TREE PLANTING PLAN

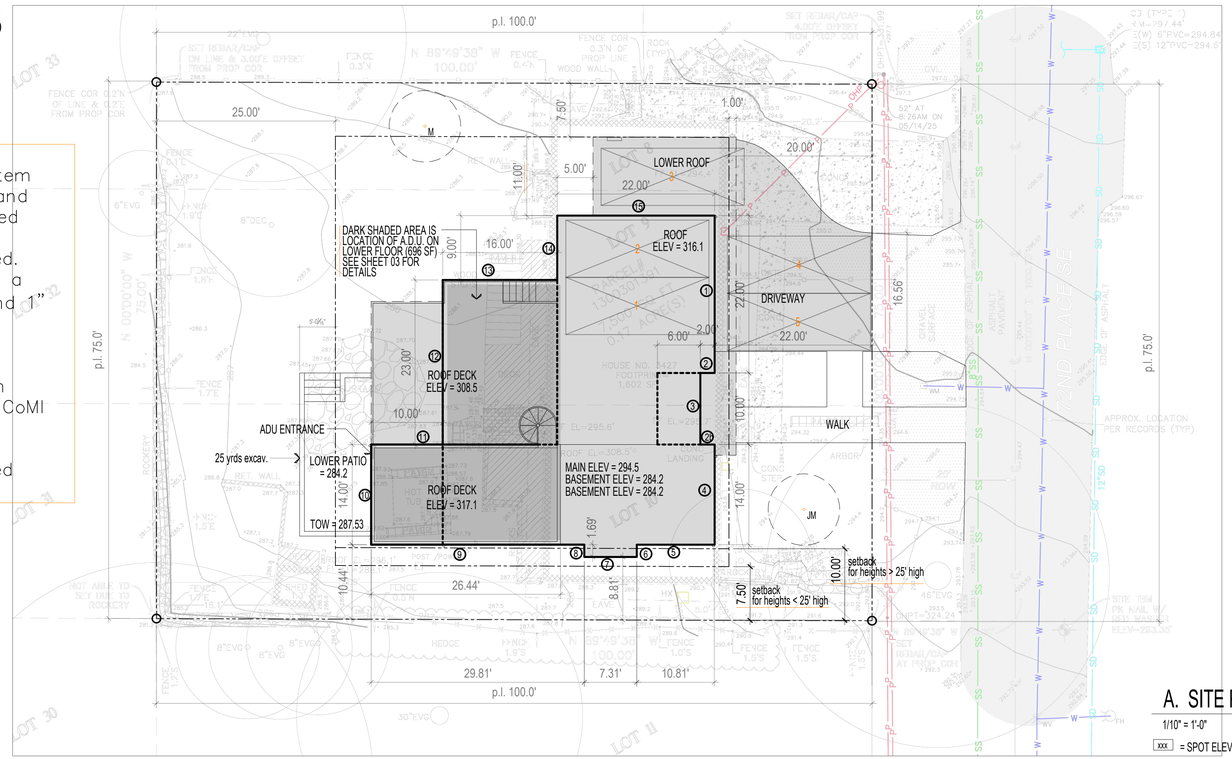
1. NEW TREES WILL BE AT LEAST 6 FEET TALL FOR CONIFERS AND 1.5 INCHES IN CALIPER FOR DECIDUOUS SPECIES
2. NEW TREES WILL BE PLANTED BETWEEN OCTOBER AND MARCH
3. MINIMUM SPACING BETWEEN TREES AND DISTANCES FROM BUILDINGS OR INFRASTRUCTURE WILL BE 10 FEET
4. EACH NEW TREE WILL BE WATERED FOR THE FIRST 2 YEARS ON THE FOLLOWING SCHEDULE:
- MINIMUM OF 5 GALLONS OF WATER PER WEEK FOR THE FIRST 4 WEEKS AFTER PLANTING
- EVERY 2 WEEKS WHEN WEEKLY DAYTIME MAXIMUM TEMPERATURES ARE BELOW 70°
- ONCE A WEEK WHEN WEEKLY DAYTIME MAXIMUM TEMPERATURES ARE OVER 70° (E.G. MAY THROUGH SEPTEMBER)

DF = DOUGLAS FIR (*Pseudotsuga menziesii)*
M = PACIFIC MADRONE (*Arbutus menziesii)*
- NON-NATIVES
JM = JAPANESE MAPLE (*Acer palmatum)*

FIRE SAFETY NOTES

A NFPA 13D Fire Sprinkler System in compliance with NFPA 13D and CoMI standards shall be installed throughout the residence. A separate FIRE permit is required. Note that this system requires a minimum of 1" water meter and 1" water supply line.

