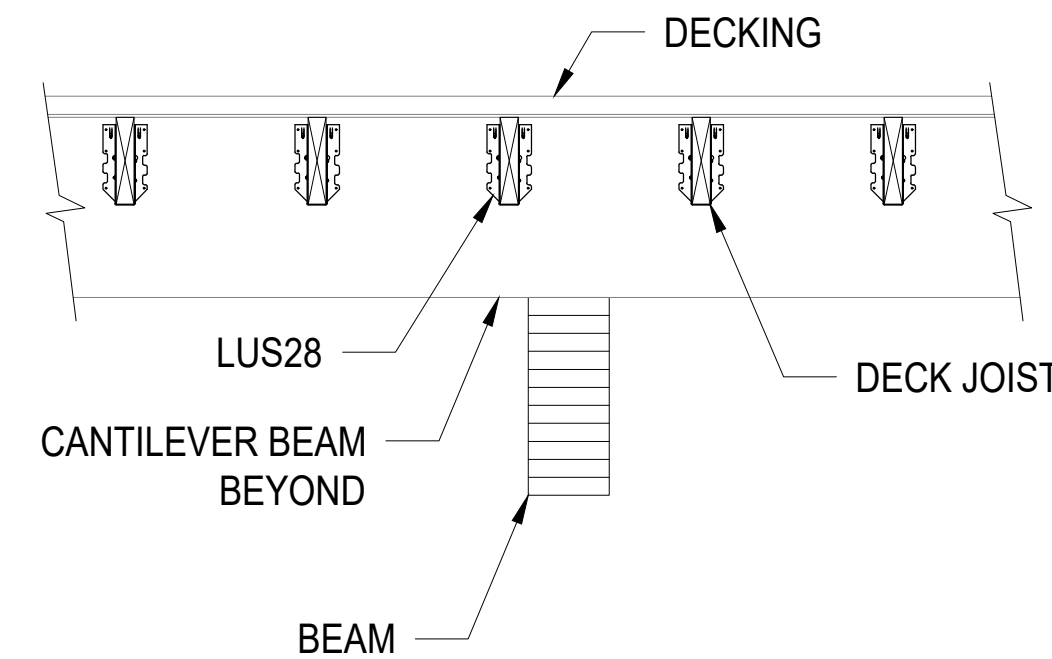
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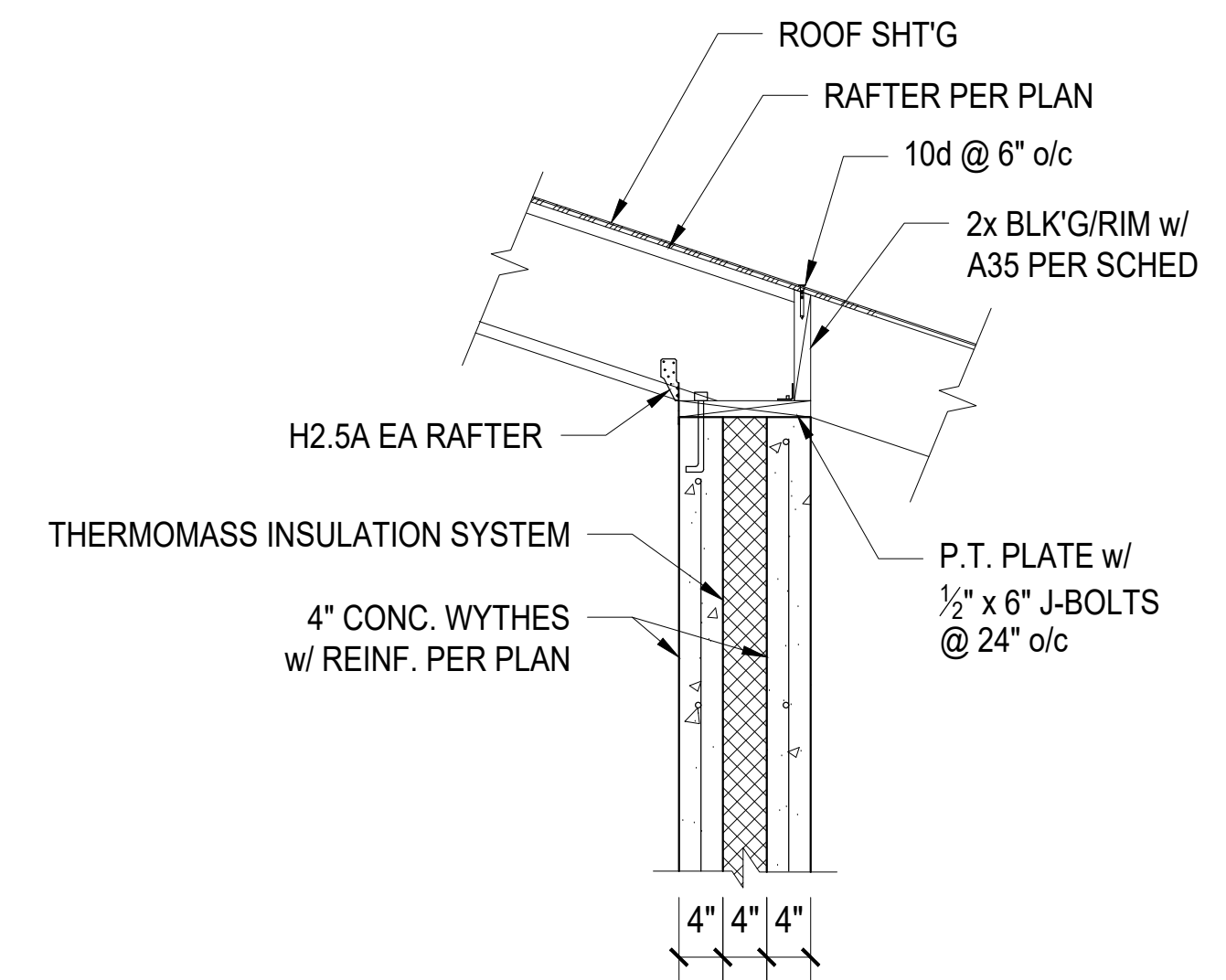
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109  
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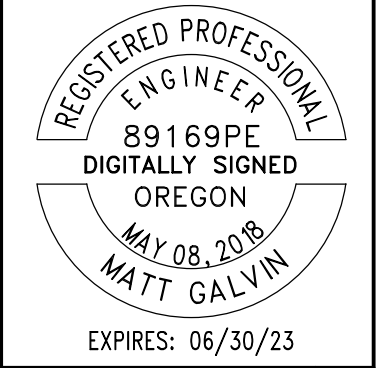
106  
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103  
S203 SCALE: 3/4" = 1'-0"

REV	DATE	BY	APP	REMARKS

**MATT GALVIN, P.E.**  
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 PORTLAND, OREGON 97229  
 503-484-6494  
 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**

