CITY OF MERCER ISLAND

DEVELOPMENT SERVICES GROUP

9611 SE 36TH STREET | MERCER ISLAND, WA 98040
PHONE: 206.275.7605 | www.mercergov.org

INSPECTION REQUESTS:
online: MyBuildingPermit.com
voicemail: (206) 275-7730

NOTE: ALL RECORDS AND DRAWINGS ARE SUBJECT TO PUBLIC DISCLOSURE AS REQUIRED BY RCW 42.56

TO BE COMPLETED BY APPLICANT

CONTACT INFORMATION:

Applicant is to complete the following information.

Applicant Contact information *prior* to permit issuance: (Copy--)

Name: CC DESIGN HOMES
Address: P.O. BOX 317, MERCER ISLAND, WA 98040
Phone: 2062358818
Email: cchen@ccdesignhomes.com

Applicant Contact information *post* permit issuance:

Name: CHARLIE CHEN
Address: P.O. BOX 317, MERCER ISLAND, WA 98040
Phone: 2062358818
Email: cchen@ccdesignhomes.com

REQUIRED SPECIAL INSPECTIONS / STRUCTURAL OBSERVATIONS:

It is the Engineer of Record's responsibility to specify all required Special Inspections or Structural Observation (check items below). The owner is responsible for hiring an approved private Special Inspector for the checked inspections noted below. All Special Inspectors (except Geotechnical) must be WABO certified.
When Special Inspection or Structural Observation is required, the report shall be submitted to the City Building Inspector prior to the City Inspection. **Note: Inspection by the City Inspector is required in addition to the Special Inspection or Structural Observation indicated below. Do not cover or conceal any work prior to the City inspection.**

STRUCTURAL OBSERVATION BY ENGINEER OF RECORD (EOR):
Engineer of Record: PASKO KESOVIJA Company: CK ENGINEERING Phone: 2064170670

- ☐ General Conformance to Construction Documents
- ☐ Other:

SOILS / GEOTECHNICAL:
Special Inspector: Company: Phone:

- ☐ Erosion control measures
- ☐ Shoring installation and monitoring
- ☐ Observe and monitor excavation
- ☐ Verification of soil bearing
- ☐ Other:
- ☐ Subsurface drainage placement
- ☐ Verify fill material and compaction
- ☐ Rockery installation
- ☐ Pile placement (auger cast/driven pile)
- ☐ Other:

REINFORCED CONCRETE:
Special Inspector: Company: Phone:

- ☐ Concrete strength
- ☐ Reinforcing steel and concrete placement
- ☐ Shotcrete placement
- ☐ Other:
- ☐ Retaining wall construction
- ☐ Prestressed / Precast construction
- ☐ Other:
- ☐ Other:

STRUCTURAL STEEL: *(AISC 360, Chapter N)*
Special Inspector: Company: Phone:

- ☐ Fabrication and shop welds
- ☐ Structural steel erection, field welds and bolting
- ☐ Other:
- ☐ Moment Frame construction
- ☐ Other:
- ☐ Other:

STRUCTURAL MASONRY:
Special Inspector: Company: Phone:

- ☐ Mortar strength
- ☐ Masonry unit strength
- ☐ Other:
- ☐ Other:
- ☐ Glass unit masonry installation
- ☐ Wall panel and veneer installation
- ☐ Other:
- ☐ Other:

WOOD:
Special Inspector / Engineer of Record: Company: Phone:

- ☐ Lateral resisting system construction
- ☐ Other:
- ☐ High strength diaphragm construction
- ☐ Other:

OTHER SPECIAL INSPECTIONS:
Special Inspector: Company: Phone:

- ☐ Epoxy grout installations
- ☐ Expansion anchor installations
- ☐ Other post installed anchors
- ☐ Alternative construction methods:
- ☐ Alternative construction materials:
- ☐ Stucco installation
- ☐ Infiltration System
- ☐ Exterior Insulation Finish System (EIFS) installation
- ☐ Other:
- ☐ Other:

DEFERRED SUBMITTALS:

The Applicant is required to select all deferred submittals / shop drawings for submittal to the City for review and approval prior to item fabrication / construction.

- ☐ Connector plate wood trusses
- ☐ Metal joist / metal trusses
- ☐ Premanufactured structures (stairs, etc.)
- ☐ Precast concrete elements
- ☐ Other:
- ☐ Post tension layout
- ☐ Exterior cladding
- ☐ Window wall / curtain wall construction
- ☐ Other:
- ☐ Other:

TO BE COMPLETED BY APPLICANT

ENERGY CODE COMPLIANCE INFORMATION:

Indicate where the following information is located in the drawing set. Alternatively, incorporate or include the Residential Energy Code Prescriptive Compliance (RECPC) Form into the drawing set.

Sheet:

- ☑ Building envelope: *WSEC Table 402.1.1* (include U-factors, insulation and moisture control) — A7
- ☑ Whole house ventilation: *IRC Section M1507 WA Amended* (include ventilation option and duct sizing if applicable) — A3
- ☑ Energy Credit Information: *WSEC Table 406.2* (include specific, written requirements) — A7
- ☐ RECPC Form Information: (if incorporated within drawing set) http://www.mercergov.org/files/2012ResidentialEnergyCalcForm.pdf
- ☑ Air Leakage Testing. *IRC Section R402.4.1.2 WA Amendments*
  - ☑ Provide air leakage test report verifying air leakage rate does not to exceed 5 air changes per hour.
- ☑ Duct Leakage Testing. *WSEC R403.2.2*
- ☑ Postconstruction Test. *WSEC R403.2.2.1*
- ☑ Rough-in Test. *WSEC R403.2.2.3*

FILE NAME: *DSG CVR 2016 24x36.PDF*

TO BE COMPLETED BY DSG

PROJECT ALERTS:

Construction of the project shall be from ***approved plans only***. No deviation from the approved project plans is allowed without prior approval from the City of Mercer Island. Approved plans must be kept on site and maintained in good condition.

- ☑ Refer to "Conditions of Permit Approval" provided at permit issuance for required construction rules and regulations, including:
  - Site Considerations
  - Hours of Work
  - Construction Vehicle Parking Restrictions
  - Acess Road Requirements
  - ROW restrictions
  - Drainage Requirements
  - Sewer Requirements
  - Water Service Requirements
  - Additional Fire Code Requirements
  - Planning Requirements
  - Noise Abatement Certification
  - Tree Requirements
- ☐ Refer to "Preconstruction Meeting Checklist" provided at the preconstruction meeting for development related requirements.
- ☑ Temporary site address with minimum 6" high numbers visible from the street must be installed.
- ☑ Erosion control measures must be as shown on approved project drawings. All erosion control is to be in place and inspected prior to the start of any site work.
- ☑ A City of Mercer Island Business License is required for all subcontractors. Call (206) 275-7783 for more information.

TREE PROTECTION REQUIREMENTS:

- ☑ Tree protection as shown on approved drawings shall be installed at tree dripline prior to start of any site work and must remain in place throughout the project.
- ☑ No trees shall be cut without a City of Mercer Island tree permit.
- ☐ Replacement trees must be a minimum of six feet tall at installation. They must be planted and approved prior to final inspection.
  - ☐ For this project, N/A trees are authorized to be removed and replaced with N/A trees.
- ☐ This project appears to be within a protected eagle nest area. Contact Federal Fish and Wildlife at (360) 534-9304 or visit their website at http://www.fws.gov/pacific/eagle

FIRE PROTECTION REQUIREMENTS:

Separate Permits are required for ALL fire protection systems. For more information, see http://www.mercergov.org/Page.asp?NavID=2614

- ☐ Fire Sprinkler
  - ☐ NFPA 13D
    - ☐ Plus
  - ☐ NFPA 13R
  - ☐ NFPA 13
- ☐ Approved Fire Code Alternatives:
  - ☐ FCA1
  - ☐ FCA2
  - ☐ FCA3
  - ☐ FCA4
- ☐ Monitored Household
  Fire Alarm per NFPA 72
- ☐ Monitored Sprinkler
  Water Flow Alarm
- ☐ Other:

WATER SUPPLY REQUIREMENTS:

- ☐ Fire sprinkler design calculations must be provided prior to determining water supply system requirements.
- ☐ Water Supply system upgrade required
  - ☐ City Installation.
  - ☐ Applicant Installation.
    Required Service Line Size: N/A (water main to meter) Required Supply Line Size: N/A (water main to house) Required Meter Size: N/A
- ☐ Abandonment of existing service and meter required at main.
- ☑ Pressure reducing valve required if pressure exceeds 80 psi.
- ☑ Reduced pressure backflow assembly (RPBA) required for all lots with waterfront or non-city water supply (private wells or lake irrigation).
- ☐ Additional water supply requirements:

DRAINAGE REQUIREMENTS:

- ☐ On site detention system required.
- ☐ On site infiltration system required.
- ☐ As-built Utility drawings required.
  - ☐ Full Size drawings required.
- ☐ Direct discharge into the lake.
- ☐ No Storm Water permit required.
- ☐ Connection to public storm drainage conveyance system req'd.
- ☐ Other:

SIDE SEWER REQUIREMENTS:

- ☑ Side sewer requires a backflow preventer when connecting to the lake line or when the elevation of the lowest plumbing fixture is lower than the elevation of the upstream manhole rim or when side sewer is shared with one or more properties.
- ☐ Video tape of existing sewer required (see standard details)
- ☐ New connection. ☐ Connect to existing. Disconnect permit required. ☐ Reconnect permit required.
- ☐ Other:

Note: When side sewer is to be connected to the lake line you will need to schedule three (3) days in advance with the City of Mercer Island Maintenance Department at (206) 275-7800.

APPROVED CODE ALTERNATIVES:

Code alternatives must be Inspected. Refer to the Inspection Checklist

- ☐ CA1:
- ☐ CA2:

SURVEY REQUIREMENTS (The following survey information must be submitted when checked):

Surveyor shall verify points chosen for height calculations and point verification shall be submitted at the time of City foundation Inspection. A property survey may be required to verify setbacks and in some cases buildings must be surveyed onto the lot. The City reserves the right to request an impervious area survey at any time prior to issuance of Certificate of Occupancy.

Surveyor: Phone:

- ☐ Building height survey
- ☐ Building setback survey
- ☐ Impervious surface survey
- ☐ Other:

☐ **MAXIMUM 40 PERCENT ALTERATION INSPECTION:** *MICC 19.01.050(D)(1)(b)(i)*

A Building Inspection prior to demolition is required for all legally nonconforming single family dwelling to ensure no more than 40 percent of the dwelling's exterior walls are structurally altered. Contact the Building Inspector at (206) 275-7730.

- ☐ Civil / Drainage
- ☐ LUP / Setback requirements

GEOTECHNICAL INFORMATION:

Land clearing, grading, filling and foundation work within geologic hazard areas is **NOT PERMITTED** between October 1 and April 1 without an approved Seasonal Development Limitation Waiver.

- ☐ Geotechnical Report provided. All construction must comply with the recommendations of the Geotechnical Report. A copy of report and other geotechnical information must be kept on site at all times.

Geotechnical Engineer *Phone*

SEASONAL DEVELOPMENT LIMITATION RESTRICTION:

- ☐ Applies (Geologic Hazard area). Grading not permitted between October 1 through April 1.
  - ☐ Waiver approved. Grading and excavation permitted subject to all conditions noted in Seasonal Development Limitation Waiver Permit.

Permit number *Approved by* *Date*

TO BE COMPLETED BY DSG

REQUIRED CONSTRUCTION INSPECTIONS:

It is the applicant's responsibility to contact DSG to schedule ALL inspections appropriate for the project. Request inspections online at www.MyBuildingPermit.com or by calling the Inspection Hotline at (206) 275-7730. Allow at least 24 hours (48 hours for Reinforcing steel) in advance of desired inspection. Be specific as to type of inspection.

Inspector shall initial and date appropriate inspection *only* if approved. Note: ***Items marked with an "•" require a separate permit.*** It is the applicants responsibility to apply for and obtain all City of Mercer Island permits.

INSPECTIONS: (Listed in order of typical sequencing)

Inspector	Date	Approved	
		☐	Pre-construction Meeting to Review Conditions of Permit Approval.
		☐ •	Tree protection
		☐	Erosion control
		☐ •	Sewer disconnect and cap. If applicable, separate side-sewer permit required
		☐ •	Right-of-way use or work / easement, material delivery, etc. If applicable, separate ROW permit required
		☐	Land clearing, grading and demolition
		☐	Temporary power
		☐	Pilings / Shoring / Shotcrete. If applicable, provide survey letter (property line); Geotechnical Engineer / Special Inspector reports of inspections (pile and shoring installation, etc.)
		☐	Footings, setbacks, UFER ground. If applicable, provide survey letter (building height and setbacks); Special Inspector reports of inspections (soil bearing capacity, compaction, earthwork, pile installation, etc.)
		☐	Foundation walls / concrete columns
		☐	Roof and footing drains
		☐	Foundation damproofing
		☐ •	Storm drainage, including (but not limited to): • Connections to storm main in ROW • Detention systems • Infiltration systems • Catch basins including oil-water separator tees • Area drains • Conveyance piping / cleanouts • Storm drain in ROW • Control structures / manholes • Pump systems • Retaining wall drainage
		☐ •	Water Service
		☐	Water Supply
		☐	Water as-built drawings
		☐ •	Side sewer installation, including (but not limited to): • Connections to side sewer main • Connections to existing side sewer • Back-flow valves • Grinder pump systems • Sewer manholes
		☐	Driveway / Access road
		☐	Underslab electrical / mechanical / plumbing
		☐	Underslab insulation / vapor barrier / reinforcing
		☐	Underfloor framing
		☐	Nailing-Roof sheathing. If applicable, provide Special Inspection letter for lateral wood inspection.
		☐	Nailing-Exterior wall and Shearwall. If applicable, provide Special Inspection letter for lateral wood inspection.
		☐	Rough hydronic installation
		☐	Rough electric installation
		☐ •	Rough fire alarm (wiring inspection)
		☐	Rough plumbing installation (DWV, water)
		☐	Rough mechanical
		☐	Gas Piping
		☐ •	Rough fire sprinkler / hydrostatic and flow (bucket) test
		☐	Framing and glazing. If applicable, provide Special Inspection letter for lateral wood inspection, welding epoxy anchors, etc.
		☐	Masonry construction (fireplace / walls / veneer / etc.)
		☐	Insulation installation
		☐	Stucco (paper and lath)
		☐	Shower pan (or tub)
		☐	Miscellaneous
		☐	Code Alternative CA1:
		☐	Code Alternative CA2:
		☐	Impact Fees Paid (If applicable)
		☐	**Final Inspection:** Tree Restoration ☐ TT
		☐	**Final Inspection:** Fire protection, including (but not limited to): • Sprinkler • Access Road • Fire Code Alternatives (see below) ☐ FCA1: ☐ FCA2: • Fuel Tank Installation • Fire Extinguishing System • Fire Alarm System ☐ FCA3: ☐ FCA4: ☐ TF
		☐	**Final Inspection:** Water supply protection, including (but not limited to) backflow devices for: • Waterfront property • Fire / lawn sprinkler • Well water on property • Boiler ☐ TW
		☐	**Final Inspection:** Site and utility: includes landscape, utilities and ROW. Site restoration complete and as-built drawings ready for submittal. ☐ TS
		☐	**Final Inspection:** Building, including electrical / mechanical / plumbing. If applicable, provide closeout (summary) letters from Engineer, Special Inspectors, Geotechnical Engineer, and exterior wall cladding inspectors (EIFS). ☐ TB

90 DAY TEMPORARY CERTIFICATE OF OCCUPANCY (TCO):

Applicant option. Additional fees will be required and must be approved prior to occupancy. TCO requires tree plantings be completed.

Approved *Start Date* *End Date*

TO BE COMPLETED BY DSG

ADDITIONAL REQUIRED CITY INSPECTIONS:

Call the appropriate contact to arrange the inspection.

Required Inspection(s):	Contact:	Phone:	Scheduling:

IMPACT FEES:

If applicable.

☐ Impact fees apply and are due ***prior*** to Final Inspection or on _____, whichever occurs first.
Date

PLAN REVIEW APPROVALS:

Not all review disciplines may be required to review the documents.

☐ JH *Building* ☐ AZ *Planning* ☐ KN *Engineering* ☐ N/A *Tree* ☐ N/A *Fire*

APPROVED DRAWINGS MUST BE KEPT ON THE BUILDING SITE AT ALL TIMES

REVISED: *JULY 2019*

PERMIT NUMBER: 15

CERTIFICATE OF OCCUPANCY
Issued after all required inspections have been performed and approved.
Date
Approved

PROJECT NAME: ESTHER LIU
PROJECT ADDRESS: 3705 77TH PL. SE

REVIEWED FOR CODE COMPLIANCE
Date
Approved

TOPOGRAPHIC & BOUNDARY SURVEY

LEGAL DESCRIPTION

(PER STATUTORY WARRANTY DEED RECORDING# 199411230981)

LOT 1, BLOCK 7, MERCERDALE, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 59 OF PLATS, PAGES 94, 95 AND 96, IN KING COUNTY, WASHINGTON.

BASIS OF BEARINGS

N 79°41'30" W BETWEEN SURVEY MONUMENTS FOUND ON THE CENTERLINE OF S.E. 37TH ST., PER R1.

REFERENCES

R1. MERCERDALE, RECORDED IN VOLUME 59 OF PLATS, PAGES 94–96, RECORDS OF KING COUNTY, WASHINGTON.

VERTICAL DATUM

NAVD88 PER GPS OBSERVATIONS

SURVEYOR'S NOTES

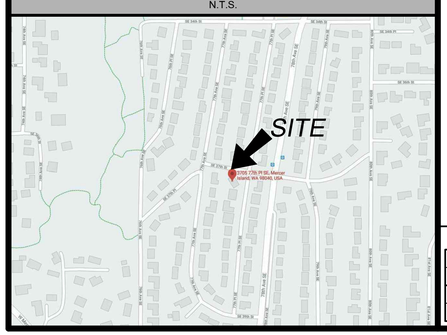
1. THE TOPOGRAPHIC SURVEY SHOWN HEREON WAS PERFORMED IN MARCH OF 2021. THE FIELD DATA WAS COLLECTED AND RECORDED ON MAGNETIC MEDIA THROUGH AN ELECTRONIC THEODOLITE. THE DATA FILE IS ARCHIVED ON DISC OR CD. WRITTEN FIELD NOTES MAY NOT EXIST. CONTOURS ARE SHOWN FOR CONVENIENCE ONLY. DESIGN SHOULD RELY ON SPOT ELEVATIONS.
2. ALL MONUMENTS SHOWN HEREON WERE LOCATED DURING THE COURSE OF THIS SURVEY UNLESS OTHERWISE NOTED.
3. THE TYPES AND LOCATIONS OF ANY UTILITIES SHOWN ON THIS DRAWING ARE BASED ON INFORMATION PROVIDED TO US, BY OTHERS OR GENERAL INFORMATION READILY AVAILABLE IN THE PUBLIC DOMAIN INCLUDING, AS APPLICABLE, IDENTIFYING MARKINGS PLACED BY UTILITY LOCATE SERVICES AND OBSERVED BY TERRANE IN THE FIELD. AS SUCH, THE UTILITY INFORMATION SHOWN ON THESE DRAWINGS ARE FOR INFORMATIONAL PURPOSES ONLY AND SHOULD NOT BE RELIED ON FOR DESIGN OR CONSTRUCTION PURPOSES; TERRANE IS NOT RESPONSIBLE OR LIABLE FOR THE ACCURACY OR COMPLETENESS OF THIS UTILITY INFORMATION. FOR THE ACCURATE LOCATION AND TYPE OF UTILITIES NECESSARY FOR DESIGN AND CONSTRUCTION, PLEASE CONTACT THE SITE OWNER AND THE LOCAL UTILITY LOCATE SERVICE (800-424-5555).
4. SUBJECT PROPERTY TAX PARCEL NO. 545880-0550
5. SUBJECT PROPERTY AREA PER THIS SURVEY IS 8,345 ±S.F. (0.19 ACRES)
6. THIS SURVEY WAS PERFORMED WITHOUT THE BENEFIT OF A TITLE REPORT. EASEMENTS AND OTHER ENCUMBRANCES MAY EXIST THAT ARE NOT SHOWN HEREON.
7. FIELD DATA FOR THIS SURVEY WAS OBTAINED BY DIRECT FIELD MEASUREMENTS WITH A CALIBRATED ELECTRONIC 5-SECOND TOTAL STATION AND/OR SURVEY GRADE GPS OBSERVATIONS. ALL ANGULAR AND LINEAR RELATIONSHIPS ARE ACCURATE AND MEET THE STANDARDS SET BY WAC 332-130-090.

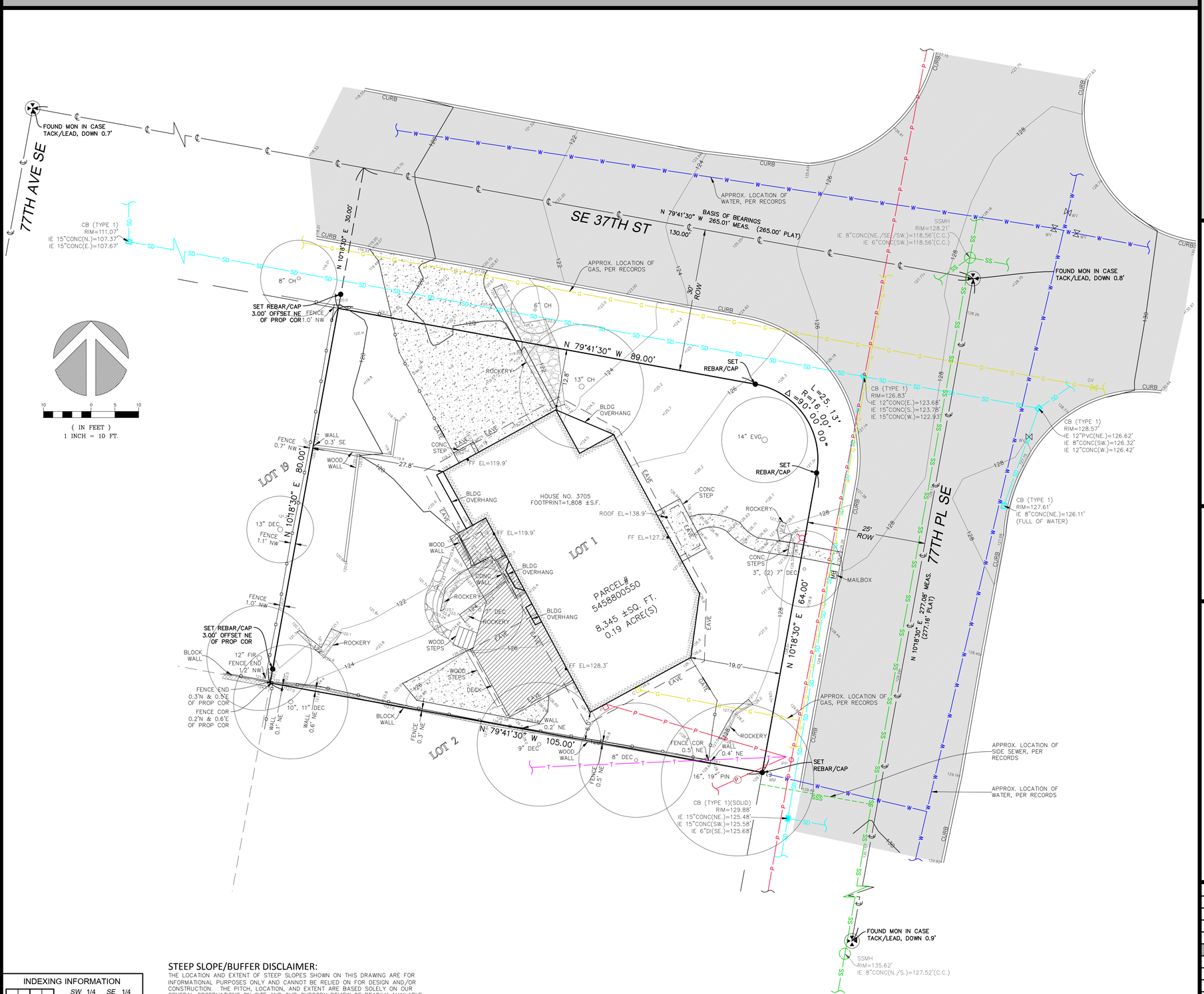
LEGEND

	ASPHALT SURFACE	P	POWER METER
	BUILDING	P	POWER (OVERHEAD)
	CENTERLINE ROW	PP	POWER POLE
	CONCRETE SURFACE		REBAR & CAP (SET)
	RETAINING WALL		ROCKERY
	DECK	SS	SEWER LINE
	FENCE LINE (CHAIN LINK)		SEWER MANHOLE
	FENCE LINE (WOOD)	SD	STORM DRAIN LINE
	FIRE HYDRANT	T	TELEPHONE (OVERHEAD)
	FLAGSTONE SURFACE	SIZE TYPE	TREE (AS NOTED)
G	GAS LINE	W	WATER LINE
G	GAS METER	WM	WATER METER
	GAS VALVE	WV	WATER VALVE
	INLET (TYPE 1)		YARD LIGHT
	MAILBOX (RESIDENTIAL)	SSS	SANITARY SIDE SEWER
	MONUMENT IN CASE (FOUND)		

VICINITY MAP

N.T.S.





INDEXING INFORMATION

SW 1/4 SE 1/4
SECTION: 12
TOWNSHIP: 24N
RANGE: 04E, W.M.
COUNTY: KING

STEEP SLOPE/BUFFER DISCLAIMER:

THE LOCATION AND EXTENT OF STEEP SLOPES SHOWN ON THIS DRAWING ARE FOR INFORMATIONAL PURPOSES ONLY AND CANNOT BE RELIED ON FOR DESIGN AND/OR CONSTRUCTION. THE PITCH, LOCATION, AND EXTENT ARE BASED SOLELY ON OUR GENERAL OBSERVATIONS ON SITE AND OUR CURSORY REVIEW OF READILY AVAILABLE PUBLIC DOCUMENTS; AS SUCH, TERRANE CANNOT BE LIABLE OR RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ANY STEEP SLOPE INFORMATION. ULTIMATELY, THE LIMITS AND EXTENT OF ANY STEEP SLOPES ASSOCIATED WITH ANY SETBACKS OR OTHER DESIGN OR CONSTRUCTION PARAMETERS MUST BE DISCUSSED AND APPROVED BY THE REVIEWING AGENCY BEFORE ANY CONSTRUCTION CAN OCCUR.

measure success

TOPOGRAPHIC & BOUNDARY SURVEY
PARCEL NO. 5458800550

LIU RESIDENCE
3705 77TH PL SE
MERCER ISLAND, WA 98040

Terrane
10801 Main Street, Suite 102, Bellevue, WA 98004
phone 425.458.4488 support@terrane.net
www.terrane.net

JOB NUMBER:	210282
DATE:	03/09/21
DRAFTED BY:	IDV / DSS
CHECKED BY:	DRT / JGM
SCALE:	1" = 10'

REVISION HISTORY

SHEET NUMBER
1 OF 1

AVERAGE BUILDING ELEVATION

PROPOSED RESIDENCE

WALL	WALL SEGMENT	MIDPT. ELEV.	WALL SEGMENT x ELEV.
A	13.0'	121.0'	3589
B	8.5'	126.0'	1076.1
C	9.0'	126.0'	3949
D	23.5'	126.0'	2333.5
E	29.5'	120.0'	4308
F	14.0'	120.0'	8138.53
G	3.5'	120.0'	717
H	31.5'	121.0'	4389.17
I	42.5'	126.0'	7520.1
TOTAL	175		21623.5

AVERAGE BUILDING ELEVATION = 21623.5/175' =123.56'
MAXIMUM BUILDING HEIGHT = 123.56' + 30.0' = 153.56'

PROPOSED BUILDING HEIGHT = 151.95'

BASEMENT FLOOR AREA CALCULATION

WALL	LENGTH	COVERAGE	RESULT
A	9.08	100%	9.08%
B	1'	100%	1%
C	12'	100%	12%
D	19.33'	6.3	1.22%
E	19.5'	18.6%	3.63%
TOTAL	60.91'		26.93%

PORTION OF EXCLUDED BASEMENT FLOOR AREA:
619 (ACTUAL SQ. FT. W/ GARAGE) X (26.93/60.91) = 273.7 SQ. FT.

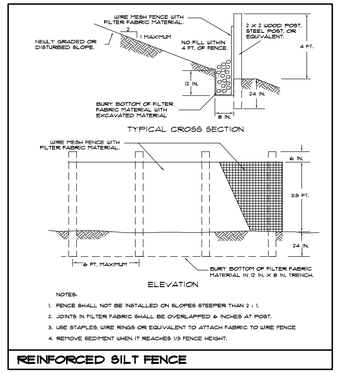
AREA OF BASEMENT EXCLUDED = 619-273.7 = 336 SQ. FT.

GROSS FLOOR AREA

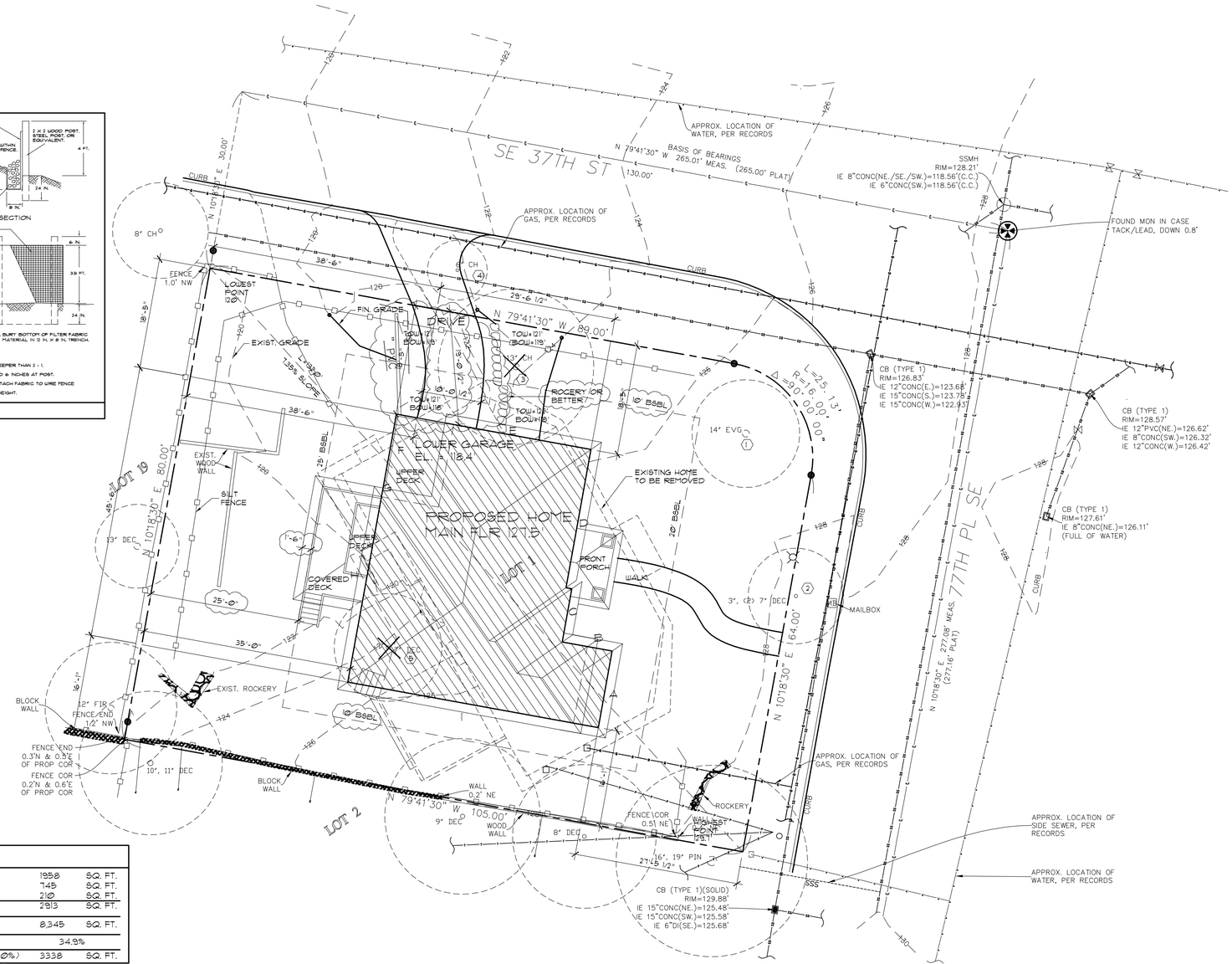
LOWER FLOOR W/ GARAGE	619	SQ. FT.
MAIN FLOOR W/ GARAGE	1635	SQ. FT.
UPPER FLOOR	1360	SQ. FT.
TOTAL	3614	SQ. FT.
BASEMENT EXCLUDED	336	SQ. FT.
TOTAL	3278	SQ. FT.
LOT AREA	8,345	SQ. FT.
SQUARE FOOTAGE ALLOWED (40%)	3338	SQ. FT.

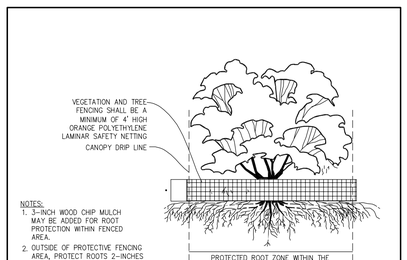
IMPERVIOUS SURFACE

PROPOSED HOME W/ O.H.	1860 SQ. FT.
COVERED DECK	210 SQ. FT.
FRONT PORCH	79 SQ. FT.
WALKS AND DRIVE	743 SQ. FT.
TOTAL	2,892 SQ. FT. (34.7%)
LOT AREA	8,345 SQ. FT.
ALLOWABLE	3,338 SQ. FT. (40%)



REINFORCED SILT FENCE





PRESERVING VEGETATION

LOT COVERAGE

MAIN STRUCTURE ROOF AREA	1958	SQ. FT.
DRIVEWAYS	745	SQ. FT.
COVERED DECK	210	SQ. FT.
TOTAL	2813	SQ. FT.
LOT AREA	8,345	SQ. FT.
PROPOSED LOT COVERAGE	34.9%	
SQUARE FOOTAGE ALLOWED (40%)	3338	SQ. FT.

HARDSCAPE CALC

LOT AREA	8,345	SQ. FT.
COVERED DECK	210	SQ. FT.
FRONT WALK	117	SQ. FT.
ROCKERY	50	SQ. FT.
TOTAL	377	SQ. FT.
HARDSCAPE ALLOWED	9% (778 SQ. FT.)	
PROPOSED HARDSCAPE	4.5% (377 SQ. FT.)	

TREE INVENTORY				
EXISTING TREES	SPECIES	DIAMETER	RETAINED	
④	CHERRY	6"	YES	R.O.W.
③	CHERRY	12"	NO	
①	EVRGN	14"	YES	
②	DEC.	3"(2) 7"	YES	R.O.W.
⑤	DEC.	7"	NO	

SITE PLAN

SCALE 1"= 10'

3705 77TH PL. SE
MERCER ISLAND, WA 98040

PARCEL #5458800550

ZONING: R-8.4

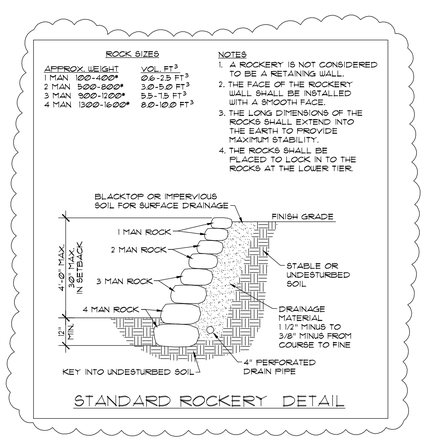
CONTACT:
CHARLIE CHEN
P.O. POX 317
MERCER ISLAND, WA 98040
PH: 206 - 235-8818

LEGAL:

(PER STATUTORY WARRANTY DEED RECORDING# 199411230981)

LOT 1, BLOCK 7, MERCERDALE, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 59 OF PLATS, PAGES 94, 95 AND 96, IN KING COUNTY, WASHINGTON.

NFPA 13d FIRE SPRINKLER SYSTEM REQUIRED



STANDARD ROCKERY DETAIL

MICC 19.02.020(F)(3)(d) requires noxious weeds to be removed during new development proposals. Please add a note to the plan set that states:

"Development proposals for a new single-family home shall remove Japanese knotweed (Polygonum cuspidatum) and Regulated Class A, Regulated Class B, and Regulated Class C weeds identified on the King County Noxious Weed list, as amended, from required landscaping areas established pursuant to subsection 19.02.020(F)(3)(a). New landscaping associated with new single-family home shall not incorporate any weeds identified on the King County Noxious Weed list, as amended. Provided, that removal shall not be required if the removal will result in increased slope instability or risk of landslide or erosion."

Pursuant to MICC 19.02.050(D) any "...rockeries, retaining walls, fences, or any combination thereof, are limited to a maximum height of 42 inches within that portion of any required yard which lies within 20 fee of any improved street." Please indicate the height of the rock wall that falls within 20 feet of the public-right-of way.

If the height exceeds the 42-inch height limitation you can apply for a fence height deviation pursuant to MICC 19.02.050(F).

Fence height deviation required for 4' retaining walls.

DESIGN HOMES
CHARLIE HOMES
P.O. BOX 317
MERCER ISLAND, WA, 98040

A NEW HOME FOR:
THE LIU RESIDENCE
3705 77TH PL. SE
MERCER ISLAND, WA 98040

JOB NO: 21006
DATE: 6/13/22
DRWN. BY: TH
REVISED: 9/8/22
6/1/23
8/16/23

SHEET NO.
1.0

GENERAL NOTES

CODE

ALL MATERIALS, WORKMANSHIP AND CONSTRUCTION SHALL CONFORM TO THE 2018 EDITION OF THE I.B.C. / I.R.C. BUILDING CODE REQUIREMENTS AND ALL APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION.

BUILDING

TYPE V-B
OCCUPANCY GROUP: R3

SITE CLASS: D
WIND EXPOSURE: B

CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD. PROVIDE TEMPORARY BRACING AS REQUIRED UNTIL ALL PERMANENT CONNECTIONS AND STIFFENINGS HAVE BEEN INSTALLED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY ALL DISCREPANCIES OR CONFUSIONS TO THE DESIGNER AT THE TIME THEY ARE NOTED.

FOUNDATION

UNLESS A SOILS INVESTIGATION BY A QUALIFIED SOILS ENGINEER IS PROVIDED, FOUNDATION DESIGN IS BASED ON AN ASSUMED AVERAGE SOIL BEARING OF 1500 PSF. EXTERIOR FOOTINGS SHALL BEAR 1'-6" (MINIMUM) BELOW FINISHED GRADE. ALL FOOTINGS TO BEAR ON FIRM UNDISTURBED EARTH BELOW ORGANIC SURFACE SOILS. BACKFILL TO BE THOROUGHLY COMPACTED PER SPECIFICATIONS. PROVIDE (2) #4 (MIN.) CONTINUOUS BOTTOM OF ALL WALLS AND FOOTINGS.

CONCRETE

CLASS AND USE	f'c (PSI)	MINIMUM SLUMP	SACKS/C.Y.
A - FOOTINGS AND FOUNDATIONS	2000	3 - 4	5-1/2
B - SLABS ON GRADE	2500	3 - 4	5-1/2

NOTE: 3000 PSI CONCRETE IS FOR WEATHERING PURPOSES ONLY. NO SPECIAL INSPECTION REQUIRED

1. AIR-ENTRAINING AGENT (5% TO 7%) TO BE USED IN ALL CONCRETE FLATWORK EXPOSED TO WEATHER
2. POZZOLITH 300 SERIES (4 OZ. PER 100# OF CEMENT) TO BE USED IN ALL CONCRETE.
3. MIX MAY BE DESIGNED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 1905 OF THE IBC.
4. WATER - CEMENT RATIO PER IBC TABLE 1904.2.2 & 1904.3

REINFORCING STEEL

ASTM A615 GRADE 40, REINFORCING STEEL DETAILS SHALL BE PREPARED BY AN EXPERIENCED DETAILER APPROVED BY THE DESIGNER AND CONFORM TO STANDARD PRACTICE OUTLINED IN ACI REPORT 315.
NOTE: GRADE 40 FOR #4 BARS AND SMALLER, GRADE 60 FOR #5 BARS AND LARGER.

CONCRETE COVER OF REINFORCING

3" CONCRETE POURED AGAINST EARTH

2" FORMED CONCRETE WITH EARTH BACKFILL.

1-1/2" BEAMS AND COLUMNS (STIRRUPS, TIES) WALLS EXPOSED TO WEATHER, SLABS ON MOISTURE BARRIER

1" WALLS, INSIDE FACE.

LAP COLUMN VERTICALS, CLASS "A" CONCRETE AND MASONRY COLUMN AND WALL VERTICALS 40 DIAMETERS (2' MIN.) LAP ALL OTHER REINFORCING 30 DIAMETERS (2' MIN.). SPLICES AT TENSION REGIONS SHALL NOT BE PERMITTED.

FRAMING

ALL FRAMING TO COMPLY WITH 2018 IBC. NAIL SIZES AND SPACING TO CONFORM TO IRC TABLE 602.3(1)

ALL WOOD IN CONTACT WITH CONCRETE TO BE PRESSURE TREATED. EXTERIOR HANGERS TO BE SIMPSON ZMAX OR EQUAL (G185).