NFA NFPA 72– Chapter 29 Monitored Fire Alarm System in compliance with NFPA 72 and CoMI standards shall be installed throughout the residence. A separate FIRE permit is required



A. SITE PLAN
1/10" = 1'-0"

N

XXX = SPOT ELEVATION, FINAL
= EXTENT OF OVERHANG
= EXTENT OF LIVING AREA @ upper floor
= BUILDING FOOTPRINT (FOUNDATION EXTENTS)
SHADED AREA = BLDG EXTENTS TO EAVE
EXISTING HOUSE, DRIVEWAY AND ALL HARDSCAPE ON PROPERTY TO BE REMOVED
= EXISTING TOPOGRAPHY
① = WALL SEGMENT TAG FOR HEIGHT CALCULATION
SEE SHEET 03 FOR BASEMENT EXCEPTION CALC.
ww = WINDOW WELL

8.00' × 20.00' = REQUIRED PARKING

ELEVATION CALC.

	EL @ MIDPOINT	segment	wtd sgmnt
1	294.00	22.00	6468.00
2a	294.00	2.00	588.00
2b	294.50	2.00	589.00
3	294.50	10.00	2945.00
4	293.80	14.00	4113.20
5	289.70	10.81	3131.66
6	289.20	1.69	488.75
7	289.00	7.31	2112.59
8	288.50	1.69	487.57
9	288.00	29.81	8585.28
10	**284.50**	14.00	3983.00
11	**284.50**	10.00	2845.00
12	287.60	23.00	6614.80
13	288.20	16.00	4611.20
14	288.20	9.00	2593.80
15	294.00	22.00	6468.00
		195.31	56624.84

AVG. EL = 289.92
BOLD = NEW EL LOWER THAN EXIST

LOT SLOPE

HIGH POINT = 282'
LOW POINT = 297'
LOT SLOPE = 15/117' = 12.82%
LOT COVERAGE = 40%
7500 sf x .4 = 3000 sf total lot coverage allowed

F.A.R. CALCULATION

Main Floor FA= 1156 sf (excluding. gar)
Garage FA= 462 sf
Basement FA = 1613 sf
Upper Floor FA = 1156 sf
4473 sf

SEE FLOOR PLANS ON SHEET 02+03 FOR SPECIFICS

excepted FA = (971 sf)
stairs = (64 sf x 2 = 128 sf)

TOTAL chargeable FA = 3374 sf

3373sf / 7500sf = 44.9% < 45%, ok

w/adu FAR = lesser of 4500sf or 45% of lot area
.45 x 7500 sf = FAR limit = 3375 sf

LOT COVERAGE (SHADED AREA)

LOT COVERAGE ALLOWABLE = 7500 x .40 = 3000 sf

MAIN STRUCTURE ROOF AREA = 2296 sf
DRIVEWAY = 434 sf

2730 sf = 36.4% < 40% ok

HARDSCAPE

lower patio = 229 sf
walks = 134 sf
window well = 12 sf

TOTAL = 375 sf

PROPOSED = 375 sf / 7500sf = 5%
allowable = 6237 sf x .09 = 675 sf = 9%
5% < 9%, OK

Code Data

2021 International Building Code (IBC) - struct.
2021 International Residential Code (IRC)
2021 International Mechanical Code (IMC)
2021 International Fuel Gas Code (IFGC)
2021 Uniform Plumbing Code (UPC)
2021 International Fire Code (IFC)
2021 International Existing Building Code
2021 International Swimming Pool and Spa Code
2921 Washington State Energy Code (WCEC)
ICC/ANSI A117.1-09, Accessible and Usable Buildings and Facilities, with statewide and City amendments

All 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, shall be removed from the property.

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.