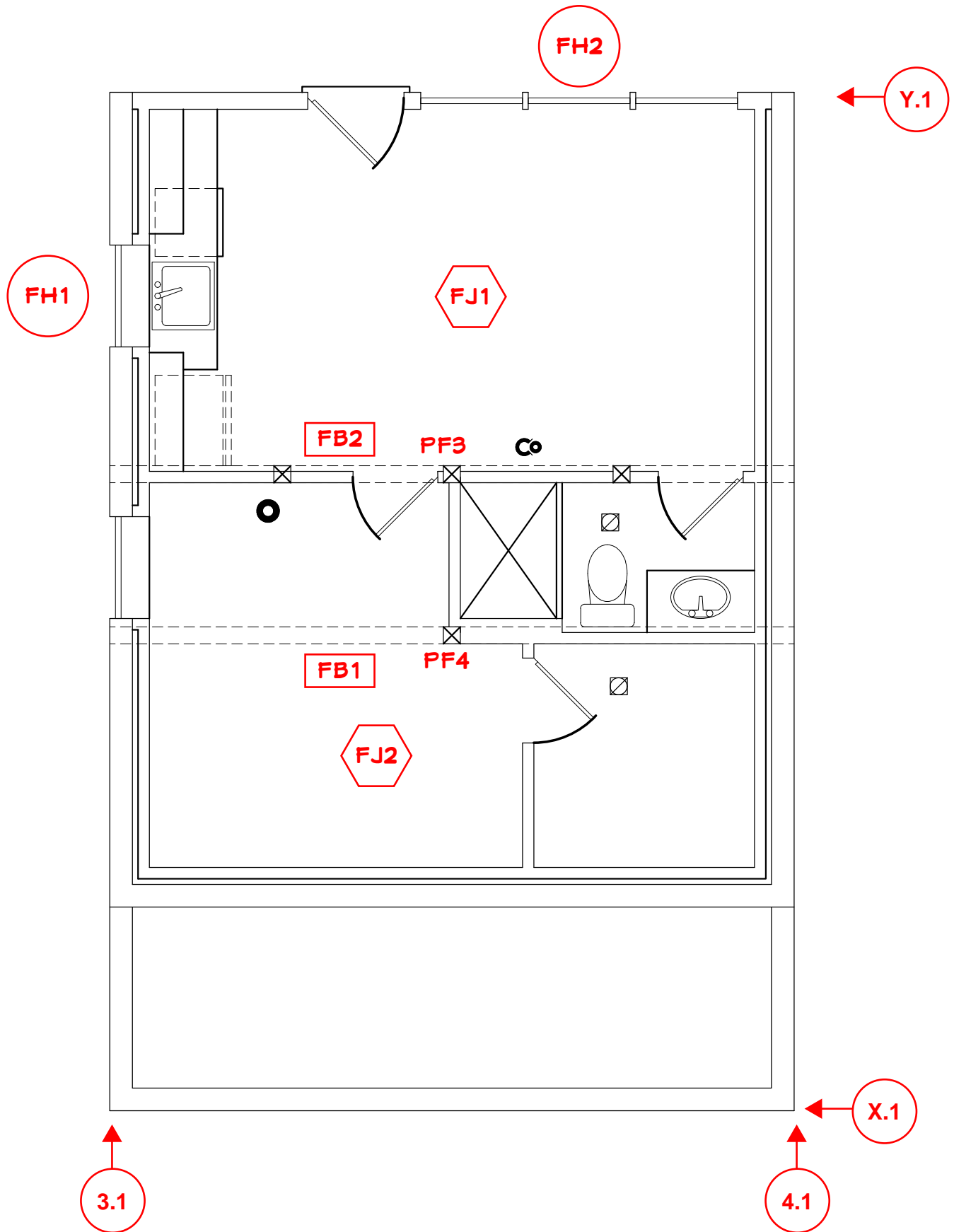
- 6.1 Seismic Importance Factor ( $I_e$ ) = 1.00  
6.2 Structure Risk Category = I  
6.3 Mapped Spectral Response Acceleration ( $S_s$ ) = 0.832  
6.4 Mapped Spectral Response Acceleration ( $S_1$ ) = 0.376  
6.5 Mapped Spectral Response Coefficient ( $S_{DS}$ ) = 0.666  
6.6 Mapped Spectral Response Coefficient ( $S_{D1}$ ) = 0.482  
6.7 Site Class = D  
6.8 Seismic Design Category = D  
6.9 Redundancy Factor ( $\rho$ ) = 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

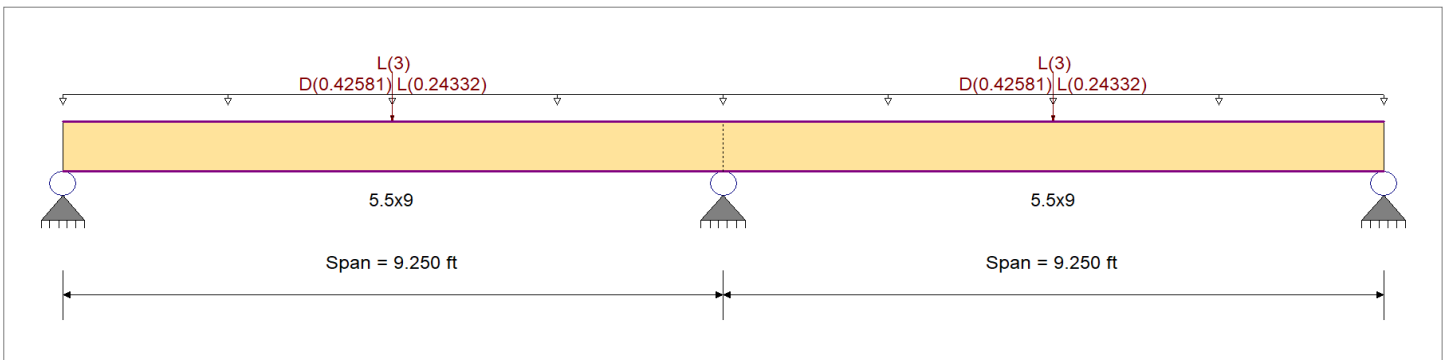
## Material Properties

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**

<b>Maximum Bending Stress Ratio</b>	=	<b>0.840</b>	1	<b>Maximum Shear Stress Ratio</b>	=	<b>0.629</b>	1
Section used for this span		<b>5.5x9</b>		Section used for this span		<b>5.5x9</b>	
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	
<b>Maximum Deflection</b>							
Max Downward Transient Deflection		0.151 in	Ratio = <b>737</b> >=360	Span: 2 : L Only, LL Comb Run (*L)			
Max Upward Transient Deflection		-0.062 in	Ratio = <b>1777</b> >=360	Span: 2 : L Only, LL Comb Run (L*)			
Max Downward Total Deflection		0.200 in	Ratio = <b>554</b> >=240	Span: 2 : +D+L+H, LL Comb Run (*L)			
Max Upward Total Deflection		-0.031 in	Ratio = <b>3551</b> >=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 <sub>t</sub>	CL <sub>x</sub>	C <sub>v</sub>	C <sub>fu</sub>	C <sub>i</sub>	C <sub>r</sub>	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	238.5
	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	238.5
+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	5.08	153.9	0.0	265.0
	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	5.08	153.9	0.0	265.0