STRUCTUAL DESIGN IS BASED ON THE FOLLOWING ALLOWABLE STRESSES (UNITES IN PSI):

WOOD

FRAMING LUMBER SHALL BE KILN DRIED OR MC-19, AND GRADED AND MARKED IN CONFORMANCE WITH WCLIB, STANDARD GRADING RULES FOR WEST COAST LUMBER NO. 16. FURNISH TO THE FOLLOWING MINIMUM STANDARDS:

JOISTS: (2X MEMBERS)	HEM-FIR NO. 2	MINIMUM BASE VALUE, Fb = 850 PSI
(3X AND 4X MEMBERS)	DOUGLAS FIR NO. 1	MINIMUM BASE VALUE, Fb = 1000 PSI
BEAMS: (4X MEMBERS)	HEM-FIR NO. 2	
(INCL. 6X AND LARGER)	DOUGLAS FIR NO. 1	MINIMUM BASE VALUE, Fb = 1350 PSI
POSTS: (4X MEMBERS)	DOUGLAS FIR NO. 2	MINIMUM BASE VALUE, Fc = 1300 PSI
(6X AND LARGER)	DOUGLAS FIR NO. 2	MINIMUM BASE VALUE, Fc = 925 PSI
STUDS, PLATES & MISC. FRAMING:	HEM-FIR STANDARD GRADE	
EXTERIOR TOP PLATES:	DOUG-FIR STUD GRADE	
DECKING: (2X6 TO 4X8)	HEM-FIR COMMERCIAL DEX	MINIMUM BASE VALUE, Fb = 1350 PSI

LOADING:

ROOF:	15 PSF DEAD LOAD + 25 PSF LIVE LOAD = 40 PSF
FLOOR:	10 PSF DEAD LOAD + 40 PSF LIVE LOAD = 50 PSF
CEILING:	5 PSF DEAD LOAD + 5 PSF LIVE LOAD = 10 PSF
DECK:	10 PSF DEAD LOAD + 60 PSF LIVE LOAD = 70 PSF
INTERIOR PARTITION:	10 PSF
EXTERIOR PARTITION:	10 PSF

BOLT HEADS AND NUTS BEARING AGAINST WOOD TO BE PROVIDED WITH FLAT CUT WASHERS. WOOD BEARING ON OR INSTALLED WITHIN 1" OF MASONRY OR CONCRETE TO BE TREATED WITH AN APPROVED PRESERVATIVE. SOLID BLOCKING OF NOT LESS THAN 2" THICKNESS SHALL BE PROVIDED AT ENDS AND AT ALL SUPPORT OF JOISTS AND RAFTERS. BETWEEN SUPPORTS PROVIDE BLOCKING OR APPROVED BRIDGING AT 8'-0" O.C. FOR FLOOR JOISTS, 10'-0" FOR ROOF JOISTS. TYPICAL SILL BOLTS TO BE 5/8" DIAMETER AT 4'-0" O.C. EMBED 10". ALL METAL FRAMING ANCHORS AND HANGERS SHOWN ON DRAWINGS SHALL BE "STRONG TIE CONNECTORS" AS MANUFACTURED BY SIMPSON COMPANY OR APPROVED EQUAL.

WOOD TRUSSES

SHALL BE FACTORY FABRICATED TRUSSES. DESIGN AND FABRICATION SHALL CONFORM TO THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE. ENGINEERING DESIGN AND SHOP DRAWINGS BEARING THE STAMP OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF WASHINGTON AND SHOWING ALL DETAILS OF CONSTRUCTION INCLUDING BRACING.

TRUSSES SHALL BE DESIGNED FOR THE UNIFORM LOADING AS FOLLOWS:

TOP CORD 33 PSF OF TRIBUTARY AREA

BOTTOM CORD 10 PSF OF TRIBUTARY AREA

FABRICATOR SHALL BE APPROVED BY THE DESIGNER.

DRAFTSTOPPING (IRC 302.12)

CONCEALED SPACES AT UPPER FLOOR OPEN TRUSS FRAMING SHALL BE DIVIDED IN APPROXIMATE EQUAL SPACES NOT TO EXCEED 1,000 SF. AND SHALL CONSIST OF 1/2" GYPSUM BOARD OR 3/8" WOOD STRUCTURAL PANELS. DRAFTSTOPPING SHALL BE INSTALLED PARALLEL TO FRAMING MEMBERS. THE INTEGRITY OF THE DRAFTSOPS SHALL BE MAINTAINED.

STRUCTURAL GLUE-LAMINATED TIMBER

GLUE LAMINATED MEMBERS SHALL BE FABRICATED IN CONFORMANCE WITH ASTM AND AITC STANDARDS. EACH MEMBER SHALL BEAR AN A.I.T.C. IDENTIFICATION MARK AND SHALL BE ACCOMPANIED BY AN A.I.T.C. CERTIFICATE OF CONFORMANCE. ALL SIMPLE SPAN BEAMS SHALL BE DOUGLAS FIR COMBINATION 24F-V4, Fb=2400 PSI, Fv=165 PSI, ALL CANTILEVERED BEAMS SHALL BE DOUGLAS FIR COMBINATION 24F-V8, Fb=2400 PSI, Fv=165 PSI. CAMBER ALL SIMPLE SPAN GLULAM BEAMS TO 1/2000 RADIUS, UNLESS SHOWN OTHERWISE ON PLANS. GLULAM COLUMNS SHALL BE DOUGLAS FIR COMBINATION NO. 5, Fc=2400 PSI, E=2,000,000 PSI.

PLYWOOD / OSB

EACH SHEET SHALL BEAR THE TRADEMARK OF THE AMERICAN PLYWOOD ASSOCIATION. ALL GRADING SHALL CONFORM TO PS 1. USE THICKNESS AND NAILING AS SHOWN ON THE DRAWINGS. ALL PLYWOOD SHALL BE C-D INTERIOR GRADE WITH EXTERIOR GLUE, EXCEPT AS OTHERWISE SHOWN OR NOTED. PROVIDE 8d AT 6" O.C. ON CENTER AT SUPPORTED PANEL EDGES AND 8d AT 12" ON CENTER ON OTHER SUPPORTING MEMBERS FOR WALLS, ROOF AND FLOORS.
NOTE: EQUIVALENT RATED ORIENTED STRAND BOARD (OSB,) MAY BE USED IN LIEU OF PLYWOOD CALLED OUT. AND Ø.131" DIAMETER P-NAILS MAY BE USED IN LIEU OF 8d NAILS.

ROOF DIAPHRAGM: 1/2" PLYWOOD (PANEL INDEX = 24/16, WITH 8d NAILS AT 6" O.C. AT SUPPORTED PANEL AND AT 12" O.C. AT FIELD (TYPICAL UNLESS NOTED OTHERWISE.)

FLOOR DIAPHRAGM: 3/4" PLYWOOD (PANEL INDEX = 24/16) WITH 10d NAILS AT 6" O.C. AT SUPPORTED PANEL EDGES AND AT 12" O.C. AT FIELD (TYPICAL UNLESS NOTED OTHERWISE ON PLAN).
OPTIONAL TO USE Ø.148 DIAMETER P-NAILS IN LIEU OF 10D NAILS

STRUCTURAL STEEL

STRUCTURAL GRADE ASTM A36, Fy = 36,000 PSI, PIPE COLUMNS ASTM A53, GRADE B, Fy = 35,000 PSI. STRUCTURAL TUBING COLUMNS ASTM A500, GRADE B, Fy = 46,000 PSI. ALL STEEL EXCEPT STEEL EMBEDDED IN CONCRETE SHALL BE GIVEN ONE SHOP COAT OF APPROVED PAINT. WELDS TO BE 3/16" MINIMUM CONTINUOUS FILLET BY AWBO CERTIFIED WELDERS. FIELD CONNECTIONS NOT SHOWN SHALL BE BOLTED FRAMED BEAM CONNECTIONS PER AISC. ALL BOLTS TO BE A325. DURING ERECTION, STRUCTURAL STEEL SHALL BE SECURED FROM COLLAPSING BY TEMPORARY BRACING. WHERE EXPANSION ANCHORS ARE SPECIFIED, THE CONTRACTOR SHALL SUBMIT TO THE STRUCTURAL ENGINEER A SAMPLE OF THE ANCHOR TO BE USED WITH LABORATORY DATA OF PULL-OUT AND SHEAR STRENGTH.

FIREPLACES

MASONRY FIREPLACES AND CHIMNEYS ARE TO BE CONSTRUCTED TO CONFORM TO ALL APPLICABLE PORTIONS OF THE IBC SECTION 2111 AND IRC SECTION R1003, FLUE LINER MINIMUM 5/8" FIRE CLAY (OR EQUIV.) PER IBC SECTION R1003.12 AND TABLE R1003.14. FLUE AREA PER IBC TABLE R1001. CHIMNEYS SHALL SUPPORT ONLY THEIR OWN WEIGHT UNLESS SPECIFICALLY DESIGNED TO SUPPORT ADDITIONAL LOADS

ALL FIREPLACES ARE TO BE PROVIDED WITH TIGHTLY-FITTING FLUE DAMPERS, OPERATED WITH A READILY-ACCESSIBLE MANUAL OR APPROVED AUTOMATIC CONTROL AND AN OUTSIDE SOURCE OF COMBUSTION AIR. MINIMUM DUCT SIZE OF 6 SQUARE INCHES IN AREA, PROVIDED WITH READILY-OPERABLE DAMPER LOCATED IN FRONT PART OF FIREBOX.

PREFABRICATED FIREPLACES, CHIMNEYS AND RELATED COMPONENTS TO BEAR UL, HAVE WASHINGTON STATE CERTIFICATION SEAL OF APPROVAL AND BE INSTALLED PER ANY CONDITIONS OF APPROVAL.

DIRECT VENT UNITS ARE REQUIRED WHEN GAS OPERATED

DOORS AND WINDOWS

ALL GLAZING TO BE DOUBLE GLAZING WITH MAXIMUM "U" VALUE OF Ø.28. ALL SKYLIGHTS TO BE DOUBLE GLAZING, MAXIMUM "U" VALUE OF Ø.50. FACTORY BUILT WINDOWS TO BE CONSTRUCTED TO PERMIT MAXIMUM INFILTRATION OF Ø.5 CFM PER LINEAL FOOT OF OPERABLE SASH PERIMETER AS TESTED BY STANDARD ASTM E 283.73. SITE BUILT AND MILLWORK SHOP BUILT WOODEN SASH ARE EXEMPT FROM INFILTRATION CRITERIA ABOVE, BUT MUST BE MADE TIGHTLY FITTING AND WEATHER-STRIPPED OR CAULKED. SLIDING GLASS DOORS TO PERMIT MAXIMUM INFILTRATION OF Ø.5 CFM PER INFILTRATION OF 1Ø CFM PER SQUARE FOOT OF DOOR AREA.

CAULK OR WEATHER-STRIP WINDOWS, DOORS AND FENETRATIONS

GLAZING IN DOORS, AND GLAZING IN HAZARDOUS LOCATIONS DESCRIBED IN IRC SECTION R308, TO BE SAFETY GLAZING

GLAZING (I.R.C. R308)

GLAZING INSTALLED IN HAZARDOUS LOCATIONS AS DEFINED IN SECTION R308.4 SHALL BE PROVIDED WITH A MANUFACTURER'S DESIGNATION SPECIFYING WHO APPLIED THE DESIGNATION, THE TYPE OF GLASS AND THE SAFETY GLAZING STANDARD WITH WHICH IT COMPLIES. THE DESIGNATION SHALL BE VISIBLE IN THE FINAL INSTALLATION AND CANNOT BE REMOVED FROM THE WINDOW WITHOUT BEING DESTROYED.

INSULATION

UNLESS OTHERWISE NOTED, INSULATION TO BE AS FOLLOWS:

LOCATION	MINIMUM INSULATION ADDED	MAXIMUM ASSEMBLY "U" VALUE
CEILING & ROOFS	R-49, R-38 (ADV.)	Ø3
EXTERIOR WALLS	R-21	Ø5
WALLS BETWEEN HOUSE & GARAGE	R-21	Ø5
FLOORS OVER UNHEATED SPACE	R-38	Ø3
SLAB PERIMETER: (2)	R-1Ø	
ELECTRIC WATER HEATERS (3)	PER ASHRAE 90A-80	
GAS WATER HEATERS (4)	PER ASHRAE 90A-80	
DUCTS IN UNHEATED SPACES	PER WSEC TABLE 4-16	

FOOTNOTES:

(1) R-38 IN SINGLE RAFTER JOIST VAULTED CEILINGS

(2) APPLIED TO PERIMETER OF SLAB FROM TOP OF SLAB DOWNWARD HORIZONTALLY MINIMUM 24" SEE BASIC FOUNTATION DETAILS.

(3) MUST BE INTEGRATED WITH UNIT. UNIT MUST DISLAY VERIFICATION.

(4) UNLESS UNIT CONFORMS TO ASHRAE 90A-80 AND IS LABELED TO SIGNIFY CONFORMANCE

SMOKE ALARMS (I.R.C. R314)

ALL SMOKE ALARMS SHALL BE LISTED IN ACCORDANCE WITH UL 217 AND INSTALLED IN ACCORDANCE WITH THE HOUSEHOLD FIRE WARNING EQUIPMENT PROVISIONS OF NFPA 72. SMOKE ALARMS SHALL BE 110V INTERCONNECTED WITH BATTERY BACK-UP AND SHALL BE LOCATED IN:
a. EACH SLEEPING ROOM
b. OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS
c. ON EACH ADDITIONAL STORY OF THE DUELLING

EFFECTIVE JAN. 1 2011: SINGLE STATION CARBON MONOXIDE ALARMS COMPLYING WITH UL 2034 SHALL BE INSTALLED IN ACCORDANCE WITH THIS CODE AND MANUFACTURERS INSTRUCTIONS AND BE INSTALLED OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF BEDROOMS AND EACH FLOOR LEVEL.

HEAT ALARMS (I.R.C. R314)

R314.2.3 New attached garages. A heat detector or heat alarm rated for the ambient outdoor temperatures and humidity shall be installed in new garages that are attached to or located under new and existing dwellings. Heat detectors and heat alarms shall be installed in a central location and in accordance with the manufacturer's instructions.

R314.4.1 Heat detection interconnection. Heat detectors and heat alarms shall be connected to an alarm or a smoke alarm that is installed in the dwelling. Alarms and smoke alarms that are installed for this purpose shall be located in a hallway, room, or other location that will provide occupant notification.

INFILTRATION CONTROL (WSEC. SECTION 402.4)

1) EXTERIOR JOINTS AROUND WINDOWS AND DOOR FRAMES, OPENINGS BETWEEN WALLS AND FOUNDATIONS, BETWEEN WALLS AND ROOF AND BETWEEN WALL PANELS1 OPENINGS AT PENETRATIONS OF UTILITY SERVICES THROUGH WALLS, FLOOR AND ROOFS1 AND ALL OTHER OPENINGS IN THE BUILDING ENVELOPE SHALL BE SEALED, CAULKED AND GASKETED OR WEATHERSTRIPPED TO LIMIT AIR LEAKAGE. OTHER EXTERIOR JOINTS AND SEAMS SHALL BE SIMILARLY TREATED, OR TAPED, OR COVERED WITH MOISTURE VAPOR PERMEABLE HOUSEWRAP
2) ALL EXTERIOR DOORS OR DOORS SERVING AS ACCESS TO AN ENCLOSED UNHEATED AREA SHALL BE WEATHERSTRIPPED TO LIMIT LEAKAGE AROUND THEIR PERIMETER WHEN IN A CLOSED POSITION.
3) RECESSED LIGHTING FIXTURES: WHEN INSTALLED IN CONTACT WITH THE BUILDING ENVELOPE SHALL BE
   a. TYPE IC RATED AND CERTIFIED UNDER ASTM E283 TO HAVE NO MORE THAN 2.0 CFM AIR MOVEMENT
   b. THE LIGHTING FIXTURE SHALL BE TESTED AT 75 PASCALS OR 1.57 LBS/SF PRESSURE DIFFERENCE AND LABELED SHOWING COMPLIANCE
   c. SHALL BE INSTALLED WITH A GASKET OR CAULK AT THE CEILING TO PREVENT AIR LEAKAGE
4) BUILDING AIR LEAKAGE TESTING REQUIRED PER WSEC 402.4.1.2 AND SHALL OCCUR ANYTIME AFTER ROUGH IN AND AFTER INSTALLATION OF PENETRATIONS OF THE BUILDING ENVELOPE. ACCEPTABLE AIR LEAKAGE TO BE LESS THAN Ø.ØØØ3Ø 5LA WITH A BLOWER DOOR AT A PRESS OF 50 PASCALS (Ø.2 INCH WG.).

DUCTWORK

A - DUCT SYSTEMS SHALL BE OF METAL AS SET FORTH IN TABLE M1601.1.1(2) OR FACTORY-MADE AIR DUCTS COMPLYING WITH M1602, AND 1601.2.1 IRC.
B - JOINTS AND SEAMS SHALL BE SUBSTANTIALLY AIRTIGHT (M1601.4.1 IRC.)
C - INSTALLATION OF DUCTS SHALL COMPLY WITH SECTION M1601.4 IRC.
D - DUCT INSULATION SHALL BE INSTALLED IN ACCORDANCE WITH SECTION M1601.3 IRC.
E - BUILDING CAVITIES MAY NOT BE USED AS DUCTS (WAC M1601.1.1)
F - INSTALLATION OF DUCTS IN EXTERIOR WALLS, FLOORS OR CEILINGS SHALL NOT DISPLACE REQUIRED ENVELOPE INSULATION

SEAMS AND JOINTS: (M1601.4.1 IRC.)
DUCTS SHALL BE LEAK TESTED IN ACCORDANCE WITH RS-33 USING THE MAXIMUM DUCT LEAKAGE RATES. ALL DUCTS, AIR HANDLERS, FILTER BOXES AND BUILDING CAVITIES USED AS DUCTS SHALL BE SEALED. JOINTS AND SEAMS SHALL COMPLY WITH SECTION M1601.3 OF THE IRC OR 603.9 IMC. DUCT TIGHTNESS TESTING SHALL BE CONDUCTED TO VERIFY THAT DUCT ARE SEALED AND A SIGNED AFFIDAVIT DOCUMENTING THE TEST RESULTS SHALL BE PROVIDED TO THE JURISDICTION. DUCT TIGHTNESS SHALL BE VERIFIED BY EITHER POST-CONSTRUCTION TESTING OR ROUGH-IN TESTING

2018 WASHINGTON STATE ENERGY CODE

TABLE R402.1.1
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENTa

CLIMATE ZONE 5 AND MARINE 4	
Fenestration U-Factorb	0.30
Skylightb U-Factor	0.50
Ceiling R-Valuee	49
Wood Frame Wallg,h R-Value	21 int
Floor R-Value	30
Below-Gradec,h Wall R-value	10/15/21 int + 5TB
Slabd,f R-Value & Depth	10, 2 ft

For SI: 1 foot = 304.8 mm, ci = continuous insulation, int = intermediate framing.

a. R-values are minimums. U-factors and SHGC are maximums. When insulation is installed in a cavity which is less than the label or design thickness of the insulation, the compressed R-value of the insulation from Appendix Table A101.4 shall not be less than the R-value specified in the table.
b. The fenestration U-factor column excludes skylights.
c. "10/15/21 +5TB" means R-10 continuous insulation on the exterior of the wall, or R-15 continuous insulation on the interior of the wall, or R-21 cavity insulation plus a thermal break between the slab and the basement wall at the interior of the basement wall. "10/15/21 +5TB" shall be permitted to be met with R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulation on the interior or exterior of the wall. "5TB" means R-5 thermal break between floor slab and basement wall.
d. R-10 continuous insulation is required under heated slab on grade floors. See Section R402.2.9.1.
e. For single rafter- or joist-vaulted ceilings, the insulation may be reduced to R-38 if the full insulation depth extends over the top plate of the exterior wall.
f. R-7.5 continuous insulation installed over an existing slab is deemed to be equivalent to the required perimeter slab insulation when applied to existing slabs complying with Section R503.1.1. If foam plastic is used, it shall meet the requirements for thermal barriers protecting foam plastics.
g. For log structures developed in compliance with Standard ICC 400, log walls shall meet the requirements for climate zone 5 of ICC 400.
h. Int. (intermediate framing) denotes framing and insulation as described in Section A103.2.2 including standard framing 16 inches on center, 78 percent of the wall cavity insulated and headers insulated with a minimum of R-10 insulation.

R402.1.2 R-value computation. Insulation R-value shall be determined as specified in Section R303.1.4. Insulation material used in layers, such as framing cavity insulation or continuous insulation, shall be summed to compute the corresponding component R-value. The manufacturer's settled R-value shall be used for blown insulation. Computed R-values shall not include an R-value for other building materials or air films. Where insulated siding is used for the purpose of complying with the continuous insulation requirements of Table R402.1.1, the manufacturer's labeled R-value for insulated siding shall be reduced by R-0.6.

R402.1.3 U-factor alternative. An assembly with a U-factor equal to or less than that specified in Table R402.1.3 shall be permitted as an alternative to the R-value in Table R402.1.1. U-factors shall be determined as specified in Section R402.1.5.

CERTIFICATE (WSEC R403.3)

A permanent certificate shall be completed by the builder or registered design professional and posted on a wall in the space where the furnace is located, a utility room, or an approved location inside the building. When located on an electrical panel, the certificate shall not cover or obstruct the visibility of the circuit directory label, service disconnect label, or other required labels. The certificate shall list the predominant R-values of insulation installed in or on ceiling/roof, walls, foundation (slab, below-grade wall, and/or floor) and ducts outside conditioned spaces; U-factors for fenestration and the solar heat gain coefficient (SHGC) of fenestration, and the results from any required duct system and building envelope air leakage testing done on the building. Where there is more than one value for each component, the certificate shall list the value covering the largest area. The certificate shall list the types and efficiencies of heating, cooling and service water heating equipment. Where a gas-fired unvented room heater, electric furnace, or baseboard electric heater is installed in the residence, the certificate shall list "gas-fired unvented room heater," "electric furnace" or "baseboard electric heater," as appropriate. An efficiency shall not be listed for gas-fired unvented room heaters, electric furnaces or electric baseboard heaters.

LIGHTING (WSEC R404)

LIGHTING EQUIPMENT (MANDATORY.) A MINIMUM IF 90% OF LAMPS IN PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL BE HIGH-EFFICACY LAMPS IN ACCORDANCE WITH 2018 WSEC SECTION R404.1

INTERMITTENT WHOLE HOUSE VENTILATING SYSTEM USING EXHAUST FANS

2018 INTERNATIONAL RESIDENTIAL CODE (IRC M1507.3) CHAPTER 51-52 W.A.C. - EFFECTIVE FEB. 1, 2021
ACCORDING TO WA STATE AMENDENTS VIA WAC 51-51

INTERMITTENT WHOLE HOUSE VENTILATION SYSTEMS SHALL OPERATE INTERMITTENTLY AND CONTINUOUSLY. THE SYSTEM SHALL HAVE A AUTOMATIC 24-HOUR CLOCK TIMER SET TO OPERATE PER FRACTIONAL OPERATION TIME IN M1507.3.2. CONTROLS SHALL BE CAPABLE OF OPERATING THE VENTILATION SYSTEM WITHOUT ENERGIZING OTHER ENERGY CONSUMING APPLIANCES. A LABEL SHALL BE AFFIXED TO THE CONTROLS THAT READS "WHOLE HOUSE VENTILATION (SEE OPERATING INSTRUCTIONS)". OUTDOOR AIR WILL BE DRAWN FROM AIR INLETS INSTALLED IN WINDOWS.

WHOLE HOUSE VENTILATION FANS:
a. FAN AIRFLOW RATING AND DUCT SYSTEM SHALL BE DESIGNED AND INSTALLED TO DELIVER AT LEAST THE OUTDOOR AIRFLOW PER TABLE, ADJUSTED PER THE EXCEPTION.
b. EXHAUST FANS SHALL BE TESTED AND RATED IN ACCORDANCE WITH THE AIRFLOW AND SOUND RATING PROCEDURES OF THE HOME VENTILATING INSTITUTE.
c. DOORS WILL BE UNDERCUT BY 1/2" PER THE WASHINGTON STATE ADMENDMENTS R1507.3.4.4

FAN NOISE: (IRC M1507.3.4.2)
a. WHOLE HOUSE FANS LOCATED 4 FEET OR LESS FROM THE INTERIOR GRILLE SHALL HAVE A SONE RATING OF 1.0 OR LESS MEASURED AT Ø.1Ø INCHES WATER GAUGE.
b. MANUFACTURER'S FAN NOISE RATINGS SHALL BE DETERMINED ACCORDING TO HVI 915
c. REMOTELY MOUNTED FANS SHALL BE ACOUSTICALLY ISOLATED FROM THE STRUCTURAL ELEMENTS OF THE BUILDING AND FROM ATTACHED DUCT WORK USING INSULATED FLEXIBLE DUCT OR OTHER APPROVED MATERIAL

EXHAUST DUCTS (IRC 1506.1)
a. SHALL TERMINATE OUTSIDE THE BUILDING.
b. SHALL BE EQUIPPED WITH BACK-DRAFT DAMPERS
c. ALL EXHAUST DUCTS IN UNCONDITIONED SPACES SHALL BE INSULATED TO A MINIMUM OF R-4.5
d. EXHAUST OUTLETS SHALL COMPLY WITH SECTION 5012

OUTDOOR AIR (IRC M1507.3.4.4)
EXHAUST FAN ONLY VENTILATION SYSTEMS SHALL PROVIDE OUTDOOR AIR THROUGH AIR INLETS INSTALLED IN WINDOWS. INLETS SHALL BE: CONTROLLABLE WITH SECURE OPENINGS, SHALL BE DESIGNED TO NOT COMPROMISE THE THERMAL PROPERTIES OF THE BUILDING ENVELOPE, ACCESSIBLE TO OCCUPANTS AND SCREENED. INLETS SHALL PROVIDE NOT LESS THAN 4 SQUARE INCHES OF FREE AREA OF OPENING FOR EACH 100 CFM OF OUTDOOR AIR REQUIRED IN TABLE 1507.3.3. EACH OCCUPIABLE SPACE SHALL HAVE A MINIMUM OF ONE AIR INLET THAT HAS A MINIMUM OF 4 SQUARE INCHES OF NET FREE AREA.

SOURCE-SPECIFIC VENTILATION (IRC M1507).
SOURCE SPECIFIC EXHAUST VENTILATION IS REQUIRED IN EACH KITCHEN, BATHROOM, WATER CLOSET, LAUNDRY ROOM, INDOOR SWIMMING POOL, SPA, AND OTHER ROOMS WHERE EXCESS WATER VAPOR OR COOKING ODOR IS PRODUCED. THE MINIMUM SOURCE SPECIFIC VENTILATION EFFECTIVE EXHAUST CAPACITY SHALL NOT BE LESS THAN LEVELS SPECIFIED IN TABLE 1507.4

TABLE 1503.3.(1)

VENTILATION RATES FOR ALL GROUP R PRIVATE DWELLINGS (CONTINUOUSLY OPERATING SYSTEM)

WHOLE HOUSE VENTILATION PER SECTION M1505.4

INTERMITTENTLY OPERATION VENTILATION SYSTEM PER IRC SECTION M1501.2

REF TO TABLE M1505.4 (1) FOR MINIMUM OUTDOOR AIRFLOW RATES - CFM

RUN TIME: ON ONCE EVERY THREE HOURS, FOR ONE HOUR PER TABLE M1507.3.2
OPERATION: TIME CLOCK TO OPEN DAMPER LOCATED IN FRESH AIR INTAKE DUCT BETWEEN THE OUTSIDE CAP AND THE RETURN AIR DUCT AT FURNACE, AND TIME CLOCK ALSO STARTS THE FURNACE FAN TO DISTRIBUTE FRESH AIR THROUGH THE HEAT DUCT SYSTEM THAT WAS BROUGHT IN THROUGHT THE AIR INTAKE DUCT. THE AIR VOLUME BROUGHT IN WILL BE FLOW TESTED AND ADJUSTED TO MATCH THE AMOUNT REQUIRED BY CALCULATIONS.
(PRIOR TO THE FINAL INSPECTION)

FLOOR AREA	BEDROOMS 0-1	2	3	4	5 OR MORE
LESS THAN 500	30 CFM	30 CFM	35 CFM	45 CFM	50 CFM
501-1,000	30 CFM	35 CFM	40 CFM	50 CFM	55 CFM
1,001-1,500	30 CFM	40 CFM	45 CFM	55 CFM	60 CFM
1,501-2,000	35 CFM	45 CFM	50 CFM	60 CFM	65 CFM
2,001-2,500	40 CFM	50 CFM	55 CFM	65 CFM	70 CFM
2,501-3,000	45 CFM	55 CFM	60 CFM	70 CFM	75 CFM
3,001-3,500	50 CFM	60 CFM	65 CFM	75 CFM	80 CFM
3,501-4,000	55 CFM	65 CFM	70 CFM	80 CFM	85 CFM
4,001-4,500	60 CFM	70 CFM	75 CFM	85 CFM	90 CFM
4,501-5,000	65 CFM	75 CFM	80 CFM	90 CFM	95 CFM

FRACTIONAL OPERATION TIME (f) OF 24-HR TIMER TO BE SET BY MECHANICAL CONTRACTOR, BASED ON

4-HOUR CYCLE, 150CFM (116 cfm @ Ø.25in WC) FAN ASHRAE 62.2-2010 AND TABLE M1507.3.3.(2) ON TIME SHALL BE:
- CONTINUOUS FAN RATE 60= f= .52 AND WILL RUN 125 MINUTES PER 4-HR CYCLE
- CONTINUOUS FAN RATE 75= f= .65 AND WILL RUN 156 MINUTES PER 4-HR CYCLE
- CONTINUOUS FAN RATE 90= f= .78 AND WILL RUN 187 MINUTES PER 4-HR CYCLE
- CONTINUOUS FAN RATE 105= f= .91 AND WILL RUN 218 MINUTES PER 4-HR CYCLE

EXHAUST FAN REQUIREMENTS (SECTION 3103.3.2 V.I.A.Q.)
a. BATHROOMS, LAUNDRIES, WATER CLOSETS OR SIMILAR ROOMS SHALL HAVE A MINIMUM FAN FLOW RATING NOT LESS THAN 50 cfm @ Ø.25 WATER GAUGE.
b. KITCHENS SHALL HAVE A MINIMUM FAN FLOW RATING NOT LESS THAN 100 cfm @ Ø.25 WATER GAUGE. HOWEVER, WHERE A RANGE HOOD OR DOWN DRAFT EXHAUST FAN IS USED THE MINIMUM FAN FLOW RATING SHALL NOT BE LESS THAN 100 cfm @ Ø.10 WATER GAUGE.
c. EXHAUST FANS CANNOT TERMINATE WITHING 3 FT. FROM ANY OPERABLE OPENING PER IRC R1506.3

SOURCE SPECIFIC VENTILATION DUCTS
a. MUST TERMINATE OUTSIDE THE BUILDING
b. EXHAUST DUCTS SHALL BE EQUIPPED WITH BACK-DRAFT DAMPERS
c. VENTILATION DUCTS IN UNCONDITIONED SPACE WILL REQUIRE R-8 INSULATION PER WSEC R403.3.1
d. TERMINAL ELEMENTS MUST BE SCREENED AND SIZED TO BE GREATER THAN OR EQUAL TO THE NET FREE AREA OF THE DUCT

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JOB NO: 21006
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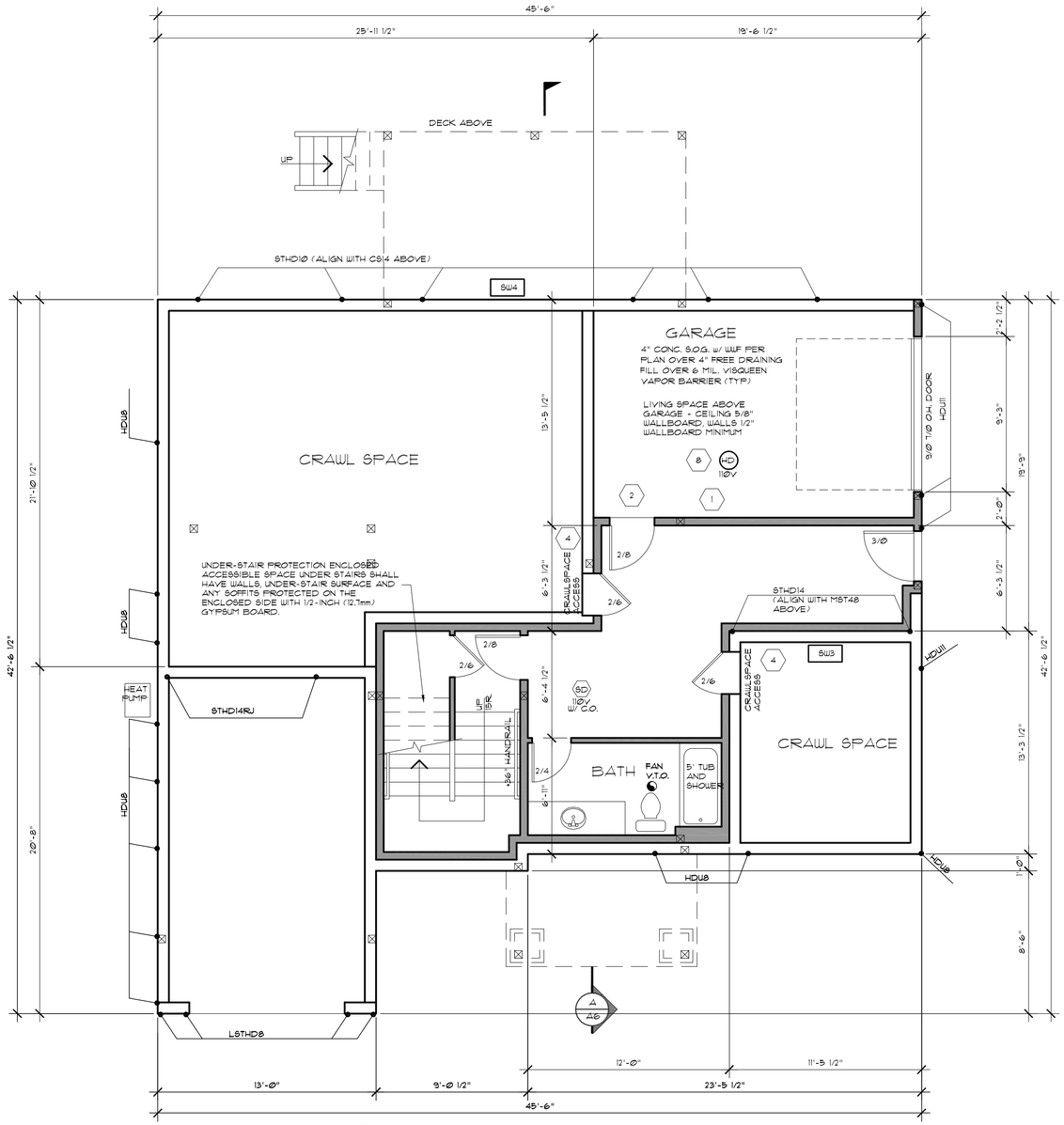
REVISED: 6/8/2023

SHEET NO.
A1



NFPA 13d FIRE SPRINKLER SYSTEM REQUIRED

LOWER FLOOR PLAN

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

0' 1' 5' 10'

1. 2018 IRC R302.6: Dwelling/garage separation required. The garage shall be separated as required by Table R302.6. Openings in garage walls shall comply with Section R302.5. This provision does not apply to garage walls that are perpendicular to the adjacent dwelling unit wall. Ceilings and beams will be covered by 5/8" Type X gypsum run perpendicular to the floor joists (see 2018 IRC Table R702.3.5 Footnote e)
2. Openings between the garage and residence shall be equipped with solid wood doors not less than 1-3/8-inches (35mm) in thickness, solid or honeycomb core steel doors not less than 1-3/8 inches (35mm) thick, or 20-minute fire-rated doors, equipped with a self-closing device.
3. R314.4.1 Heat detection interconnection. Heat detectors and heat alarms shall be connected to an alarm or a smoke alarm that is installed in the dwelling. Alarms and smoke alarms that are installed for this purpose shall be located in a hallway room, or other location that will provide occupant notification.
4. 18"x24" MIN. CRAWL SPACE ACCESS WEATHERSTRIP & INSULATE TO LEVEL EQUAL TO SURROUNDING SURFACES.

NOTE: CONTRACTOR SHALL VERIFY TO INSPECTOR ALL GUARDS AND RAILINGS SHALL BE CAPABLE OF RESISTING 200 LB LOAD ON TOP RAIL IN ANY DIRECTION AS REQUIRED BY IRC TABLE 3015

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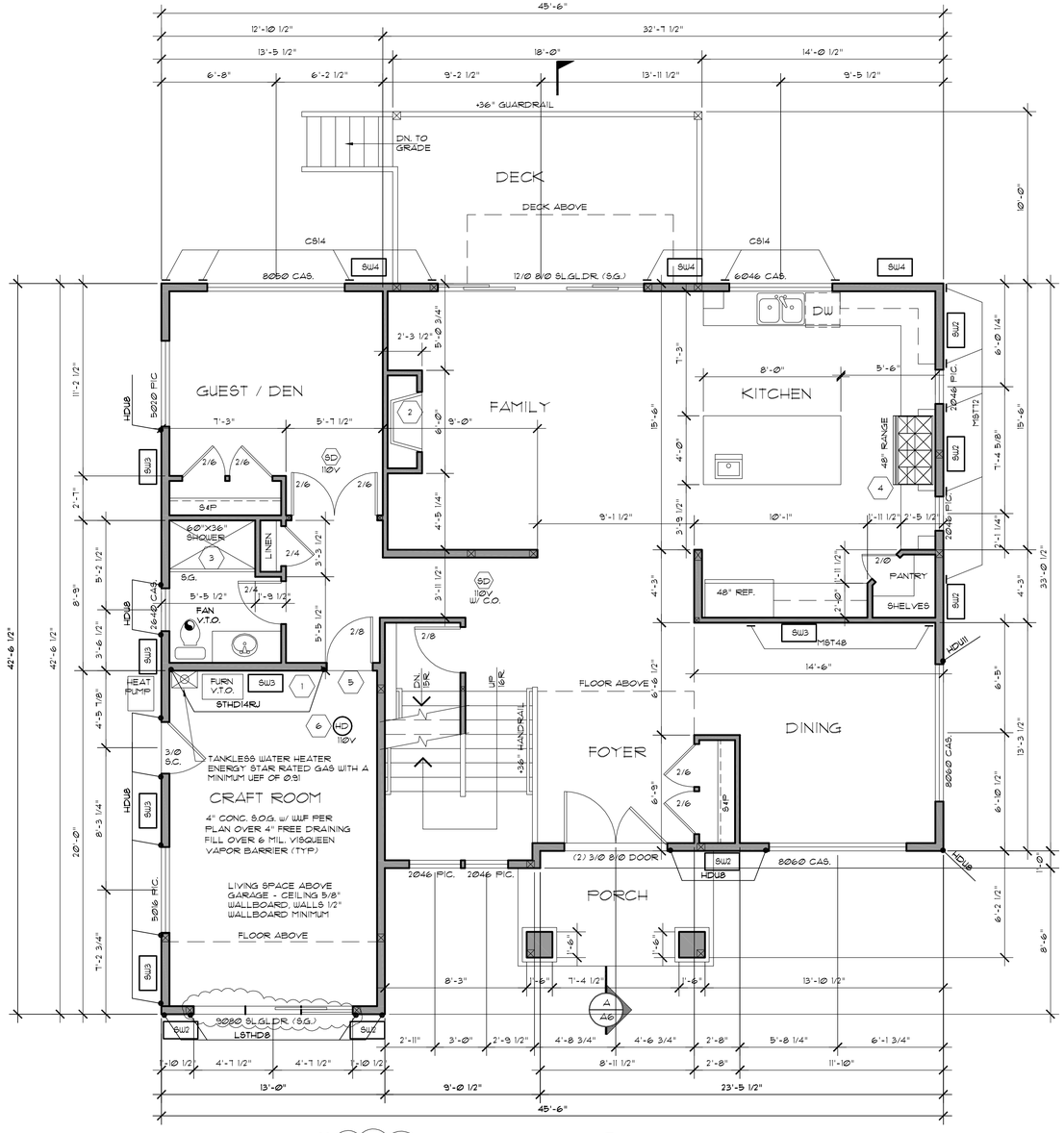
A2



MAIN FLOOR PLAN

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

WHOLE HOUSE VENTILATION PER SECTION M1505.4

INTERMITTENTLY OPERATION VENTILATION SYSTEM PER IRC SECTION M1507.12
REF TO TABLE M1505.4 (1) FOR MINIMUM OUTDOOR AIRFLOW RATES - CFM
RUN TIME: ON ONCE EVERY THREE HOURS, FOR ONE HOUR PER TABLE M1507.3.2 OPERATION. TIME CLOCK TO OPEN DAMPER LOCATED IN FRESH AIR INTAKE DUCT BETWEEN THE OUTSIDE CAP AND THE RETURN AIR DUCT AT FURNACE, AND TIME CLOCK ALSO STARTS THE FURNACE FAN TO DISTRIBUTE FRESH AIR THROUGH THE HEAT DUCT SYSTEM THAT WAS BROUGHT IN THROUGHT THE AIR INTAKE DUCT. THE AIR VOLUME BROUGHT IN WILL BE FLOW TESTED AND ADJUSTED TO MATCH THE AMOUNT REQUIRED BY CALCULATIONS. (PRIOR TO THE FINAL INSPECTION)

FLOOR AREA	BEDROOMS				
	0-1	2	3	4	5 OR MORE
LESS THAN 500	30 CFM	30 CFM	35 CFM	45 CFM	50 CFM
501-1,000	30 CFM	35 CFM	40 CFM	50 CFM	55 CFM
1,001-1,500	30 CFM	40 CFM	45 CFM	55 CFM	60 CFM
1,501-2,000	35 CFM	45 CFM	50 CFM	60 CFM	65 CFM
2,001-2,500	40 CFM	50 CFM	55 CFM	65 CFM	70 CFM
2,501-3,000	45 CFM	55 CFM	60 CFM	70 CFM	75 CFM
3,001-3,500	50 CFM	60 CFM	65 CFM	75 CFM	80 CFM
3,501-4,000	55 CFM	65 CFM	70 CFM	80 CFM	85 CFM
4,001-4,500	60 CFM	70 CFM	75 CFM	85 CFM	90 CFM
4,501-5,000	65 CFM	75 CFM	80 CFM	90 CFM	95 CFM

TABLE 406.3
2018 ENERGY CREDITS (DEBITS)

SEE RESIDENTIAL ENERGY EFFICIENCY SHEET ATTACHED

HEAT OPTION 2 - 1.0 PTS
OPTION 2.1 - .5 PTS
OPTION 2.2 - 1.5 PTS
OPTION 3.5 - 1.5 PTS
OPTION 4.1 - .5 PTS
OPTION 5.3 - 1.0 PTS

TOTAL POINTS - 6.0 PTS

PERSCRIPTIVE REQUIREMENTS 2018 W.S.E.C. (UNLIMITED)

CLIMATE ZONES 5 AND MARINE 4
GLAZING U-FACTOR: VERTICAL U=.28, OVERHEAD U=.50
DOOR U-FACTOR: U=.28
INSULATION: CEILING: R-49, R-38 (ADV.), VAULTED CEILING: R-38
ABOVE GRADE WALLS: R-21, BELOW GRADE WALLS: R-21
FLOOR OVER VENTED CRAWL SPACE: R-38
SLAB ON GRADE: R-10

ENERGY CODE COMPLIANCE

3.5a Air-source, centrally ducted heat pump with minimum HSPF of 11.0.