Civil Engineer

Duffy Ellis
CES Civil Engineering
701 N 36 Street #450 Seattle WA 98103
206.930.0342

Structural Engineer

RB Engineers, Inc.
13101 NE 50th ST Bellevue WA
(425) - 890 - 9995

Contractor

Artoush Construction and Remodeling
13101 NE 50th ST Bellevue WA
(425) - 890 - 9995

Project Description

Demolish existing and build new single family residence.

Legal/Parcel

CALKINS C C 1ST TO EAST SEATTLE S 1/2 OF 8 & ALL OF 9-10

Zoning - R-8.4

Parcel Number : 1300301391

Owner

Artoush Fanaiyan

Artoush Construction and Remodeling
13101 NE 50th ST Bellevue WA
(425) - 890 - 9995

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Site Plan

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01

NOTES

SD = SMOKE DETECTOR, HARDWIRE, INTERCONNECTED w/ BATTERY BACK-UP
CO = CARBON MONOXIDE DETECTOR, HARDWIRE w/ BATTERY BACK-UP
HD = HEAT DETECTOR, HARDWIRE w/ BATTERY BACK-UP

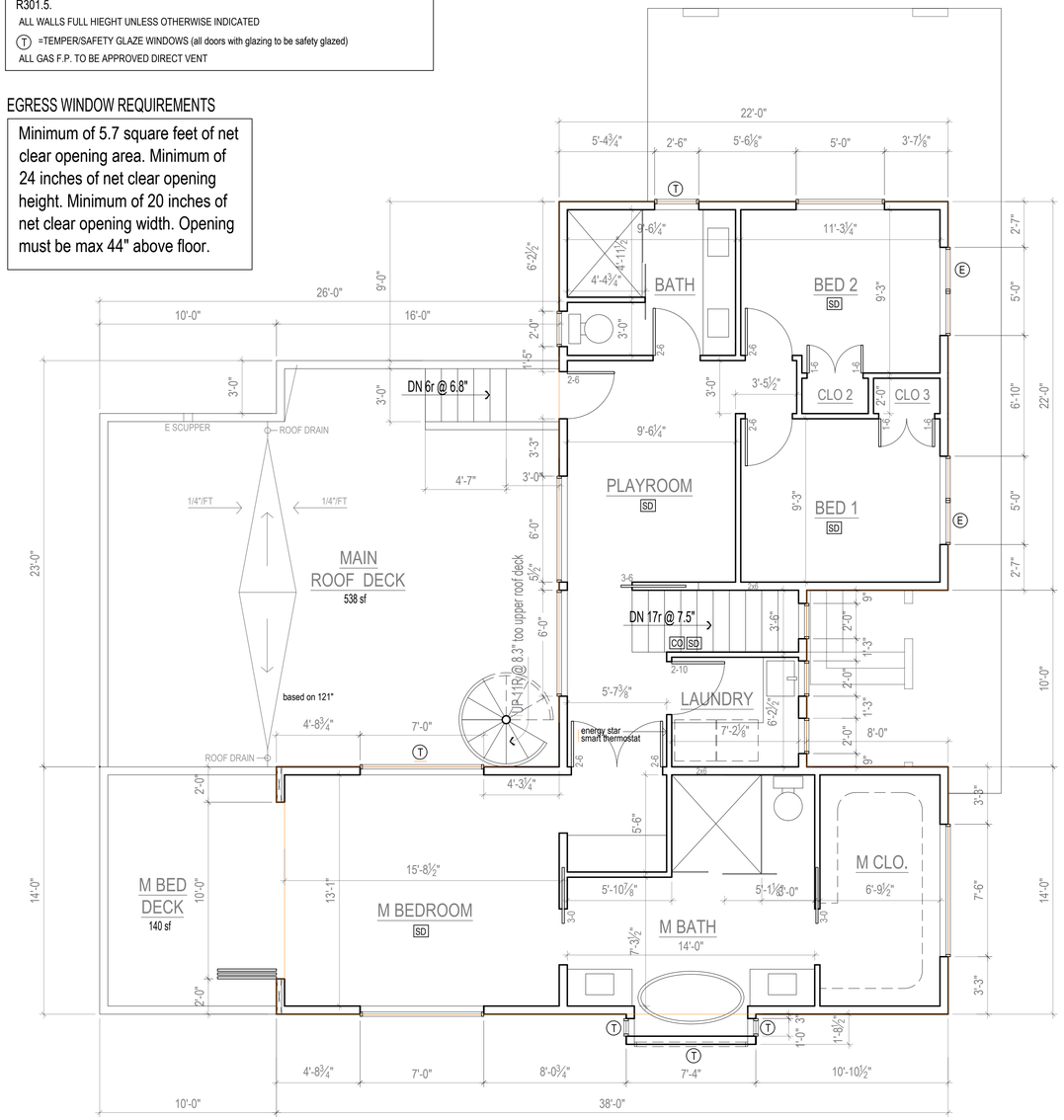
DOORS ARE 3-0 x 7'-10 (r.o. = 3'-2" x 8-0") unless otherwise indicated
= FAN, 50 CFM UNLESS OTHERWISE INDICATED
FOR SHEAR WALL INFORMATION SEE STRUCTURAL PLANS
ALL INTERIOR WALLS TO BE 2x4, EXTERIOR WALLS 2x6, EXCEPT AS INDICATED, OR EXISTING
(E) =EGRESS WINDOWS