# 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 <sub>t</sub>	CLx	C <sub>v</sub>	C <sub>fu</sub>	C <sub>i</sub>	C <sub>r</sub>	M	fb	F <sup>b</sup>	V	f <sub>v</sub>	F <sup>v</sup>
+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 <sub>t</sub>	CLx	C <sub>v</sub>	C <sub>fu</sub>	C <sub>i</sub>	C <sub>r</sub>	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

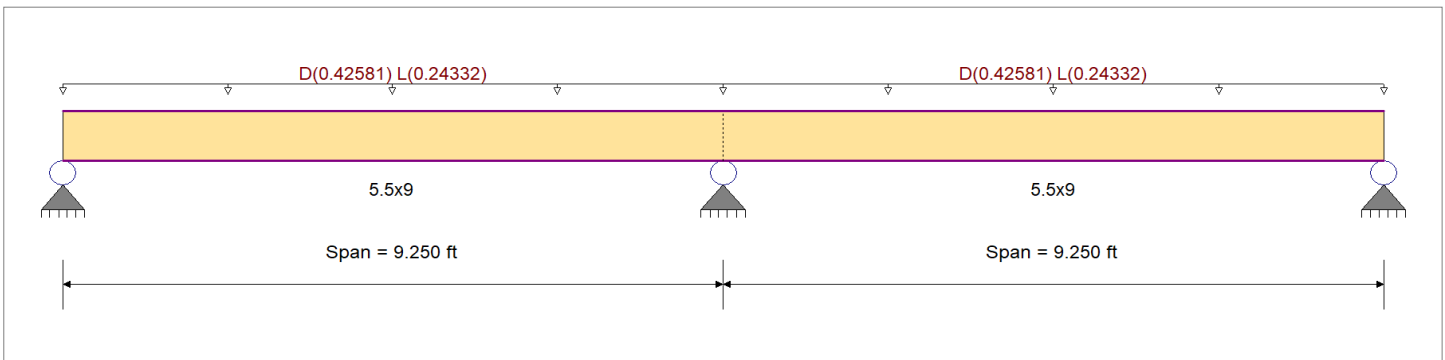
Analysis Method : Allowable Stress Design  
Load Combination : IBC 2018

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

Fb + 2,400.0 psi  
Fb - 2,400.0 psi  
Fc - Prll 1,650.0 psi  
Fc - Perp 650.0 psi  
Fv 265.0 psi  
Ft 1,100.0 psi

*E : Modulus of Elasticity*  
Ebend- xx 1,800.0ksi  
Eminbend - xx 950.0ksi  
Ebend- yy 1,600.0ksi  
Eminbend - yy 850.0ksi  
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 = 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**

<b>Maximum Bending Stress Ratio</b>	=	<b>0.490</b> : 1	<b>Maximum Shear Stress Ratio</b>	=	<b>0.393</b> : 1
Section used for this span	=	<b>5.5x9</b>	Section used for this span	=	<b>5.5x9</b>
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
<b>Maximum Deflection</b>					
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 <sub>t</sub>	CLx	C <sub>v</sub>	C <sub>fu</sub>	C <sub>i</sub>	C <sub>r</sub>	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	4.67	754.6	2,160.0	0.00	0.00	0.0	238.5
	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	4.67	754.6	2,160.0	2.21	66.9	238.5	
+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	5.97	964.9	2,400.0	0.00	0.00	0.0	265.0
	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	5.97	964.9	2,400.0	3.30	99.9	265.0	
+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	5.97	964.9	2,400.0	0.00	0.00	0.0	265.0

# 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 <sub>t</sub>	CLx	C <sub>v</sub>	C <sub>fu</sub>	C <sub>i</sub>	C <sub>r</sub>	M	fb	F'b	V	f <sub>v</sub>
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

(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 <sub>t</sub>	CLx	C <sub>v</sub>	C <sub>fu</sub>	C <sub>i</sub>	C <sub>r</sub>	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 (LL)	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)

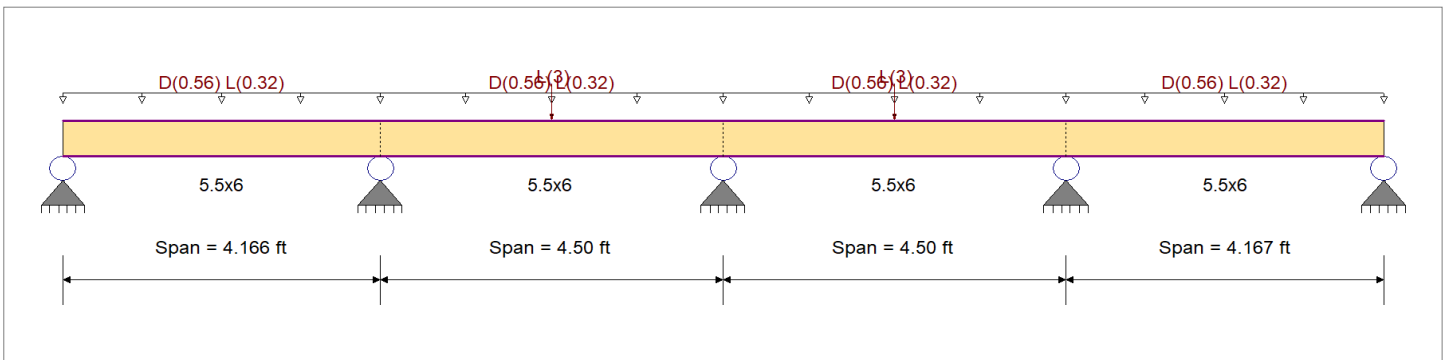
## CODE REFERENCES

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**

<b>Maximum Bending Stress Ratio</b>	=	<b>0.564</b> : 1	<b>Maximum Shear Stress Ratio</b>	=	<b>0.592</b> : 1
Section used for this span		<b>5.5x6</b>	Section used for this span		<b>5.5x6</b>
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
<b>Maximum Deflection</b>					
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*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 (*	0.982	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