To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.

unit and shall meet the following standards:
Dishwasher – Energy Star rated
Refrigerator (if provided) – Energy Star rated
Washing machine – Energy Star rated
Dryer – Energy Star rated, ventless dryer with a minimum CEF rating of 5.2.

MECHANICAL VENTILATION
REQUIRED VENTILATION PER TABLE M1507.3.3 (1) 90 CFM
INTERMITTENT RUN TIME FACTOR 2 = 180 CFM
PROVIDE WHOLE HOUSE VENTILATION INTEGRATED WITH A FORCED AIR SYSTEM M1507.3.5

A MINIMUM OF 75% OF ALL LIGHT FIXTURES WILL BE HIGH EFFICACY. (WSEC R404.1)

1. 2018 IRC R302.6: Dwelling/garage separation required: The garage shall be separated as required by Table R302.6. Openings in garage walls shall comply with Section R302.5. This provision does not apply to garage walls that are perpendicular to the adjacent dwelling unit wall. Ceilings and beams will be covered by 5/8" Type X gypsum run perpendicular to the floor joists (see 2018 IRC Table R702.3.5 footnote e)
2. DIRECT VENT FIREPLACE INSTALL PER MANUFACTURERS SPECIFICATIONS
3. CONC. FIBEREBOARD @ TUB & SHOWER SURROUND TO 6' ABOVE DRAIN
4. NOTE: PER M1503.6, EXHAUST HOOD SYSTEMS CAPABLE OF EXHAUSTING IN EXCESS OF 400 CFM SHALL BE PROVIDED WITH MAKEUP AIR AT A RATE EQUAL TO THE EXHAUST RATE. SUCH MAKEUP AIR SYSTEMS SHALL BE EQUIPPED WITH A MEANS OF CLOSURE AND SHALL BE AUTOMATICALLY CONTROLLED TO START AND OPERATE SIMULTANEOUSLY WITH THE EXHAUST SYSTEM
5. Openings between the garage and residence shall be equipped with solid wood doors not less than 1-3/8-inches (35mm) in thickness, solid or honeycomb core steel doors not less than 1-3/8 inches (35mm) thick, or 20-minute fire-rated doors, equipped with a self-closing device.
6. R314.4.1 Heat detection interconnection. Heat detectors and heat alarms shall be connected to an alarm or a smoke alarm that is installed in the dwelling. Alarms and smoke alarms that are installed for this purpose shall be located in a hallway, room, or other location that will provide occupant notification.

NOTE: CONTRACTOR SHALL VERIFY TO INSPECTOR ALL GUARDS AND RAILINGS SHALL BE CAPABLE OF RESISTING 200 LB LOAD ON TOP RAIL IN ANY DIRECTION AS REQUIRED BY IRC TABLE 3015

SQUARE FOOTAGE SUMMARY

LOWER FLOOR	257	SQ. FT.
MAIN FLOOR	1332	SQ. FT.
UPPER FLOOR	1305	SQ. FT.
TOTAL	2894	SQ. FT.
LOWER GARAGE	307	SQ. FT.
GARAGE	255	SQ. FT.
COVERED DECK	210	SQ. FT.
UPPER DECKS	184	SQ. FT.

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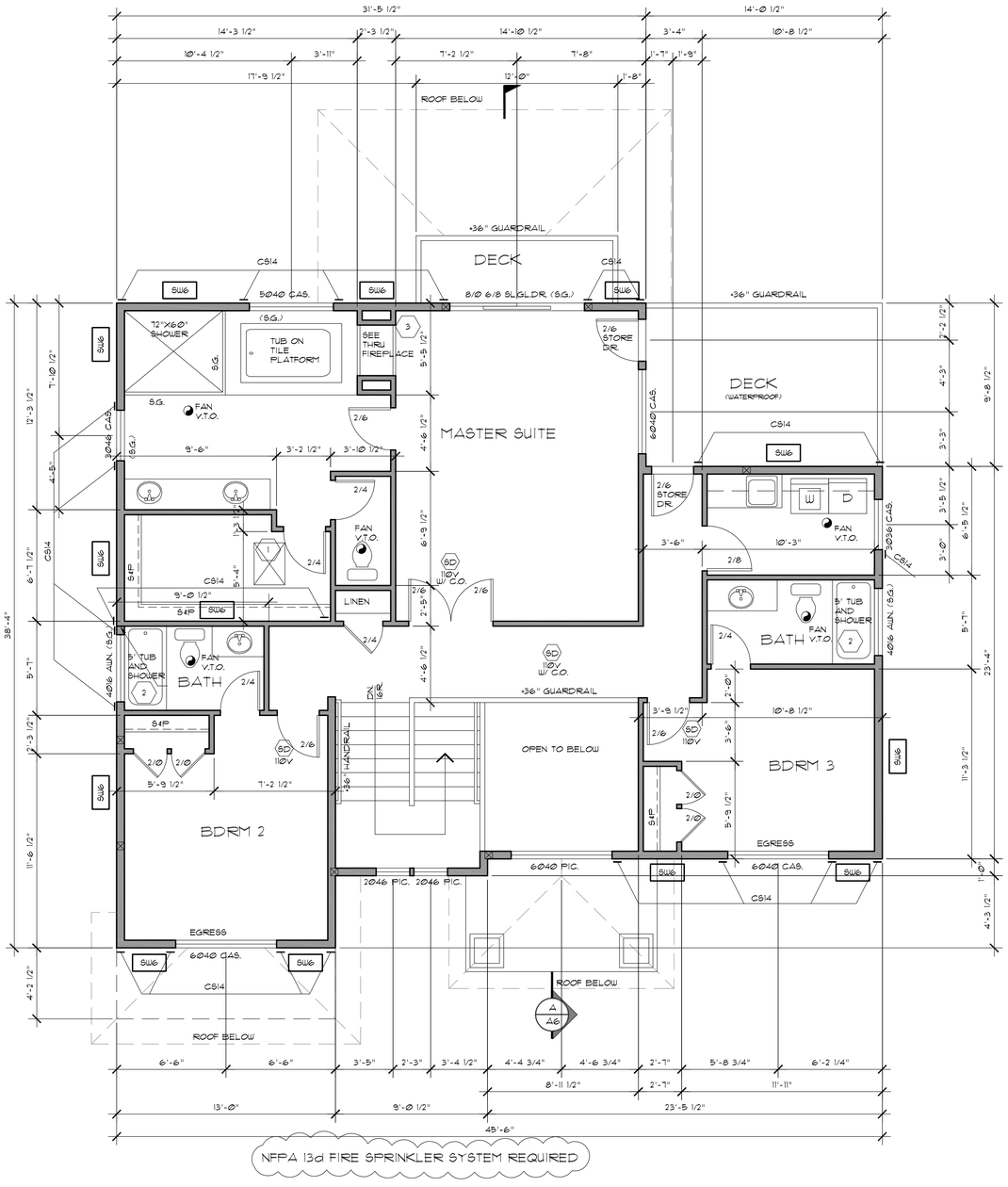
SHEET NO.
A3



STAIR LIGHTING ALL STAIRWAYS SHALL BE PROVIDED WITH LIGHT SOURCES. LIGHT ACTIVATION CONTROLS SHALL BE ACCESSIBLE AT THE TOP AND BOTTOM OF INTERIOR STAIRWAYS AND WITHIN DWELLING UNIT FOR EXTRIOR STAIRS IRC SECTIONS R303.7 & R311.7.9

1. 22"x30" ATTIC ACCESS. WEATHERSTRIP & INSULATE OVER TO EQUAL CEILING INSULATION. PROVIDE WOOD SURROUND TO PREVENT LOOSE INSULATION SPILLAGE TO LIVING SPACE. (IBC SEC. R807.1)
2. CONC. FIBERBOARD @ TUB & SHOWER SURROUND TO 6' ABOVE DRAIN
3. DIRECT VENT FIREPLACE INSTALL PER MANUFACTURERS SPECIFICATIONS
4. GUARDS ARE NOT OF GLASS BALUSTER CONSTRUCTION. IF GUARDS TO BE OF GLASS BALUSTER CONSTRUCTION, PROVIDE DETAILS OF CONSTRUCTION. GLASS INFILL IS PERMITTED.

NOTE: CONTRACTOR SHALL VERIFY TO INSPECTOR ALL GUARDS AND RAILINGS SHALL BE CAPABLE OF RESISTING 200 LB LOAD ON TOP RAIL IN ANY DIRECTION AS REQUIRED BY IRC TABLE 301.5

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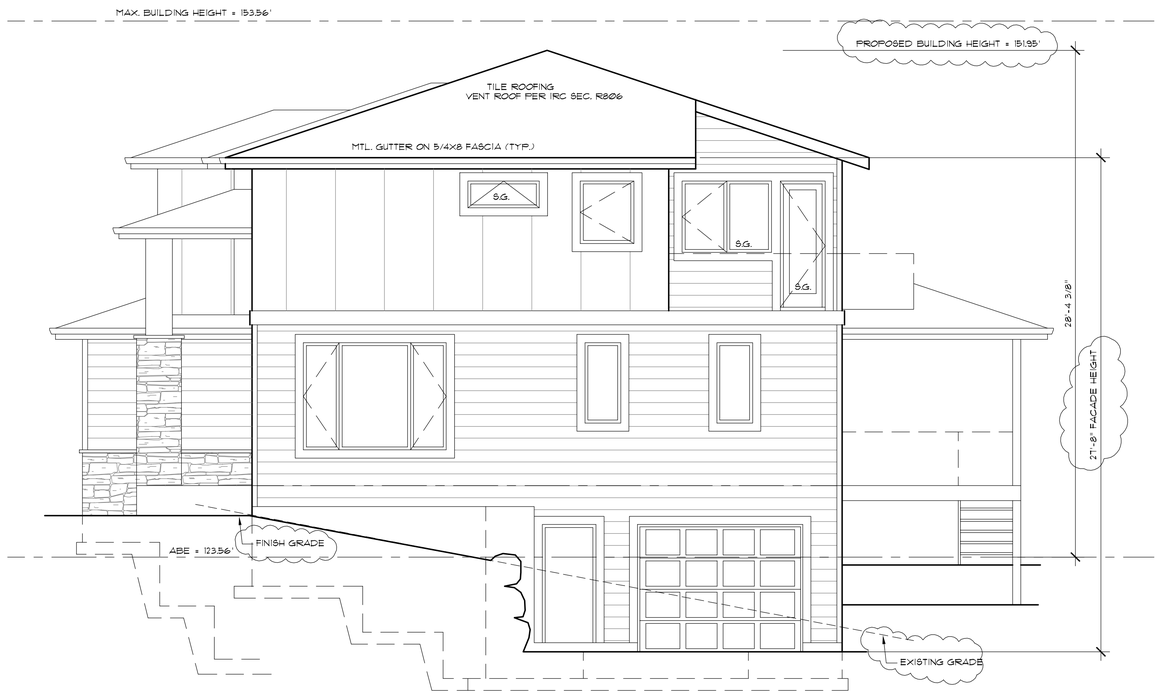
SHEET NO.

A4

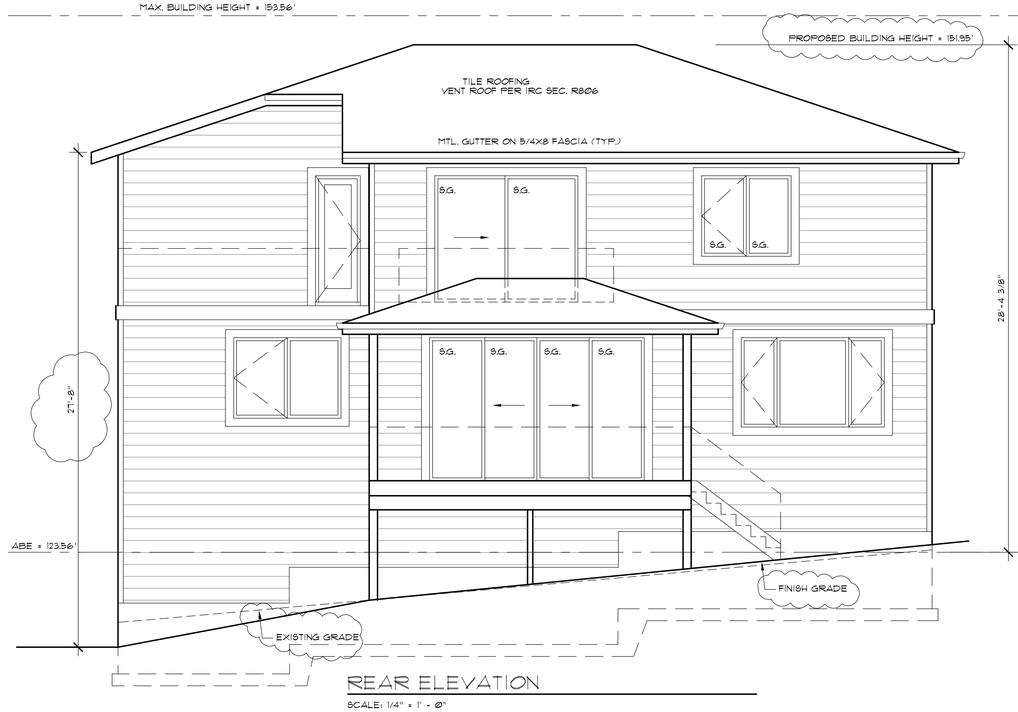


RIGHT ELEVATION

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

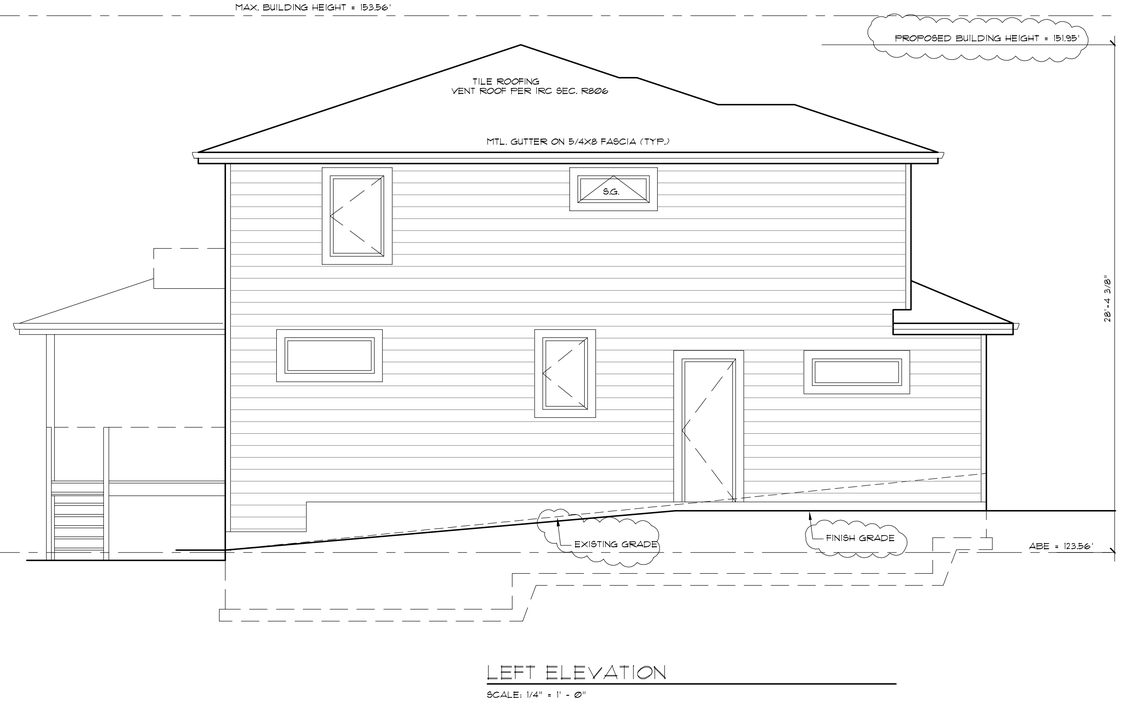
FRONT ELEVATION

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



REAR ELEVATION

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



LEFT ELEVATION

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

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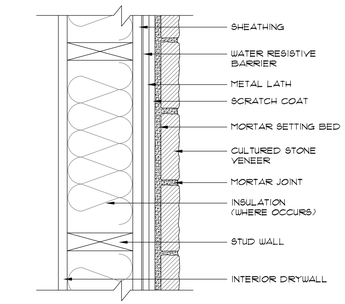
A5



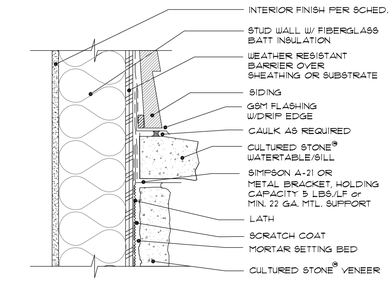
AN APPROVED REPORT AND INSTALLATION INSTRUCTIONS TO BE ON SITE DURING INSTALLATION AND INSPECTION OF STONE VENEER

STONE APPLICATION DETAIL

N.T.S.

FASTENERS FOR ATTACHMENT OF TRIM ACCESSORIES, FOUNDATION TRIM AND LATH WOOD-SHEATHED FRAMING:
1. ROOFING NAILS: 11-GAUGE - 7/16" HEAD - 1 3/8 INCHES LONG
2. STAPLES: 16- GUAGE - 3/4" CROWN - 1 3/8 INCHES LONG
3. TYPE 'W' SCREWS: WAFER HEAD - 1 1/4 INCHES LONG

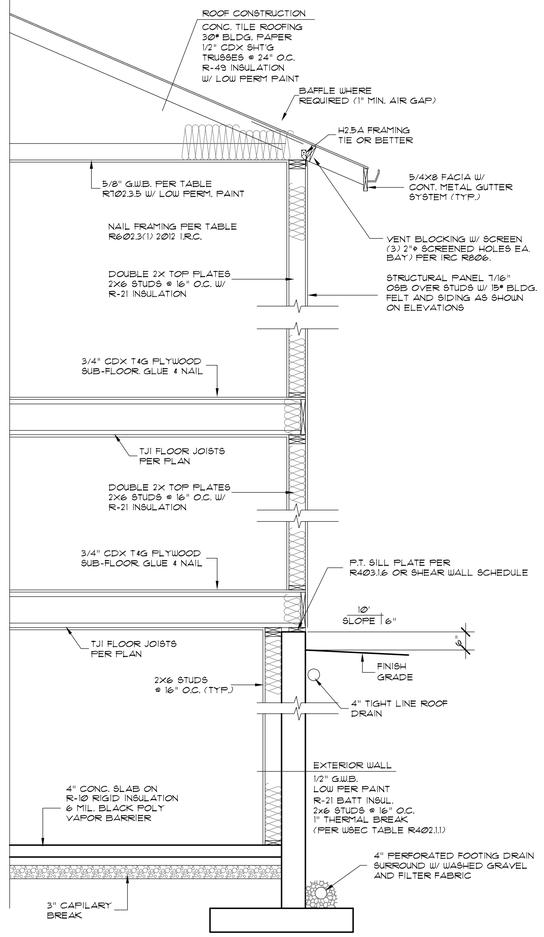
FOR ATTACHMENT OF 2.5 POUND PER SQUARE YARD DIAMOND MESH LATH, THE SPACING OF FASTENERS SHALL BE 16 INCHES (400MM) O.C. HORIZONTALLY. FOR ATTACHMENT OF WOVEN WIRE LATH, WELDED WIRE LATH AND 3.4 POUND PER SQUARE YARD DIAMOND MESH LATH, THE SPACING OF FASTENERS SHALL BE 24 INCHES (600MM) O.C. HORIZONTALLY. VERTICAL ATTACHMENT OF LATH SHALL BE 6 INCHES (150MM).



WATERTABLE/SILL PROFILE

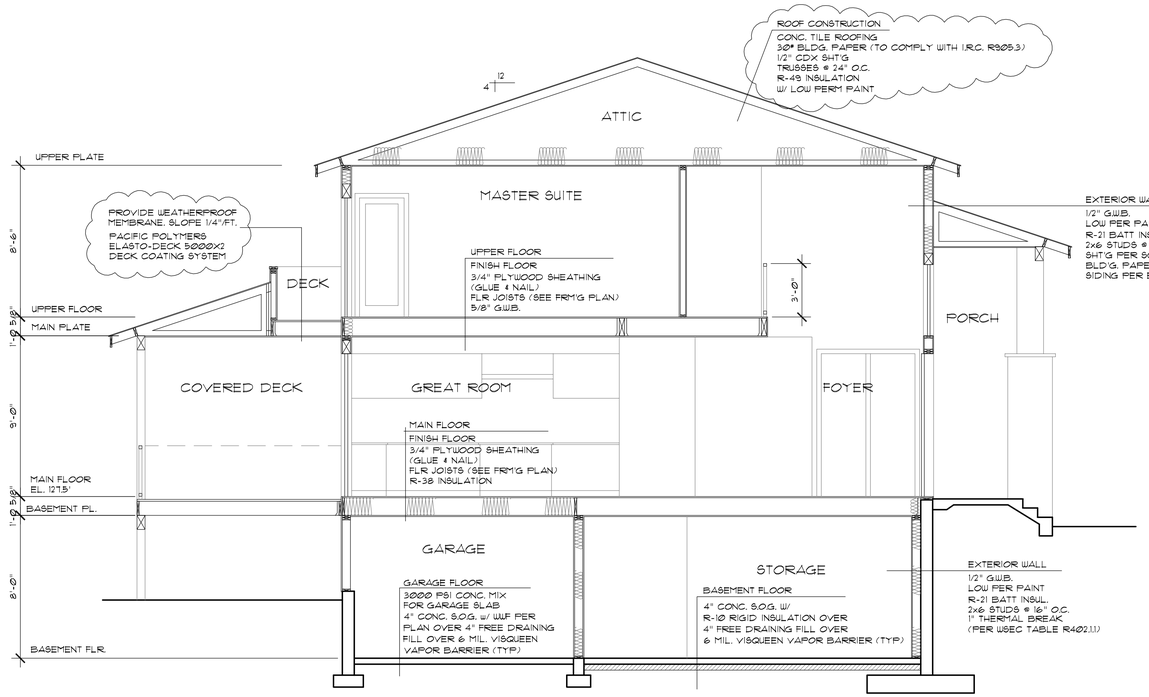
CULTURED STONE® OR THIN STONE WATERTABLE/SILL @ SIDING

SCALE: N.T.S.



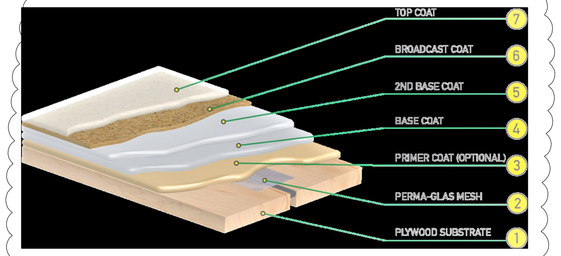
TYP. WALL SECTION

N.T.S.



SECTION A-A

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



WATERPROOF DECK DETAIL

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SHEET NO.

A6

2018 Washington State Energy Code – Residential
Prescriptive Energy Code Compliance for All Climate Zones in Washington
Single Family – New & Additions (effective February 1, 2021)

Each dwelling unit in a residential building shall comply with sufficient options from Table R406.2 (fuel normalization credits) and Table 406.3 (energy credits) to achieve the following minimum number of credits. To claim this credit, the building permit drawings shall specify the option selected and the maximum tested building air leakage, and show the qualifying ventilation system and its control sequence of operation.

1. **Small Dwelling Unit: 3 credits**
   Dwelling units less than 1,500 sf in conditioned floor area with less than 300 sf of fenestration area. Additions to existing building that are greater than 500 sf of heated floor area but less than 1,500 sf.
2. **Medium Dwelling Unit: 6 credits**
   All dwelling units that are not included in #1 or #3
3. **Large Dwelling Unit: 7 credits**
   Dwelling units exceeding 5,000 sf of conditioned floor area
4. **Additions less than 500 square feet: 1.5 credits**
   All other additions shall meet 1-3 above

Summary of Table R406.2

Heating Options	Fuel Normalization Descriptions	Credits - select ONE heating option		User Notes
1	Combustion heating minimum NAECAb	0.0		
2	Heat pumpc	1.0	●	
3	Electric resistance heat only - furnace or zonal	-1.0		
4	DHP with zonal electric resistance per option 3.4	0.5		
5	All other heating systems	-1.0		
Energy Options	**Energy Credit Option Descriptions**	**Credits - select ONE energy option from each** category d		
1.1	Efficient Building Envelope	0.5		
1.2	Efficient Building Envelope	1.0		
1.3	Efficient Building Envelope	0.5	●	
1.4	Efficient Building Envelope	1.0		
1.5	Efficient Building Envelope	2.0		
1.6	Efficient Building Envelope	3.0		
1.7	Efficient Building Envelope	0.5		
2.1	Air Leakage Control and Efficient Ventilation	0.5		
2.2	Air Leakage Control and Efficient Ventilation	1.0	●	
2.3	Air Leakage Control and Efficient Ventilation	1.5		
2.4	Air Leakage Control and Efficient Ventilation	2.0		
3.1a	High Efficiency HVAC	1.0		
3.2	High Efficiency HVAC	1.0		
3.3a	High Efficiency HVAC	1.5		
3.4	High Efficiency HVAC	1.5		
3.5	High Efficiency HVAC	1.5	●	
3.6a	High Efficiency HVAC	2.0		
4.1	High Efficiency HVAC Distribution System	0.5	●	
4.2	High Efficiency HVAC Distribution System	1.0		
5.1d	Efficient Water Heating	0.5		
5.2	Efficient Water Heating	0.5		
5.3	Efficient Water Heating	1.0	●	
5.4	Efficient Water Heating	1.5		
5.5	Efficient Water Heating	2.0		
5.6	Efficient Water Heating	2.5		
6.1e	Renewable Electric Energy (3 credits max)	1.0		
7.1	Appliance Package	0.5		
	Total Credits	6.0		

a. An alternative heating source sized at a maximum of 0.5 W/sf (equivalent) of heated floor area or 500 W, whichever is bigger, may be installed in the dwelling unit.
b. Equipment listed in Table C403.3.2(4) or C403.3.2(5)
c. Equipment listed in Table C403.3.2(1) or C403.3.2(2)
d. You cannot select more than one option from any category EXCEPT in category 5. Option 5.1 may be combined with options 5.2 through 5.6. See Table 406.3.
e. 1.0 credit for each 1,200 kWh of electrical generation provided annually, up to 3 credits max.
See the complete Table R406.2 for all requirements and option descriptions.

Energy Credits (2018 Code)

TABLE 406.3
2018 ENERGY CREDITS

OPTION	DESCRIPTION	CREDIT(S) All Other	CREDIT(S) Group R-2
1. EFFICIENT BUILDING ENVELOPE OPTIONS	Only one option from Items 1.1 through 1.7 may be selected in this category. Compliance with the conductive UA targets is demonstrated using Section R402.1.4, Total UA alternative, where [1-(Proposed UA/Target UA)] > the required %UA reduction		
1.3	Prescriptive compliance is based on Table R402.1.1 with the following modifications: Vertical fenestration U = 0.28 Floor R-38 Slab on grade R-10 perimeter and under entire slab Below grade slab R-10 perimeter and under entire slab **or** Compliance based on Section R402.1.4: Reduce the Total conductive UA by 5%.	0.5	N/A
2.2	Compliance based on Section R402.4.1.2: Reduce the tested air leakage to 2.0 air changes per hour maximum at 50 Pascals **or** For R-2 Occupancies, optional compliance based on Section R402.4.1.2: Reduce the tested air leakage to 0.25 cfm/ft2 maximum at 50 Pascals **and** All whole house ventilation requirements as determined by Section M1507.3 of the International Residential Code or Section 403.8 of the International Mechanical Code shall be met with a heat recovery ventilation system with minimum sensible heat recovery efficiency of 0.65. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the maximum tested building air leakage and shall show the heat recovery ventilation system.	1.0	1.5
3.5a	Air-source, centrally ducted heat pump with minimum HSPF of 11.0. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.	1.5	N/A

TABLE 406.3
2018 ENERGY CREDITS

OPTION	DESCRIPTION	CREDIT(S) All Other	CREDIT(S) Group R-2
4. HIGH EFFICIENCY HVAC DISTRIBUTION SYSTEM OPTIONS			
4.1	All supply and return ducts located in an unconditioned attic shall be deeply buried in ceiling insulation in accordance with Section R403.3.7. For mechanical equipment located outside the conditioned space, a maximum of 10 linear feet of return duct and 5 linear feet of supply duct connections to the equipment may be outside the deeply buried insulation. All metallic ducts located outside the conditioned space must have both transverse and longitudinal joints sealed with mastic. If flex ducts are used, they cannot contain splices. Duct leakage shall be limited to 3 cfm per 100 square feet of conditioned floor area. Air handler(s) shall be located within the conditioned space.	0.5	0.5
5. EFFICIENT WATER HEATING OPTIONS			
5.3	Water heating system shall include one of the following: Energy Star rated gas or propane water heater with a minimum UEF of 0.91 **or** Solar water heating supplementing a minimum standard water heater. Solar water heating will provide a rated minimum savings of 85 therms or 2000 kWh based on the Solar Rating and Certification Corporation (SRCC) Annual Performance of OG-300 Certified Solar Water Heating Systems **or** Water heater heated by ground source heat pump meeting the requirements of Option 3.3. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the water heater equipment type and the minimum equipment efficiency and, for solar water heating systems, the calculation of the minimum energy savings.	1.0	1.0

2018 Washington State Energy Code – Residential
Prescriptive Energy Code Compliance for All Climate Zones in Washington
Single Family – New & Additions (effective February 1, 2021)

These requirements apply to all IRC building types, including detached one- and two-family dwellings and multiple single-family dwellings (townhouses).

Project Information	Contact Information

Instructions: This single-family project will use the requirements of the Prescriptive Path below and incorporate the minimum values listed. Based on the size of the structure, the appropriate number of additional credits are checked as chosen by the permit applicant.

Provide all information from the following tables as building permit drawings: Table R402.1 - Insulation and Fenestration Requirements by Component, Table R406.2 - Fuel Normalization Credits and 406.3 - Energy Credits.

Authorized Representative		Date	

All Climate Zones (Table R402.1.1)

	R-Value a	U-Factor a
Fenestration U-Factor b	n/a	0.30
Skylight U-Factor b	n/a	0.50
Glazed Fenestration SHGC b,e	n/a	n/a
Ceiling g	49 i	0.026
Wood Frame Wall g,h	21 int	0.056
Floor	38	0.026
Below Grade Wall c,h	10/15/21 int + TB	0.042
Slab d,f R-Value & Depth	10, 2 ft	n/a

a. R-values are minimums. U-factors and SHGC are maximums. When insulation is installed in a cavity that is less than the label or design thickness of the insulation, the compressed R-value of the insulation from Appendix Table A101.4 shall not be less than the R-value specified in the table.
b. The fenestration U-factor column excludes skylights.
c. "10/15/21 +5TB" means R-10 continuous insulation on the exterior of the wall, or R-15 continuous insulation on the interior of the wall, or R-21 cavity insulation plus a thermal break between the slab and the basement wall at the interior of the basement wall. "10/15/21 +5TB" shall be permitted to be met with R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulation on the interior or exterior of the wall. "5TB" means R-5 thermal break between floor slab and basement wall.
d. R-10 continuous insulation is required under heated slab on grade floors. See Section R402.2.9.1.
e. For single rafter- or joist-vaulted ceilings, the insulation may be reduced to R-38 if the full insulation depth extends over the top plate of the exterior wall.
f. R-7.5 continuous insulation installed over an existing slab is deemed to be equivalent to the required perimeter slab insulation when applied to existing slabs complying with Section R503.1.1. If foam plastic is used, it shall meet the requirements for thermal barriers protecting foam plastics.
g. For log structures developed in compliance with Standard ICC 400, log walls shall meet the requirements for climate zone 5 of ICC 400.
h. Int. (intermediate framing) denotes framing and insulation as described in Section A103.2.2 including standard framing 16 inches on center, 78% of the wall cavity insulated and headers insulated with a minimum of R-10 insulation.

Window, Skylight and Door Schedule

Project Information	Contact Information
LIU RESIDENCE	

	Ref.	U-factor	Qt.	Width Feet	Width Inch	Height Feet	Height Inch	Area	UA
Exempt Swinging Door (24 sq. ft. max.)								0.0	0.00
Exempt Glazed Fenestration (15 sq. ft. max.)								0.0	0.00

Vertical Fenestration (Windows and doors)

Component Description	Ref.	U-factor	Qt.	Width Feet	Width Inch	Height Feet	Height Inch	Area	UA
DINING		0.28	2	8		6		96.0	26.88
KITCHEN		0.28	2	2		4	6	18.0	5.04
KITCHEN		0.28	1	6		4	6	27.0	7.56
GREAT ROOM		0.28	1	12		8		96.0	26.88
GUEST/DEN		0.28	1	8		5		40.0	11.20
GUEST/DEN		0.28	1	5		2		10.0	2.80
BATH		0.28	1	2	6	4		10.0	2.80
ENTRY		0.28	1	6	0	4		24.0	6.72
BEDRM 3		0.28	1	6		4		24.0	6.72
BATH		0.28	1	4		1	6	6.0	1.68
MASTER SUITE		0.28	1	6		4		24.0	6.72
MASTER SUITE		0.28	1	2	6	6	8	16.7	4.67
MASTER SUITE		0.28	1	8		6	8	53.3	14.93
MASTER BATH		0.28	1	5		4		20.0	5.60
MASTER BATH		0.28	1	3		4		12.0	3.36
BATH		0.28	1	4		1	6	6.0	1.68
BEDROOM 2		0.28	1	6		4		24.0	6.72
STAIR		0.28	4	4		4	6	72.0	20.16
								0.0	0.00
								0.0	0.00
								0.0	0.00
								0.0	0.00
Sum of Vertical Fenestration Area and UA								579.0	162.12
Vertical Fenestration Area Weighted U = UA/Area									0.28

Overhead Glazing (Skylights)

Component Description	Ref.	U-factor	Qt.	Width Feet	Width Inch	Height Feet	Height Inch	Area	UA
								0.0	0.00
Sum of Overhead Glazing Area and UA								0.0	0.00
Overhead Glazing Area Weighted U = UA/Area									0.00
Total Sum of Fenestration Area and UA ***(for heating system sizing calculations)***								579.0	162.12

Simple Heating System Size: Washington State

This heating system sizing calculator is based on the Prescriptive Requirements of the 2018 Washington State Energy Code (WSEC) and ACC Manuals J and S. This tool will calculate heating loads only. ACCA procedures for sizing cooling systems should be used to determine cooling l

Please complete the green drop-downs and boxes that are applicable to your project. As you make selections in the drop-downs for each sectic some values will be calculated for you. If you do not see the selection you need in the drop-down options, please contact the WSU Energy Prog at energycode@energy.wsu.edu or (360) 956-2042 for assistance.

Project Information	Contact Information
LIU RESIDENCE	ON
	6*
All Other Systems	Heat Pump

Heating System Type:

To see detailed instructions for each section, place your cursor on the word "Instructions"

Design Tempera****
Instructions — Mercer Island — Design Temperature Difference (ΔT) 45
ΔT = Indoor (70 degrees) - Outdoor Design Temp

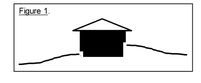
Area of Building
Conditioned Floor Area
Instructions — Conditioned Floor Area (sq ft): 2,894

Average Ceiling Height
Instructions — Average Ceiling Height (ft): 8.5 — Conditioned Volume: 24,599

		U-Factor	X	Area	=	UA
Glazing and Doo*** Instructions	U-0.28	0.280		579		162.12
Skylights Instructions		0.50				---
Insulation						
Attic Instructions	R-49	0.026		1,445		37.57
Single Rafter or Instructions	Select R-Value	No selection				---
Above Grade Wa Instructions	R-21 Intermediate	0.056		2,588		144.93
Floors Instructions	R-38	0.025		696		17.40
Below Grade Wa Instructions	R-21 Interior	0.042		848		35.62
Slab Below Grad Instructions	R-10 Fully insulated	0.303		106		32.12
Slab on Grade (f Instructions	Select R-Value	No selection				---

Location of Duct**
Instructions — Conditioned Space — **Duct Leakage Coefficient** 1.00

Figure 1.



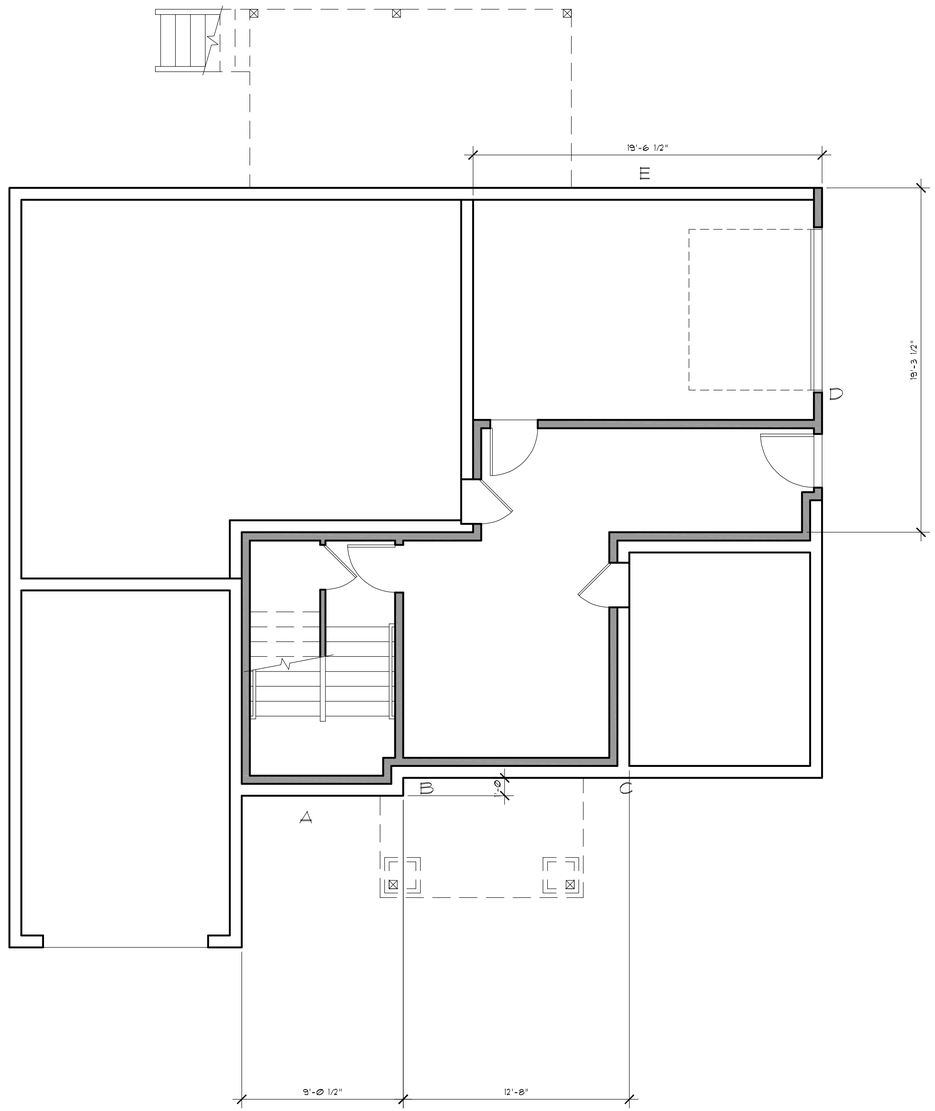
Sum of UA	429.75	
Envelope Heat Load *Sum of UA x ΔT*	19,339	Btu / Hour
Air Leakage Heat Load *Volume x .6 x ΔT x 0.018*	11,955	Btu / Hour
Building Design Heat Load *Air leakage + envelope heat loss*	31,294	Btu / Hour
Building and Duct Heat Load *Ducts in unconditioned space: sum of building heat loss x 1.10* *Ducts in conditioned space: sum of building heat loss x 1*	31,294	Btu / Hour
Maximum Heat Equipment Output *Building and duct heat loss x 1.40 for forced air furnace* *Building and duct heat loss x 1.25 for heat pump*	43,812	Btu / Hour

DESIGN HOMES
CHARLIE HOMES
P.O. BOX 317
MERCER ISLAND, WA. 98040

A NEW HOME FOR:
THE LIU RESIDENCE
3705 77TH PL. SE
MERCER ISLAND, WA 98040

JOB NO: 21006
DATE: 6/13/22
DRWN. BY: TH
REVISED: 7/3/23

SHEET NO.
A1



BASEMENT REDUCTION CALC

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

BASEMENT FLOOR AREA CALCULATION

WALL	LENGTH	COVERAGE	RESULT
A	9.08	100%	9.08%
B	1'	100%	1%
C	12'	100%	12%
D	19.33'	6.3	1.22%
E	19.5'	18.6%	3.63%
TOTAL	60.91'		26.93%

PORTION OF EXCLUDED BASEMENT FLOOR AREA:

619 (ACTUAL SQ. FT. W/ GARAGE) X (26.93/60.91) = 273.7 SQ. FT.