Contractor shall verify to Inspector all guards and railings shall be capable of resisting 200 lb load on top rail acting in any direction as required by IRC Table R301.5.

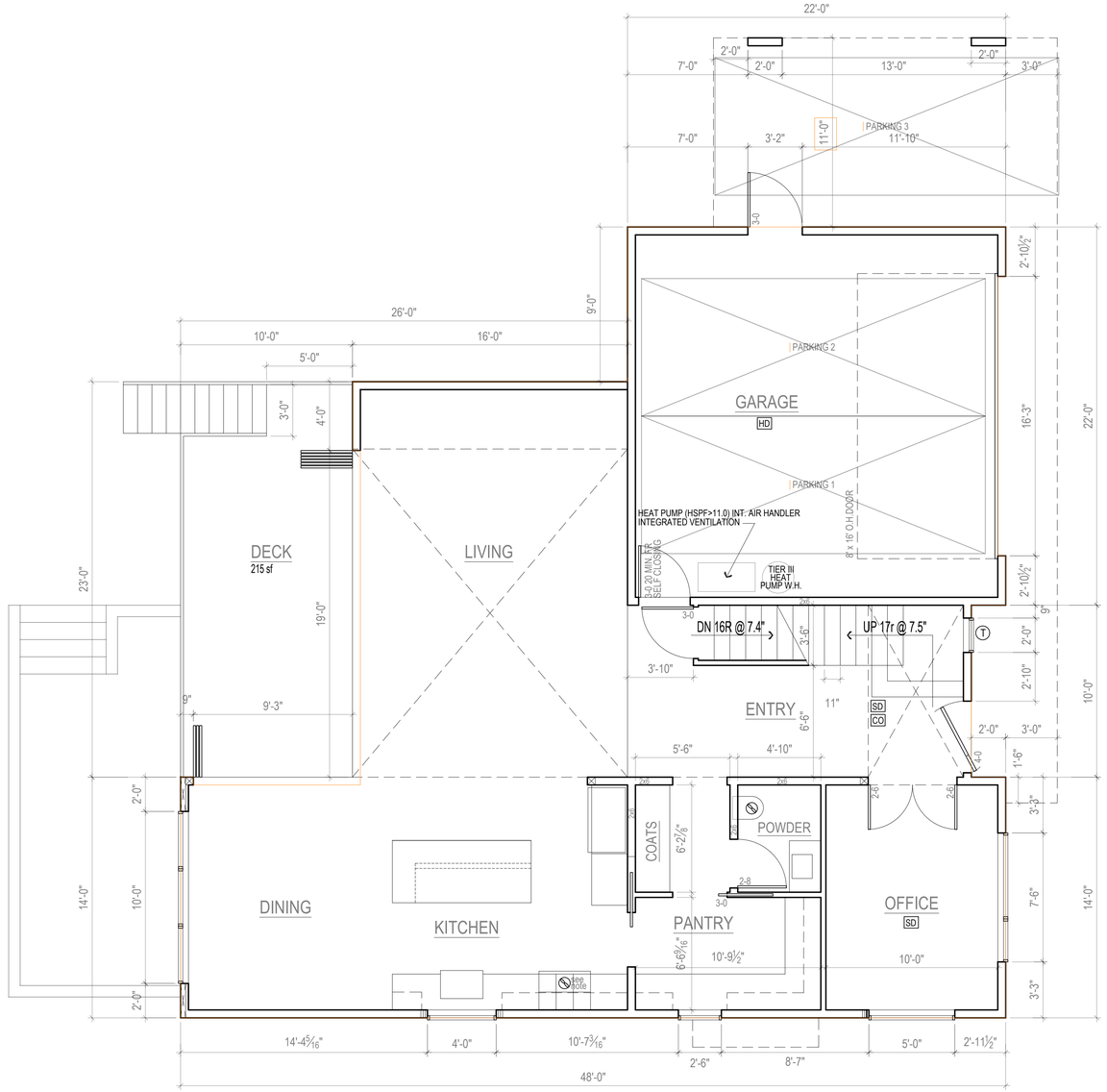
ALL WALLS FULL HIEGHT UNLESS OTHERWISE INDICATED
(T) =TEMPER/SAFETY GLAZE WINDOWS (all doors with glazing to be safety glazed)
ALL GAS F.P. TO BE APPROVED DIRECT VENT