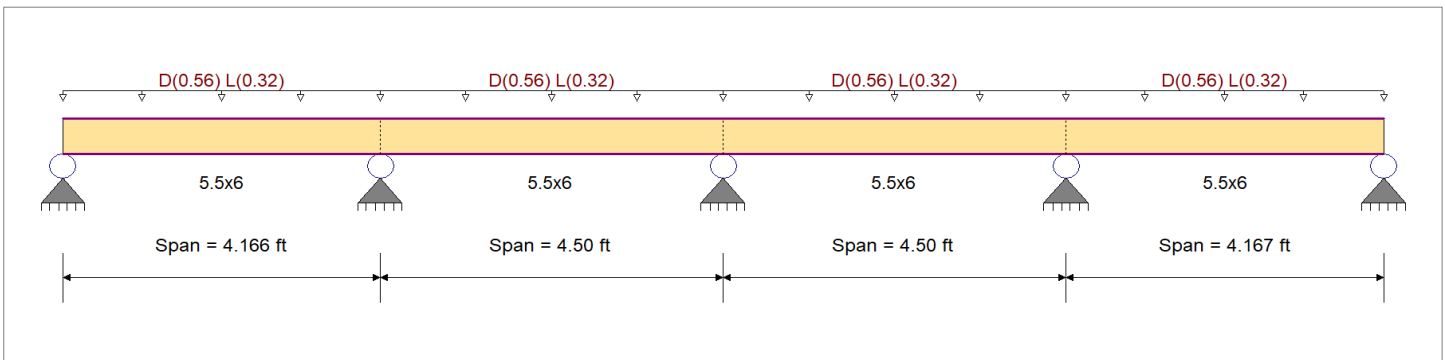
## Material Properties

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**

<b>Maximum Bending Stress Ratio</b>	=	<b>0.276</b>	1	<b>Maximum Shear Stress Ratio</b>	=	<b>0.320</b>	: 1
Section used for this span		<b>5.5x6</b>		Section used for this span		<b>5.5x6</b>	
fb: Actual	=	662.92	psi	fv: Actual	=	84.76	psi
F'b	=	2,400.00	psi	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	=	4.500	ft	Location of maximum on span	=	4.500	ft
Span # where maximum occurs	=	Span # 3		Span # where maximum occurs	=	Span # 3	
<b>Maximum Deflection</b>							
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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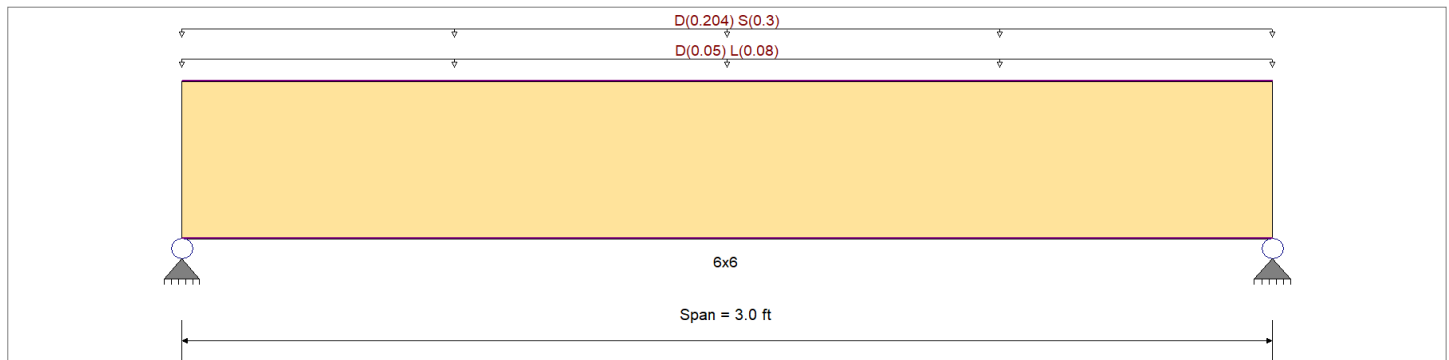
**DESCRIPTION:** FH1

## 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**

<b>Maximum Bending Stress Ratio</b>	=	<b>0.261</b> : 1	<b>Maximum Shear Stress Ratio</b>	=	<b>0.139</b> : 1
Section used for this span		<b>6x6</b>	Section used for this span		<b>6x6</b>
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
<b>Maximum Deflection</b>					
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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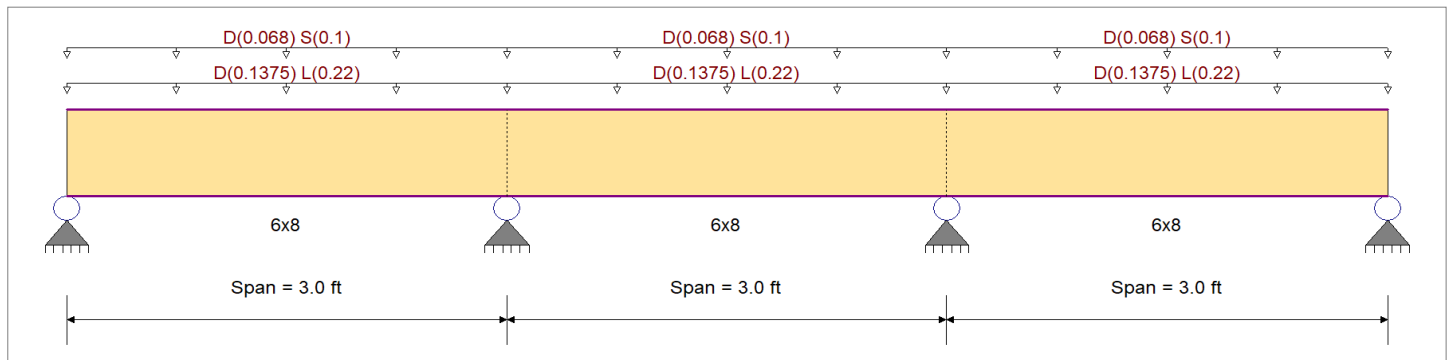
**DESCRIPTION:** FH2

## 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**

<b>Maximum Bending Stress Ratio</b>	=	<b>0.099</b> : 1	<b>Maximum Shear Stress Ratio</b>	=	<b>0.103</b> : 1
Section used for this span		<b>6x8</b>	Section used for this span		<b>6x8</b>
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
<b>Maximum Deflection</b>					
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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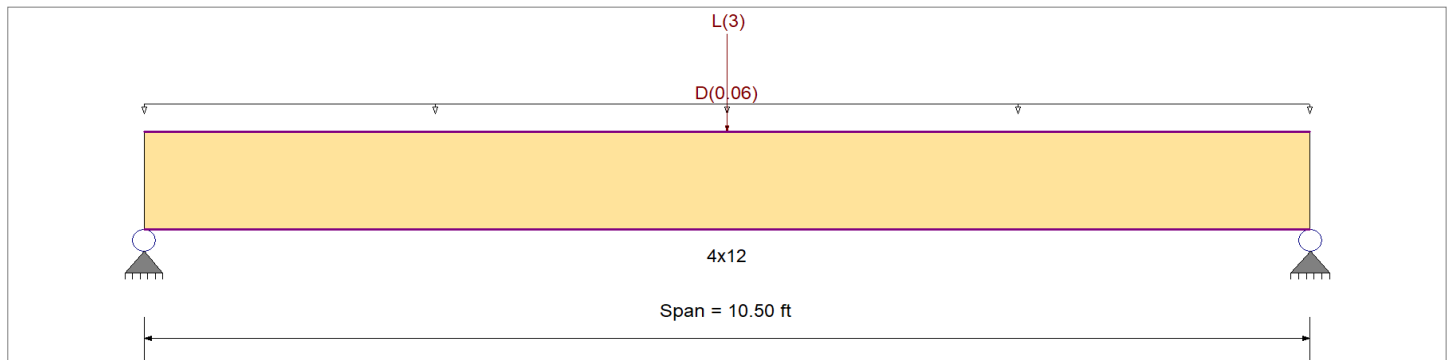
**DESCRIPTION:** FJ1 (Concentrated Load)