AREA OF BASEMENT EXCLUDED = 619-273.7 = 336 SQ. FT.

GROSS FLOOR AREA

LOWER FLOOR W/ GARAGE	619	SQ. FT.
MAIN FLOOR W/ GARAGE	1635	SQ. FT.
UPPER FLOOR	1360	SQ. FT.
TOTAL	3614	SQ. FT.
BASEMENT EXCLUDED	336	SQ. FT.
TOTAL	3278	SQ. FT.
LOT AREA	8,345	SQ. FT.
SQUARE FOOTAGE ALLOWED (40%)	3338	SQ. FT.

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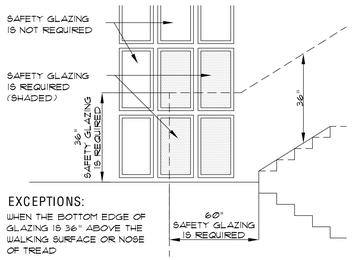
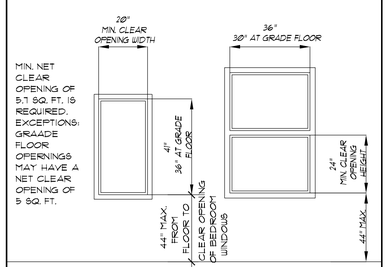
DATE: 6/13/22
DRWN. BY: TH
REVISED: 9/30/22

SHEET NO.

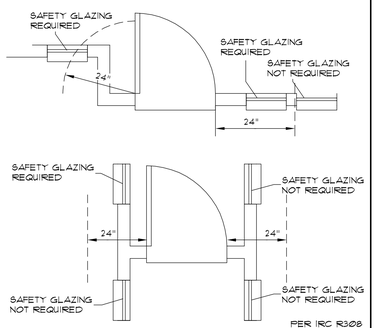
A8



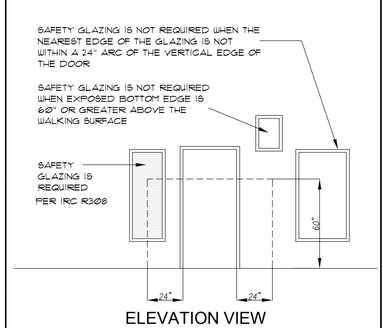
1 STAIRWAY GLAZING DETAIL
N.T.S.
08/15/11



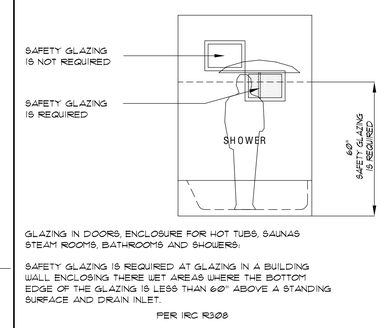
2 EGRESS WINDOW REQUIREMENTS
N.T.S.
08/15/11



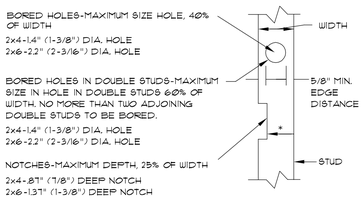
3 GLAZING ADJACENT DOORS
N.T.S.
08/15/11



4 GLAZING ADJACENT TO DOORS
N.T.S.
08/15/11

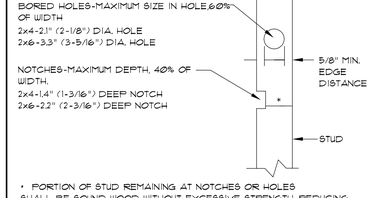


5 GLAZING ADJACENT TO SHOWERS
N.T.S.
08/15/11



EXTERIOR WALLS & BEARING WALLS

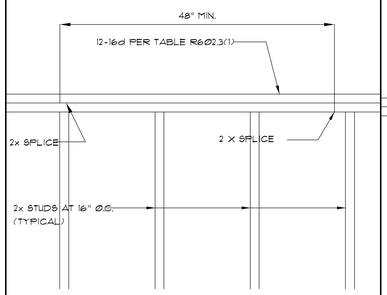
6 STUD PENETRATION
N.T.S.
08/15/11



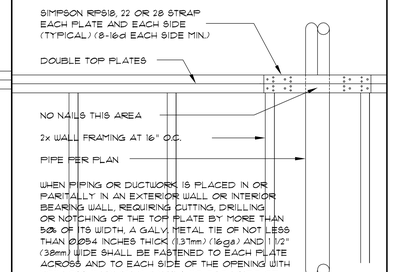
• PORTION OF STUD REMAINING AT NOTCHES OR HOLES SHALL BE SOUND WOOD WITHOUT EXCESSIVE STRENGTH-REDUCING PROPERTIES SUCH AS KNOTS, SPLITS, EXCESSIVE SLOPE OF GRAIN, ETC.

INTERIOR NONBEARING WALLS

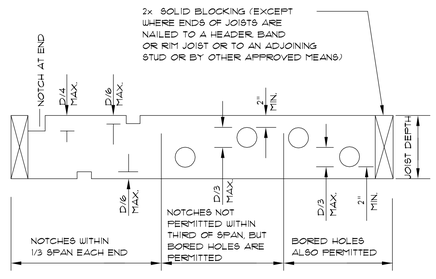
7 STUD PENETRATION
N.T.S.
08/15/11



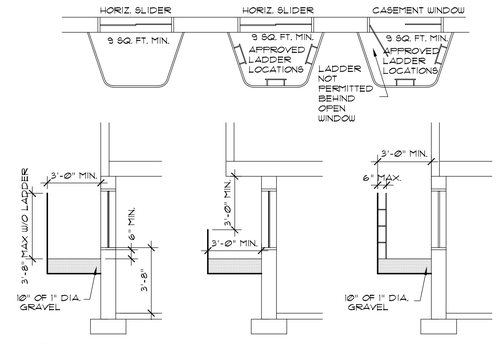
8 TOP PLATE SPLICE DETAIL
N.T.S.
08/15/11



9 NOTCHED / DRILLED PLATES
N.T.S.
08/15/11



10 STANDARD JOIST PENETRATION
N.T.S.



ESCAPE OR RESCUE WINDOW WITH A FINISH SILL HEIGHT OF BELOW THE ADJACENT GROUND ELEVATION SHALL HAVE A WINDOW WELL AND SHALL COMPLY WITH THE FOLLOWING:

1. THE CLEAR DIMENSIONS SHALL ALLOW THE WINDOW TO BE FULLY OPENED AND PROVIDE A MINIMUM NET OPENABLE AREA OF 9 SQ. FT., WITH A MINIMUM DIMENSION OF 36".

2. WINDOWS WITH A VERTICAL DEPTH OF MORE THAN 44" (3'-8") SHALL BE EQUIPPED WITH A PERMANENTLY AFFIXED LADDER OR STAIRS THAT ARE ACCESSIBLE WITH THE WINDOW IN THE FULLY OPENED POSITION. THE LADDER OR STAIRS SHALL NOT ENCROACH INTO THE REQUIRED DIMENSIONS OF THE WINDOW WELL OF MORE THAN 6".

BARS, GRILLS, GATES OR SIMILAR DEVICES MAY BE INSTALLED ON EMERGENCY ESCAPE OR RESCUE WINDOWS, DOORS OR WINDOW WELLS PROVIDED:

1. THE DEVICES ARE EQUIPPED WITH APPROVED RELEASE MECHANISMS WHICH ARE OPERABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT: AND

2. THE BUILDING IS EQUIPPED WITH SMOKE DETECTORS INSTALLED IN ACCORDANCE WITH UBC SECTION 310.9

11 WINDOW WELL DETAIL
N.T.S.

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P.O. BOX 317
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JOB NO: 21006
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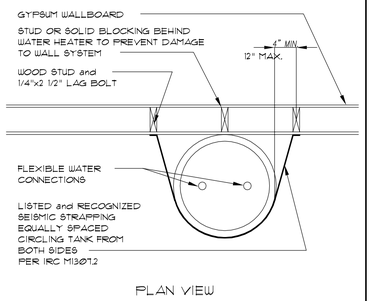
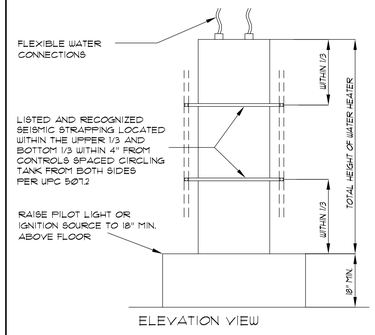
REVISED: .

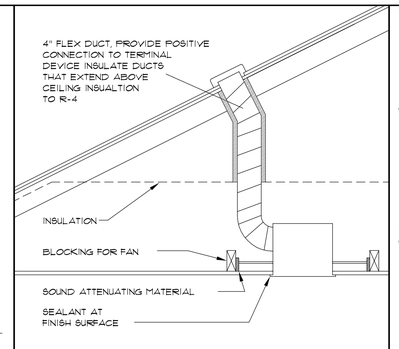
SHEET NO.
D1



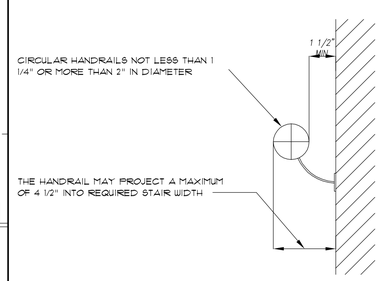
1 WATER HEATER SEIMIC STRAP.
N.T.S.
2/10/15



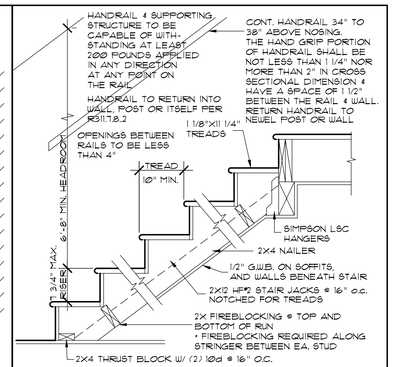
2 WATER HEATER SEIMIC STRAP.
N.T.S.
01/15/15



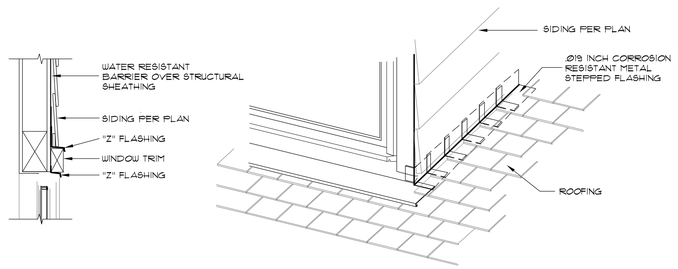
3 SOUND ATTENUATION FOR SURFACE MOUNTED FAN
N.T.S.
08/15/11



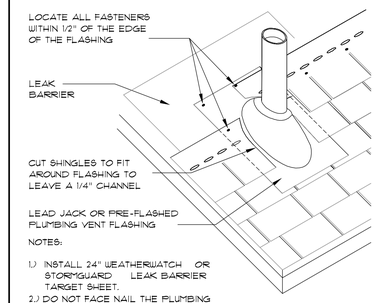
4 HANDRAIL SECTION
N.T.S.
08/15/11



5 STAIR SECTION DETAIL
N.T.S.



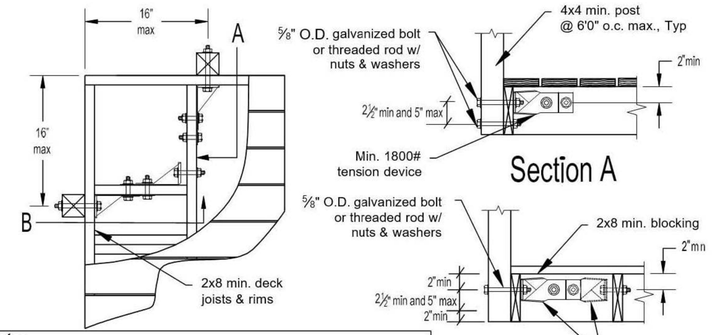
6 FLASHING DETAILS
N.T.S.
08/15/11



7 PLUMBING VENT FLASHING
N.T.S.
08/15/11

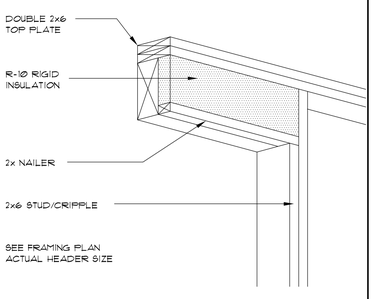
Guardrail Attachment

(Guardrails are required when the deck is more than 30 inches above grade.)

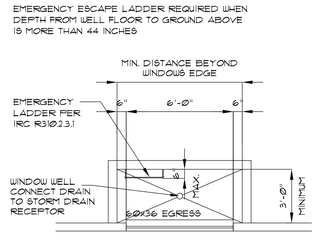


Note:
Use above details for guard connections or provide engineered design that shows Guards can resist a single concentrated load of 200 lbs applied in any direction at any point along the top and have attachment devices and supporting structure to transfer this load to appropriate structural elements of the building per IBC sec 1607.7.1.1

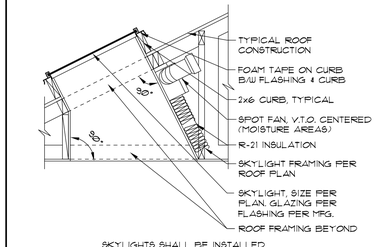
8 GUARD RAIL ATTACHMENT
N.T.S.



9 INSULATED HEADER DETAIL
N.T.S.
08/15/11



10 WINDOW WELL DETAIL
N.T.S. PER IRC R310.2.3
09/16/2021



11 SKYLIGHT WELL DETAIL
N.T.S.

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CHARLIE HOMES
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MERCER ISLAND, WA, 98040

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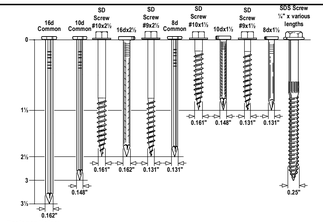
JOB NO: 21006
DATE: 6/13/22
DRWN. BY: TH
REVISED: .

SHEET NO.
D2

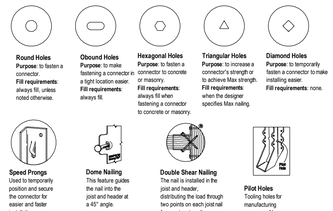
Notes:

1. Outdoor environments are generally more corrosive to steel. If you choose to use ZMAX® or HDG finish or stainless steel material on an outdoor project, you should periodically inspect your connectors and fasteners or have a professional inspection performed. Regular maintenance, including water-proofing of the wood used in your outdoor project is also a good practice.
2. Coatings Available:
   2.1. ZMAX- Galvanized (G185) 1.85 oz. of zinc per square foot of surface area. (hot-dip galvanized per ASTM A653 total both sides). These products require hot-dip galvanized fasteners (fasteners which meet the specifications of ASTM A153).
   2.2. HDG - Hot Dip Galvanized: Products are hot-dip galvanized after fabrication (14 ga. and thicker). The coating weight increases with material thickness. The minimum specified coating weight is 2.0 oz. per square foot. (per ASTM A123 total both sides). These products require hot-dip galvanized fasteners (fasteners which meet the specifications of ASTM A153).
   2.3. SS - Stainless Steel: Connectors are manufactured from Type 316L stainless steel, and provide greater durability against corrosion. Stainless-steel nails are required with stainless-steel products, and are available from Simpson Strong-Tie.
3. When using stainless steel connectors, use stainless steel fasteners. When applications allow the use of ZMAX/HDG galvanized connectors, use HDG fasteners that meet the specifications of ASTM A153 or equivalent coating offered on Simpson Strong-Tie fasteners.
4. Due to many variables involved with outdoor construction, Simpson Strong-Tie cannot provide estimates on service life of connectors, anchors or fasteners.
5. To obtain optimal performance from Simpson Strong-Tie products, the products must be installed properly and used in accordance with the installation instructions and design limits provided by Simpson Strong-Tie.
6. All installation notes and guidelines within the current *Wood Construction Connectors* catalog shall apply for the connectors, anchors, and fasteners shown.
7. Simpson Strong-Tie reserves the right to change the specifications, design and models shown without notice or liability for such changes.
8. Simpson Strong-Tie does not guarantee the performance or safety of products that are modified, improperly installed or not used in accordance with the design.
9. All references to bolts or machine bolts (MB) are structural quality through bolts (not lag screws or carriage bolts) equal to or better than ASTM A307, grade A. Bolt holes shall be at least a minimum 1/32" and no more than a maximum of 1/16" larger than the bolt diameter per 2005 NDS Section 11.1.2.
10. Unless noted otherwise, all references to standard cut washers refer to Type A plain washers (W) conforming to the dimensions shown in ASME B18.22.1 for the appropriate rod sizes.
11. Unless stated otherwise, Simpson Strong-Tie cannot and does not make any representation regarding the suitability of use or load-carrying capacities of connectors installed with improper fasteners.

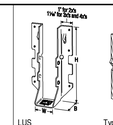


Fastener Notes:
1. The specified quantity, type and size of fastener must be installed in the correct holes on the connector to achieve published loads. Incorrect fastener selection or installation can compromise connector performance and could lead to failure.
2. Nail diameter assumes no coating. See technical bulletin *T-NAILGUIDE* for more information.
3. The Simpson Strong-Drive® SD structural-connector screw is the only screw approved for use with our connectors.

4. NAIL reference in tables: 16d = 16d common, 10d = 10d common



Fastening Identification



LUS

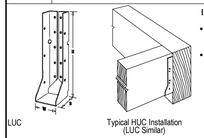
Typical LUS28Z Installation

Installation:
- LUS hangers install with double shear nailing.
- For installations into single 2x headers or ledgers, use the specified full length fasteners into the joist and the following fasteners into the header for reduced loads in accordance with www.strongtie.com:
  - •• 10dx1½ nails for installations with Nails
  - •• SD #9x1½ for LUS28Z and LUS210Z installations with SD Screws
  - •• SD #10x1½ for LUS26-2Z and LUS210-2Z installations with SD Screws

Model No.	Dimensions (in.)			Fasteners			
				Nails		SD Screws	
	W	H	B	Header	Joist	Header	Joist
☐ LUS26Z	1 9/16	4 3/4	1 3/4	4-10d	4-10d	-	-
☐ LUS28Z	1 9/16	6 5/8	1 3/4	6-10d	4-10d	6-SD #9x2½	4-SD #9x2½
☐ LUS210Z	1 9/16	7 13/16	1 3/4	8-10d	4-10d	8-SD #9x2½	4-SD #9x2½
☐ LUS26-2Z	3 1/8	4 7/8	2	4-16d	4-16d	4-SD #10x2½	4-SD #10x2½
☐ LUS210-2Z	3 1/8	9	2	8-16d	6-16d	8-SD #10x2½	6-SD #10x2½

1. ☐ indicates connector is available in stainless steel. Replace *Z* in model number with *SS* when ordering.
2. Refer to current *Wood Construction Connectors* catalog for additional information.

D01 General Notes



LUC

Typical HUC Installation (LUC Similar)

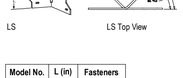
Installation:
- For HUC installations, models have triangle and round holes. To achieve maximum loads, fill both round and triangle holes (fastener quantities listed fill both holes).
- For installations into single 2x headers or ledgers, use the specified full length fasteners into the joist and the following fasteners into the header for reduced loads in accordance with www.strongtie.com:
  - •• 10dx1½ nails for installations with Nails
  - •• SD #9x1½ for LUC26Z and LUC210Z installations with SD Screws

Model No.	Dimensions (in.)			Fasteners			
				Nails		SD Screws	
	W	H	B	Header	Joist	Header	Joist
☐ LUC26Z	1 9/16	4 3/4	1 3/4	6-10d	4-10dx1½	6-SD #9x2½	4-SD #9x1½
☐ LUC210Z	1 9/16	7 3/4	1 3/4	10-10d	6-10dx1½	10-SD #9x2½	6-SD #9x1½
HUC26-2Z	3 1/8	5 3/8	2 1/2	12-16d	6-10d	-	-
☐ HUC28-2Z	3 1/8	7	2 1/2	14-16d	6-10d	-	-
☐ HUC210-2Z	3 1/8	8 13/16	2 1/2	18-16d	10-10d	-	-

1. ☐ indicates connector is available in stainless steel. Replace *Z* in model number with *SS* when ordering.
2. Refer to current *Wood Construction Connectors* catalog for additional information.

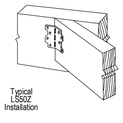
D02 Fasteners

Installation:
- Field skewable; bend one time only.
- Joist must be constrained against rotation (for example, with *solid blocking*) when using a single LS per connector.



LS

LS Top View

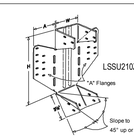


Typical LSSZ Installation

Model No.	L (in)	Fasteners
LS30Z	3 3/8	6-10d
☐ LS50Z	4 7/8	8-10d
LS70Z	6 3/8	10-10d

1. ☐ indicates connector is available in stainless steel. Replace *Z* in model number with *SS* when ordering.
2. Refer to current *Wood Construction Connectors* catalog for additional information.

D03 LUS Joist Hangers

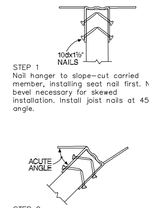


LSSU210Z

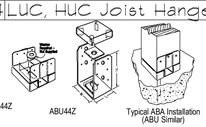
Installation:
- Follow 3-step installation sequence for skewed or sloped/skewed applications.
- Do not substitute 10dx1½ nails for face nails.
- To see an installation video on this product, visit www.strongtie.com

Model No.	Dimensions (in.)			Fasteners	
	W	H	A	Header	Joist
LSU26Z	1 9/16	4 7/8	1 1/2	6-10d	5-10dx1 1/2
LSSU210Z	1 9/16	8 1/2	1 5/8	10-10d	7-10dx1 1/2

1. For skewed LSSU, the inner most face fasteners on the acute angle side are not installed.
2. Refer to current *Wood Construction Connectors* catalog for additional information.



D04 LUC, HUC Joist Hangers

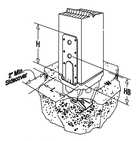


Installation:
- ABA, ABU - for pre-pour installed anchors. For Simpson Strong-Tie epoxy or mechanical anchors, select and install in accordance with www.strongtie.com.
- Products require washers between the nut and the base. Washers are supplied with the ABU but not the ABA, which requires a standard cut washer.

Model No.	Post Size	Dimensions (in.)				Anchor Dia.	Post Fasteners			
		W	L	H	HB		Nails	SD Screws	Machine Bolts Qty.	Machine Bolts Dia.
ABA44Z	4x4	3 9/16	3 1/8	3 1/16	-	1/2	6-10d	6-SD #9x1½	-	-
ABU44Z	4x4	3 9/16	3	5 1/2	1 3/4	5/8	12-16d	12-SD #10x1½	2	1/2
ABA46Z	4x6	3 9/16	5 3/16	3 1/8	-	5/8	8-16d	8-SD #10x1½	-	-
ABU46Z	4x6	3 9/16	5	7	2 5/8	5/8	12-16d	-	2	1/2
ABA66Z	6x6	5 1/2	5 1/4	3 1/8	-	5/8	8-16d	8-SD #10x1½	-	-
ABU66Z	6x6	5 1/2	5	6 1/16	1 3/4	5/8	12-16d	-	2	1/2
ABU88Z	8x8	7 1/2	7	7	-	2 - 5/8	18-16d	-	-	-

1. ☐ indicates connector is available in stainless steel. Replace *Z* in model number with *SS* when ordering.
2. Refer to current *Wood Construction Connectors* catalog for additional information.

D05 SUR/SUL 45° Skewed Joist Hangers

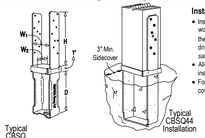


Installation:
- Embed into wet concrete up to the bottom of the 1" standoff base plate. A 2" minimum side cover is required to obtain the full load. Holes in the bottom of the straps allow for free concrete flow.
- Allow concrete to cure before installation of the post.

Model No.	Dimensions (in.)				Post Fasteners			
	W	L	H	HB	Nails	SD Screws	Machine Bolts Qty.	Machine Bolts Dia.
PBS44AHDG	3 9/16	3 1/2	6 1/4	3 7/16	14-16d	14-SD #10x1½	2	1/2
PBS66HDG	5 1/2	5 3/8	6 1/2	3 11/16	14-16d	-	2	1/2

1. Refer to current *Wood Construction Connectors* catalog for additional information.

D06 LS Framing Angles

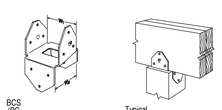


Installation:
- Install Simpson Strong-Tie SDS ¼" x 2" wood screws, which are provided with the column base, with a ⅜" hex head driver. (*Lag screws will not achieve the same load.*)
- Allow concrete to cure before installation of the post.
- For full loads, a minimum of 3" side cover shall be provided.

Model No.	Post Size	Dimensions (in.)				Number of SDS Screws
		W1	W2	D	H	
☐ CBSQ44-SDS2HDG	4x4	3 9/16	3 1/2	7 1/8	8 3/8	14-SDS ¼"x2"
☐ CBSQ46-SDS2HDG	4x6	3 9/16	5 5/16	7 13/16	8 11/16	14-SDS ¼"x2"
☐ CBSQ66-SDS2HDG	6x6	5 1/2	5 1/2	6 7/8	8 3/4	14-SDS ¼"x2"
CBSQ86-SDS2HDG	6x8	7 1/2	5 3/8	6 1/8	8 11/16	12-SDS ¼"x2"
CBSQ88-SDS2HDG	8x8	7 1/2	7 3/8	6 1/8	8 11/16	12-SDS ¼"x2"

1. ☐ indicates connector is available in stainless steel. Replace -SDS2HDG in model number with *SS* when ordering.
2. Refer to current *Wood Construction Connectors* catalog for additional information.

D07 LSU, LSSU Adjustable Joist Hangers

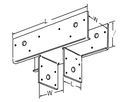


Installation:
- BCS: Install dome nails on beam; drive nails at an angle through the beam into the post below.
- BC: Do not install bolts into pilot holes.

Model No.	Dimensions (in.)						Fasteners			
	W1	W2	L1	L2	H1	H2	Nails		SD Screws	
							Beam Flange	Post Flange	Beam Flange	Post Flange
☐ BC4Z	3 9/16	3 9/16	2 7/8	2 7/8	3	3	6-16d	6-16d	6-SD #10x1½	6-SD #10x1½
☐ BC6Z	5 1/2	5 1/2	4 3/8	4 3/8	3 3/8	3 3/8	12-16d	12-16d		
☐ BCS2-2/4Z	3 1/8	3 9/16	2 7/8	2 7/8	2 15/16	2 15/16	8-10d	6-10d	8-SD #9x2½	6-SD #9x2½
☐ BCS2-3/6Z	4 5/8	5 9/16	4 3/8	2 7/8	3 5/16	2 15/16	12-16d	6-16d	-	-

1. ☐ indicates connector is available in stainless steel. Replace *Z* in model number with *SS* when ordering.
2. Refer to current *Wood Construction Connectors* catalog for additional information.

D08 ABA, ABU Post Bases

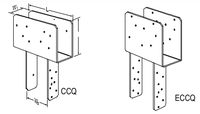


Installation:
- For end condition, specify EPC.
- Use all specified fasteners.
- Do not install bolts into pilot holes.

Model No.	Post Size	Dimensions (in.)					Fasteners			
		W1	W2	L1	L2	L3	Nails		SD Screws	
							Post	Beam	Post	Beam
								PC EPC		PC EPC
PC44-16Z	4x4	3 9/16	3 9/16	2 5/8	11	7 5/16	8-16d 12-16d	8-16d	8-SD #10x1½	12-SD #10x1½ 8-SD #10x1½
PC46-16Z	4x6	3 9/16	5 1/2	2 5/8	13	9 1/4	8-16d 12-16d	8-16d	-	- -
PC66-16Z	6x6	5 1/2	5 1/2	4 9/16	13	9 1/4	8-16d 12-16d	8-16d	-	- -

1. Refer to current *Wood Construction Connectors* catalog for additional information.

D09 PBS Post Bases

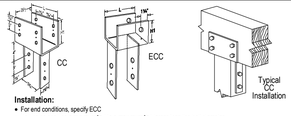


Installation:
- For end conditions, specify ECCQ.
- Install Simpson Strong-Tie SDS ¼" x 2½" screws, which are provided with the column cap, with a ⅜" hex head driver. SDS screws install best with a low speed ½" drill.
- Beam depth must be a minimum 7".

Model No.	Beam Width	Dimensions (in.)					No. of SDS ¼"x 2½" Screws	
		W1	W2	L1		H	Beam	Post
				CCQ	ECCQ			
☐ CCQ3-6HDG	3 1/8	3 1/4	5 1/2	11	8 1/2	7	16	14
CCQ44HDG	4x	3 5/8	3 5/8	11	8 1/2	7	16	14
☐ CCQ46HDG	4x	3 5/8	5 1/2	11	8 1/2	7	16	14
☐ CCQ48HDG	4x	3 5/8	7 1/2	11	8 1/2	7	16	14
☐ CCQ66HDG	6x	5 1/2	5 1/2	11	8 1/2	7	16	14
CCQ68HDG	6x	5 1/2	7 1/2	11	8 1/2	7	16	14

1. ☐ indicates connector is available in stainless steel. Replace *HDG* in model number with *SS* when ordering.
2. Refer to current *Wood Construction Connectors* catalog for additional information.

D10 CBSQ Post Bases

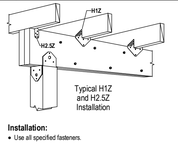


Installation:
- For end conditions, specify ECC
- Bolt holes shall be a minimum ⅛" to a maximum ⅜" larger than the bolt diameter.
- Contact engineered wood manufacturers for connections that are not through the wide face.
- Beam depth must be at least as tall as H1.

Model No.	Beam Width	Dimensions (in.)					Machine Bolts		
		W1	W2	L		H1	Dia.	Beam	
				CC	ECC			CC	ECC	Post
☐ CC3-1/4-6HDG	3 1/8	3 1/4	3 5/8	11	7 1/2	6 1/2	5/8	4	2	2
☐ CC3-1/4-6HDG	3 1/8	3 1/4	5 1/2	11	7 1/2	6 1/2	5/8	4	2	2
☐ CC44HDG	4x	3 5/8	3 5/8	7	5 1/2	4	5/8	2	1	2
☐ CC66HDG	6x	5 1/2	5 1/2	11	7 1/2	6 1/2	5/8	4	2	2

1. ☐ indicates connector is available in stainless steel. Replace *HDG* in model number with *SS* when ordering.
2. Refer to current *Wood Construction Connectors* catalog for additional information.

D11 BC, BCS Post Caps

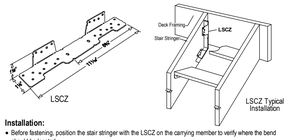


Installation:
- Use all specified fasteners.

Model No.	Fasteners			
	Nails		SD Screws	
	To Joist	To Beam	To Joist	To Beam
H1Z	6-8dx1½	4-8dx1½	6-SD #9x1½	4-SD #9x1½
H2.5Z	5-8dx1½	5-8dx1½	5-SD #9x1½	5-SD #9x1½
H8Z	5-10dx1½	5-10dx1½	5-SD #9x1½	5-SD #9x1½

1. ☐ indicates connector is available in stainless steel. Replace *Z* in model number with *SS* when ordering.
2. Refer to current *Wood Construction Connectors* catalog for additional information.

D12 AC, LPC, LCE Post Caps

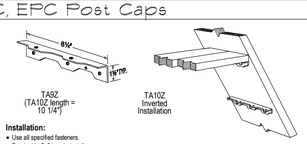


Installation:
- Before fastening, position the stair stringer with the LSCZ on the carrying member to verify where the bend should be located.
- Tabs on the LSCZ must be positioned to the inside of the stairs.
- The fastener that is installed into the bottom edge of the stringer must go into the second-to-last hole.
- A minimum distance of ½" measured from the lowest rim-joist fastener to the edge of rim joist is required.

Model No.	Fasteners					
	Nails			SD Screws		
	Rim Joist	Stringer Wide Face	Stringer Narrow Face	Rim Joist	Stringer Wide Face	Stringer Narrow Face
☐ LSCZ	8-10dx1½	8-10dx1½	1-10dx1½	8-SD #9x1½	8-SD #9x1½	1-SD #9x1½

1. ☐ indicates connector is available in stainless steel. Replace *Z* in model number with *SS* when ordering. Stainless steel models must be fastened with nails.
2. Refer to current *Wood Construction Connectors* catalog for additional information.

D13 PC, EPC Post Caps

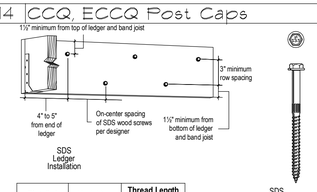


Installation:
- Use all specified fasteners.
- For double 2x6 treads, install TA10Z inverted with 4 screws installed into the treads.

Model No.	Fasteners	
	Stringer	Tread
☐ TA9Z	3-SDS ¼"x1½"	2-SDS ¼"x1½"
☐ TA10Z	3-SDS ¼"x1½"	4-SDS ¼"x1½"
☐ TA10Z	4-SDS ¼"x1½"	3-SDS ¼"x1½"

1. ☐ indicates connector is available in stainless steel. Replace *Z* in model number with *SS* when ordering.
2. Refer to current *Wood Construction Connectors* catalog for additional information.

D14 CCQ, ECCQ Post Caps



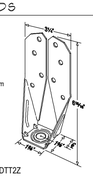
Size (in.)	Model No.	Thread Length (in.)
☐ ¼" x 3½"	SDS25312	2¼
¼" x 5"	SDS25500	2¾

1. ☐ indicates connector is available in stainless steel. Add *SS* to model number when ordering.
2. Refer to current *F-SDSLDGR* for spacing and additional information.
3. The screws shall be staggered from the top to the bottom along the horizontal run of the deck ledger per IRC 2009 Section R502.2.2.1.1.

Installation:
- Install Simpson Strong-Tie SDS wood screws with a ⅜" hex head driver.
- SDS screws install best with a low speed ½" drill.

D15 CC, ECC Post Caps

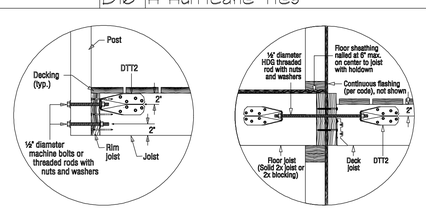
Installation:
- Install Simpson Strong-Tie SDS wood screws with a ⅜" hex head driver. SDS screws install best with a low speed high torque drill.
- A standard cut washer (provided) must be installed between the nut and the DTT2Z seat.
- Bolt holes shall be a minimum ⅛" to a maximum ⅜" larger than the bolt diameter.



Model No.	CL	Anchor Dia.	Fasteners
☐ DTT2Z	13/16	1/2"	8-SDS ¼"x1½"

1. ☐ indicates connector is available in stainless steel. Replace *Z* in model number with *SS* when ordering.
2. Refer to *T-GRDRLPST* and *T-DECKLATLOAD* for additional information.

D16 H Hurricane Ties



DTT2Z Installed as a Lateral Connector for a Deck Guardrail Post.
For more information on guardrail post connections, and installation instructions, see technical bulletin T-GRDRLPST (available at www.strongtie.com).

DTT2Z Installed as a Lateral Connector for a Deck-to-House Lateral Load Connection
For more information on this connection, and installation instructions, see technical bulletin T-DECKLATLOAD (available at www.strongtie.com).

D17 LSC Stair Stringer Connector

D18 TA Tread Angle

D19 SDS Screws

DTT2Z Deck Tension Tie

DESIGN HOMES
CHARLIE HOMES
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A NEW HOME FOR:
THE LIU RESIDENCE
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MERCER ISLAND, WA 98040

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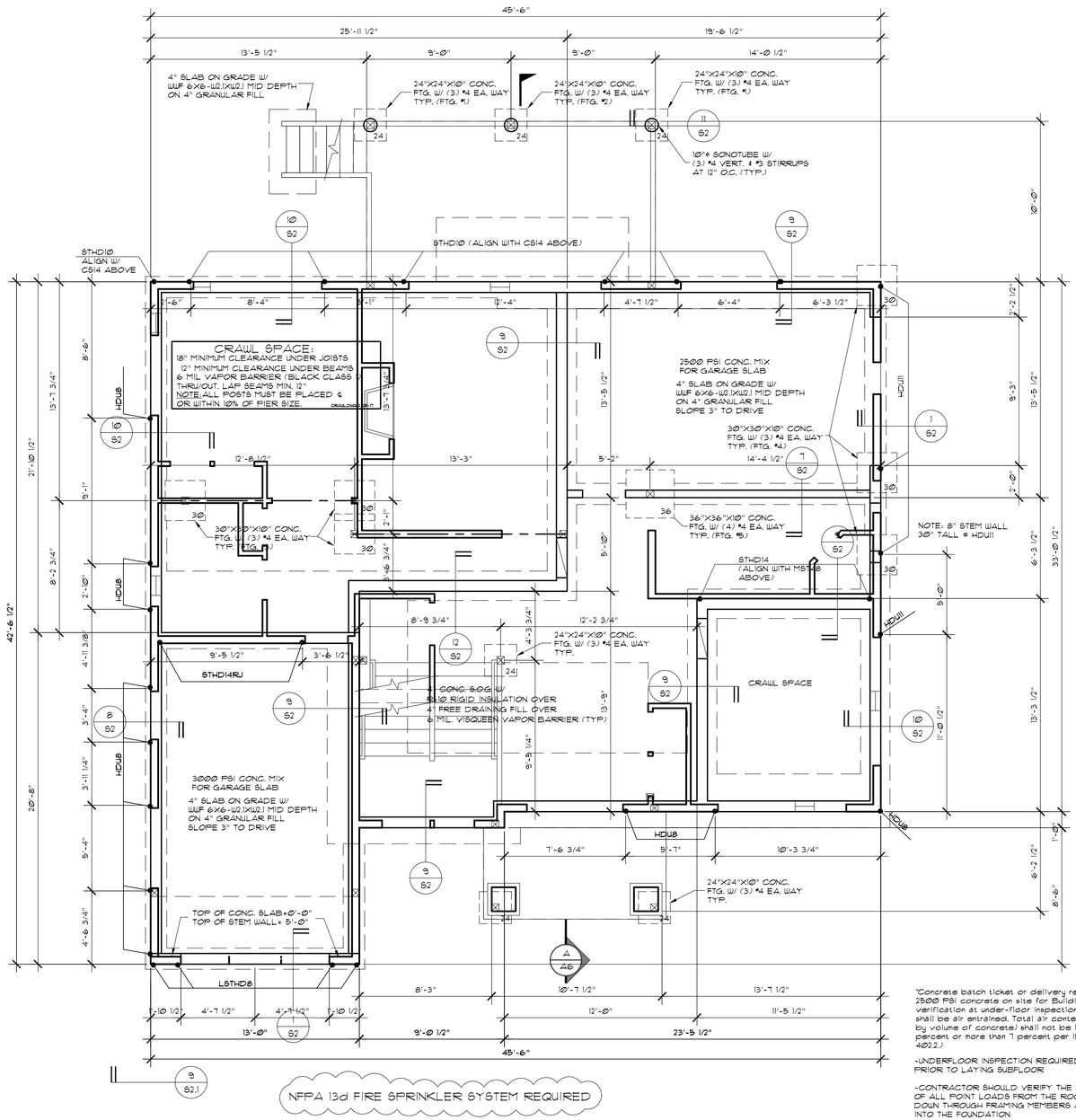
DRWN. BY: TH
REVISED: .

SHEET NO.
D3



NFPA 13d FIRE SPRINKLER SYSTEM REQUIRED

FOUNDATION PLAN

SCALE: 1/4" = 1' - Ø"

NOTE:
- 16"Wx8" DEEP CONT. CONC. FTG W/ (2) #4 BARS, MID DEPTH (TYP.)
- 8" CONC. STEM WALL W/ #4 @ 16" O.C., HORIZ. AND VERT. (TYP.)