EGRESS WINDOW REQUIREMENTS

Minimum of 5.7 square feet of net clear opening area. Minimum of 24 inches of net clear opening height. Minimum of 20 inches of net clear opening width. Opening must be max 44" above floor.



B. UPPER FLOOR PLAN
1/4" = 1'-0"
Floor Area =1152 sf (red line)
Conditioned Area = 1060 sf



RANGE VENTING NOTE:
160 Cfm intermittent electric range. 250 Cfm combustion range.

A. MAIN FLOOR PLAN
1/4" = 1'-0"
FLOOR AREA (INC. GARAGE) = 1704 SF (red line)
GARAGE FLOOR AREA = 462 SF
CONDITIONED AREA = 1171 SF

Membrane used as a walking surface must be IBC ES approved or be tested to the AC39 standard

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Floor Plans

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02

NOTES

SD = SMOKE DETECTOR, HARDWIRE, INTERCONNECTED w/ BATTERY BACK-UP
CO = CARBON MONOXIDE DETECTOR, HARDWIRE w/ BATTERY BACK-UP
HD = HEAT DETECTOR, HARDWIRE w/ BATTERY BACK-UP

DOORS ARE 3-0 x 6-8 (r.o. = 3'-2" x 6'-10") unless otherwise indicated

= FAN, 50 CFM UNLESS OTHERWISE INDICATED

FOR SHEAR WALL INFORMATION SEE STRUCTURAL PLANS

ALL INTERIOR WALLS TO BE 2x4, EXTERIOR WALLS 2x6, EXCEPT AS INDICATED, OR EXISTING

(E) =EGRESS WINDOWS

Contractor shall verify to Inspector all guards and railings shall be capable of resisting 200 lb load on top rail acting in any direction as required by IRC Table R301.5.

ALL WALLS FULL HIEGHT UNLESS OTHERWISE INDICATED

(T) =TEMPER/SAFETY GLAZE WINDOWS (all doors with glazing to be safety glazed)