## 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	
	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 ksf, Tributary Width = 1.0 ft, (FLOOR)  
Point Load : L = 3.0 k @ 5.250 ft, (Garage Pt Load)

## DESIGN SUMMARY

**Design OK**

<b>Maximum Bending Stress Ratio</b>	=	<b>0.932</b>	1	<b>Maximum Shear Stress Ratio</b>	=	<b>0.372</b>	: 1
Section used for this span		<b>4x12</b>		Section used for this span		<b>4x12</b>	
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	
<b>Maximum Deflection</b>							
Max Downward Transient Deflection	0.168 in	Ratio =	<b>749</b>	>=360	Span: 1 : L Only		
Max Upward Transient Deflection	0 in	Ratio =	<b>0</b>	<360	n/a		
Max Downward Total Deflection	0.190 in	Ratio =	<b>662</b>	>=240	Span: 1 : +D+L		
Max Upward Total Deflection	0 in	Ratio =	<b>0</b>	<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 <sub>t</sub>	CLx	C <sub>F</sub>	C <sub>fu</sub>	C <sub>i</sub>	C <sub>r</sub>	M	fb	F'b	V	fv	F'v	
D Only	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	0.0	0.00	0.0	0.0
+D+L	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	0.0
+D+0.750L	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	0.0
+0.60D	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	0.0

**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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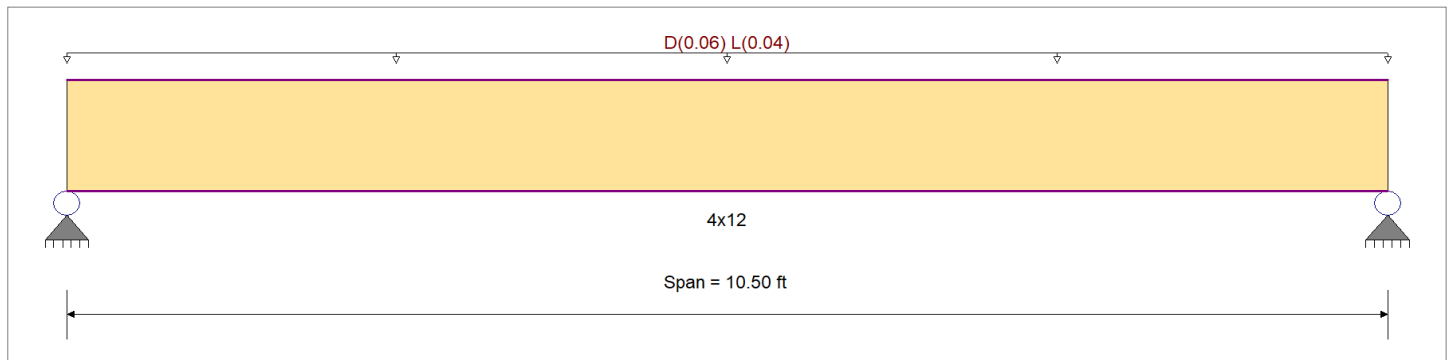
**DESCRIPTION:** FJ1 (Distributed Load)

### 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**

<b>Maximum Bending Stress Ratio</b>	=	<b>0.197</b> : 1	<b>Maximum Shear Stress Ratio</b>	=	<b>0.092</b> : 1
Section used for this span		<b>4x12</b>	Section used for this span		<b>4x12</b>
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
<b>Maximum Deflection</b>					
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 <sub>t</sub>	CLx	C <sub>F</sub>	C <sub>fu</sub>	C <sub>i</sub>	C <sub>r</sub>	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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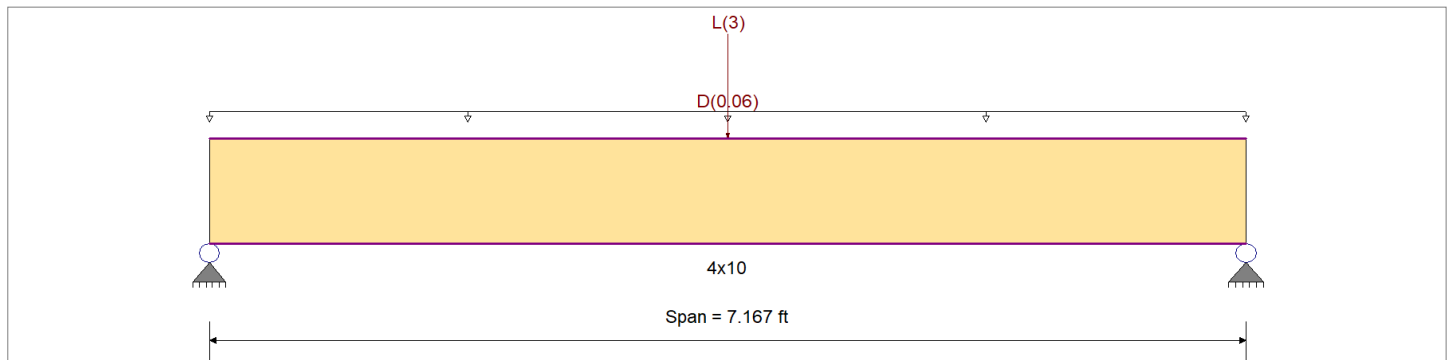
**DESCRIPTION:** FJ2 (Concentrated Load)