1) FLOOR JOISTS PER FRAMING PLANS, REFER TO MFG. LAYOUT FOR ALL FRAMING DETAILS AND BLOCKING. REVIEW MFG. LAYOUT PRIOR TO FRAMING. OR ALL FLR JSTS AND RFTRS TO BE #2 HEM-FIR. DOUBLE UNDER BEARING PARTITIONS. PROVIDE SOLID BLOCKING OVER BEARING MEMBERS.
2) ALL EXT. DR & WNDW HDRS. TO BE 4x8 DF#2 (UNO)
3) ALL PRE-MANUFACTURED TRUSSES TO BE IDENTIFIED BY MFG'S STAMP.
4) FACTORY BLT FRFLC & CHIMNEY TO BE UL LABELED INSTALL PER MNFRS SPECS O/SIDE CMBSTN AIR REQ'D (MIN 6 SQ IN.) DUCTED TO F/BOX W/ OPERABLE O/SIDE DAMPER, TIGHTLY FITT'G FLUE DAMPER, AND TIGHT FITTING GLASS OR METAL DOORS OR FLUE DRAFT INDUCTION FAN.
5)
6) H.W.T. TO BE LABELED PER ASHRAE STD. NO. 90A-80, AND MEET THE REQMNTS. PER NATIONAL APPLIANCE ENERGY CONSERVATION ACT.
7) PURN AND H.W. TANK'S PILOTS, BURNERS, HEATING ELEMENTS, AND SWITCHES TO BE A MIN. OF 18" ABOVE FINISHED FLOOR.
8) ALL SKYLITES TO COMPLY WITH I.R.C. SECTION R3086
9) ALL SIDELITES, SLIDING GLASS DOORS AND TUB/SHOWER ENCLOSURES TO COMPLY WITH I.R.C. SECTION R308
10) HEAT REGISTERS TO BE PER LEGEND: LOCATE APPROXIMATELY AS SHOWN, 6" IN FROM EXTERIOR WALLS, 3" IN FROM INTERIOR WALLS.
11) VENT DRYER, OVEN/RANGE & EXHAUST FANS TO O/SIDE. DRYER EXH DUCTS SHALL NOT EXCEED A TOTAL OF 25'-Ø" HORIZ AND VERT LNGTH OF 14'-Ø", INCL 2 90d. ELBOWS. DEDUCT 2'-Ø" FOR EA. 90d. ELBOW EXCEDING 2. ALL EXHAUST DUCTS INSLT'D (MIN. OF R-4.)
12) ALL NAILING TO COMPLY WITH 2018 I.B.C., COLUMN, POST & BEAM CONNECTIONS TO COMPLY WITH 2018 I.B.C.
13) TUB/SHOWER SURROUND WALLS TO HAVE WATER RSTNT GYP BRD AND A SMOOTH HARD SURFACE TO A MINIMUM HEIGHT OF 70" ABOVE DRAIN INLET
14) PROVIDE SMK DETCTR AND CO ALARMS IN COMPLIANCE WITH I.R.C. R314 ALL SMK DETCTRS W/BAT BACKUP.SMK DETCTRS WILL SOUND AN AUDIBLE ALARM IN ALL SLEEPING ROOMS.
15) DWELLING TO COMPLY W/ WA. ST ENERGY CODE, 2018 EDITION.
16) SEAL, CAULK, GASKET OR WEATHERSTRIP TO LIMIT AIR LEAKAGE: AT EXTERIOR JOINTS AROUND WINDOW AND DOOR FRAMES, OPNG'S BTWN WALL AND ROOF AND WALL PANELS, OPNG'S AT UTILITY PENETRATIONS THROUGH WALLS, FLRS, AND ROOFS, ALL OTHER OPNG'S IN BLD'G ENVELOPE.
17) ALL EXTERIOR DOORS OR ACCESS HATCHES TO ENCLOSED UNHEATED AREAS MUST BE WEATHERSTRIPPED.
18) MINIMUM SOIL BEARING PRESSURE = 1500 PSF.
19) FOOTINGS TO BE PLACED ON FIRM, UNDISTURBED NATIVE SOIL.
20) DWELLING TO COMPLY WITH I.R.C. 2018 EDITION
21) FIRE STOPS SHALL BE PRVD'D TO CUT OFF ALL CONCL'D DRAFT OPN'GS FROM VERT TO HRZNTL SPACES, INCL'G THE STAIR, TUB, SHWR, FRPLACE, ETC.
22) OSB ROOF SHEATHING W/COMP ROOFING AND FLTWD AT ALL OVERHANGS, SEE DETAIL SHT FOR ALL ADDITIONAL NOTES.
23) EXHAUST FANS CANNOT TERMINATE WITHIN 3' FROM AN OPERABLE OR UNOPERABLE OPENING PER THE IRC R1006.3

GENERAL NOTES:

690 / 300	UNDER-FLOOR AREA	÷ 2.3	SQ. FT. NET FREE REQ'D.
2.3	NET FREE x 144 = 331		SQ. IN./SQ. FT. NET FREE REQ'D.

PROVIDE 1 SQ. FT. PER 300 SQ. FT. OF UNDER FLOOR AREA.
COVER VENTS WITH 1/4" CORROSION RESISTANT WIRE MESH.
LOCATE VENTS AS CLOSE TO CORNERS AS PRACTICAL.
EFFICIENT VENT AREA = 72.5 SQ. IN.

SQ. IN. NET FREE VENT AREA	331 / 72.5	* 5	* VENTS REQ'D.

CRAWL VENTILATION CALCULATION

NOTE: STRUCTURAL FILL REQURED FOR ALL FOOTINGS AND SLAB

*Concrete batch ticket or delivery receipt for 2500 PSI concrete on site for Building Inspector verification at under-floor inspection. Concrete shall be air entrained. Total air content (Percent by volume of concrete) shall not be less than 5 percent or more than 7 percent per IRC Table 402.2.)

-UNDERFLOOR INSPECTION REQUIRED PRIOR TO LAYING SUBFLOOR

-CONTRACTOR SHOULD VERIFY THE TRANSFER OF ALL POINT LOADS FROM THE ROOF DOWN THROUGH FRAMING MEMBERS AND INTO THE FOUNDATION

GROUNDING ELECTRODE SYSTEM. ALL GROUNDING ELECTRODES AS DESCRIBED IN 250.52(A)(1) THROUGH (A)(6) THAT ARE PRESENT AT EACH BUILDING OR STRUCTURE SERVED SHALL BE BONDED TOGETHER TO FORM THE GROUNDING ELECTRODE SYSTEM. WHERE NONE OF THESE GROUNDING ELECTRODES EXIST, ONE OR MORE OF THE GROUNDING ELECTRODES SPECIFIED IN 250.52(A)(4) THROUGH (A)(7) SHALL BE INSTALLED AND USED

-NOTE: SHOP DRAWINGS FOR PRE-ENGINEERED FLOORS OR TRUSSES MUST BE ONSITE AT TIME OF FRAMING INSPECTION, AND HAVE AN ORIGINAL WASHINGTON SEAL AND SIGNATURE OF THE DESIGNER. PROCEEDING WITH FRAMING WITHOUT APPROVED DETAILS AND PLAN IS DONE SO AT THE CONTRACTORS/APPLICANTS RISK

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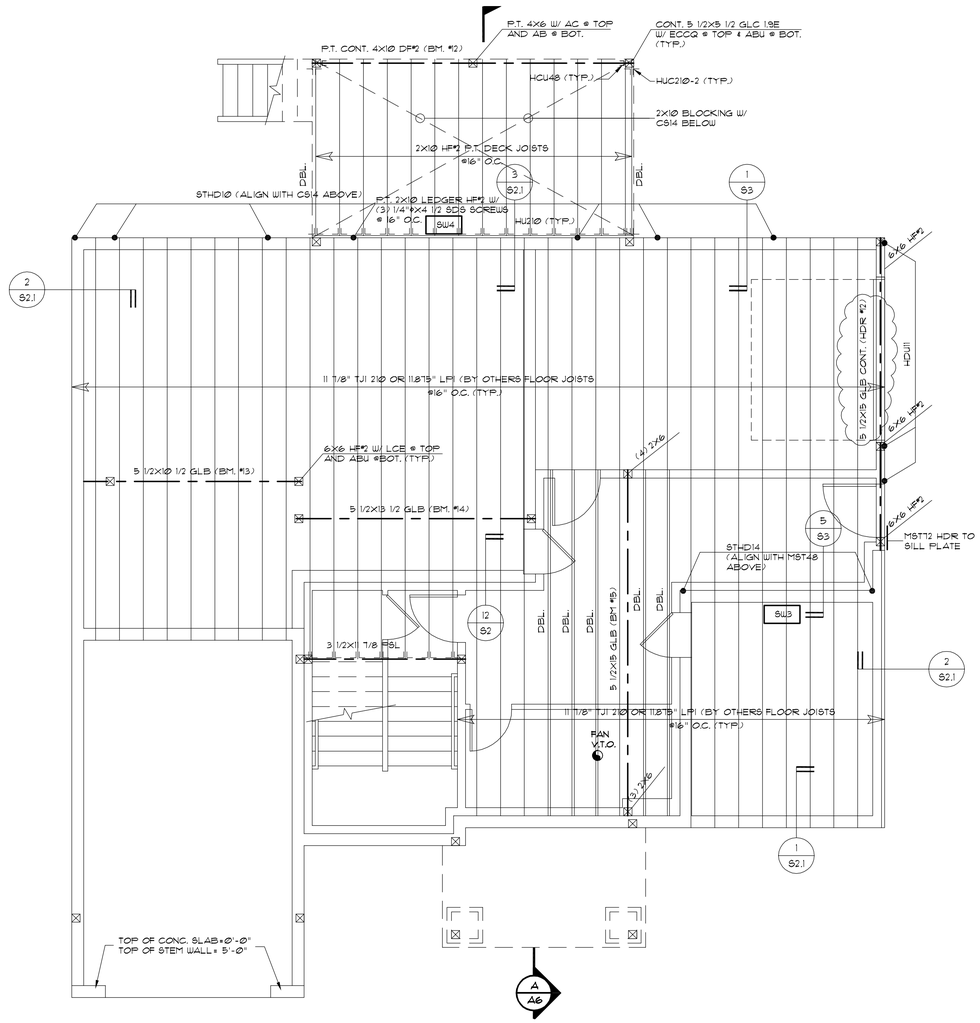

NOTE: COL TO BE (2) 2X6 HF#2 TYP. (U.N.O.)
HDR TO BE 4X8 HF#2 TYP. (U.N.O.)

NFPA 13d FIRE SPRINKLER SYSTEM REQUIRED

MAIN FLOOR FRAMING PLAN

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

0' 1' 5' 10'

FLOOR FRAMING NOTES:

1. ALL BEAMS AND HEADERS TO BE 4x8 HF#2 UNLESS NOTED OTHERWISE.
2. PROVIDE SOLID PRESSURE BLOCKING AT ALL POINT LOADS FROM ABOVE.
3. PROVIDE SOLID BLOCKING OR BRIDGING AT MID-SPAN OF ALL FLOOR JOISTS WITH SPANS OVER 10'-0" OR PER JOIST SPECIFICATIONS PER JOIST MANUFACTURER.
4. PROVIDE BLOCKING OR OTHER APPROVED MEANS OF LATERAL SUPPORT AT ALL JOIST BEARING LOCATIONS.
5. XXX DENOTES SHEARWALL CALLOUT PER SHEARWALL TABLE.
6. ALL HEADERS TO HAVE (1) 2x BEARING STUD AND (1) 2x KING STUD AT EACH END UNLESS NOTED OTHERWISE.

Joists shall be laterally supported at the ends by full-depth solid blocking not less than 2 inches nominal in thickness or by attachment to a full-depth header, band or rim joist, or to an adjoining stud to provide lateral support to prevent rotation. Additionally, in Seismic Design Categories D0, D1 and D2, lateral restraint shall be provided at each intermediate support. See IRC Sections 106.1.1 and 302.7.

WOOD-FRAMED SHEAR WALL SCHEDULE

FOR HEM-FIR/DOUG-FIR STUD FRAMING

SW TYPE	SW SHEATHING APA-RATED [1, 2, 12]	NAIL SIZE & SPACING @ PANEL EDGES [4, 5, 6]	RIM JOIST OR BLOCKING ATTACHMENT TO TOP PLATE BELOW [8, 9]	BOTTOM PLATE & EDGE MEMBER REQUIREMENTS [4, 7, 15]		SILL PLATE REQUIREMENTS			SHEAR LOAD CAPACITY (PLF)
				SHEAR NAILING TO WOOD FRAMING BELOW	BOTTOM ℄ AT FRAMING	ANCHOR BOLT TO CONCRETE FOUNDATION [10]	SILL ℄ AT FOUNDATION [11]		
SW-6	15/32" CD-EXT	0.131"ø x 2½" @ 6"OC	CLIP @ 18"OC	0.148"ø x 3¼" @ 6"OC	2x	⅝"ø @ 48"OC	P.T. 2x		260
SW-4	15/32" CD-EXT	0.131"ø x 2½" @ 4"OC	CLIP @ 14"OC	0.148"ø x 3¼" @ 4"OC	2x [16]	⅝"ø @ 32"OC	P.T. 2x		380
						⅝"ø @ 48"OC [16]	P.T. 3x		
SW-3	15/32" CD-EXT	0.131"ø x 2½" @ 3"OC, STAGGERED	CLIP @ 12"OC	0.148"ø x 3¼" @ 4"OC & CLIP @ 18"OC	3x [15]	⅝"ø @ 24"OC	P.T. 2x		490
						⅝"ø @ 32"OC [16]	P.T. 3x	[16]	
SW-2	15/32" CD-EXT	0.131"ø x 2½" @ 2"OC, STAGGERED	CLIP @ 8"OC	0.148"ø x 3¼" @ 4"OC & CLIP @ 16"OC	3x [15]	⅝"ø @ 16"OC	P.T. 3x	[16]	640
2SW-4	15/32" CD-EXT BOTH SIDE	0.131"ø x 2½" @ 4"OC, STAGGERED	CLIP @ 6"OC	0.148"ø x 3¼" @ 4"OC & CLIP @ 12"OC	3x [15]	⅝"ø @ 24"OC	P.T. 3x	[16]	760
2SW-3	15/32" CD-EXT BOTH SIDE	0.131"ø x 2½" @ 3"OC, STAGGERED	CLIP @ 8"OC BOTH SIDES, STAGGERED	0.148"ø x 3¼" @ 4"OC & CLIP @ 8"OC	3x [15]	⅝"ø @ 16"OC	P.T. 3x	[16]	980
2SW-2	15/32" CD-EXT BOTH SIDE	0.131"ø x 2½" @ 2"OC, STAGGERED	CLIP @ 6"OC BOTH SIDES, STAGGERED	0.148"ø x 3¼" @ 4"OC & CLIP @ 5"OC	3x [15]	⅝"ø @ 12"OC	P.T. 3x	[16]	1280

NOTES:
1. INSTALL PANELS EITHER HORIZONTALLY OR VERTICALLY
2. WHERE SHEATHING IS APPLIED ON BOTH SIDES OF WALL, PANEL EDGE JOINTS ON 2x FRAMING SHALL BE STAGGERED SO THAT JOINTS ON OPPOSITE SIDES ARE NOT LOCATED ON THE SAME STUDS.
3. BLOCKING IS REQUIRED AT ALL PANEL EDGES.
4. PROVIDE SHEAR WALL SHEATHING AND NAILING FOR ENTIRE LENGTH OF THE WALLS INDICATED ON THE PLANS. ENDS OF FULL HEIGHT WALLS ARE DESIGNATED BY WINDOWS, OR DOORWAYS OR AS DESIGNATED ON PLANS. HOLDOWN REQUIREMENTS PER PLANS.
5. SHEAR WALLS DESIGNATED AS PERFORATED SHEAR WALLS REQUIRE SHEATHING, SHEAR WALL NAILING, ETC. ABOVE AND BELOW ALL OPENINGS).
6. SHEATHING EDGE NAILING IS REQUIRED AT ALL HOLDOWN POSTS. EDGE NAILING MAY ALSO BE REQUIRED TO EACH STUD USED IN BUILT-UP HOLDOWN POSTS. ADDITIONAL INFORMATION PER HOLDOWN SCHEDULE & DETAILS.
7. INTERMEDIATE FRAMING TO BE 2x MINIMUM MEMBERS. ATTACH SHEATHING TO INTERMEDIATE FRAMING WITH 0.148"Ø x 2½" NAILS AT 12"OC WHERE STUDS ARE SPACED AT 16"OC AND 0.148"Ø x 2½" NAILS AT 6"OC WHERE STUDS ARE SPACED AT 24"OC.
8. BASED ON 0.131"Ø x 1½" NAILS USED TO ATTACH FRAMING CLIPS DIRECTLY TO FRAMING. USE 0.131"Ø x 2½" NAILS WHERE INSTALLED OVER SHEATHING.
9. FRAMING CLIPS: SIMPSON "A35" OR "LTP5" OR APPROVED EQUIVALENT.
10. ANCHOR BOLTS SHALL BE PROVIDED WITH HOT-DIPPED GALVANIZED STEEL PLATE WASHERS 3"x3"x0.229"(MIN). THE HOLE IN THE PLATE WASHER MAY BE DIAGONALLY SLOTTED $^{13}/_{16}$"x1¼" PROVIDED A STANDARD CUT WASHER IS PLACED BETWEEN THE PLATE WASHER AND NUT. PLATE WASHER TO EXTEND TO WITHIN ½" OF THE EDGE OF THE SILL PLATE ON THE SIDE(S) WITH SHEATHING. WHERE SHEAR WALLS ARE SHEATHED ON BOTH SIDES OF 2x6 WALL FRAMING, USE 4.5"x4.5"x0.229"(MIN) PLATE WASHERS. EMBED ANCHOR BOLTS 7" MINIMUM INTO THE CONCRETE.
11. PRESSURE TREATED MATERIAL CAN CAUSE EXCESSIVE CORROSION IN THE FASTENERS. PROVIDE HOT-DIPPED GALVANIZED (ELECTRO-PLATING IS NOT ACCEPTABLE) NAILS AND CONNECTOR PLATES (FRAMING ANGLES, ETC.) FOR ALL CONNECTORS IN CONTACT WITH PRESSURE TREATED FRAMING MEMBERS. ADDITIONAL INFORMATION PER STRUCTURAL NOTES.
12. WHERE WOOD SHEATHING IS APPLIED OVER GYPSUM SHEATHING, CONTACT THE ENGINEER OF RECORD FOR ALTERNATE NAILING REQUIREMENTS.
13. AT ADJOINING PANEL EDGES, (2) 2x STUDS NAILED TOGETHER MAY BE USED IN PLACE OF SINGLE 3x STUD. DOUBLE 2X STUDS SHALL BE CONNECTED TOGETHER BY NAILING THE STUDS TOGETHER WITH 3" LONG NAILS OF THE SAME SPACING AND DIAMETER AS THE PLATE NAILING.
14. CONTACT THE STRUCTURAL ENGINEER OF RECORD FOR ADHESIVE OR EXPANSION BOLT ALTERNATIVES TO CAST-IN-PLACE ANCHOR BOLTS. SPECIAL INSPECTION MAY BE REQUIRED.
15. NAIL STUDS TO 3x BOTTOM/SILL PLATES WITH EITHER (2) 0.148"Ø x 4" END NAILS OR (4) 0.131"Ø x 2½" TOENAILS.

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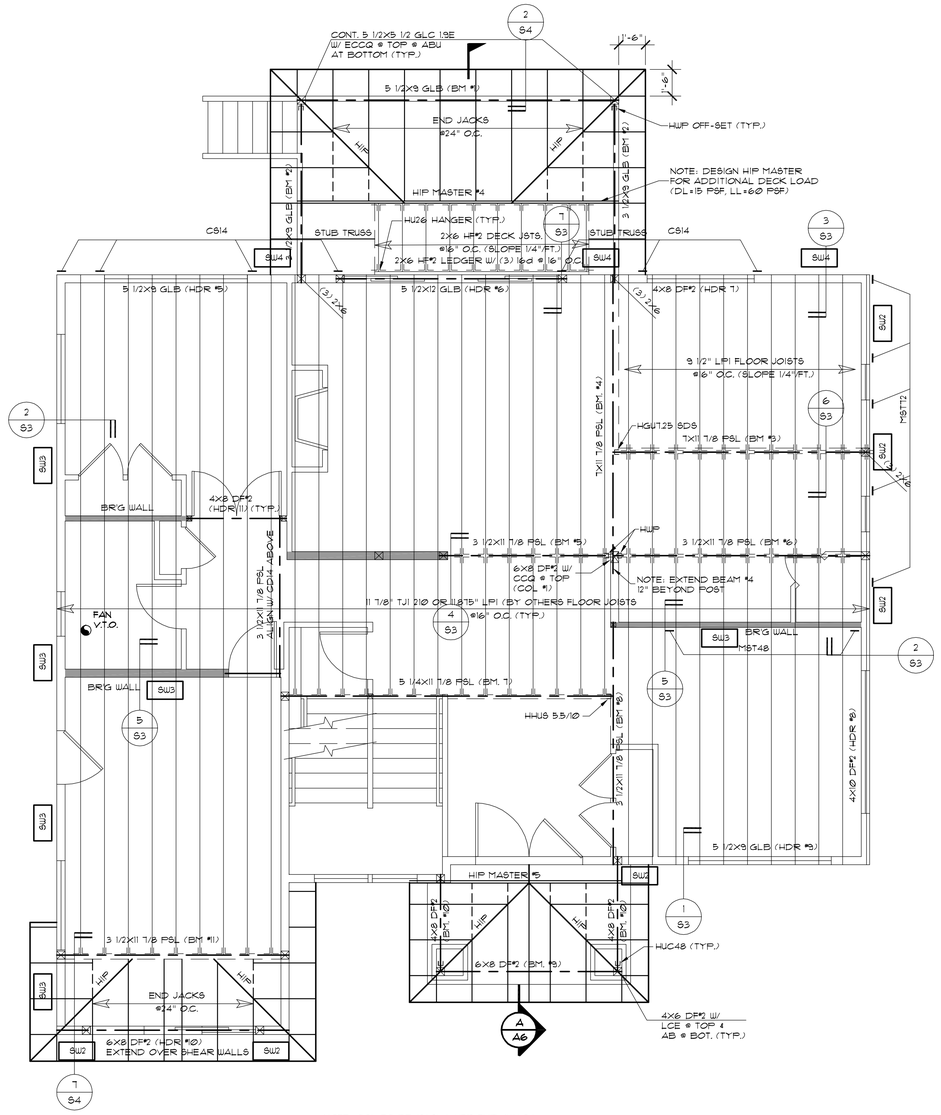

NOTE: COL TO BE (2) 2X6 HF#2 TYP. (U.N.O.)
HDR TO BE 4X8 HF#2 TYP. (U.N.O.)

NFPA 13d FIRE SPRINKLER SYSTEM REQUIRED

UPPER FLOOR & LOWER ROOF FRAMING PLAN

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

0' 1' 5' 10'

WOOD-FRAMED SHEAR WALL SCHEDULE

FOR HEM-FIR/DOUG-FIR STUD FRAMING

SW TYPE	SW SHEATHING APA-RATED [1, 2, 12]	NAIL SIZE & SPACING @ PANEL EDGES [4, 5, 6]	RIM JOIST OR BLOCKING ATTACHMENT TO TOP PLATE BELOW [8, 9]	BOTTOM PLATE & EDGE MEMBER REQUIREMENTS [3, 7, 13] SHEAR NAILING TO WOOD FRAMING BELOW	BOTTOM PLATE & EDGE MEMBER REQUIREMENTS [3, 7, 13] BOTTOM PLATE AT FRAMING	SILL PLATE REQUIREMENTS ANCHOR BOLT TO CONCRETE FOUNDATION [10]	SILL PLATE REQUIREMENTS SILL PLATE AT FOUNDATION [11]	SHEAR LOAD CAPACITY (PLF)
SW-6	15/32" CD-EXT	0.131"ø x 2½" @ 6"OC	CLIP @ 18"OC	0.148"ø x 3¼" @ 6"OC	2x	⅝"ø @ 48"OC	P.T. 2x	260
SW-4	15/32" CD-EXT	0.131"ø x 2½" @ 4"OC	CLIP @ 14"OC	0.148"ø x 3¼" @ 4"OC	2x [16]	⅝"ø @ 32"OC	P.T. 2x	380
						⅝"ø @ 48"OC	P.T. 3x [15]	
SW-3	15/32" CD-EXT	0.131"ø x 2½" @ 3"OC, STAGGERED	CLIP @ 12"OC	0.148"ø x 3¼" @ 4"OC & CLIP @ 18"OC	3x [15]	⅝"ø @ 24"OC	P.T. 2x	490
						⅝"ø @ 32"OC	P.T. 3x [15]	
SW-2	15/32" CD-EXT	0.131"ø x 2½" @ 2"OC, STAGGERED	CLIP @ 8"OC	0.148"ø x 3¼" @ 4"OC & CLIP @ 16"OC	3x [15]	⅝"ø @ 16"OC	P.T. 3x [15]	640
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2SW-3	15/32" CD-EXT BOTH SIDE	0.131"ø x 2½" @ 3"OC, STAGGERED	CLIP @ 8"OC BOTH SIDES, STAGGERED	0.148"ø x 3¼" @ 4"OC & CLIP @ 8"OC	3x [15]	⅝"ø @ 16"OC	P.T. 3x [15]	980
2SW-2	15/32" CD-EXT BOTH SIDE	0.131"ø x 2½" @ 2"OC, STAGGERED	CLIP @ 6"OC BOTH SIDES, STAGGERED	0.148"ø x 3¼" @ 4"OC & CLIP @ 5"OC	3x [15]	⅝"ø @ 12"OC	P.T. 3x [15]	1280

NOTES:
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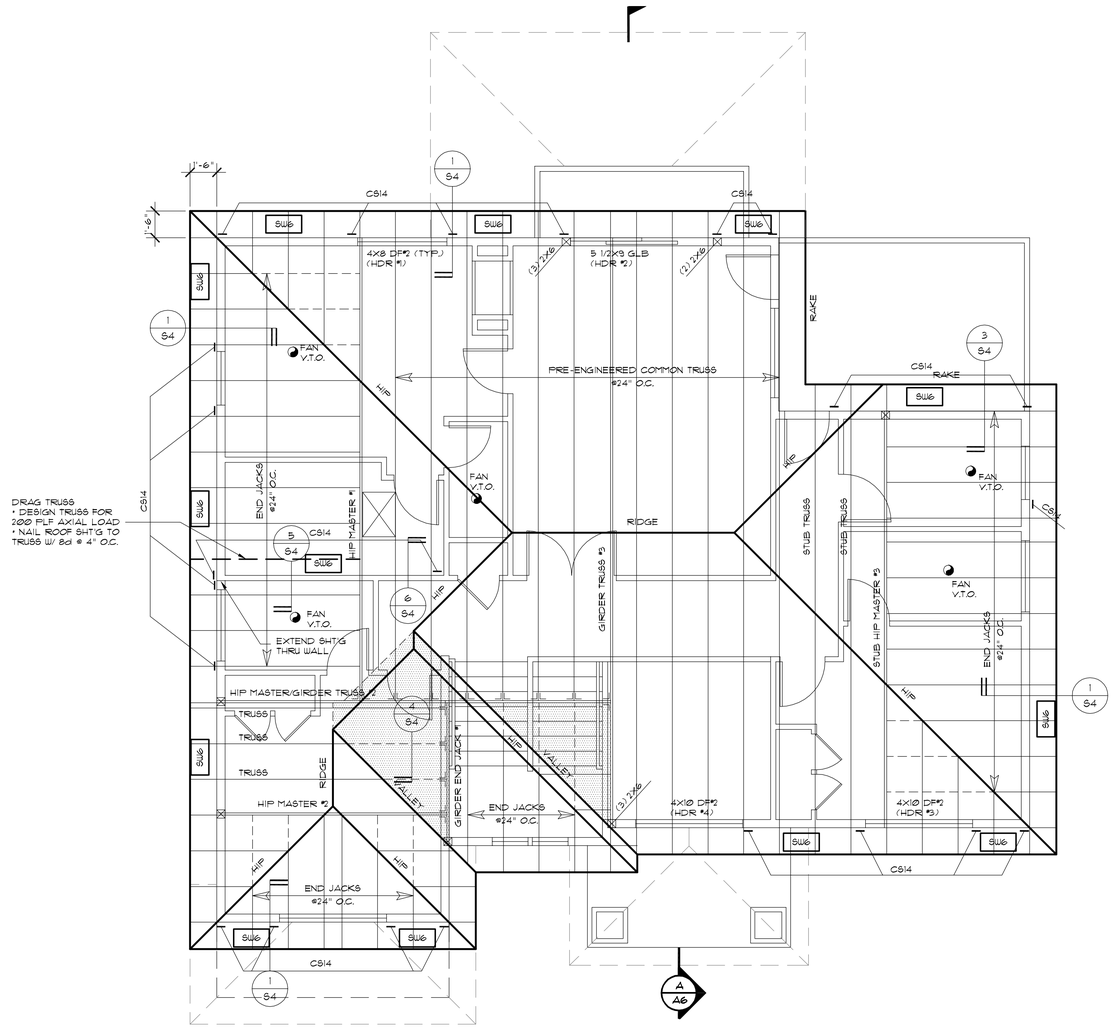

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HDR TO BE 4X8 HF#2 TYP. (U.N.O.)

NFPA 13d FIRE SPRINKLER SYSTEM REQUIRED

ROOF FRAMING PLAN

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

0' 1' 5' 10'

- SHALL CARRY MANUFACTURERS STAMP
- SHALL BE INSTALLED & BRACED TO MANUFACTURERS SPECIFICATIONS
- WILL NOT BE FIELD ALTERED WITHOUT PRIOR BUILDING DEPARTMENT APPROVAL OF ENGINEERING CALCULATIONS
- SHALL HAVE DESIGN DETAILS & DRAWINGS ON SITE FOR FRAMING INSPECTION

TRUSS NOTES

TRSNOTES.DWG 3.0.98

• TOTAL VENT. REQ'D. $\frac{1445}{300}$ = 4.8 SF NET FREE

40% BY VENT. ABOVE EAVE 4.8 x .4 = 1.92 SF. MIN.
50% BY VENT. ABOVE EAVE 4.8 x .5 = 2.4 SF. MAX.

• TOTAL VENTILATION PROVIDED: (MAX NUMBER OF JACKS W/O GE VENTS)

AF-50 ROOF JACK YIELDS 50 IN^2 NET FREE OR .35 SF
OF JACKS REQ'D. $\frac{1.92}{.35}$ VENTS OR (6) VENTS (MIN.)

AF-50 ROOF JACK YIELDS 50 IN. NET FREE OR .35 SF
OF JACKS REQ'D. $\frac{2.4}{.35}$ VENTS OR (7) VENTS (MAX.)

EAVE VENT LTN (STANDARD) 143 LIN. FEET x 4.7 IN^2/LF = 672 IN^2 = 4.6 SF

•TOTAL VENTILATION PROVIDED:

ROOF JACKS= (7) x 50 IN^2 = 2.4 SF
EAVE VENTS = 4.6 SF
7 SF PROVIDED > 4.8 SF REQUIRED

ROOF VENTILATION CALCULATION

SHEETMOUNT.DWG 8/4/114

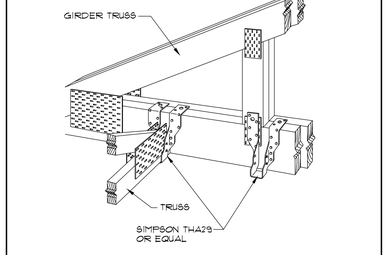
NOTE:
PROVIDE VENT BLOCKING EVERY BAY
U.N.O. SEE ROOF PLAN FOR SOLID BLCKG AREAS

PROVIDE OPENING THRU SHEATHING
FOR ACCESS AND VENTING AT OVERFRAMING

HATCHING DENOTES 2x OVERFRAMING

OVERFRAMING SPANS

1. 2x8 HF#2 RAFTERS @24" O.C. - 10'-11" MAXIMUM UNBRACED SPAN
   2x10 HF#2 RIDGE BEAM - 8'-0" MAXIMUM UNBRACED SPAN
   2x10 HF#2 FLAT VALLEY LAID DIAGONALLY ACROSS TRUSSES
2. 2x6 HF#2 RAFTERS @24" O.C. - 8'-3" MAXIMUM UNBRACED SPAN
   2x8 HF#2 RIDGE BEAM - 7'-0" MAXIMUM UNBRACED SPAN
   2x8 HF#2 FLAT VALLEY LAID DIAGONALLY ACROSS TRUSSES
3. 2x4 HF#2 RAFTERS @24" O.C. - 8'-0" MAXIMUM UNBRACED SPAN
   2x6 HF#2 RIDGE BEAM - 5'-6" MAXIMUM UNBRACED SPAN
   2x6 HF#2 FLAT VALLEY LAID DIAGONALLY ACROSS TRUSSES



TRUSS DETAIL
N.T.S.

ROOF FRAMING NOTES:

1. ALL BEAMS AND HEADERS TO BE 4x8 DF#2 UNLESS NOTED OTHERWISE.
2. ALL TRUSSES TO BE PRE ENGINEERED AND ARE TO CARRY THE STAMP OF THE TRUSS MANUFACTURER AND SHALL BE INSTALLED PER MANUFACTURERS SPECIFICATIONS, DESIGN DETAILS AND SPECIFICATIONS BY TRUSS MANUFACTURER TO BE ON SITE FOR FRAMING INSPECTION. PROVIDE TRUSS PACKAGE TO ENGINEER FOR SHOP DRAWING REVIEW PRIOR TO CONSTRUCTION.
3. NO TRUSS SHALL BE FIELD MODIFIED WITHOUT PRIOR CONSENT OF THE TRUSS ENGINEER AND THE BUILDING DEPARTMENT.
4. SEE ENGINEERING NOTES FOR SHEATHING REQUIREMENTS
5. △ DENOTES SHEARWALL CALLOUT PER SHEARWALL TABLE.
6. ☒ DENOTES SOLID 2x STUD BEARING BELOW END OF HEADER OR GIRDER.
7. ALL HEADERS TO HAVE (2) 2X POSTS UNLESS NOTED OTHERWISE
8. PROVIDE SOLID BEARING STUDS AT ALL BEARING LOCATIONS INCLUDING GIRDER TRUSSES AND BEAMS.
9. 4X6 POSTS MAY BE SUBSTITUTED FOR (2) 2X6 POSTS FOR ROOF FRAMING PLAN ONLY. 2-PLY BUILT UP POST SHALL BE FASTENED TOGETHER W/ 16d NAILS @ 8" O.C.

DESIGN HOMES
CHARLIE HOMES
P.O. BOX 317
MERCER ISLAND, WA, 98040

A NEW HOME FOR:

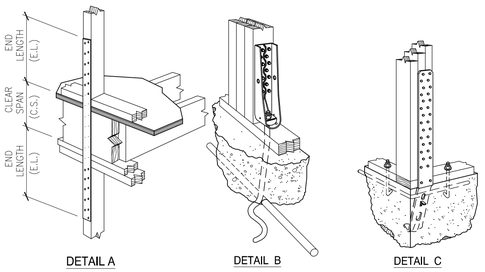
THE LIU RESIDENCE

3705 77TH PL. SE
MERCER ISLAND, WA 98040

JOB NO: 21006
DATE: 6/13/22
DRWN. BY: TH
REVISED: 9/30/22
7/3/23
8/10/23

SHEET NO.

S8



STRUCTURAL NOTES

GENERAL REQUIREMENTS & DESIGN CRITERIA

BUILDING CODE & REFERENCE STANDARDS: THE "INTERNATIONAL BUILDING CODE", 2018 EDITION, GOVERNS THE DESIGN AND CONSTRUCTION OF THIS PROJECT. REFERENCE TO A SPECIFIC SECTION IN THE CODE DOES NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE ENTIRE MATERIALS REFERENCE STANDARDS NOTED BELOW. THE LATEST EDITION OF THE MATERIALS REFERENCE STANDARDS SHALL BE USED.

ARCHITECTURAL DRAWINGS: REFER TO THE ARCHITECTURAL DRAWINGS FOR INFORMATION INCLUDING, BUT NOT LIMITED TO: DIMENSIONS, ELEVATIONS, SLOPES, DOOR AND WINDOW OPENINGS, NON-BEARING WALLS, STAIRS, CURBS, DRAINS, DEPRESSIONS, RAILINGS, WATERPROOFING, FINISHES AND OTHER NONSTRUCTURAL ITEMS.

STRUCTURAL RESPONSIBILITIES: THE PE IS RESPONSIBLE FOR THE STRENGTH AND STABILITY OF THE PRIMARY STRUCTURE IN ITS COMPLETED STATE.

CONTRACTOR RESPONSIBILITIES: THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND ALL JOB RELATED SAFETY STANDARDS SUCH AS OSHA AND WSHA. THE CONTRACTOR IS RESPONSIBLE FOR THE STRENGTH AND STABILITY OF THE STRUCTURE DURING CONSTRUCTION AND SHALL PROVIDE TEMPORARY SHORING, BRACING AND OTHER ELEMENTS REQUIRED TO MAINTAIN STABILITY UNTIL THE STRUCTURE IS COMPLETED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BE FAMILIAR WITH THE WORK REQUIRED IN THE CONSTRUCTION DOCUMENTS AND THE REQUIREMENTS FOR EXECUTING IT PROPERLY.

DISCREPANCIES: IN CASE OF DISCREPANCIES BETWEEN THESE GENERAL NOTES, THE CONTRACT DRAWINGS AND SPECIFICATIONS, AND/OR REFERENCE STANDARDS, THE ENGINEER SHALL DETERMINE WHICH SHALL GOVERN. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

SITE VERIFICATION: THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR CONSTRUCTION. CONFLICTS BETWEEN THE DRAWINGS AND ACTUAL SITE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE WORK. ALL UNDERGROUND UTILITIES SHALL BE DETERMINED BY THE CONTRACTOR PRIOR TO EXCAVATION OR DRILLING.

WIND DESIGN: BASIC WIND SPEED (3-SECOND GUST), V = 85 MPH(ASD); WIND IMPORTANCE FACTOR, IW = 1.0; OCCUPANCY CATEGORY = II; EXPOSURE CATEGORY = B;

SEISMIC DESIGN: SEISMIC IMPORTANCE FACTOR IE = 1.0; OCCUPANCY CATEGORY = II; SS = 1.412G; S1 = 0.491G; SITE CLASS = D; SDS = 1.13G; SD1 = 0.491G; SEISMIC DESIGN CATEGORY = D; BASIC SEISMIC FORCE RESISTING SYSTEM = A-13 (BEARING WALL SYSTEMS) LIGHT-FRAMED WALLS WITH WOOD STRUCTURAL PANELS RATED FOR SHEAR RESISTANCE; CS = 0.122; R = 6.5; ANALYSIS PROCEDURE = EQUIVALENT LATERAL FORCE PROCEDURE PER ASCE 7, SEC 12.8.

SNOW LOAD: GROUND SNOW LOAD, PG = 20 PSF; FLAT ROOF SNOW LOAD, PF = 25 PSF (DRIFT LOADS CONSIDERED PER ASCE 7 WHERE APPLICABLE); SNOW EXPOSURE FACTOR, CE = 1.0; SNOW IMPORTANCE FACTOR, IS = 1.0; THERMAL FACTOR, CT = 1.0.

LIVE LOADS:

ROOF (LIVE)	20 PSF
ROOF (SNOW)	25 PSF
RESIDENTIAL FLOOR	40 PSF
RESIDENTIAL DECK	60 PSF

DESIGN-BY-OTHERS (DEFERRED SUBMITTALS) LOADS: ALL PRE-ENGINEERED/FABRICATED/MANUFACTURED OR OTHER PRODUCTS DESIGNED BY OTHERS SHALL BE DESIGNED FOR THE TRIBUTARY DEAD AND LIVE LOADS PLUS WIND, EARTHQUAKE, AND COMPONENT AND CLADDING LOADS WHEN APPLICABLE. DESIGN SHALL CONFORM TO THE PROJECT DRAWINGS AND SPECIFICATIONS, REFERENCE STANDARDS, AND GOVERNING CODE.

ROOF DEAD LOAD	15 PSF
TOP CHORD DEAD LOAD	8 PSF
BOTTOM CHORD DEAD LOAD	7 PSF
TRUSS UPLIFT LOAD (GROSS)	10 PSF

DEFERRED SUBMITTALS: ITEMS DESIGNED BY OTHERS SHALL INCLUDE CALCULATIONS, SHOP DRAWINGS AND PRODUCT DATA. DESIGN SHALL BE PREPARED BY THE SSE AND SUBMITTED TO THE ARCHITECT AND SER FOR REVIEW PRIOR TO SUBMISSION TO THE JURISDICTION FOR APPROVAL. THE SSE SHALL SUBMIT TO THE ENGINEER FOR REVIEW CALCULATIONS AND SHOP DRAWINGS THAT ARE STAMPED AND SIGNED BY THE SSE. REVIEW OF THE SSE'S SHOP DRAWINGS IS FOR GENERAL COMPLIANCE WITH DESIGN CRITERIA AND COMPATIBILITY WITH THE DESIGN OF THE PRIMARY STRUCTURE AND DOES NOT RELIEVE THE SSE OF RESPONSIBILITY FOR THAT DESIGN. ALL NECESSARY BRACING, TIES, ANCHORAGE, AND PROPRIETARY PRODUCTS SHALL BE FURNISHED AND INSTALLED PER MANUFACTURER'S INSTRUCTIONS OR THE SSE'S DESIGN DRAWINGS AND CALCULATIONS.

INSPECTIONS: ALL CONSTRUCTION IS SUBJECT TO INSPECTION BY THE BUILDING OFFICIAL IN ACCORDANCE WITH IBC SEC 109. THE CONTRACTOR SHALL COORDINATE ALL REQUIRED INSPECTIONS WITH THE BUILDING OFFICIAL. SUBMIT COPIES OF ALL INSPECTION REPORTS TO THE ENGINEER FOR REVIEW.

PREFABRICATED CONSTRUCTION: ALL PREFABRICATED CONSTRUCTION SHALL CONFORM TO IBC SEC 1703.6.

GEOTECHNICAL INSPECTION: THE GEOTECHNICAL ENGINEER OR BUILDING OFFICIAL SHALL INSPECT ALL PREPARED SOIL BEARING SURFACES PRIOR TO PLACEMENT OF CONCRETE AND REINFORCING STEEL AND PROVIDE A LETTER TO THE OWNER STATING THAT SOILS ARE ADEQUATE TO SUPPORT THE "ALLOWABLE FOUNDATION PRESSURE" SHOWN BELOW. SOIL VALUES SHALL BE FIELD VERIFIED BY THE BUILDING OFFICIAL OR THE GEOTECHNICAL ENGINEER PRIOR TO PLACING CONCRETE.

GEOTECHNICAL REPORT: RECOMMENDATIONS CONTAINED IN "GEOTECHNICAL ENGINEERING REPORT" BY GEO GROUP NORTHWEST, INC., DATED AUGUST 29, 2022 WERE USED FOR FOOTING DESIGN.

DESIGN SOIL VALUES:

ALLOWABLE BEARING PRESSURE	2000 PSF
PASSIVE LATERAL PRESSURE	300 PSF/FT
ACTIVE LATERAL PRESSURE (UNRESTRAINED)	35 PSF/FT
AT-REST LATERAL PRESSURE (RESTRAINED)	45 PSF/FT
COEFFICIENT OF SLIDING FRICTION	0.30

△1

SLABS-ON-GRADE & FOUNDATIONS: ALL FOUNDATIONS SHALL BEAR ON STRUCTURAL COMPACTED FILL OR COMPETENT NATIVE SOIL PER THE GEOTECHNICAL REPORT. ALL SLABS-ON-GRADE SHALL BE FOUNDED ON APPROPRIATE SUB-GRADE PREPARATION AS NOTED IN THE GEOTECHNICAL REPORT. EXTERIOR PERIMETER FOOTINGS SHALL BEAR NOT LESS THAN 18 INCHES BELOW FINISH GRADE, OR BY THE GEOTECHNICAL ENGINEER AND THE BUILDING OFFICIAL. INTERIOR FOOTINGS SHALL BEAR NOT LESS THAN 12 INCHES BELOW FINISH FLOOR.