ALL GAS F.P. TO BE APPROVED DIRECT VENT

EGRESS WINDOW REQUIREMENTS

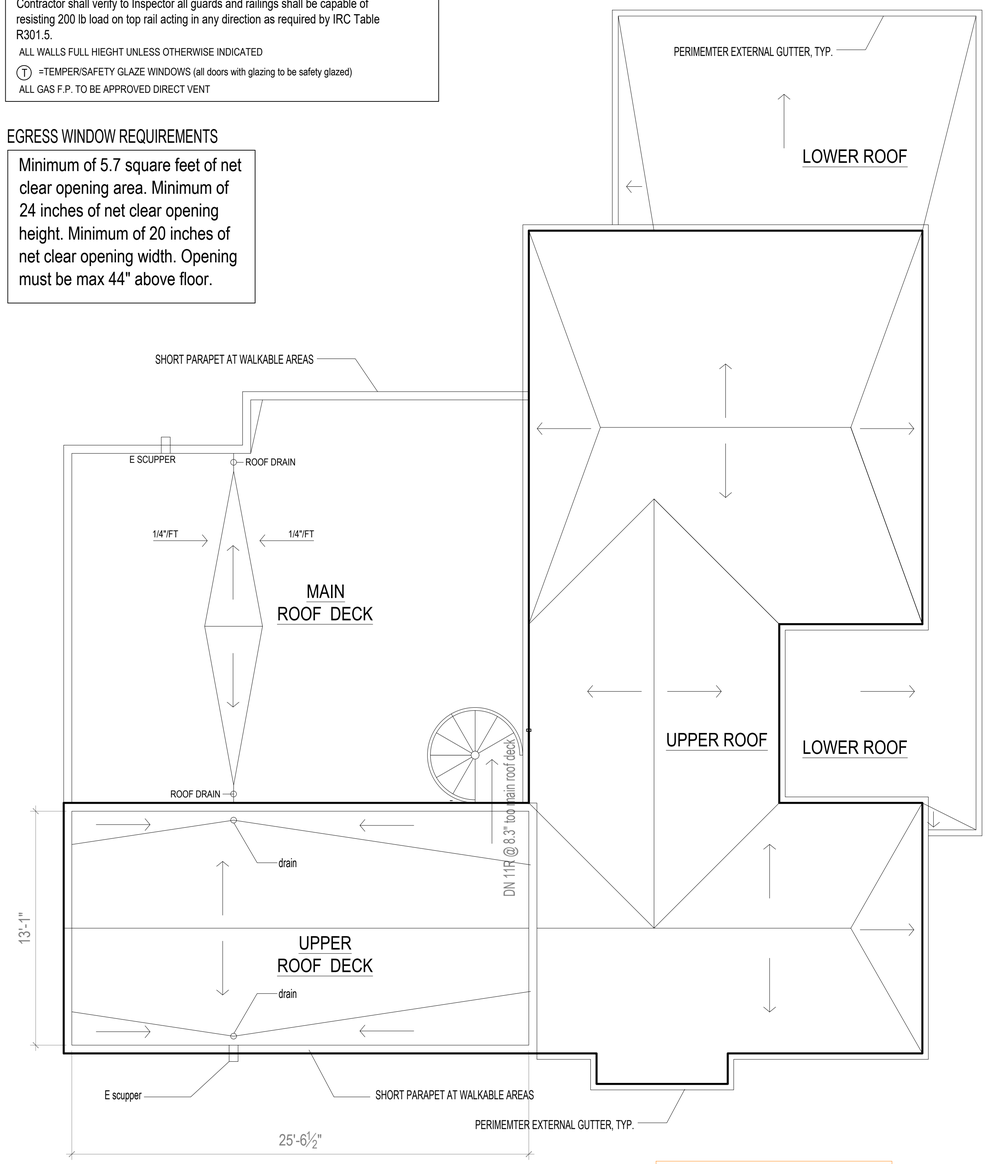
Minimum of 5.7 square feet of net clear opening area. Minimum of 24 inches of net clear opening height. Minimum of 20 inches of net clear opening width. Opening must be max 44" above floor.

BASEMENT EXCEPTION CALC.