## 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**

<b>Maximum Bending Stress Ratio</b>	=	<b>0.836</b>	1	<b>Maximum Shear Stress Ratio</b>	=	<b>0.430</b>	: 1
Section used for this span		<b>4x10</b>		Section used for this span		<b>4x10</b>	
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	
<b>Maximum Deflection</b>							
Max Downward Transient Deflection		0.096 in	Ratio =	<b>894</b>	>=360	Span: 1 : L Only	
Max Upward Transient Deflection		0 in	Ratio =	<b>0</b>	<360	n/a	
Max Downward Total Deflection		0.105 in	Ratio =	<b>820</b>	>=240	Span: 1 : +D+L	
Max Upward Total Deflection		0 in	Ratio =	<b>0</b>	<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 <sub>t</sub>	CLx	C <sub>F</sub>	C <sub>fu</sub>	C <sub>i</sub>	C <sub>r</sub>	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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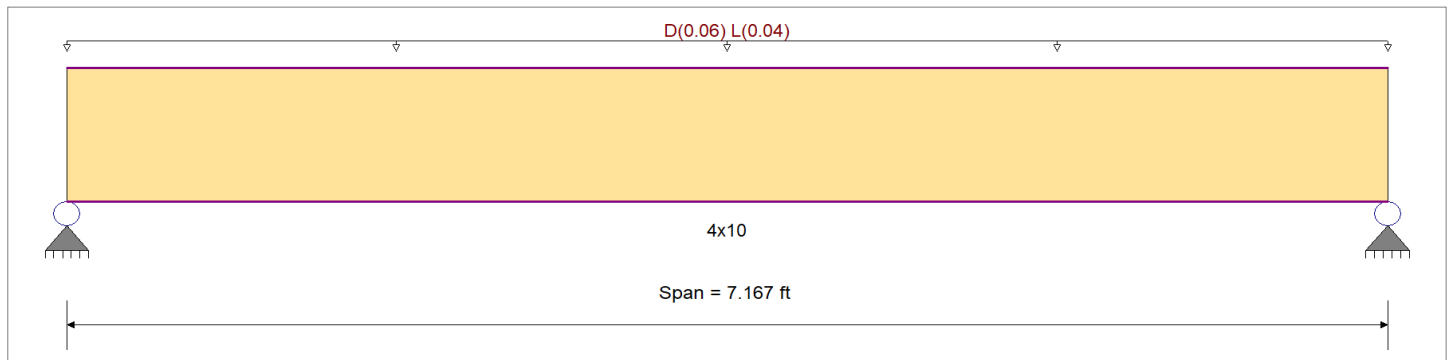
**DESCRIPTION:** FJ2 (Distributed Load)

### 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	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, L = 0.040 ksf, Tributary Width = 1.0 ft, (FLOOR)

### DESIGN SUMMARY

**Design OK**

<b>Maximum Bending Stress Ratio</b>	=	<b>0.093</b> 1	<b>Maximum Shear Stress Ratio</b>	=	<b>0.073</b> : 1
Section used for this span		<b>4x10</b>	Section used for this span		<b>4x10</b>
fb: Actual	=	154.35 psi	fv: Actual	=	13.09 psi
F'b	=	1,656.00 psi	F'v	=	180.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	3.583 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1
<b>Maximum Deflection</b>					
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 <sub>t</sub>	CLx	C <sub>F</sub>	C <sub>fu</sub>	C <sub>i</sub>	C <sub>r</sub>	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

(c) ENERCALC INC 1983-2022

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

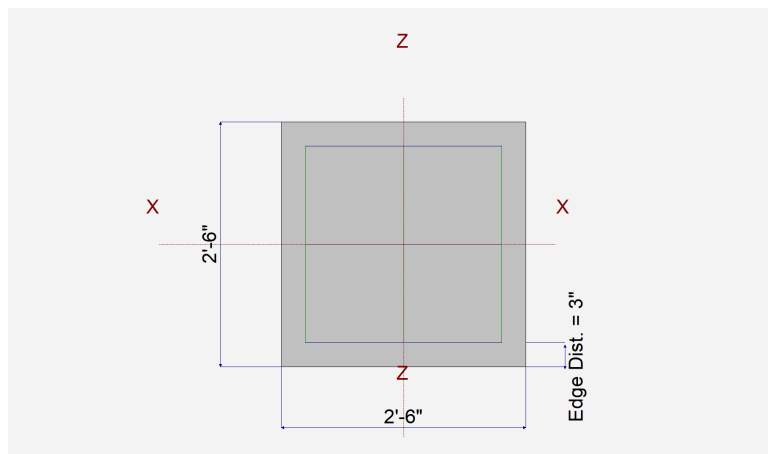
Allowable pressure increase per foot of depth when max. length or width is greater than	=	ksf
	=	ft

### Dimensions

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

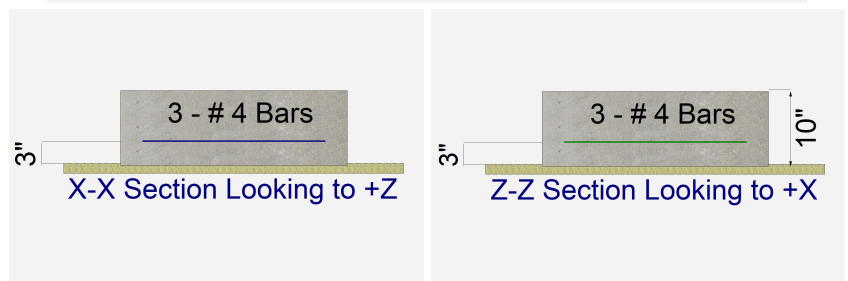
#### Pedestal dimensions...

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 <sup>2</sup>	Gvrn. As in <sup>2</sup>	Actual As in <sup>2</sup>	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

### 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

All units k

## 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

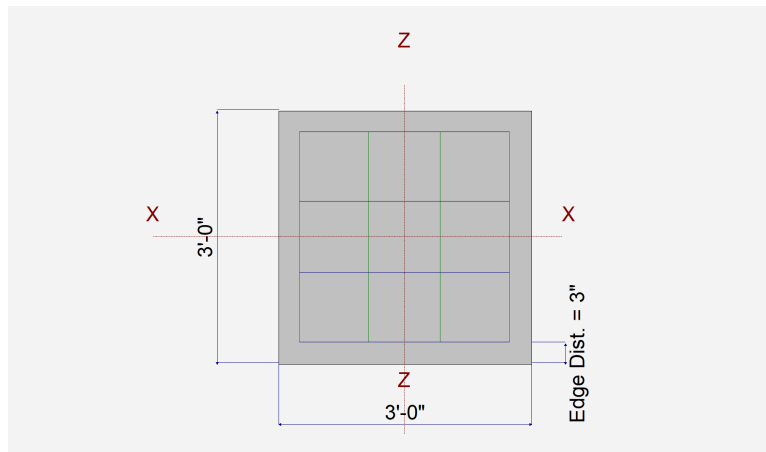
Allowable pressure increase per foot of depth when max. length or width is greater than	=	ksf
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### Dimensions

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



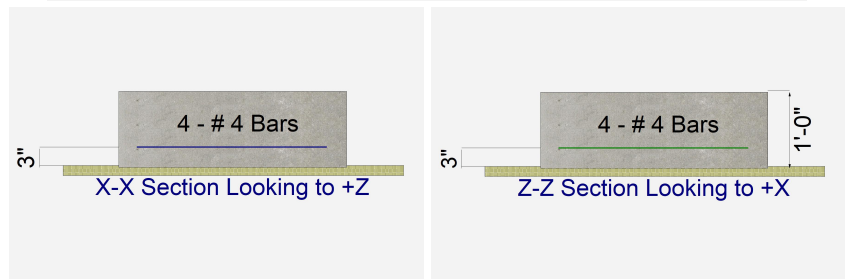
### Reinforcing

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

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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 <sup>2</sup>	Gvrn. As in <sup>2</sup>	Actual As in <sup>2</sup>	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 Acceleration  $S_{MS} = F_a * S_s = 0.998$  [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 Calculation All 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 :  $T_a = C_t * (h_n^x) = 0.224 \text{ sec}$