OVER-EXCAVATION: REMOVE THE MEDIUM STIFF SOILS PER GEOTECH DIRECTIONS TO EXPOSE COMPETENT SOIL. GEOTECH OF RECORD TO BE PRESENT AT THE SITE DURING OVER-EXCAVATION. △1

COMPACTION: UNLESS OTHERWISE SPECIFIED BY A GEOTECHNICAL ENGINEER, FOOTINGS SHALL BE PLACED ON COMPACTED MATERIAL AND SHALL BE WELL-GRADED GRANULAR MATERIAL WITH NO MORE THAN 5% PASSING A #2 SIEVE. FILLS PLACED SHALL BE IN MAXIMUM 10" LIFTS AND ALL BEARING SOILS SHALL BE COMPACTED TO 95% MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT USING THE MODIFIED PROCTOR TEST.

CAST-IN-PLACE CONCRETE & REINFORCEMENT

REFERENCE STANDARDS: CONFORM TO:

(1) ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY".
(2) IBC CHAPTER 19.
(3) ACI 301 "STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE", SEC 3 "REINFORCEMENT AND REINFORCEMENT SUPPORTS."

FIELD REFERENCE: THE CONTRACTOR SHALL KEEP A COPY OF ACI FIELD REFERENCE MANUAL, SP-15, "STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE (ACI 301) WITH SELECTED ACI AND ASTM REFERENCES."

CONCRETE MIXTURES: CONFORM TO ACI 318 CHAPTER 5 "CONCRETE QUALITY, MIXING, AND PLACING."

MATERIALS: CONFORM TO ACI 318 CHAPTER 3 "MATERIALS" FOR REQUIREMENTS FOR CEMENTITIOUS MATERIALS, AGGREGATES, MIXING WATER AND ADMIXTURES.

REINFORCING BARS	ASTM A615, GRADE 60, DEFORMED BARS.
DEFORMED WELDED WIRE FABRIC	ASTM A497
BAR SUPPORTS	CRSI MSP-2, CHAPTER 3 "BAR SUPPORTS."
TIE WIRE	16.5 GAGE OR HEAVIER, BLACK ANNEALED.

MIX DESIGNS: PROVIDE A 5-SACK MINIMUM, 28-DAY COMPRESSIVE STRENGTH F'C = 2,500 PSI CONCRETE MIX WITH MAXIMUM 3/4" AGGREGATE AND 0.50 W/C RATIO FOR ALL ISOLATED POST AND CONTINUOUS WALL FOOTINGS, SLABS-ON-GRADE, AND BASEMENT WALLS EXTENDING NO MORE THAN 8" ABOVE FINISH GRADE ELEVATION. FOR BASEMENT WALLS EXTENDING MORE THAN 8" ABOVE FINISH GRADE AND ALL SITE WALLS, PROVIDE A 5-1/2 SACK MINIMUM F'C = 3,000 PSI CONCRETE MIX WITH MAXIMUM 3/4" AGGREGATE AND 0.50 W/C RATIO.

MIX DESIGN NOTES:

(1) W/C RATIO: WATER-CEMENTITIOUS MATERIAL RATIOS SHALL BE BASED ON THE TOTAL WEIGHT OF CEMENTITIOUS MATERIALS.
(2) CEMENTITIOUS CONTENT: THE USE OF FLY ASH, OTHER POZZOLANS, SILICA FUME, OR SLAG SHALL CONFORM TO ACI 301 SEC 4.2.2.8.B. MAXIMUM AMOUNT OF FLY ASH SHALL BE 20% OF TOTAL CEMENTITIOUS CONTENT UNLESS REVIEWED AND APPROVED OTHERWISE BY SER.
(3) AIR CONTENT: CONFORM TO ACI 301 SEC 4.2.2.4. HORIZONTAL EXTERIOR SURFACES IN CONTACT WITH THE SOIL REQUIRE ENTRAINED AIR. USE "MODERATE EXPOSURE". VERTICAL EXTERIOR SURFACES REQUIRE "MODERATE EXPOSURE". TOLERANCE IS +/- 1-1/2%. AIR CONTENT SHALL BE MEASURED AT POINT OF PLACEMENT.
(4) SLUMP: CONFORM TO ACI 301 SEC 4.2.2.2. SLUMP SHALL BE DETERMINED AT POINT OF PLACEMENT.
(5) NON-CHLORIDE ACCELERATOR: NON-CHLORIDE ACCELERATING ADMIXTURE MAY BE USED IN CONCRETE SLABS PLACED AT AMBIENT TEMPERATURES BELOW 50F AT THE CONTRACTOR'S OPTION.

FORMWORK: CONFORM TO ACI 301 SEC 2 "FORMWORK AND FORM ACCESSORIES." REMOVAL OF FORMS SHALL CONFORM TO SEC 2.3.2 EXCEPT STRENGTH INDICATED IN SEC 2.3.2.5 SHALL BE 0.75 F'C.

MEASURING, MIXING, AND DELIVERY: CONFORM TO ACI 301 SEC 4.3.

HANDLING, PLACING, CONSTRUCTING AND CURING: CONFORM TO ACI 301 SEC 5.

REBAR FABRICATION & PLACING: CONFORM TO ACI 301, SEC 3.2.2 "FABRICATION", AND ACI SP-66 "ACI DETAILING MANUAL." CONFORM TO ACI 301, SEC 3.3.2 "PLACEMENT." PLACING TOLERANCES SHALL CONFORM TO SEC 3.3.2.1 "TOLERANCES."

SPLICES: CONFORM TO ACI 301, SEC 3.3.2.7. REFER TO PLANS FOR TYPICAL SPLICES.

FIELD BENDING: CONFORM TO ACI 301 SEC 3.3.2.8. "FIELD BENDING OR STRAIGHTENING." BAR SIZES #3 THROUGH #5 MAY BE FIELD BENT COLD THE FIRST TIME. OTHER BARS REQUIRE PREHEATING. DO NOT TWIST BARS.

CORNERS BARS: PROVIDE MATCHING-SIZED "L" CORNER BARS FOR ALL HORIZONTAL WALL AND FOOTING BARS WITH THE APPROPRIATE SPLICE LENGTH, UNO.

CONCRETE COVER: CONFORM TO THE FOLLOWING COVER REQUIREMENTS FROM ACI 301, TABLE 3.3.2.3:

CONCRETE CAST AGAINST EARTH	3"
CONCRETE EXPOSED TO EARTH OR WEATHER (#5 & SMALLER)	1-1/2"
BARS IN SLABS AND WALLS	3/4"

CONSTRUCTION JOINTS: CONFORM TO ACI 301 SEC 2.2.2.5, 5.1.2.3A, 5.2.2.1, AND 5.3.2.6. CONSTRUCTION JOINTS SHALL BE LOCATED AND DETAILED AS ON THE CONSTRUCTION DRAWINGS. USE OF AN ACCEPTABLE ADHESIVE, SURFACE RETARDER, PORTLAND CEMENT GROUT, OR ROUGHENING THE SURFACE IS NOT REQUIRED UNLESS SPECIFICALLY NOTED ON THE DRAWINGS. WHERE SHEAR BOND IS REQUIRED, ROUGHEN SURFACES TO 1/4" AMPLITUDE.

WOOD FRAMING

REFERENCE STANDARDS: CONFORM TO:

(1) IBC CHAPTER 23 "WOOD",
(2) NDS AND NDS SUPPLEMENT - "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION",
(3) ANSI/TPI 1 "NATIONAL DESIGN STANDARD FOR METAL-PLATE-CONNECTED WOOD TRUSS CONSTRUCTION",

DEFERRED SUBMITTALS: SUBMIT PRODUCT DATA AND PROOF OF ICC APPROVAL FOR FRAMING MEMBERS AND FASTENERS THAT HAVE BEEN DESIGNED BY OTHERS. SUBMIT CALCULATIONS PREPARED BY THE SSE IN THE STATE OF WASHINGTON FOR ALL MEMBERS AND CONNECTIONS DESIGNED BY OTHERS ALONG WITH SHOP DRAWINGS. ALL NECESSARY BRIDGING, BLOCKING, BLOCKING PANELS AND WEB STIFFENERS SHALL BE DETAILED AND FURNISHED BY THE SUPPLIER. TEMPORARY AND PERMANENT BRIDGING SHALL BE INSTALLED IN CONFORMANCE WITH THE MANUFACTURER'S SPECIFICATIONS. DEFLECTION LIMITS SHALL BE AS NOTED UNDER DESIGN LOADS SECTION.

IDENTIFICATION: ALL SAWN LUMBER AND PRE-MANUFACTURED WOOD PRODUCTS SHALL BE IDENTIFIED BY THE GRADE MARK OR A CERTIFICATE OF INSPECTION ISSUED BY THE CERTIFYING AGENCY.

MATERIALS:

- SAWN LUMBER: CONFORM TO GRADING RULES OF WWPA, WCLIB OR NLGA. FINGER JOINTED STUDS ACCEPTABLE AT INTERIOR WALLS ONLY.

MEMBER USE	SIZE	SPECIES	GRADE
STUDS & POSTS	2x, 4x	HEM-FIR	NO. 2
RAFTERS	2x4 - 2x10	HEM-FIR	NO. 2
BEAMS	4x8 - 4x12	HEM-FIR	NO. 2
BEAMS	6x8 - 6x12	HEM-FIR	NO. 2
POSTS & TIMBERS	6x, 8x	DOUG-FIR	NO. 2

- GLUED LAMINATED TIMBER: CONFORM TO AITC 117 "STANDARD SPECIFICATIONS FOR STRUCTURAL GLUE-LAMINATED TIMBER OF SOFTWOOD SPECIES, MANUFACTURING AND DESIGN" AND ANSI/AITC A190.1 "STRUCTURAL GLUED LAMINATED TIMBER." CAMBER ALL GLUED LAMINATED MEMBERS BEAMS TO 2000' RADIUS, UNLESS SHOWN OTHERWISE ON THE PLANS.

MEMBER USE	SIZES	SPECIES	STRESS CLASS	USES
BEAMS	ALL	DF/DF	24F-1.8E	SIMPLE SPANS
	ALL	DF/DF	24F-1.8E [(-FB)=(+FB)]	CANTILEVER SPANS

- METAL PLATE CONNECTED WOOD ROOF TRUSSES: CONFORM TO IBC SEC 2303.4 "TRUSSES."
- WOOD STRUCTURAL SHEATHING (PLYWOOD): WOOD APA-RATED STRUCTURAL SHEATHING INCLUDES: ALL VENEER PLYWOOD, ORIENTED STRAND BOARD, WAFERBOARD, PARTICLEBOARD, T1-11 SIDING, AND COMPOSITES OF VENEER AND WOOD BASED MATERIAL. CONFORM TO PRODUCT STANDARDS PS-1 AND PS-2 OF THE U.S. DEPT. OF COMMERCE AND THE AMERICAN PLYWOOD ASSOCIATION (APA).

	MINIMUM APA RATING			
LOCATION	THICKNESS	SPAN RATING	PLYWOOD GRADE	EXPOSURE
ROOF	15/32"	32/16	C-D	1
FLOOR	23/32" T&G	24 OC	STURD-I-FLOOR	1
WALLS	15/32"	32/16	C-D	1
WALLS(ALT)	7/16" OSB	24/16	C-D	1

- JOIST HANGERS AND CONNECTORS: SHALL BE "STRONG TIE" BY SIMPSON COMPANY OR USP EQUIVALENT AS SPECIFIED IN THEIR LATEST CATALOGS. ALTERNATE CONNECTORS BY OTHER MANUFACTURERS MAY BE SUBSTITUTED PROVIDED THEY HAVE CURRENT ICC APPROVAL FOR EQUIVALENT OR GREATER LOAD CAPACITIES AND ARE REVIEWED AND APPROVED BY THE SER PRIOR TO ORDERING. CONNECTORS SHALL BE INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS. WHERE CONNECTOR STRAPS CONNECT TWO MEMBERS, PLACE 1/2 OF THE NAILS OR BOLTS IN EACH MEMBER. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG SCREWS BEARING ON WOOD. UNLESS NOTED OTHERWISE ALL NAILS SHALL BE FULL LENGTH COMMON. NAIL STRAPS TO WOOD FRAMING AS LATE AS POSSIBLE IN THE FRAMING PROCESS TO ALLOW THE WOOD TO SHRINK AND THE BUILDING TO SETTLE.
- NAILS AND STAPLES: CONFORM TO IBC SEC 2303.6 "NAILS AND STAPLES." UNLESS NOTED ON PLANS, NAIL PER IBC TABLE 2304.9.1. UNLESS NOTED OTHERWISE ALL NAILS SHALL BE COMMON. NAIL SIZES SPECIFIED ON THE DRAWINGS ARE BASED ON THE FOLLOWING SPECIFICATIONS:

SIZE	LENGTH	DIAMETER
8d	2-1/2"	0.131"
10d	3"	0.148"
(8d & 10d ALTERNATIVE) PASLODE TETRAGRIP NAILS	2-3/8"	0.113"
12d (16d SINKER)	3-1/4"	0.148"
16d	3-1/2"	0.162"

- LAG BOLTS/BOLTS: CONFORM TO ASTM A307.

NAILING REQUIREMENTS: PROVIDE MINIMUM NAILING IN ACCORDANCE WITH IBC TABLE 2304.9.1 "FASTENING SCHEDULE" EXCEPT AS NOTED ON THE DRAWINGS. NAILING FOR ROOF/FLOOR DIAPHRAGMS/SHEAR WALLS SHALL BE PER DRAWINGS. NAILS SHALL BE DRIVEN FLUSH AND SHALL NOT FRACTURE THE SURFACE OF SHEATHING.

STANDARD LIGHT-FRAME CONSTRUCTION: UNLESS NOTED ON THE PLANS, CONSTRUCTION SHALL CONFORM TO IBC SEC 2308 "CONVENTIONAL LIGHT-FRAME CONSTRUCTION" AND IBC SEC 2304 "GENERAL CONSTRUCTION REQUIREMENTS."

(1) WALL FRAMING: UNLESS OTHERWISE NOTED, ALL INTERIOR WALLS SHALL BE 2X4 @ 16"OC AND ALL EXTERIOR WALLS SHALL BE 2X6 @ 16"OC. PROVIDE (2)BUNDLED STUDS MIN AT WALL ENDS AND EACH SIDE OF ALL OPENINGS. UNO, ALL SOLID SAWN LUMBER HEADERS SHALL BE SUPPORTED BY A MINIMUM OF (1)TRIM AND (1)KING STUD AND ALL GLULAM OR ENGINEERED WOOD HEADERS BY (2)TRIM AND (2)KING STUDS. AT FRAMED WALLS, UNO, ALL SOLID SAWN LUMBER BEAMS SHALL BE SUPPORTED ON A MINIMUM OF (2) BUNDLED 2X STUDS AND ALL GLULAM OR ENGINEERED WOOD BEAMS ON A MINIMUM OF (3) BUNDLED 2X STUDS. STITCH-NAIL BUNDLED STUDS WITH (2)10D @ 12"OC. UNO, ALL INTERIOR AND EXTERIOR HEADERS SHALL BE 4X6. PROVIDE SOLID BLOCKING THRU FLOORS TO SUPPORTS BELOW FOR BEARING WALLS AND POSTS. UNO, ATTACH BOTTOM PLATES OF STUD WALLS TO WOOD FRAMING BELOW WITH 16D @ 12"OC OR TO CONCRETE WITH 5/8"-DIA. ANCHOR BOLTS X 7" EMBEDMENT AT 48"OC. REFER TO SHEAR WALL SCHEDULE FOR SPECIFIC SHEATHING, STUD, AND NAILING REQUIREMENTS AT SHEAR WALLS. UNO, PROVIDE GYPSUM SHEATHING ON INTERIOR SURFACES AND PLYWOOD SHEATHING ON EXTERIOR SURFACES.

(2) ROOF/FLOOR FRAMING: UNLESS OTHERWISE NOTED, PROVIDE DOUBLE JOISTS/RAFTERS UNDER ALL PARALLEL BEARING PARTITIONS AND SOLID BLOCKING AT ALL BEARING POINTS. PROVIDE DOUBLE JOISTS AROUND ALL ROOF/FLOOR OPENINGS. UNO, MULTI-JOISTS/RAFTERS SHALL BE STITCH-NAILED TOGETHER WITH (2)10D @ 12"OC. PROVIDE ROOF SHEATHING EDGE CLIPS CENTERED BETWEEN FRAMING AT UNBLOCKED PLYWOOD EDGES. ALL FLOOR SHEATHING SHALL HAVE TONGUE AND GROOVE JOINTS OR BE SUPPORTED BY SOLID BLOCKING. ALLOW 1/8" SPACING AT ALL PANEL EDGES AND ENDS OF ROOF/FLOOR SHEATHING. ROOF/FLOOR SHEATHING SHALL BE LAID FACE GRAIN PERPENDICULAR TO FRAMING MEMBERS.

MOISTURE CONTENT: WOOD MATERIAL USED FOR THIS PROJECT SHALL HAVE MAXIMUM MOISTURE CONTENT OF 19% EXCEPT FOR THE PRESSURE-TREATED WOOD SILL PLATE.

PRESERVATIVE TREATMENT: WOOD MATERIALS ARE REQUIRED TO BE "TREATED WOOD" UNDER CERTAIN CONDITIONS IN ACCORDANCE WITH IBC SEC 2304.11 "PROTECTION AGAINST DECAY AND TERMITES". CONFORM TO THE APPROPRIATE STANDARDS OF THE AMERICAN WOOD-PRESERVERS ASSOCIATION (AWPA) FOR SAWN LUMBER, GLUED LAMINATED TIMBER, ROUND POLES, WOOD PILES AND MARINE PILES. FOLLOW AMERICAN LUMBER STANDARDS COMMITTEE (ALSC) QUALITY ASSURANCE PROCEDURES. PRODUCTS SHALL BEAR THE APPROPRIATE MARK.

METAL CONNECTORS/PT WOOD: CK ENGINEERING LLC RECOMMENDS THAT ALL METAL HARDWARE AND FASTENERS IN CONTACT WITH PRESSURE TREATED LUMBER BE STAINLESS STEEL TYPE 316L. AT THE OWNER'S RISK AND DISCRETION, HOT-DIPPED GALVANIZED METAL HARDWARE AND FASTENERS MAY BE INVESTIGATED FOR USE IN LIEU OF STAINLESS STEEL PROVIDED THAT THE FINISH HAS A MINIMUM ZINC CONTENT OF AT LEAST 1.85 OZ/SF AND ITS USE IS COORDINATED BY THE CONTRACTOR AND WOOD SUPPLIER FOR THE EXPECTED ENVIRONMENT AND MOISTURE EXPOSURE FOR APPROPRIATE USE BASED ON THE METHOD OF PRESERVATIVE TREATMENT OF THE WOOD.

DETAIL A

DETAIL B

DETAIL C

MODEL # (1)	ANCHORAGE TYPE (4,5,6)	FASTENERS	END STUD REQUIRED (2,3)	CAPACITY (LBS)	
				DOUG-FIR	HEM-FIR
CS14	FLR-TO-FLR STRAP (E.L.=19")	(30) 10d COMMON	2x STUD	2,490	2,490
MST48	FLR-TO-FLR STRAP (CNTR'D ON C.S.)	(32) 16d COMMON	(2) 2x STUDS	3,960	3,425
MST72	FLR-TO-FLR STRAP (CNTR'D ON C.S.)	(62) 16d COMMON	(2) 2x STUDS	6,730	6,475
LSTHD8/RJ	CAST-IN-PLACE	(16) 16d SINKERS	(2) 2x STUDS^7	1,975	1,975
STHD10/RJ	CAST-IN-PLACE	(18) 16d SINKERS	(2) 2x STUDS^7	2,640	2,640
STHD14/RJ	CAST-IN-PLACE	(22) 16d SINKERS	(2) 2x STUDS^7	3,695	3,695
HDU8	SSTB28	(20) $\frac{1}{4}$"øx$2\frac{1}{2}$" SDS WOOD SCREWS	(3) 2x STUDS	7,870	5,665
HDU11	SB1x30	(30) $\frac{1}{4}$"øx$2\frac{1}{2}$" SDS WOOD SCREWS	6x6 DF#2 MIN.	9,335	

NOTES:

1. HOLDOWNS SPECIFIED ARE AS MANUFACTURED BY SIMPSON ANCHOR TIE DOWN CO., INC; ACCEPTABLE EQUIVALENT PRODUCT SUBSTITUTIONS ARE AVAILABLE FROM OTHER MANUFACTURERS WITH SER APPROVAL.
2. LOCATE ALL HOLDOWNS AT ENDS OF ALL SHEAR WALLS & FASTEN TO BUNDLED END STUDS.
3. BUNDLED END STUDS SHOULD BE STITCH-NAILED TOGETHER USING MINIMUM (2) 16d @ 10"OC, UNO.
4. LOCATE "HDU#", "LSTHD#" & "STHD#" HOLDOWNS AT CONCRETE FOUNDATION LEVEL. (DETAIL B & C) LOCATE "CS#", "MST", "MSTC#" & "CMST#" STRAPS AT FLOOR-TO-FLOOR CONNECTIONS. (DETAIL A)
5. ALL HOLDOWN ANCHOR BOLTS SHALL BE MIN 5" FROM CONCRETE WALL ENDS.
6. USE "SSTB" FOR 2x SILL PLATES & "SSTBL" FOR 3x SILL PLATES.
7. ADDITIONAL END STUD REQUIRED TO MEET MINIMUM $1\frac{1}{2}$" EDGE DISTANCE FROM CONCRETE CORNER TO "STHD" STRAP. USE "RJ" STYLE WITH "STHD" WHERE RIM JOIST IS PRESENT.
8. INSTALL ALL HOLDOWN HARDWARE PER MANUFACTURER'S INSTRUCTIONS & RECOMMENDATIONS.

HOLDOWN SCHEDULE

SCALE: N.T.S.

8

WOOD-FRAMED SHEAR WALL SCHEDULE

FOR HEM-FIR/DOUG-FIR STUD FRAMING

SW TYPE	SW SHEATHING APA-RATED [1, 2, 12]	NAIL SIZE & SPACING @ PANEL EDGES [4, 5, 6]	RIM JOIST OR BLOCKING ATTACHMENT TO TOP PLATE BELOW [8, 9]	BOTTOM PLATE & EDGE MEMBER REQUIREMENTS [3, 7, 13]		SILL PLATE REQUIREMENTS		SHEAR LOAD CAPACITY (PLF)
				SHEAR NAILING TO WOOD FRAMING BELOW	BOTTOM PL AT FRAMING	ANCHOR BOLT TO CONCRETE FOUNDATION [10]	SILL PL AT FOUNDATION [11]	
SW-6	15/32" CD-EXT	0.131"ø x $2\frac{1}{2}$" @ 6"OC	CLIP @ 18"OC	0.148"ø x $3\frac{1}{4}$" @ 6"OC	2x	$\frac{5}{8}$"ø @ 48"OC	P.T. 2x	260
SW-4	15/32" CD-EXT	0.131"ø x $2\frac{1}{2}$" @ 4"OC	CLIP @ 14"OC	0.148"ø x $3\frac{1}{4}$" @ 4"OC	2x [15]	$\frac{5}{8}$"ø @ 32"OC	P.T. 2x	380
						$\frac{5}{8}$"ø @ 48"OC	P.T. 3x [15]	
SW-3	15/32" CD-EXT	0.131"ø x $2\frac{1}{2}$" @ 3"OC, STAGGERED	CLIP @ 12"OC	0.148"ø x $3\frac{1}{4}$" @ 4"OC & CLIP @ 18"OC	3x [15]	$\frac{5}{8}$"ø @ 24"OC	P.T. 2x	490
						$\frac{5}{8}$"ø @ 32"OC	P.T. 3x [15]	
SW-2	15/32" CD-EXT	0.131"ø x $2\frac{1}{2}$" @ 2"OC, STAGGERED	CLIP @ 8"OC	0.148"ø x $3\frac{1}{4}$" @ 4"OC & CLIP @ 16"OC	3x [15]	$\frac{5}{8}$"ø @ 16"OC	P.T. 2x	640
						$\frac{5}{8}$"ø @ 24"OC	P.T. 3x [15]	

NOTES:

1. INSTALL PANELS EITHER HORIZONTALLY OR VERTICALLY
2. WHERE SHEATHING IS APPLIED ON BOTH SIDES OF WALL, PANEL EDGE JOINTS ON 2x FRAMING SHALL BE STAGGERED SO THAT JOINTS ON OPPOSITE SIDES ARE NOT LOCATED ON THE SAME STUDS.
3. BLOCKING IS REQUIRED AT ALL PANEL EDGES.
4. PROVIDE SHEAR WALL SHEATHING AND NAILING FOR ENTIRE LENGTH OF THE WALLS INDICATED ON THE PLANS. ENDS OF FULL HEIGHT WALLS ARE DESIGNATED BY WINDOWS, OR DOORWAYS OR AS DESIGNATED ON PLANS. HOLDOWN REQUIREMENTS PER PLANS.
5. SHEAR WALLS DESIGNATED AS PERFORATED SHEAR WALLS REQUIRE SHEATHING, SHEAR WALL NAILING, ETC. ABOVE AND BELOW ALL OPENINGS).
6. SHEATHING EDGE NAILING IS REQUIRED AT ALL HOLDOWN POSTS. EDGE NAILING MAY ALSO BE REQUIRED TO EACH STUD USED IN BUILT-UP HOLDOWN POSTS. ADDITIONAL INFORMATION PER HOLDOWN SCHEDULE & DETAILS.
7. INTERMEDIATE FRAMING TO BE 2x MINIMUM MEMBERS. ATTACH SHEATHING TO INTERMEDIATE FRAMING WITH 0.148"Ø x $2\frac{1}{2}$" NAILS AT 12"OC WHERE STUDS ARE SPACED AT 16"OC AND 0.148"Ø x $2\frac{1}{2}$" NAILS AT 6"OC WHERE STUDS ARE SPACED AT 24"OC.
8. BASED ON 0.131"Ø x $1\frac{1}{2}$" NAILS USED TO ATTACH FRAMING CLIPS DIRECTLY TO FRAMING. USE 0.131"Ø x $2\frac{1}{2}$" NAILS WHERE INSTALLED OVER SHEATHING.
9. FRAMING CLIPS: SIMPSON "A35" OR "LTP5" OR APPROVED EQUIVALENT.
10. ANCHOR BOLTS SHALL BE PROVIDED WITH HOT-DIPPED GALVANIZED STEEL PLATE WASHERS 3"x3"x0.229"(MIN). THE HOLE IN THE PLATE WASHER MAY BE DIAGONALLY SLOTTED $\frac{13}{16}$"x$1\frac{3}{4}$" PROVIDED A STANDARD CUT WASHER IS PLACED BETWEEN THE PLATE WASHER AND NUT. PLATE WASHER TO EXTEND TO WITHIN $\frac{1}{2}$" OF THE EDGE OF THE SILL PLATE ON THE SIDE(S) WITH SHEATHING. WHERE SHEAR WALLS ARE SHEATHED ON BOTH SIDES OF 2x6 WALL FRAMING, USE 4.5"x4.5"x0.229"(MIN) PLATE WASHERS. EMBED ANCHOR BOLTS 7" MINIMUM INTO THE CONCRETE.
11. PRESSURE TREATED MATERIAL CAN CAUSE EXCESSIVE CORROSION IN THE FASTENERS. PROVIDE HOT-DIPPED GALVANIZED (ELECTRO-PLATING IS NOT ACCEPTABLE) NAILS AND CONNECTOR PLATES (FRAMING ANGLES, ETC.) FOR ALL CONNECTORS IN CONTACT WITH PRESSURE TREATED FRAMING MEMBERS. ADDITIONAL INFORMATION PER STRUCTURAL NOTES.
12. WHERE WOOD SHEATHING IS APPLIED OVER GYPSUM SHEATHING, CONTACT THE ENGINEER OF RECORD FOR ALTERNATE NAILING REQUIREMENTS.
13. AT ADJOINING PANEL EDGES, (2) 2x STUDS NAILED TOGETHER MAY BE USED IN PLACE OF SINGLE 3x STUD. DOUBLE 2X STUDS SHALL BE CONNECTED TOGETHER BY NAILING THE STUDS TOGETHER WITH 3" LONG NAILS OF THE SAME SPACING AND DIAMETER AS THE PLATE NAILING.
14. CONTACT THE STRUCTURAL ENGINEER OF RECORD FOR ADHESIVE OR EXPANSION BOLT ALTERNATIVES TO CAST-IN-PLACE ANCHOR BOLTS. SPECIAL INSPECTION MAY BE REQUIRED.
15. NAIL STUDS TO 3x BOTTOM/SILL PLATES WITH EITHER (2) 0.148"Øx4" END NAILS OR (4) 0.131"Øx$2\frac{1}{2}$" TOENAILS.

WOOD-FRAMED SHEAR WALL SCHEDULE

SCALE: N.T.S.

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STEVEN COOKE
44213
6/8/2023

LIU RESIDENCE
3705 77TH PL SE
MERCER ISLAND, WA 98040

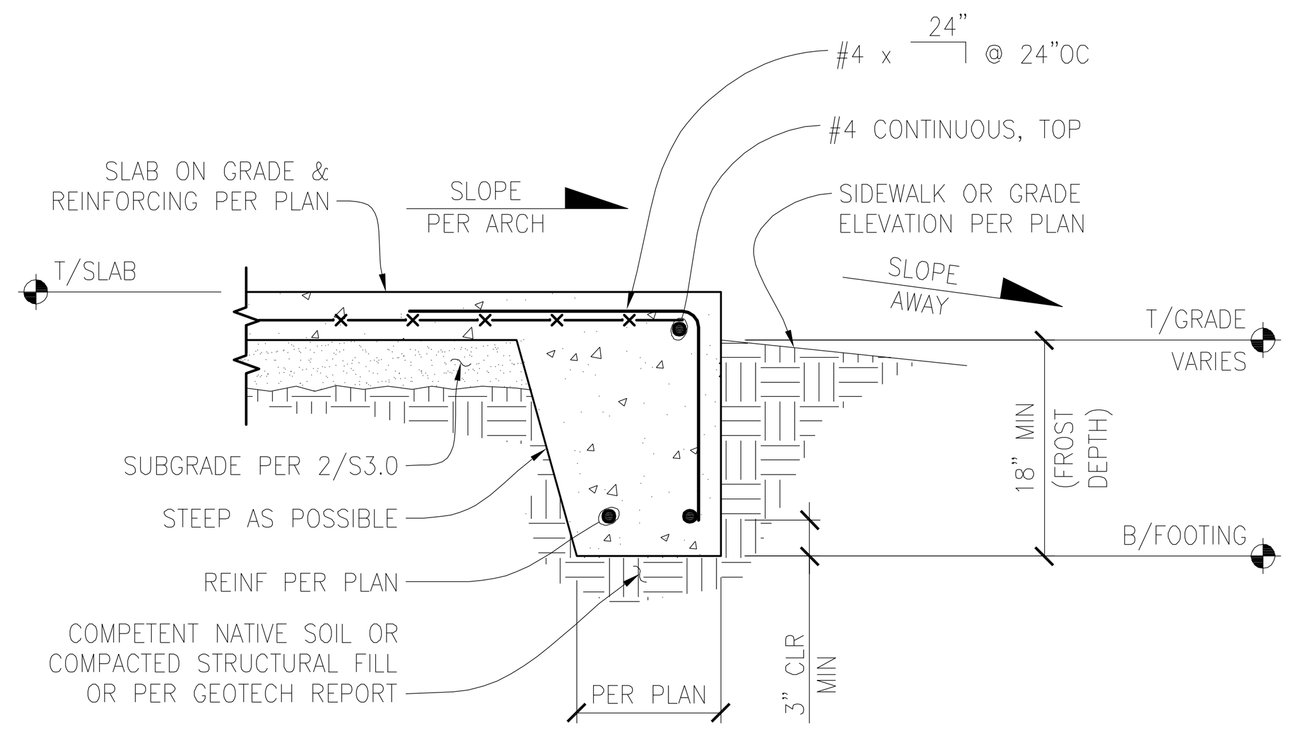
REVISION #	DATE	DESCRIPTION:
△1	06-08-2023	BOC REVIEW

Drawn By: PK
Checked By: SC
Date: 6-8-2023

CK JOB NO.
22-028

STRUCTURAL NOTES/SCHED.

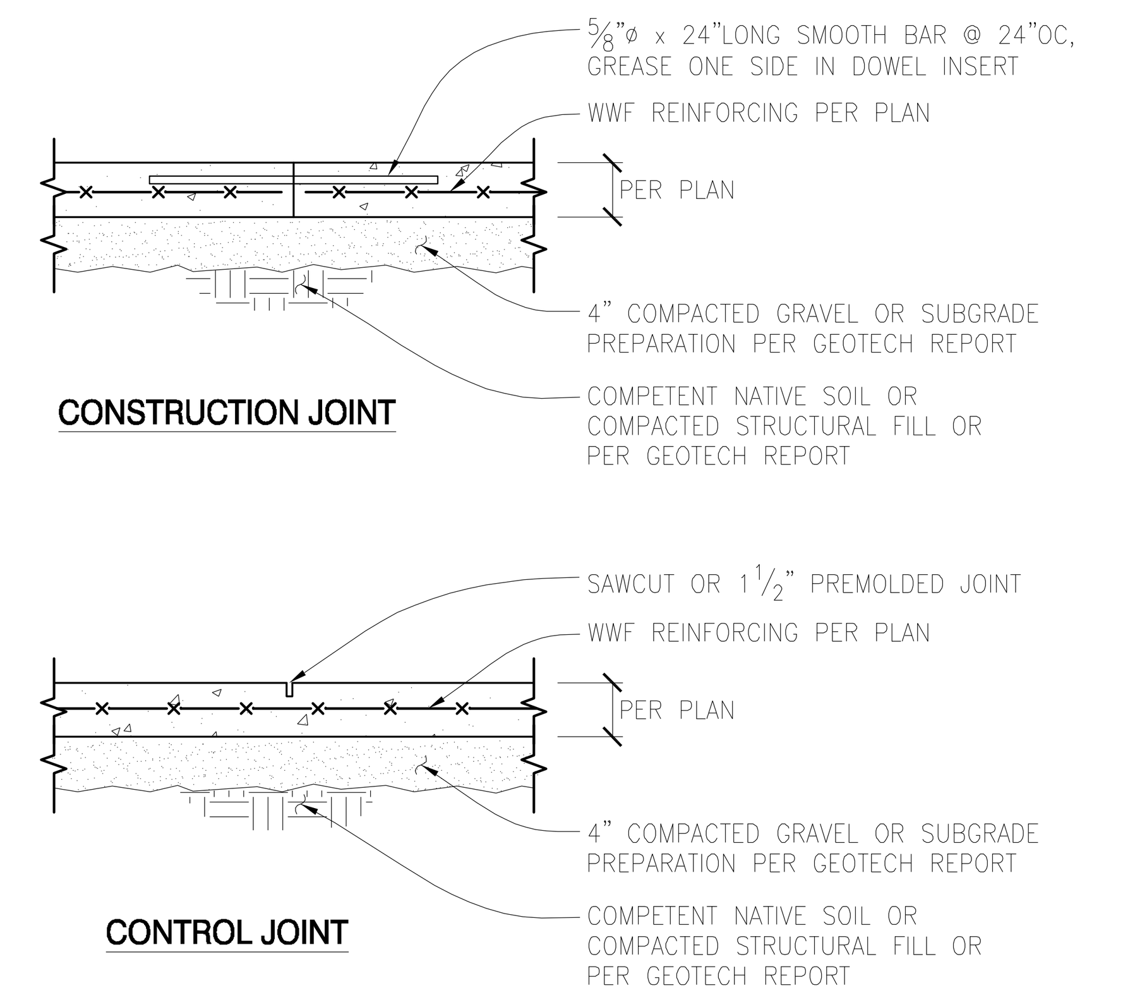
S-1.0



TYPICAL THICKENED SLAB EDGE FOOTING

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

1



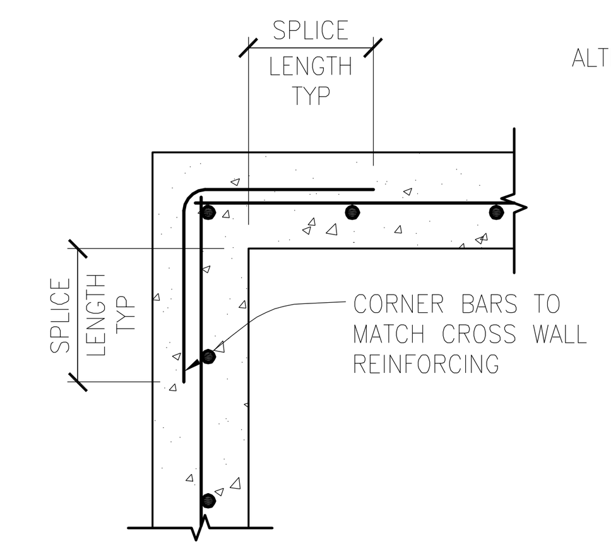
NOTES:

1. FOR CONSTRUCTION OR CONTROL JOINT LOCATIONS REFERENCE FOUNDATION/SLAB PLAN
2. USE "SOFTCUT SAW" AS SOON AS POSSIBLE WITHOUT CAUSING RAVELING OF CONCRETE EDGES. SAWCUT ALONG SHORT DIRECTION OF POUR FIRST
3. PROVIDE CONSTRUCTION/CONTROL JOINT TO ENCLOSE APPROXIMATE SQUARE AREAS OF 225 SF MAX

TYPICAL SLAB ON GRADE JOINT DETAILS

SCALE: N.T.S.

2



SPLICE LENGTH	
BAR	LENGTH
#4	28"
#5	36"

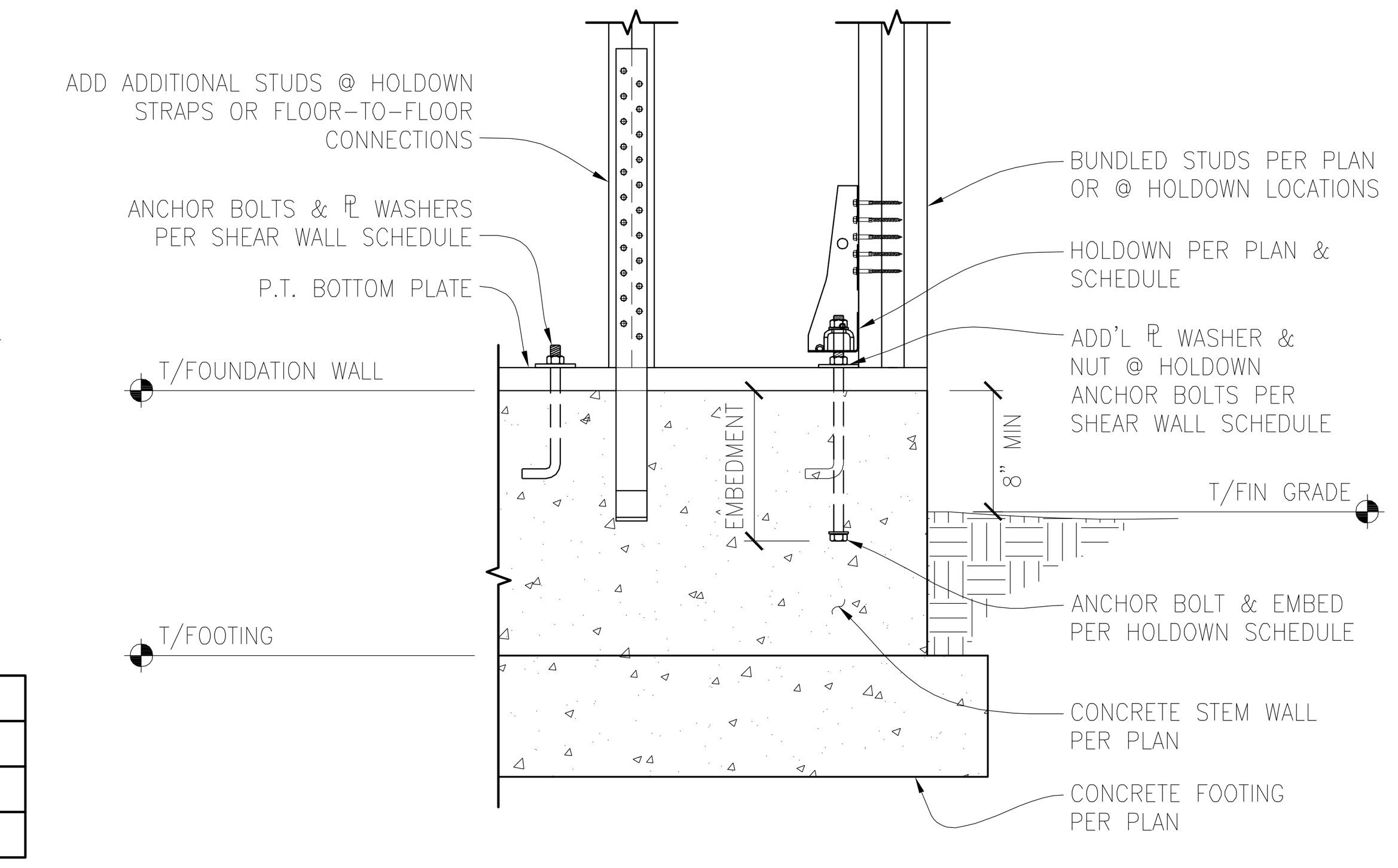
NOTES:

1. WALL SIZE & REINFORCING PER PLAN.
2. CORNER BARS SIZE & SPACING TO MATCH HORIZONTAL REINFORCING.

TYPICAL CORNER BARS AT CONCRETE WALLS - SINGLE MAT

SCALE: N.T.S.