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

Building Period "Ta" Calculated from Approximate Method selected = 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

<b>Cs = 0.1024 from 12.8.1.1</b>	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 <sup>2</sup> )	Wt. (k)
1. Mass of Roof <i>(2x framing &amp; 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
<b>TOTAL SEISMIC MASS FOR GARAGE ROOF (W<sub>RG</sub>)</b>						<b>18.4</b>

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 <sup>2</sup> )	(ft <sup>2</sup> )	(ft <sup>2</sup> )	(ft <sup>2</sup> )	(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 <sup>2</sup> )	(ft <sup>2</sup> )	(ft <sup>2</sup> )	(ft <sup>2</sup> )	(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 <sub>rot</sub> (ft)	L <sub>des</sub> (ft)	h (ft)	P <sub>u</sub> (lb)	V (plf)	M <sub>o</sub> (lb*ft)	R <sub>trib</sub> (ft)	W <sub>trib</sub> (ft)	F <sub>trib</sub> (ft)	M <sub>r</sub> (lb*ft)	T <sub>u</sub> (lb)	Holdown / Comment	Shearwall Nailing
<b>North - South Event</b>														
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
<b>East - West Event</b>														
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 <sub>L</sub>	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

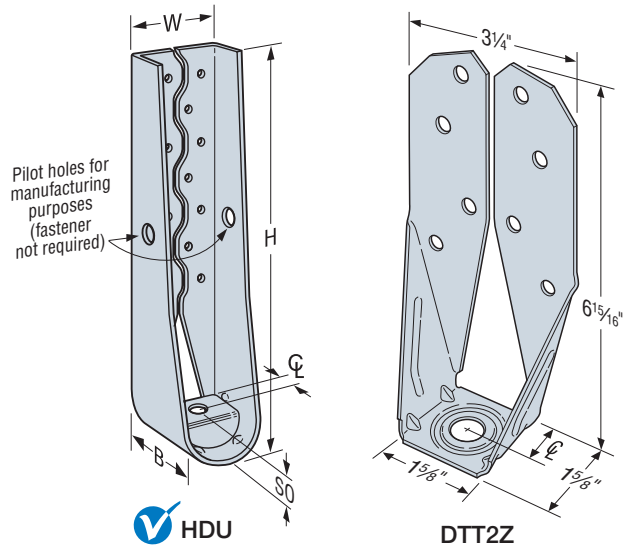
**Material:** See table

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

### Installation:

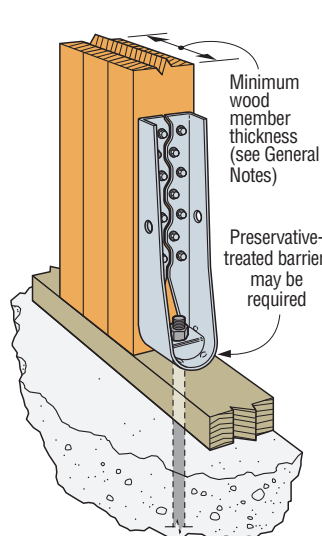
- See Holddown and Tension Tie General Notes on pp. 49–50.
- The HDU requires no additional washer; the DTT requires a standard-cut washer (included) be installed between the nut and the seat.
- Strong-Drive SDS Heavy-Duty Connector screws install best with a low-speed high-torque drill with a 3/8" hex-head 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

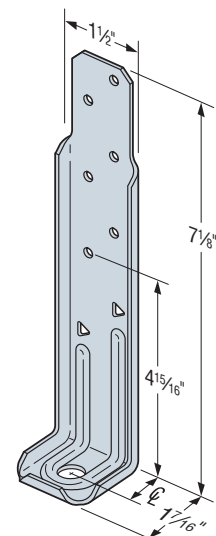


**HDU**

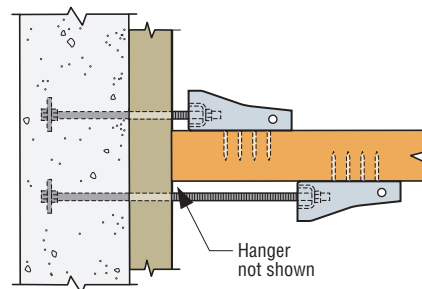
**DTT2Z**  
US Patent  
8,555,580



**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.)

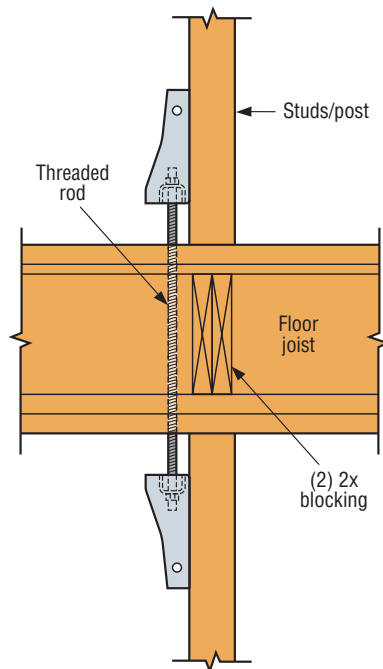
These products are available with additional corrosion protection. For more information, see p. 14.

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

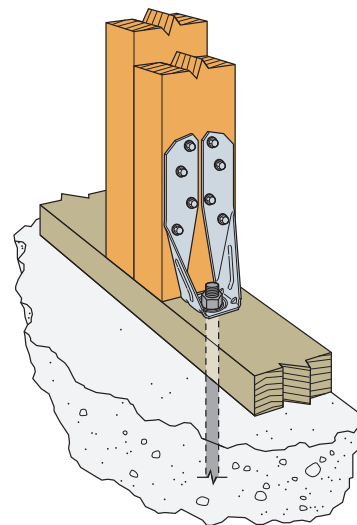
**SD** Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 348–352 for more information.

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 ½	7 ⅞	1 ⅞	¾	¾	¾	(6) #9 x 1 ½" SD	1 ½ x 3 ½	840	840	0.17	IBC, FL, LA
								(6) 0.148 x 1 ½		910	640	0.167	
								(8) 0.148 x 1 ½		910	850	0.167	
DTT2Z	14	3 ¼	6 ⅝	1 ⅝	¾	¾	½	(8) ¼ x 1 ½ SDS	1 ½ x 3 ½	1,825	1,800	0.105	
								(8) ¼ x 1 ½ SDS		3 x 3 ½	2,145	1,835	
DTT2Z-SDS2.5								(8) ¼ x 2 ½ SDS	3 x 3 ½	2,145	2,105	0.128	
HDU2-SDS2.5	14	3	8 ⅞	3 ¼	1 ⅝	1 ⅝	¾	(6) ¼ x 2 ½ SDS	3 x 3 ½	3,075	2,215	0.088	
HDU4-SDS2.5	14	3	10 ⅝	3 ¼	1 ⅝	1 ⅝	¾	(10) ¼ x 2 ½ SDS	3 x 3 ½	4,565	3,285	0.114	
HDU5-SDS2.5	14	3	13 ⅞	3 ¼	1 ⅝	1 ⅝	¾	(14) ¼ x 2 ½ SDS	3 x 3 ½	5,645	4,340	0.115	
HDU8-SDS2.5	10	3	16 ⅝	3 ½	1 ⅝	1 ½	7 ⅞	(20) ¼ x 2 ½ SDS	3 x 3 ½	6,765	5,820	0.11	
									3 ½ x 3 ½	6,970	5,995	0.116	
									3 ½ x 4 ½	7,870	6,580	0.113	
HDU11-SDS2.5	10	3	22 ¼	3 ½	1 ⅝	1 ½	1	(30) ¼ x 2 ½ SDS	3 ½ x 5 ½	9,535	8,030	0.137	
									3 ½ x 7 ¼	11,175	9,610	0.137	
HDU14-SDS2.5	7	3	25 ⅞	3 ½	1 ⅝	1 ⅝	1	(36) ¼ x 2 ½ SDS	3 ½ x 5 ½	10,770	9,260	0.122	
									3 ½ x 7 ¼	14,390	12,375	0.177	
									5 ½ x 5 ½	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

**EXHIBIT PD-2: COMPLETENESS LETTER**



CITY OF  
**West Linn**

June 15<sup>th</sup>, 2023

Thomas Watton  
1880 Willamette Falls Dr, Ste. 200-D  
West Linn, OR 97068

SUBJECT: Non-Conforming Structure Alteration at 2247 5<sup>th</sup> Avenue (MISC-23-02)

Thomas Watton:

Your application submitted on May 17<sup>th</sup>, 2023 has been deemed **complete**. The city has 120 days to exhaust all local review; that period ends October 13<sup>th</sup>, 2023.

Please be aware that determination of a complete application does not guarantee a recommendation of approval from staff for your proposal as submitted – it signals that staff believes you have provided the necessary information for the Planning Director to render a decision on your proposal.

A 14-day public notice will be prepared and mailed. This notice will identify the earliest potential decision date by the Planning Director.

Please contact me at 503-742-6057, or by email at [bgardner@westlinnoregon.gov](mailto:bgardner@westlinnoregon.gov) if you have any questions or comments.

Sincerely,

Ben Gardner  
Assistant Planner

**EXHIBIT PD-3: AFFIDAVIT AND NOTICE PACKET**



**AFFIDAVIT OF NOTICE  
TYPE B  
PLANNING MANAGER DECISION**

We, the undersigned, certify that, in the interest of the party initiating a proposed land use, the following took place on the dates indicated below:

**PROJECT**

File No.: MISC-23-02

Address: 2247 5<sup>th</sup> Ave

Applicant's Name: **Thomas Watton - Watton Design Works, Inc.**

Scheduled Decision Date: **Planning Manager Decision no earlier than 7/25/23**

**MAILED NOTICE**

Notice of Upcoming Planning Manager Decision was mailed at least 14 days before the decision date, per Section 99.080 of the Community Development Code to:

Thomas Watton, applicant	7/11/23	<i>Lynn Schroder</i>
Jim Walsh, owner	7/11/23	<i>Lynn Schroder</i>
Property owners within 300ft of the site perimeter	7/11/23	<i>Lynn Schroder</i>
Willamette Neighborhood Association	7/11/23	<i>Lynn Schroder</i>

**WEBSITE**

Notice was posted on the City's website 14 days before the decision date.

7/11/23	<i>Lynn Schroder</i>
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**SIGN**

A sign was posted on the property at least 10 days before the decision, per Section 99.080 of the CDC.

7/12/23	<i>Ben Gardner</i>
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**FINAL DECISION**

Notice of Final Decision was mailed to the applicant, all parties with standing, and posted on the City's website, per Section 99.040 of the Community Development Code.

8/16/23	<i>Lynn Schroder</i>
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**CITY OF WEST LINN  
NOTICE OF UPCOMING PLANNING MANAGER DECISION  
FILE NO. MISC-23-02**

The West Linn Planning Manager is considering a request for an alteration of a non-conforming structure at 2247 5<sup>th</sup> Ave. The applicant is requesting approval for expanding an existing garage towards 5th Avenue.

You have been notified of this proposal because County records indicate that you own property within 300 feet of the property (Clackamas County Assessor's Map 31E02AB06600), or as otherwise required by CDC Chapter 99.080.

The Planning Manager will decide the application based on criteria in Chapters 11, 66, and 99. of the Community Development Code (CDC). The CDC approval criteria are available for review on the City website <http://www.westlinnoregon.gov/cdc> or at City Hall and the City Library.

The application is posted on the City's website, <https://westlinnoregon.gov/planning/2247-5th-avenue-enlargement-residential-non-conforming-use>. The application, all documents or evidence relied upon by the applicant and applicable criteria are available for inspection at City Hall at no cost. Copies may be obtained at reasonable cost.

A public hearing will not be held for this decision. **Anyone wishing to submit comments for consideration must submit all material before 4:00 p.m. on 7/25/23 to [bgardner@westlinnoregon.gov](mailto:bgardner@westlinnoregon.gov) or mail them to City Hall. All comments must be received by the deadline.**

**It is important to submit all testimony in response to this notice.** All comments submitted for consideration of this application should relate specifically to the applicable criteria. Failure to raise an issue in a hearing, in person, or by letter, or failure to provide sufficient specificity to afford the decision-maker an opportunity to respond to the issue, precludes appeal to the Oregon Land Use Board of Appeals based on that issue (CDC Section 99.090).

The final decision will be posted on the website and available at City Hall. Persons with party status may appeal the decision by submitting an appeal application to the Planning Department within 14 days of mailing the notice of the final decision pursuant to CDC [99.240](#).

For additional information, please contact Ben Gardner Assistant Planner, City Hall, 22500 Salamo Rd., West Linn, OR 97068, 503-742-6057.

Scan this QR Code to go to Project Web Page:



MISC-23-02 - Notified Properties within 300 feet of 2247 5<sup>th</sup> Avenue





**NOTICE OF UPCOMING  
PLANNING MANAGER DECISION**

**PROJECT # HDR-23-01  
MAIL: 7/11/23 TIDINGS: N/A**

**CITIZEN CONTACT INFORMATION**

To lessen the bulk of agenda packets and land use application notice, and to address the concerns of some City residents about testimony contact information and online application packets containing their names and addresses as a reflection of the mailing notice area, this sheet substitutes for the photocopy of the testimony forms and/or mailing labels. A copy is available upon request.