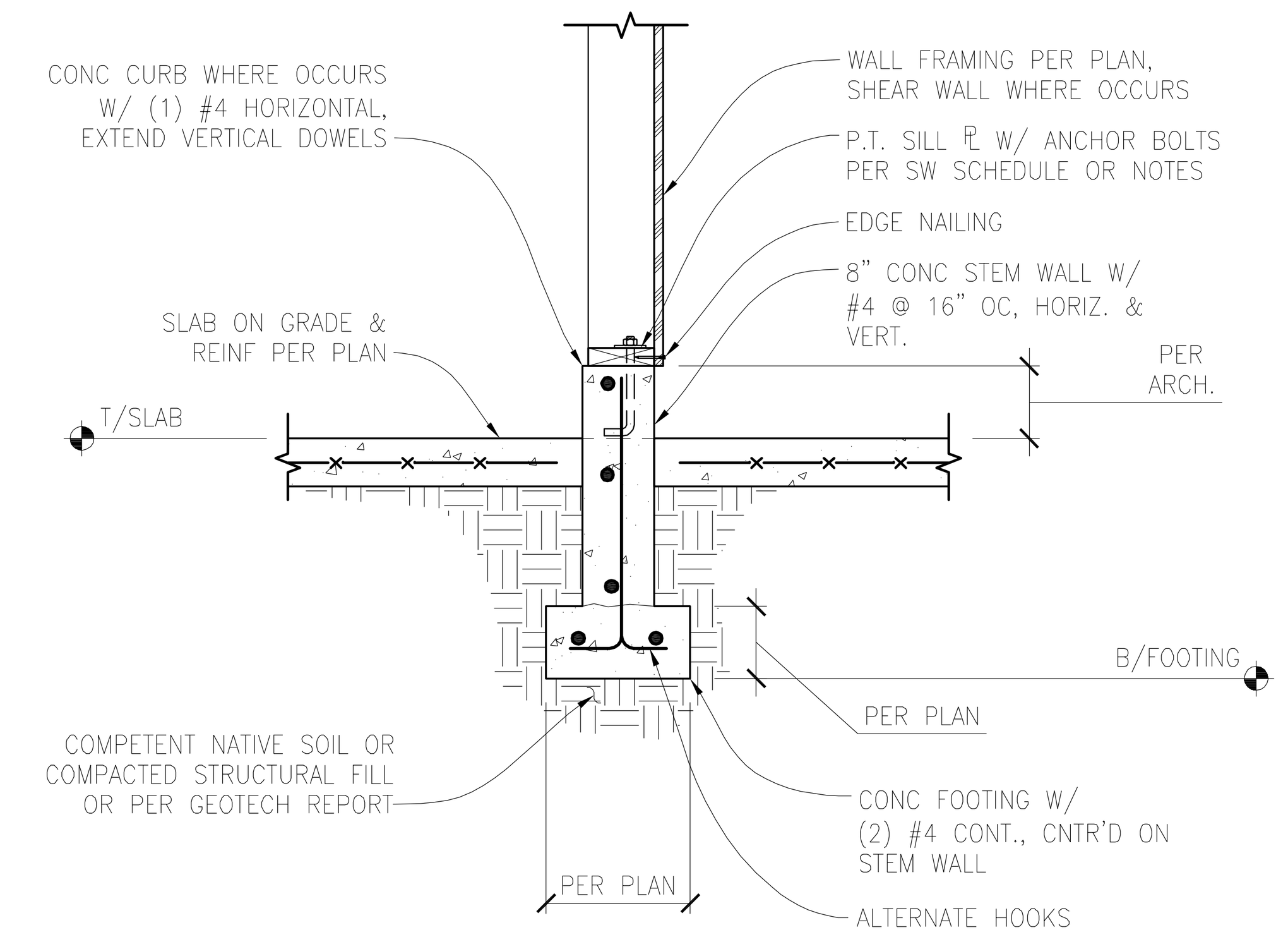
3



TYPICAL SHEAR WALL HOLDOWN CONNECTIONS AT FOUNDATION CONCRETE WALL

SCALE: N.T.S.

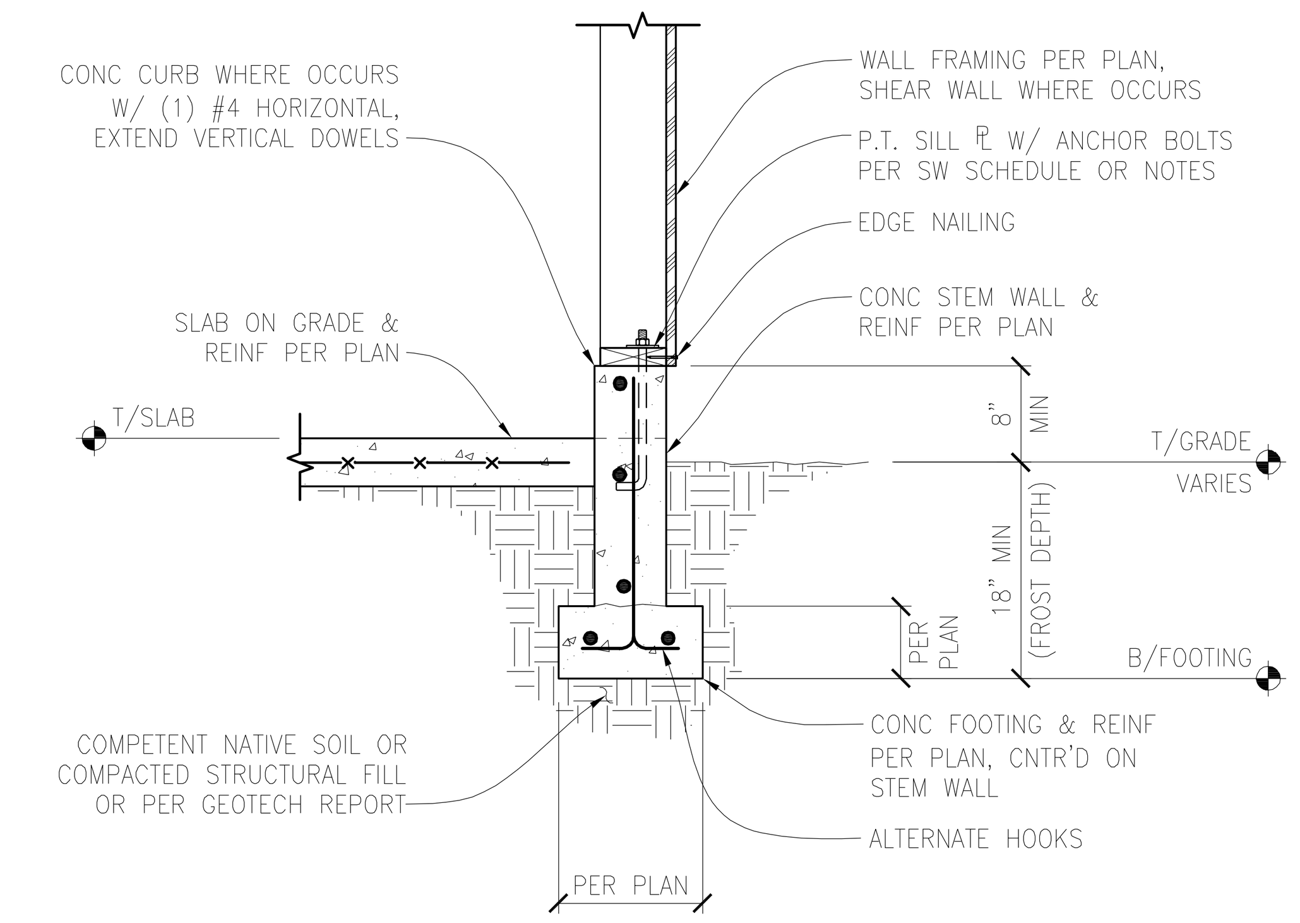
4



TYPICAL INTERIOR FOUNDATION FOOTING AND STEM WALL WITH SLAB ON GRADE

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

7

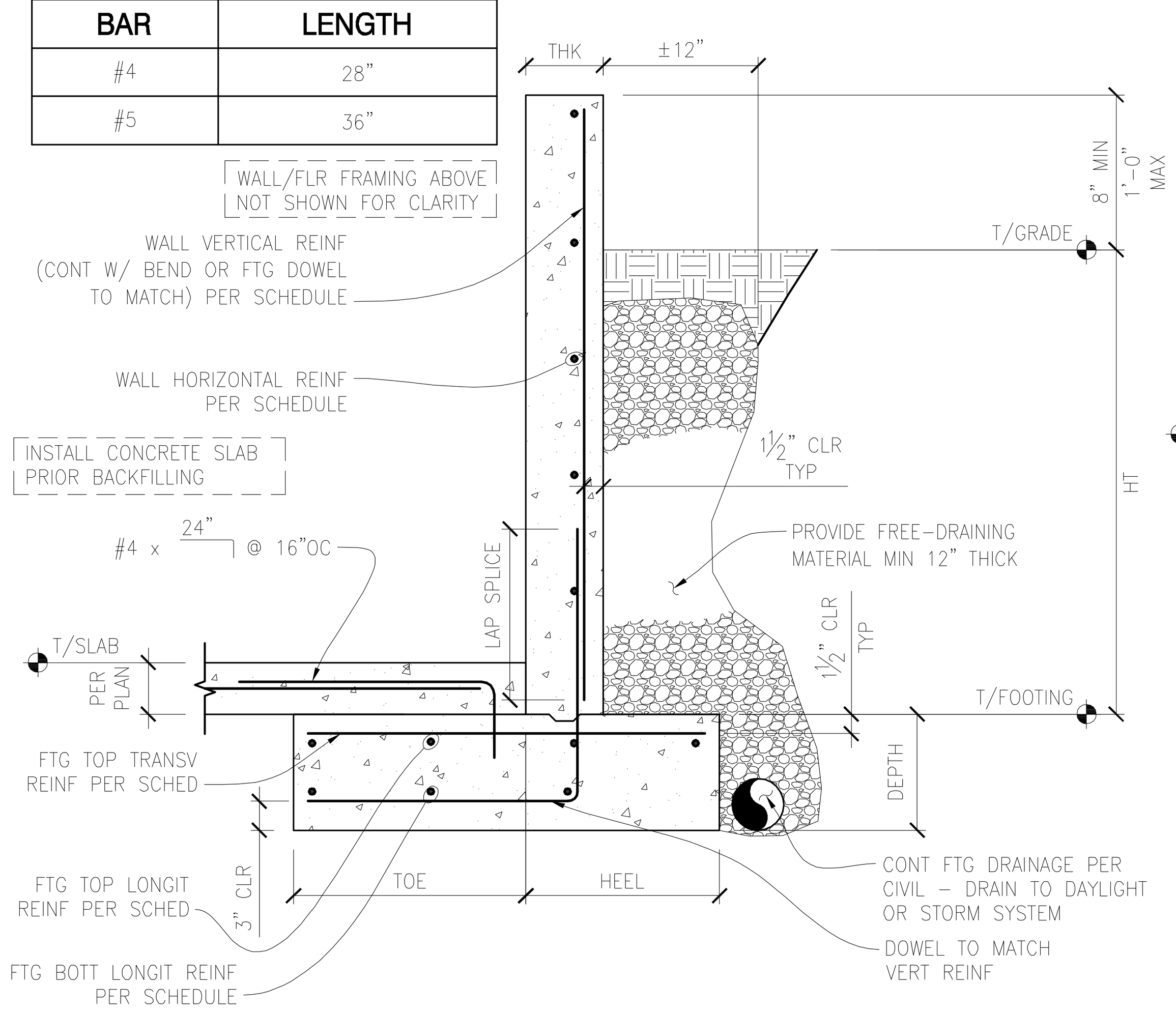


TYPICAL FOUNDATION FOOTING AND STEM WALL WITH SLAB ON GRADE

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

8

SPLICE LENGTH	
BAR	LENGTH
#4	28"
#5	36"

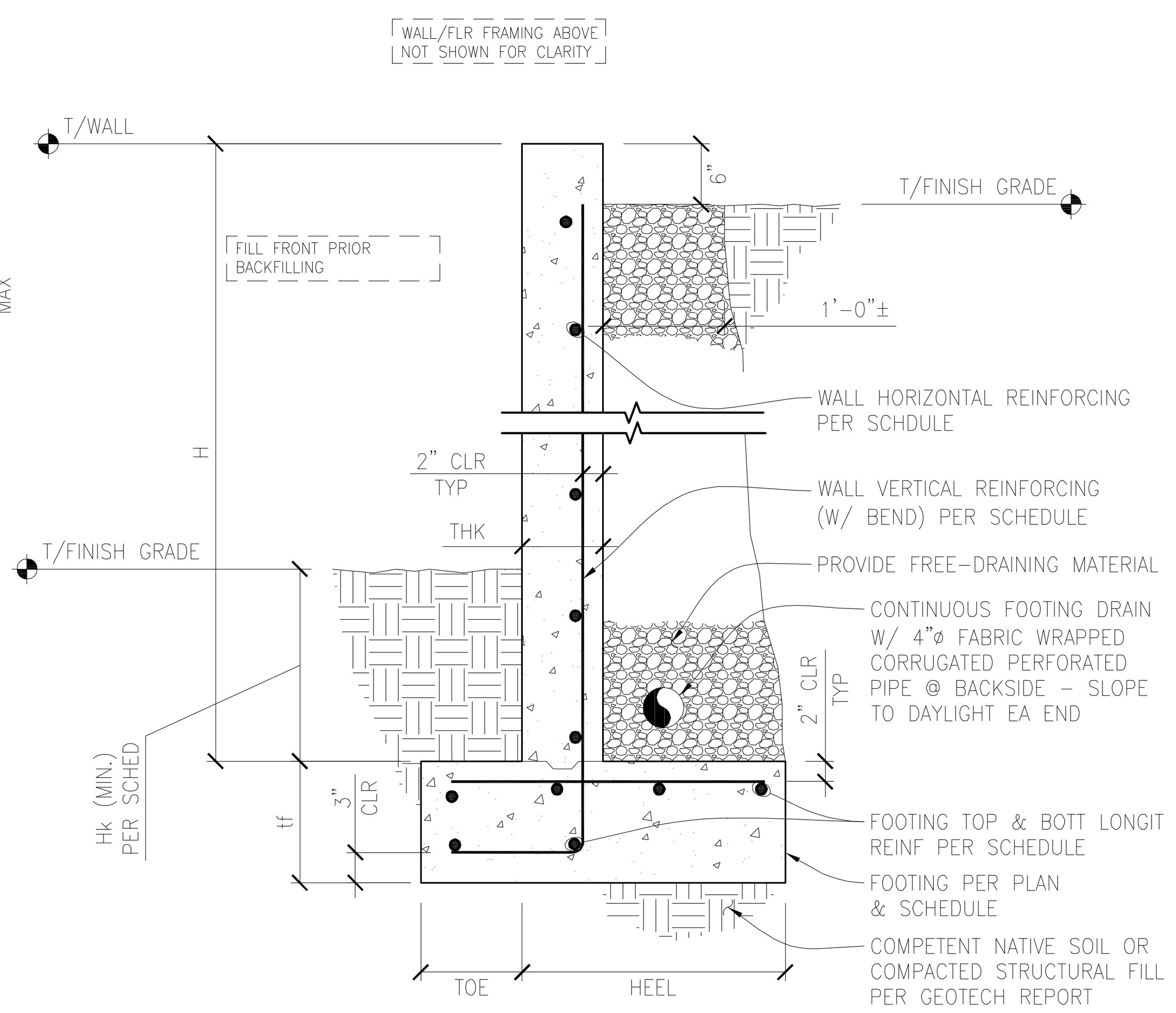


RETAINING WALL/FOOTING SCHEDULE									
WALL				FOOTING					
SIZE		REINFORCEMENT		SIZE			REINFORCEMENT		
HT (MAX)	THK	VERTICAL	HORIZONTAL	TOE	HEEL	DEPTH	TOP/TRANSV	TOP/LONGIT	BOTTOM/LONGIT
4'-0"	8"	#4 @ 12"OC	#4 @ 12"OC	1'-0"	1'-3"	10"	#4 @ 10"OC	(3) #4	(2) #4
6'-0"	8"	#4 @ 10"OC	#4 @ 12"OC	2'-0"	1'-6"	10"	#4 @ 10"OC	(4) #4	(3) #4
8'-0"	8"	#5 @ 12"OC	#4 @ 12"OC	3'-3"	1'-9"	14"	#5 @ 10"OC	(5) #5	(3) #5
9'-0"	10"	#5 @ 8"OC	#4 @ 10"OC	4'-3"	2'-0"	14"	#5 @ 10"OC	(7) #5	(5) #5

BASEMENT RETAINING WALL SCHEDULE

SCALE: N.T.S.

9

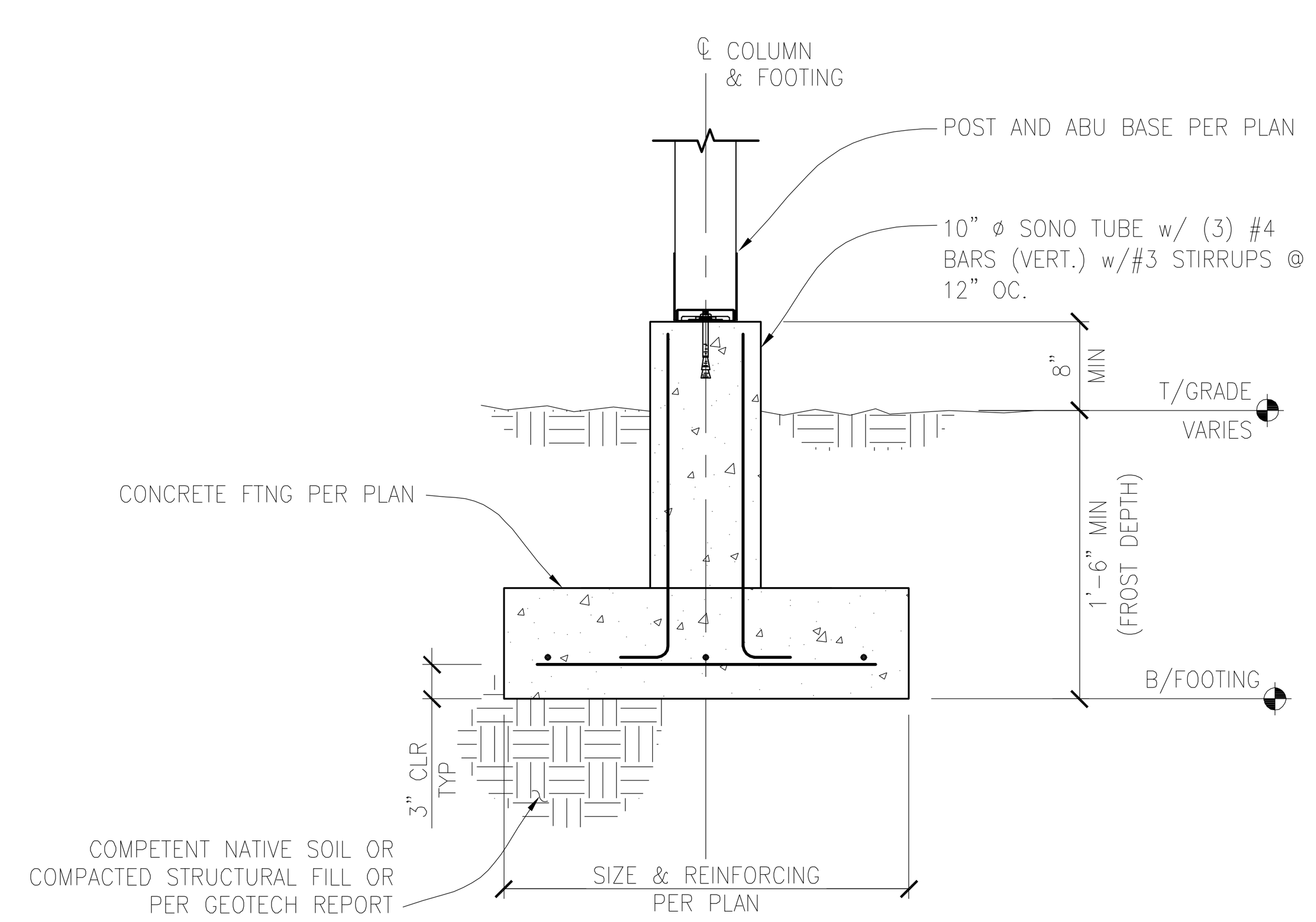


RETAINING WALL/FOOTING SCHEDULE										
WALL				FOOTING						
SIZE		REINFORCEMENT		SIZE			REINFORCEMENT			
HT (MAX)	THK	VERTICAL	HORIZONTAL	TOE	HEEL	DEPTH	TOP/TRANSV	TOP/LONGIT	BOTTOM/LONGIT	Hk
4'-0"	8"	#4 @ 12"OC	#4 @ 12"OC	1'-0"	1'-3"	10"	#4 @ 10"OC	(3) #4	(2) #4	15"
6'-0"	8"	#4 @ 8"OC	#4 @ 12"OC	2'-0"	1'-6"	10"	#4 @ 10"OC	(4) #4	(3) #4	22"
8'-0"	8"	#5 @ 12"OC	#4 @ 12"OC	2'-0"	2'-3"	12"	#5 @ 12"OC	(5) #5	(3) #5	30"

TALL CRAWLL SPACE RETAINING WALL SCHEDULE

SCALE: N.T.S.

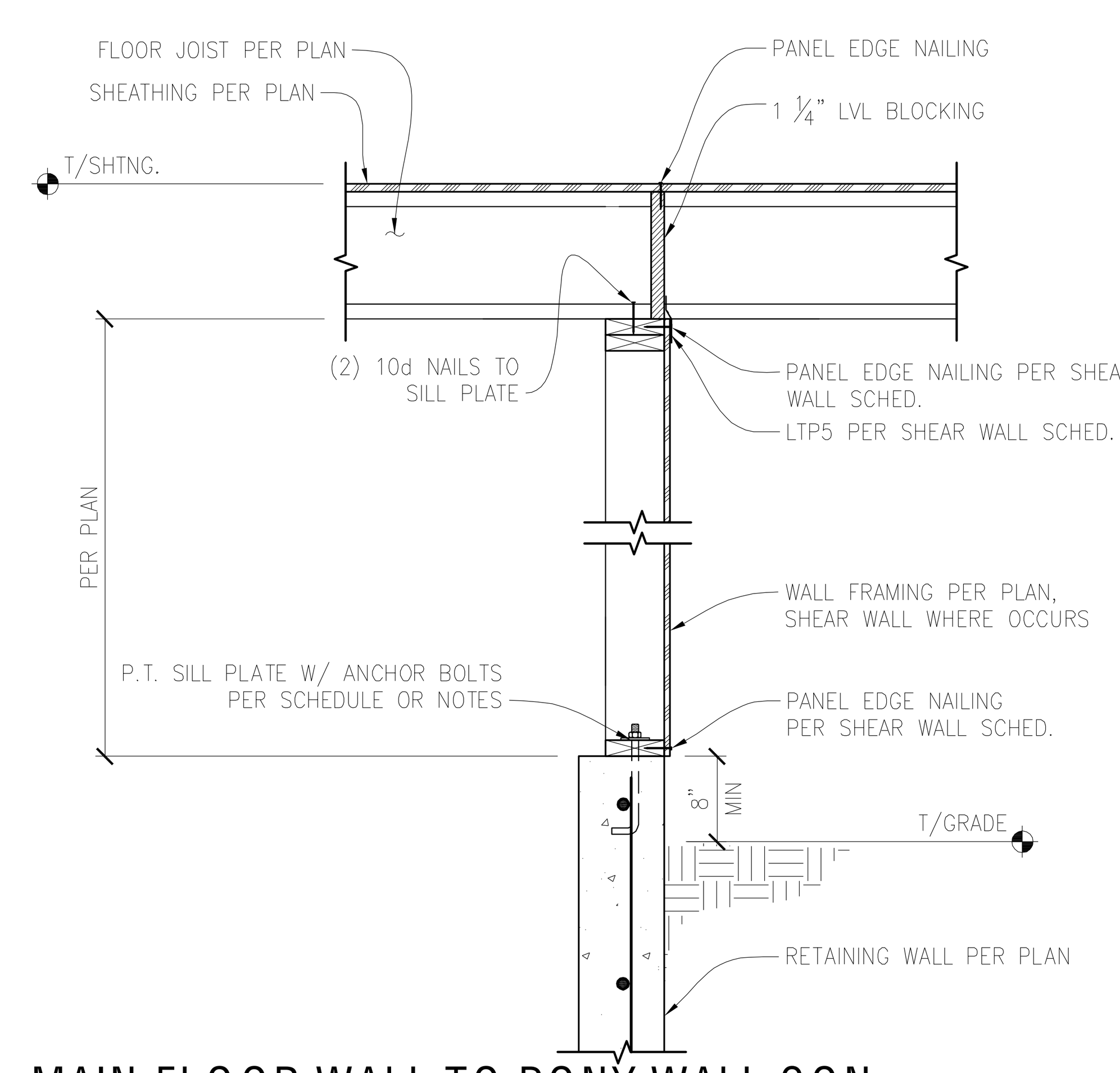
10



EXTERIOR FOOTING/POST CONNECTION

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

11



MAIN FLOOR WALL TO PONY WALL CON. FLOOR JOIST PERPENDICULAR

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

12

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6/10/2022

LIU RESIDENCE
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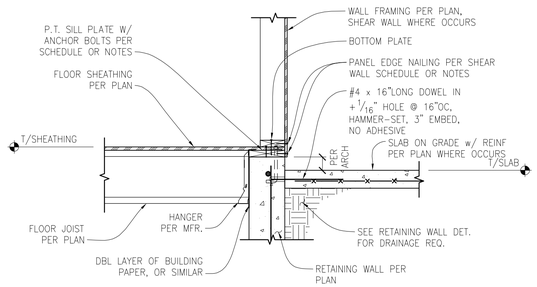
REVISION #	DATE	DESCRIPTION:

Drawn By: PK
Checked By: SC
Date: 06-10-2022

CK JOB NO.
22-028

STRUCTURAL DETAILS

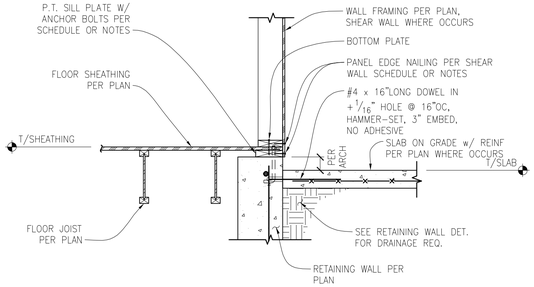
S-2.0



EXTERIOR SHEAR WALL WITH JOISTS PERPENDICULAR TO RETAINING WALL

1

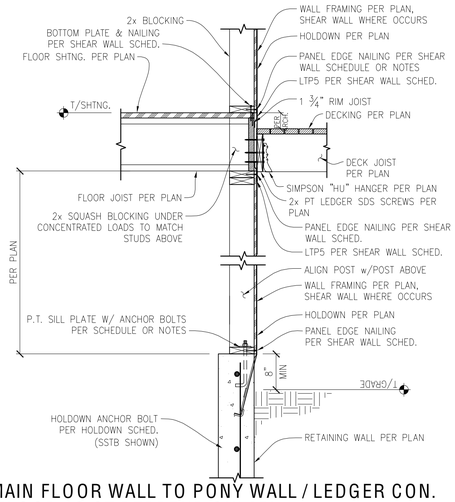
SCALE: 3/4" = 1'-0"



EXTERIOR SHEAR WALL WITH JOISTS PERARALLEL TO RETAINING WALL

2

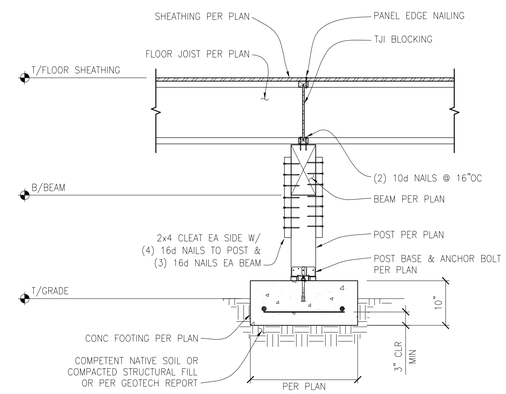
SCALE: 3/4" = 1'-0"



MAIN FLOOR WALL TO PONY WALL / LEDGER CON. (FLOOR JOIST PERPENDICULAR)

3

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

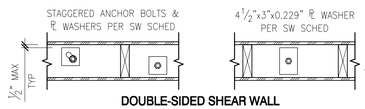


POST AND BEAM AT CRAWLSPACE

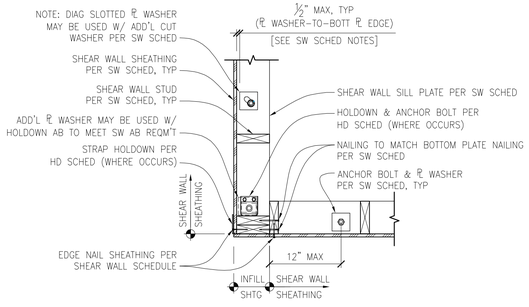
4

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

SIMPSON STRONG-TIE SLOTTED PLATE WASHERS W/ 5/8"ø ANCHOR BOLTS	
3x3x0.229	BPS5/8-3
4.5x3x0.229	BPS5/8-6



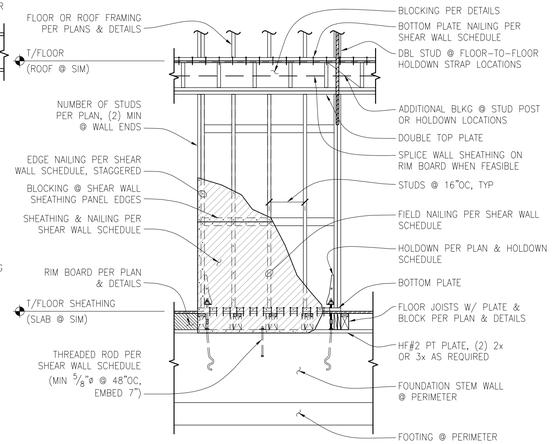
DOUBLE-SIDED SHEAR WALL ANCHOR BOLT OPTIONS



TYPICAL PLAN VIEW - SHEAR WALL HOLDOWNS & ANCHOR BOLTS

5

SCALE: 1" = 1'-0"



TYPICAL SHEAR WALL ELEVATION

6

SCALE: N.T.S.

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6/10/2022

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REVISION #	DATE	DESCRIPTION:

Drawn By: PK
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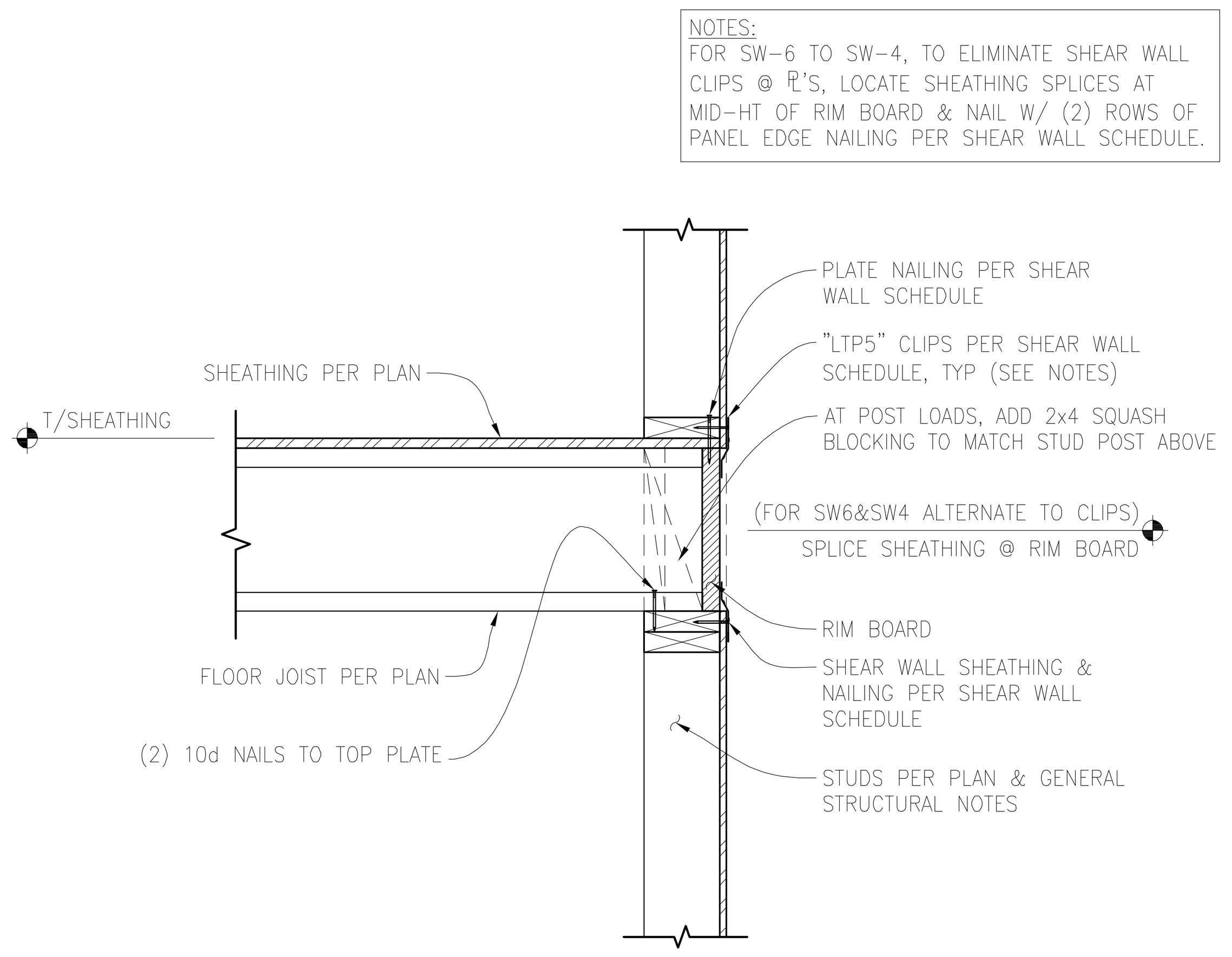
CK JOB NO.
22-028

STRUCTURAL DETAILS

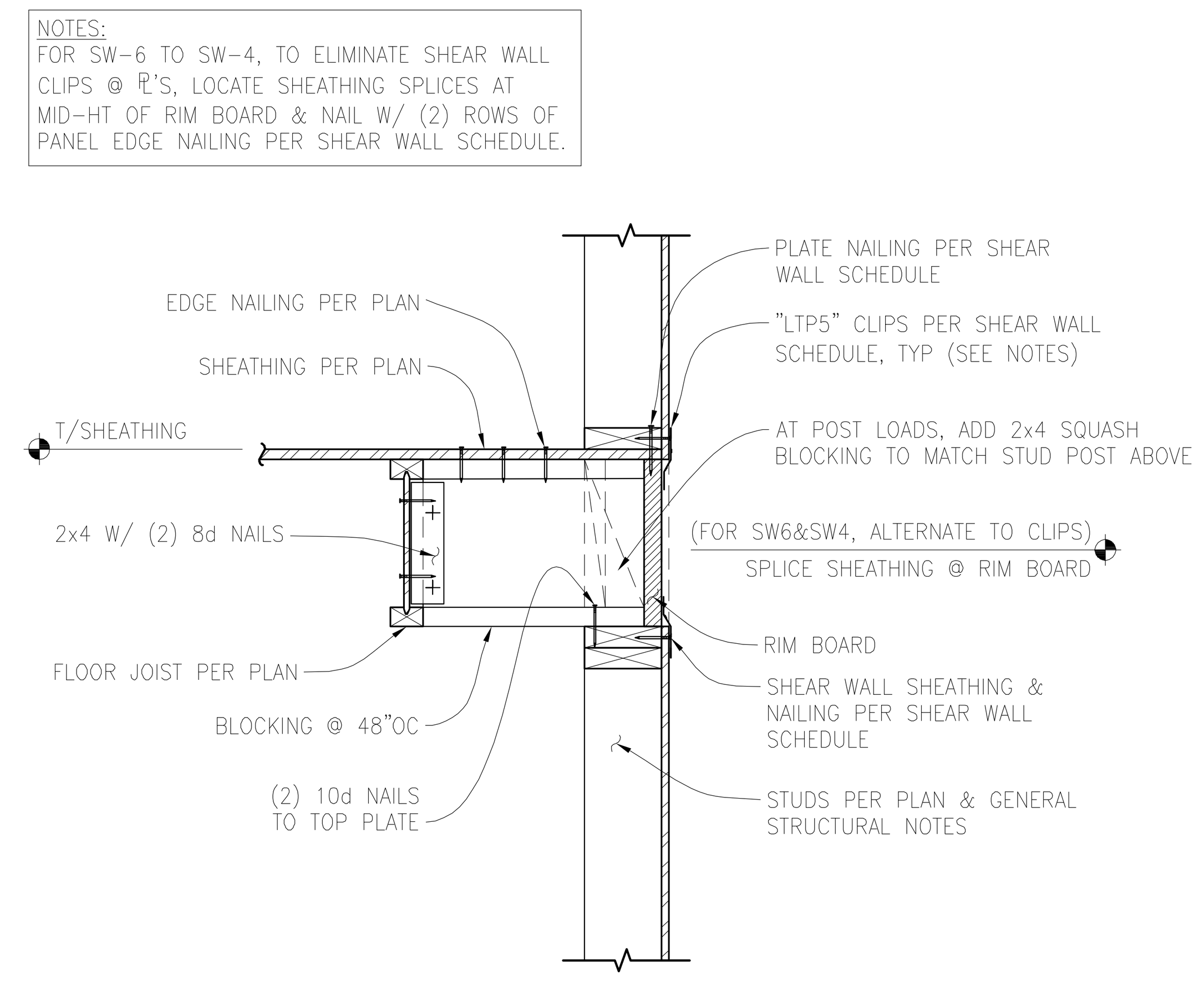
S-2.1



EXTERIOR WALL PERPENDICULAR TO JOISTS

SCALE: 1" = 1'-0"

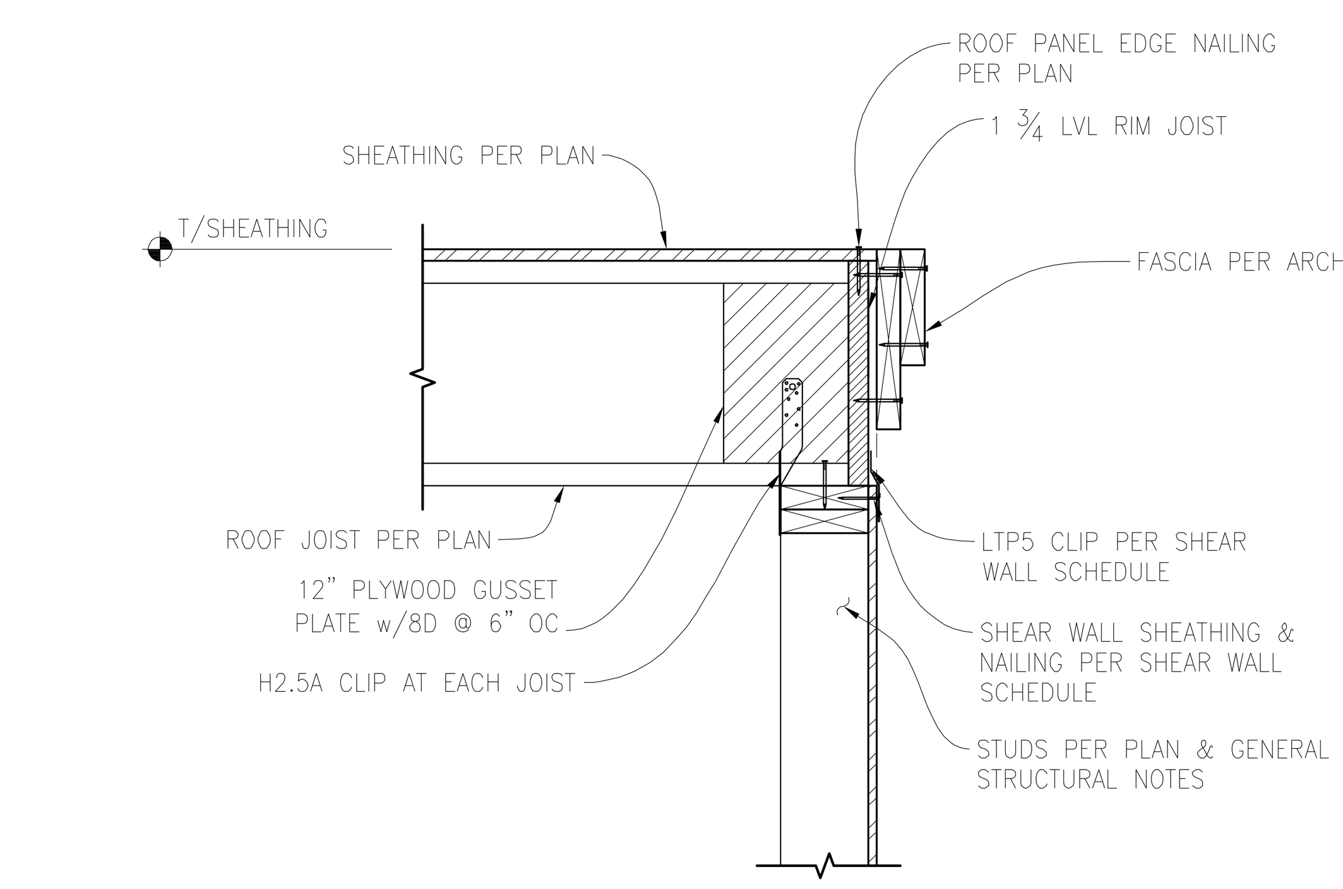
1



EXTERIOR WALL PARALLEL TO JOISTS

SCALE: 1" = 1'-0"

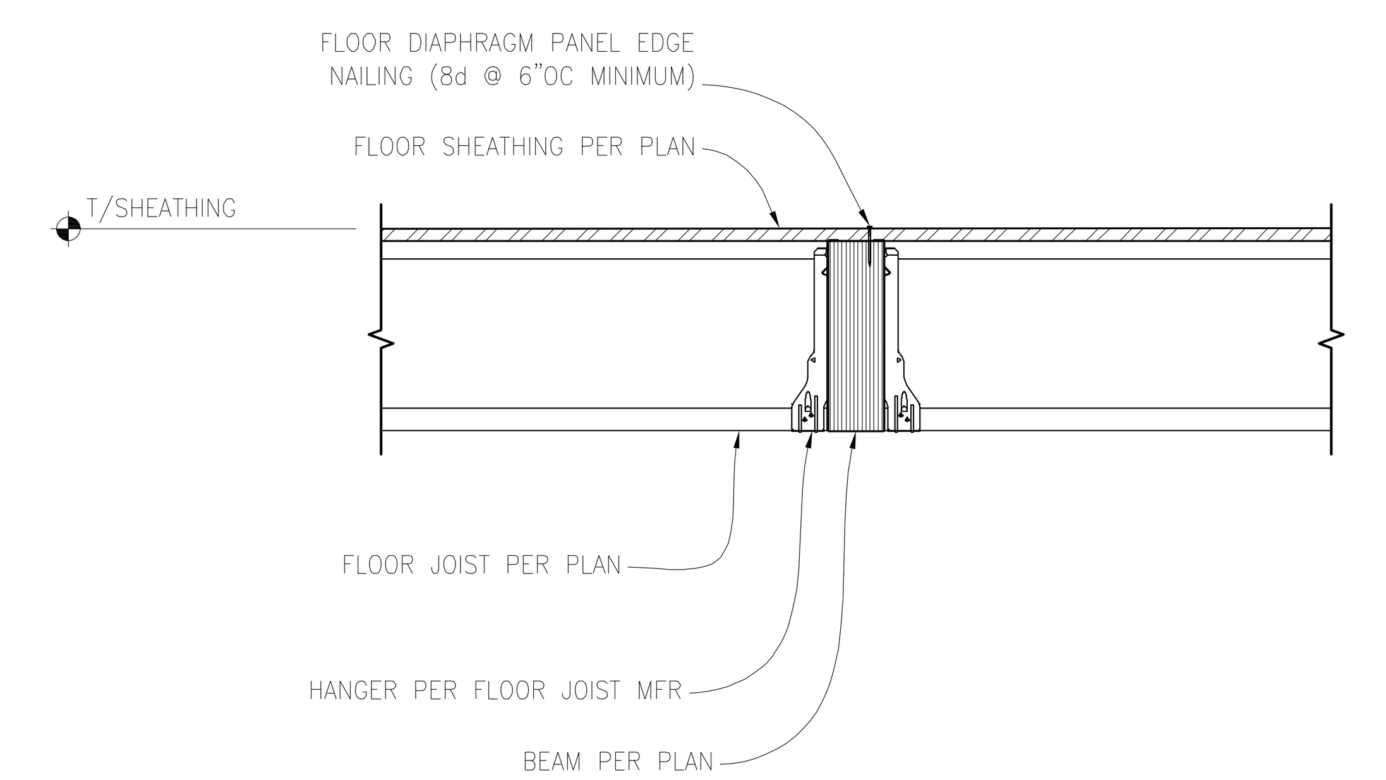
2



DECK JOIST PERPENDICULAR
TO BEARING/SHEAR WALL

SCALE: 1" = 1'-0"

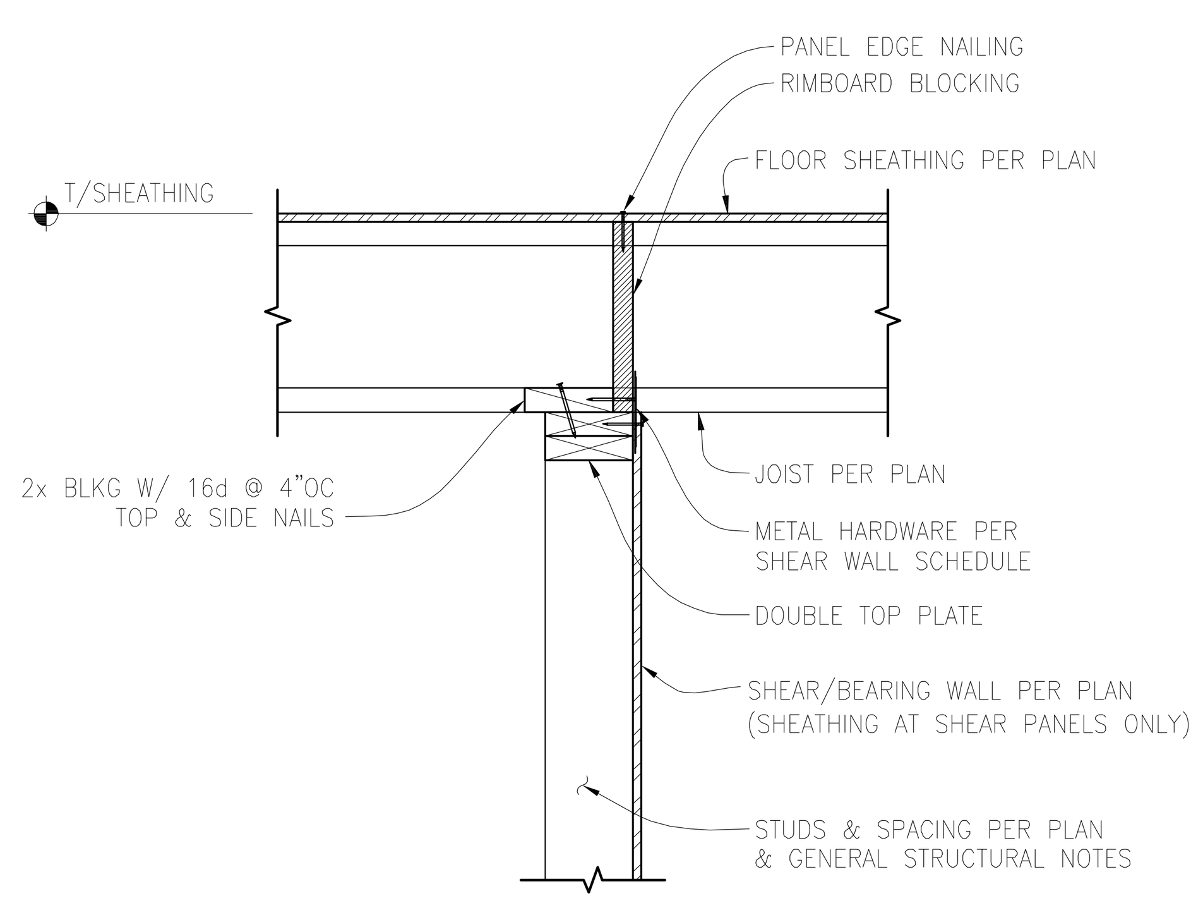
3



FLOOR JOIST/FLUSH BEAM CONNECTION

SCALE: 1" = 1'-0"

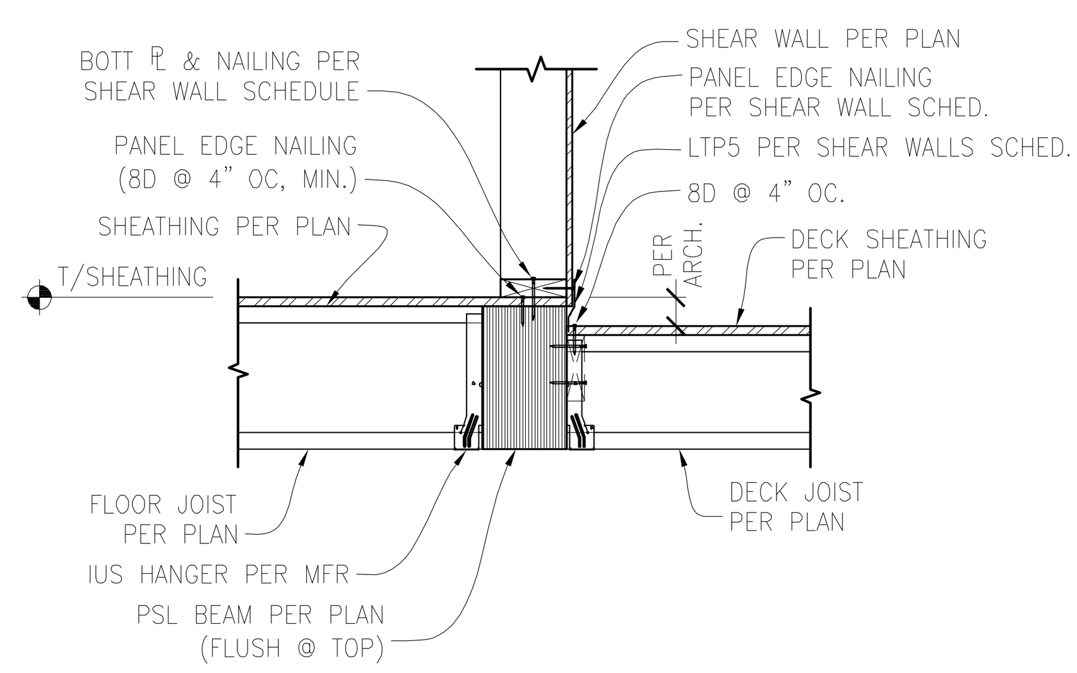
9



INTERIOR SHEAR/BEARING WALL CON.

SCALE: 1" = 1'-0"

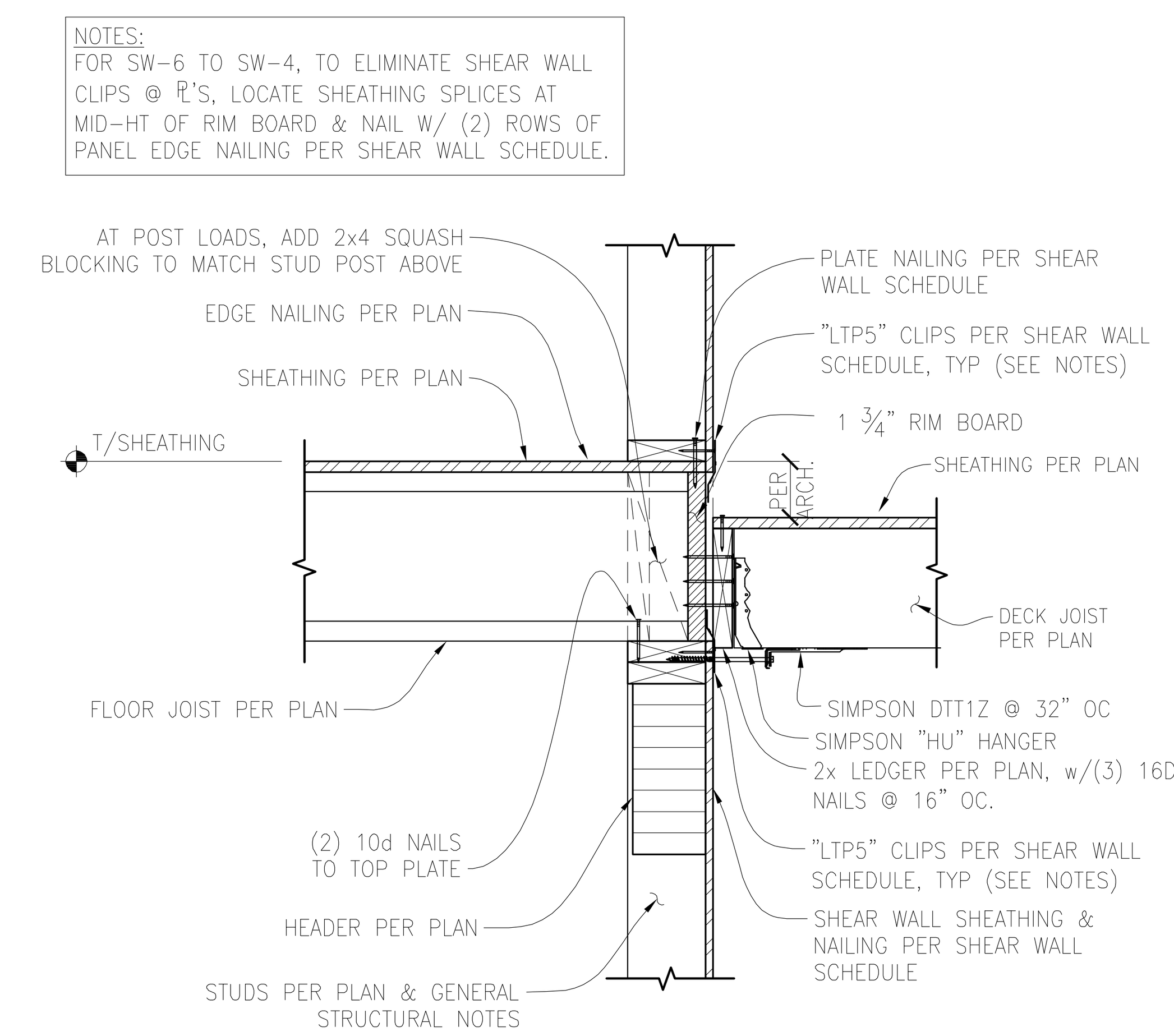
5



UPPER FLOOR SHEAR WALL
TO UPPER FLOOR BEAM CONNECTION

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

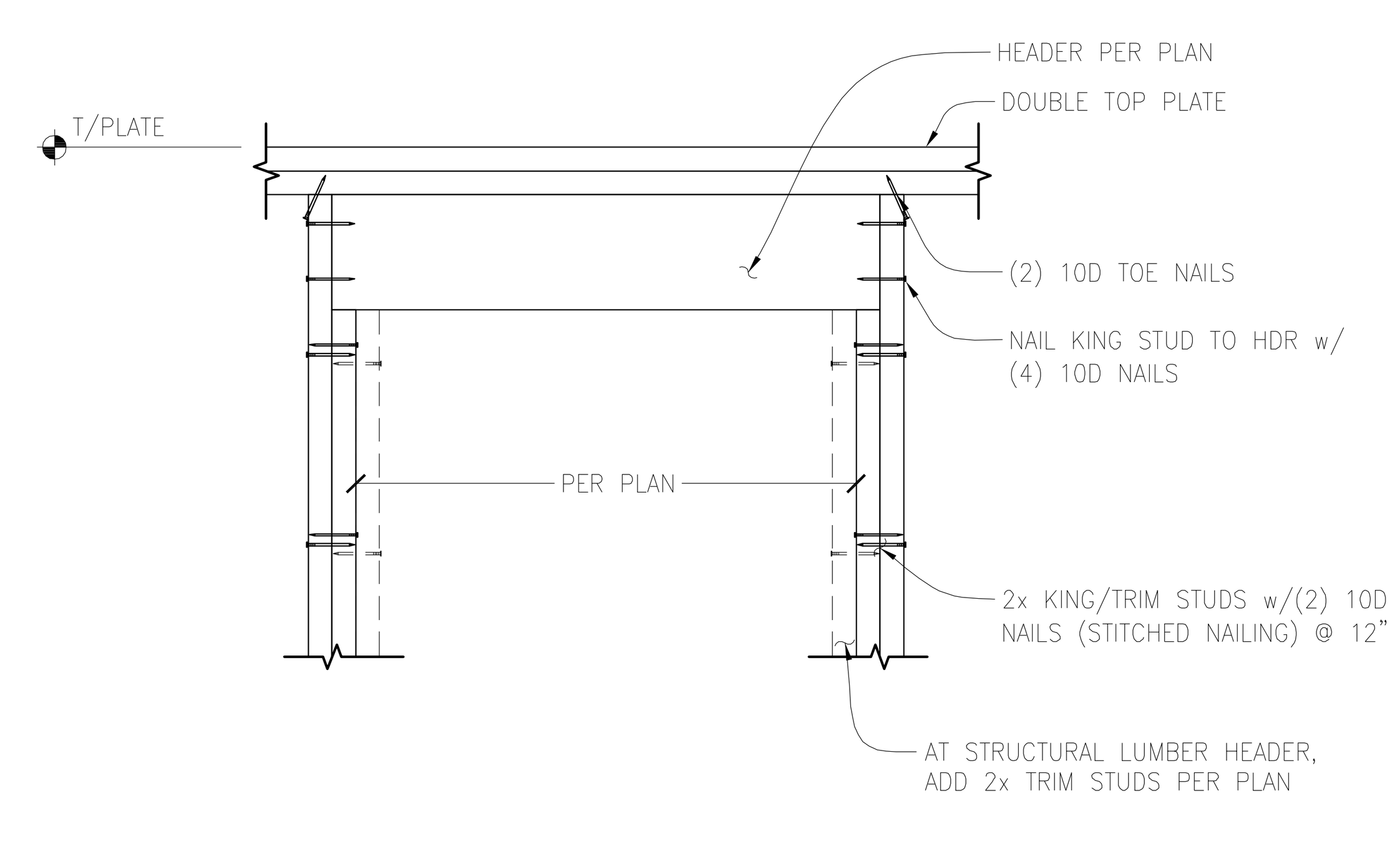
6



LEDGER TO RIM JOIST CONNECTION

SCALE: 1" = 1'-0"

7

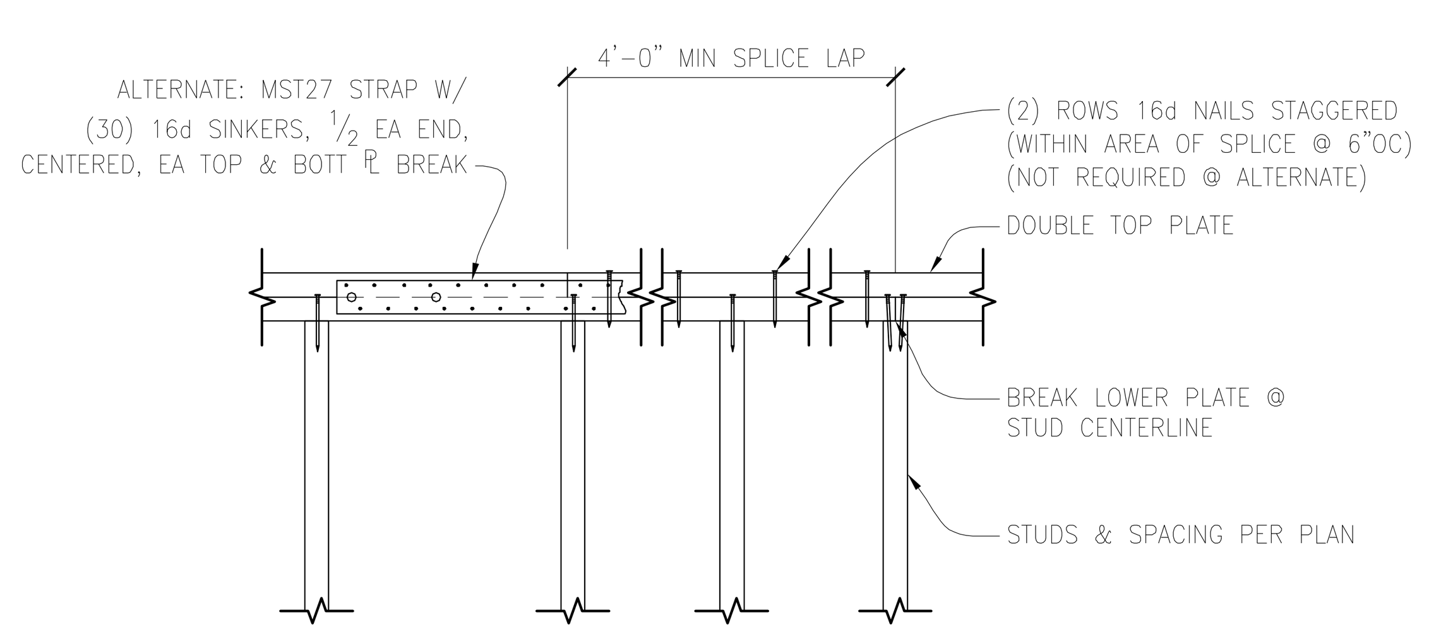


NOTE:
FLOOR/ROOF FRAMING NOT SHOWN FOR CLARITY.

TYPICAL HEADER CONNECTION

SCALE: N.T.S.

8

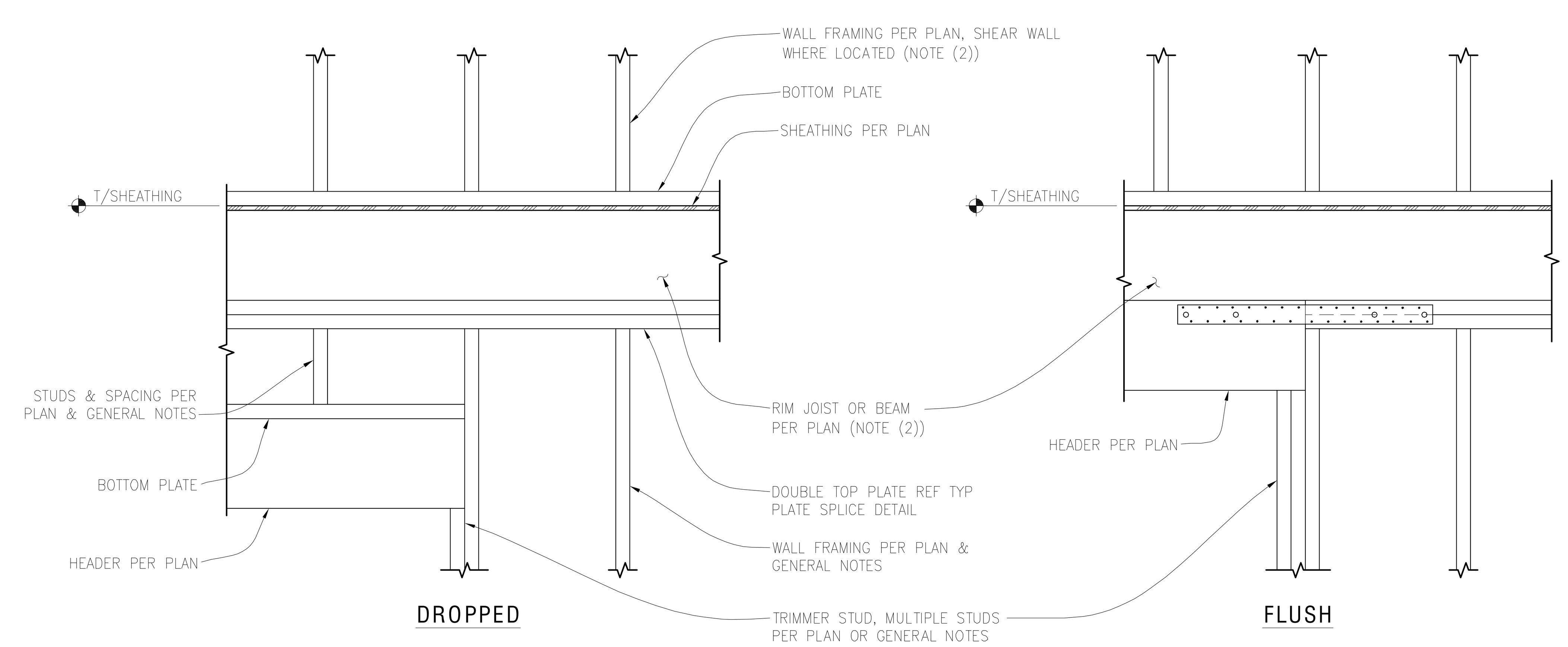


NOTE:
FLOOR JOISTS NOT SHOWN FOR CLARITY.

TYPICAL PLATE SPLICE DETAIL

SCALE: N.T.S.

9



NOTES:
1. WALL SHEATHING NOT SHOWN FOR CLARITY
2. WHERE ROOF ABOVE, RAFTERS OR PRE-MANUFACTURED TRUSSES PER PLAN REPLACES RIM JOIST

TYPICAL HEADER FRAMING

SCALE: 1" = 1'-0"

11

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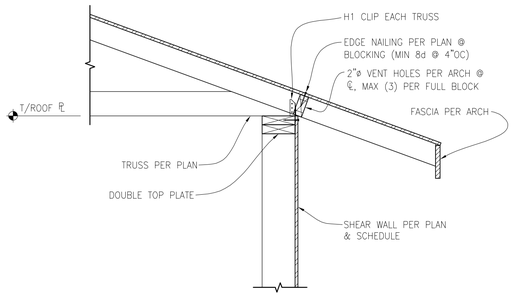
STRUCTURAL DETAILS

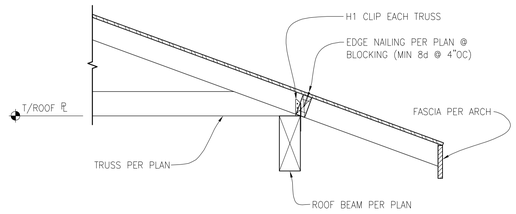
S-3.0



EXTERIOR SHEAR WALL PERPENDICULAR TO ROOF TRUSS

SCALE: 1" = 1'-0"

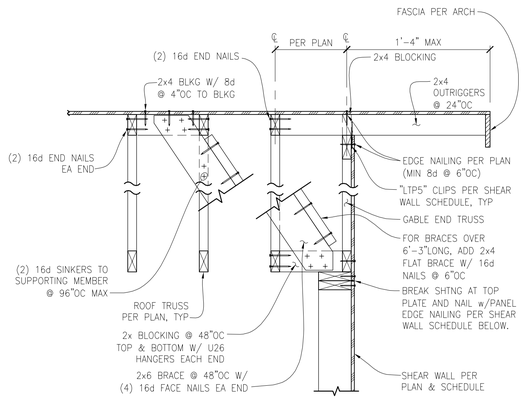
1



EXTERIOR ROOF TRUSS BEAM CONNECTION

SCALE: 1" = 1'-0"

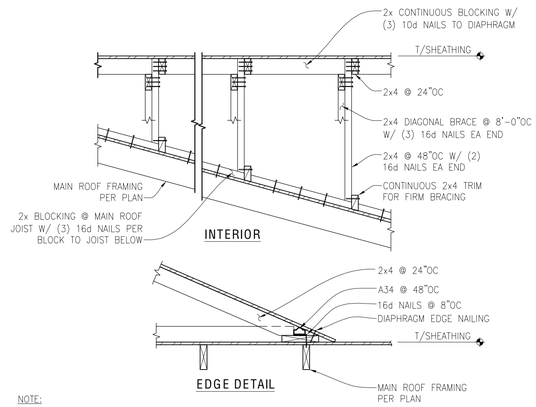
2



EXTERIOR SHEAR WALL PARALLEL TO ROOF TRUSS

SCALE: N.T.S.

3



NOTE:

VENTILATION MAY BE REQUIRED AT BLOCKING. VERIFY METHOD WITH ENGINEER PRIOR TO CONSTRUCTION.

TYPICAL ROOF OVERFRAMING DETAIL

SCALE: N.T.S.

4

INTERIOR SHEAR WALL PARALLEL TO ROOF TRUSS CONNECTION

SCALE: ¾" = 1'-0"

5

INTERIOR SHEAR WALL PERPENDICULAR TO ROOF TRUSS

SCALE: 1" = 1'-0"

6

UPPER FLOOR SHEAR WALL TO MAIN FLOOR SHEAR WALL CONNECTION

SCALE: ¾" = 1'-0"

7

CK ENGINEERING LLC
PROFESSIONAL STRUCTURAL ENGINEERING SERVICES
19229 38th Pl. NE
Lake Forest Park, WA 98155
Phone: (206) 417-0670

STEVEN CODES — STATE OF WASHINGTON — 44212 — REGISTERED PROFESSIONAL ENGINEER

6/10/2022

LIU RESIDENCE
3705 77TH PL SE
MERCER ISLAND, WA 98040

REVISION #	DATE	DESCRIPTION:

Drawn By: PK
Checked By: SC
Date: 06-10-2022

CK JOB NO.
22-028

STRUCTURAL DETAILS

S-4.0

CONSTRUCTION ENTRANCE
PER BMP C105

NO STAGING OR STORAGE WITHIN
RIGHT-OF-WAY
ALL STAGING AND STORAGE TO
TAKE PLACE WITHIN LIMITS OF WORK

PROTECT TREES
BEYOND LIMITS
OF WORK (TYP.)

REMOVE EXISTING HOME
AND WALKWAYS

PARCEL#
5458800550
8,345 SQ. FT.
0.194 ACRE(S)

TREE PROTECTED
AT ITS DRIPLINE
NO FENCING IN
ROW TO EXCEED 3'

INSTALL STORM DRAIN INLET
PROTECTION PER BMP C200

SILT FENCE AND HI-VIZ
LIMIT OF WORK FENCE
PER BMP C233 AND
BMP C103

SE 371H ST

77TH PL SE

LOT 19

LOT 2

HOUSE NO. 3705
FOOTPRINT=1,808 ±S.F.

APPROX. LOCATION OF WATER, PER RECORDS

APPROX. LOCATION OF GAS, PER RECORDS

APPROX. LOCATION OF SIDE SEWER, PER RECORDS

APPROX. LOCATION OF WATER, PER RECORDS

NEW 1" WATER METER PER STANDARD W-13

NEW 1" WATER SERVICE LINE

FOUND MON IN CASE TACK/LEAD, DOWN 0.8'

CB (TYPE 1)
RIM=128.57'
IE 12"PVC(NE.)=126.62'
IE 8"CONC(SW.)=126.32'
IE 12"CONC(W.)=126.42'

CB (TYPE 1)
RIM=127.61'
IE 8"CONC(NE.)=126.11'
(FULL OF WATER)

CB (TYPE 1)(SOLID)
RIM=129.88'
IE 15"CONC(NE.)=125.48'
IE 15"CONC(SW.)=125.58'
IE 6"DI(SE.)=125.68'

SEE C2 FOR DRAINAGE SITE PLAN

0 10 20 Feet

18

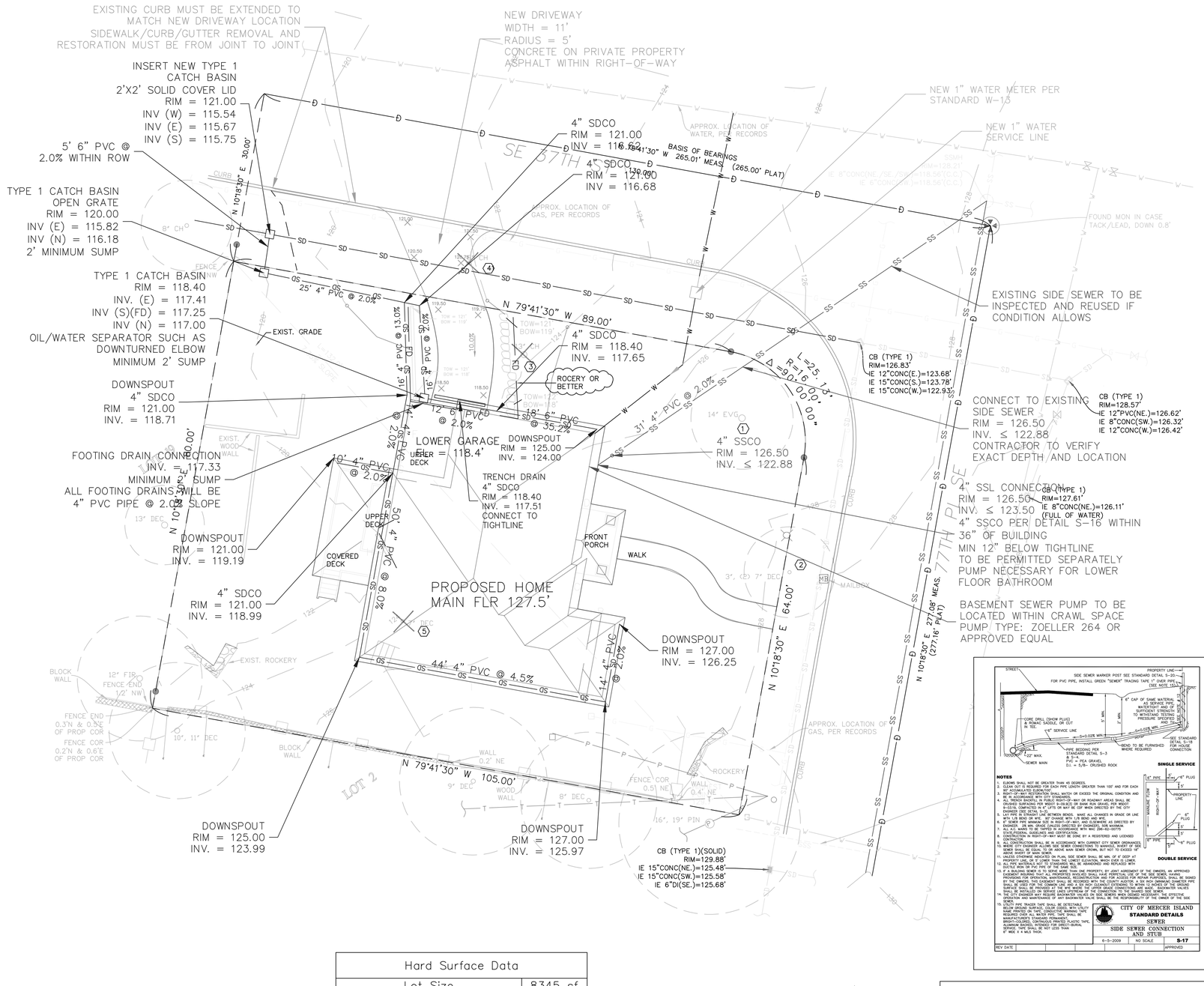
77th Pl SE SFR
Site Address: 3705 77th Pl SE
Jurisdiction: Mercer Island
Parcel No.: 545880-0550
Applicant: Charlie Chen
Permit No.: 2206-263
Interlaken Project No.: SEA-22-074

Interlaken Engineering and Design, PLLC
Seattle, WA | (206) 470-9572
www.interlakenengineering.com

MATTHEW JACOB HANING
STATE OF WASHINGTON
55763
REGISTERED
PROFESSIONAL ENGINEER

Revisions:
2023-08-29: Updated for City of Mercer Island comments
2023-07-28: Updated for City of Mercer Island comments

C1
TESC/ Demo/ CSWPPP
Scale: 1" = 10'



Hard Surface Data	
Lot Size	8345 sf
New Roof	1939 sf
New Driveway/ Walkway	496 sf
New Patio	222 sf
Total Proposed Hard Surface	2657 sf
Proposed Vegetation	5688 sf

LEGAL DESCRIPTION

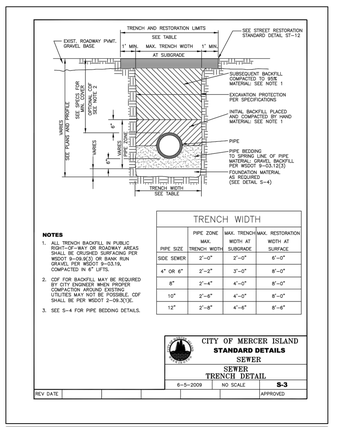
(PER STATUTORY WARRANTY DEED RECORDING # 199411230981)

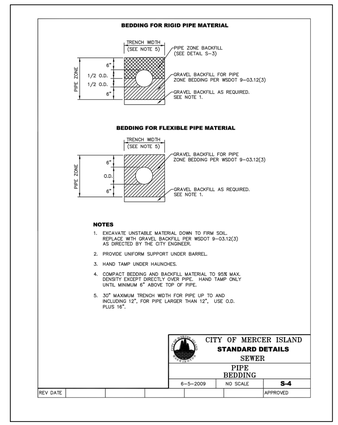
LOT 1, BLOCK 7, MERCERDALE, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 59 OF PLATS, PAGES 94, 95 AND 96, IN KING COUNTY, WASHINGTON.

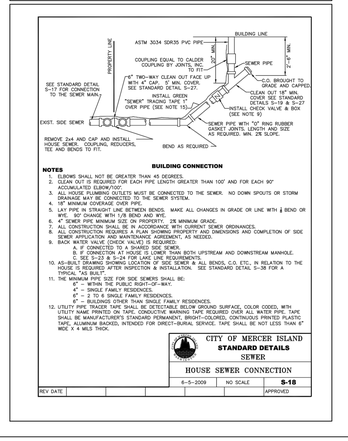
THE LAWN AND LANDSCAPE AREAS ARE REQUIRED TO PROVIDE POST-CONSTRUCTION SOIL QUALITY AND DEPTH IN ACCORDANCE WITH BMP T5.13. THE PROJECT CIVIL ENGINEER MUST PROVIDE A LETTER OF CERTIFICATION TO ENSURE THAT THE LAWN AND LANDSCAPE AREAS ARE MEETING THE POST-CONSTRUCTION SOIL QUALITY AND DEPTH REQUIREMENTS SPECIFIED ON THE APPROVED PLAN SET PRIOR TO FINAL INSPECTION ON THE PROJECT.

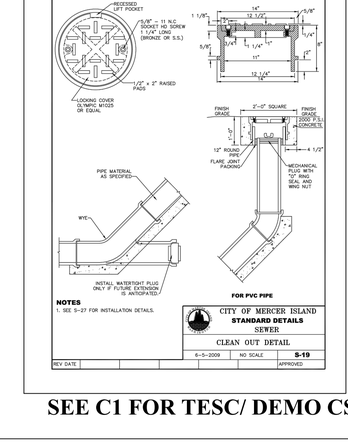
ALL AREAS SUBJECT TO CLEARING AND GRADING THAT HAVE NOT BEEN COVERED BY IMPERVIOUS SURFACE, INCORPORATED INTO A DRAINAGE FACILITY OR ENGINEERED AS STRUCTURAL FILL OR SLOPE SHALL, AT PROJECT COMPLETION, DEMONSTRATE THE FOLLOWING:
1. A TOPSOIL LAYER WITH A MINIMUM ORGANIC MATTER CONTENT OF 10% DRY WEIGHT IN PLANTING BEDS, AND 5% ORGANIC MATTER CONTENT IN TURF AREAS, AND A PH FROM 6.0 TO 8.0 OR MATCHING THE PH OF THE UNDISTURBED SOIL. THE TOPSOIL LAYER SHALL HAVE A MINIMUM DEPTH OF EIGHT INCHES EXCEPT WHERE TREE ROOTS LIMIT THE DEPTH OF INCORPORATION OF AMENDMENTS NEEDED TO MEET THE CRITERIA. SUBSOILS BELOW THE TOPSOIL LAYER SHOULD BE SCARIFIED AT LEAST 4 INCHES WITH SOME INCORPORATION OF THE UPPER MATERIAL TO AVOID STRATIFIED LAYERS, WHERE FEASIBLE.
2. MULCH PLANTING BEDS WITH 2 INCHES OF ORGANIC MATERIAL
3. USE COMPOST AND OTHER MATERIALS THAT MEET THESE ORGANIC CONTENT REQUIREMENTS:
A. THE ORGANIC CONTENT FOR "PRE-APPROVED" AMENDMENT RATES CAN BE MET ONLY USING COMPOST MEETING THE COMPOST SPECIFICATION FOR BIORETENTION (BMP T7.30), WITH THE EXCEPTION THAT THE COMPOST MAY HAVE UP TO 35% BIOSOLIDS OR MANURE. THE COMPOST MUST ALSO HAVE AN ORGANIC MATTER CONTENT OF 40% TO 65%, AND A CARBON TO NITROGEN RATIO BELOW 25:1. THE CARBON TO NITROGEN RATIO MAY BE AS HIGH AS 35:1 FOR PLANTINGS COMPOSED ENTIRELY OF PLANTS NATIVE TO THE PUGET SOUND LOWLANDS REGION.
B. CALCULATED AMENDMENT RATES MAY BE MET THROUGH USE OF COMPOSTED MATERIAL MEETING (A.) ABOVE; OR OTHER ORGANIC MATERIALS AMENDED TO MEET THE CARBON TO NITROGEN RATIO REQUIREMENTS, AND NOT EXCEEDING THE CONTAMINANT LIMITS IDENTIFIED IN TABLE 220-B, TESTING PARAMETERS, IN WAC 173-350-220.
THE RESULTING SOIL SHOULD BE CONDUCIVE TO THE TYPE OF VEGETATION TO BE ESTABLISHED.
IMPLEMENTATION OPTIONS: THE SOIL QUALITY DESIGN GUIDELINES LISTED ABOVE CAN BE MET BY USING ONE OF THE METHODS LISTED BELOW:
1. LEAVE UNDISTURBED NATIVE VEGETATION AND SOIL, AND PROTECT FROM COMPACTION DURING CONSTRUCTION.
2. AMEND EXISTING SITE TOPSOIL OR SUBSOIL EITHER AT DEFAULT "PREAPPROVED" RATES, OR AT CUSTOM CALCULATED RATES BASED ON TESTS OF THE SOIL AND AMENDMENT.
3. STOCKPILE EXISTING TOPSOIL DURING GRADING, AND REPLACE IT PRIOR TO PLANTING. STOCKPILED TOPSOIL MUST ALSO BE AMENDED IF NEEDED TO MEET THE ORGANIC MATTER OR DEPTH REQUIREMENTS, EITHER AT A DEFAULT "PRE-APPROVED" RATE OR AT A CUSTOM CALCULATED RATE.
4. IMPORT TOPSOIL MIX OF SUFFICIENT ORGANIC CONTENT AND DEPTH TO MEET THE REQUIREMENTS.
MORE THAN ONE METHOD MAY BE USED ON DIFFERENT PORTIONS OF THE SAME SITE. SOIL THAT ALREADY MEETS THE DEPTH AND ORGANIC MATTER QUALITY STANDARDS, AND IS NOT COMPACTED, DOES NOT NEED TO BE AMENDED.

PRE-APPROVED AMENDMENT METHOD:
TURF: 6247 SF x 5.4 CY / 1,000 SF = 33.73 CY
TOTAL QUANTITY = 33.73 CY









SEE C1 FOR TESC/ DEMO CSWPPP

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Revisions:
2023-08-29: Updated for City of Mercer Island comments
2023-07-28: Updated for City of Mercer Island comments

C2
Drainage Site Plan
Scale: 1" = 10'