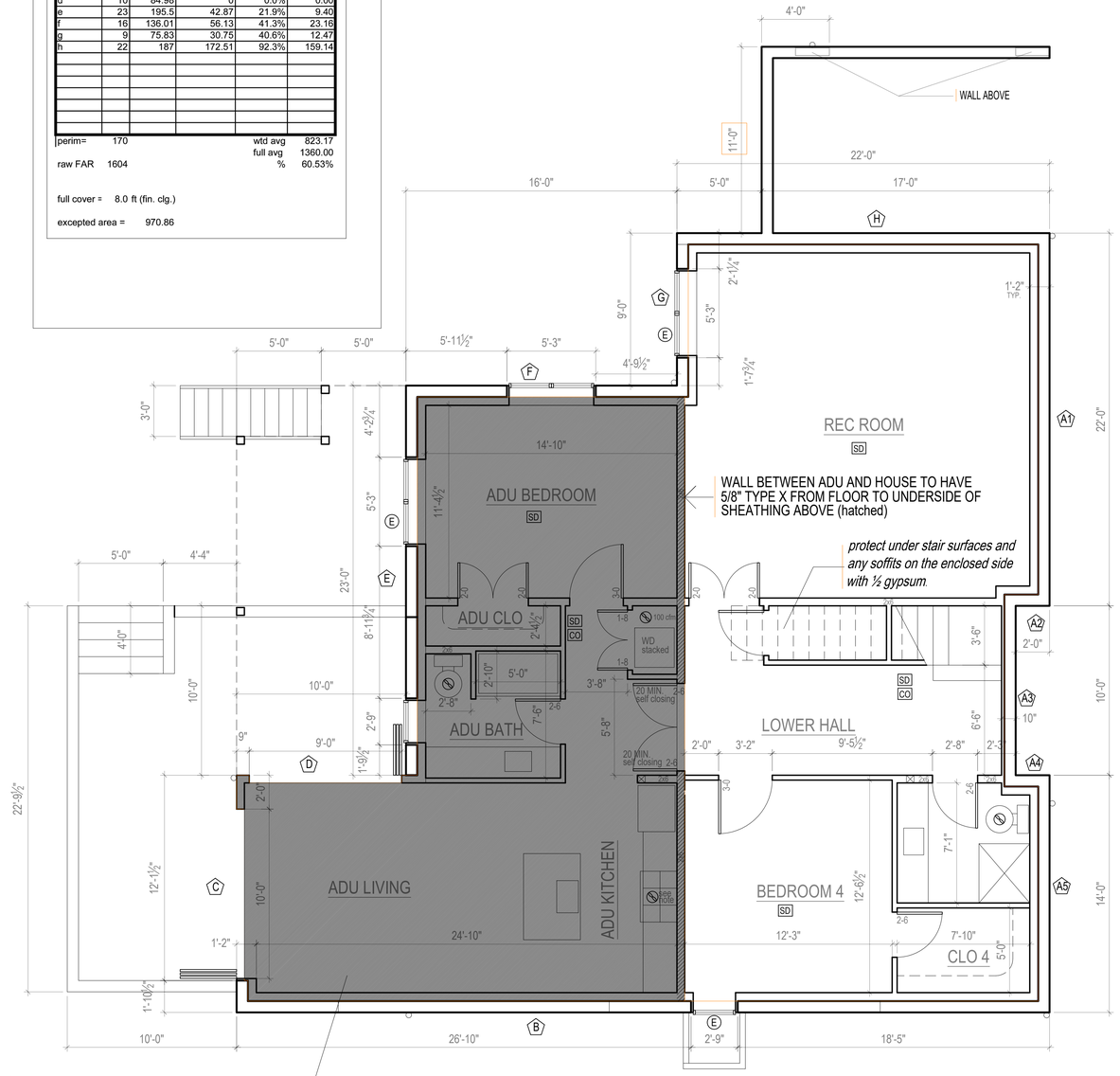
segment	length	wall area	covered area	%cover	wtd
a1	22	186.64	186.64	100.0%	186.64
a2	2	17	17	100.0%	17.00
a3	10	84.5	84.5	100.0%	84.50
a4	2	17	17	100.0%	17.00
a5	14	119	119	100.0%	119.00
b	48	408	281.8	69.1%	194.64
c	14	119	5.1	4.3%	0.22
d	10	84.98	0	0.0%	0.00
e	23	195.5	42.87	21.9%	9.40
f	16	136.01	56.13	41.3%	23.16
g	9	75.83	30.75	40.6%	12.47
h	22	187	172.51	92.3%	159.14
perim=	170			wtd avg	823.17
				full avg	1360.00
raw FAR	1604			%	60.53%

full cover = 8.0 ft (fin. clg.)

excepted area = 970.86



B. ROOF PLAN
1/4" = 1'-0"
ALL ROOFS PITCH 1/4"/FT OR GREATER



SHADED AREA = ADU EXTENTS

type X throughout, including clgs. tight against the exterior wall, and wall assemblies shall extend from the foundation to the underside of the roof sheathing.

RANGE VENTING NOTE:

160 Cfm intermittent electric range. 250 Cfm combustion range.

A. BASEMENT FLOOR PLAN
1/4" = 1'-0"

FLOOR AREA = 1604 SF (red line)
ADU FLOOR AREA = 696 SF (shaded)

(X) = BASEMENT WALL SEGMENTS FOR BASEMENT EXCEPTION CALC.

CONDITIONED AREA PRIMARY = 868 SF
CONDITIONED AREA ADU = 646 SF

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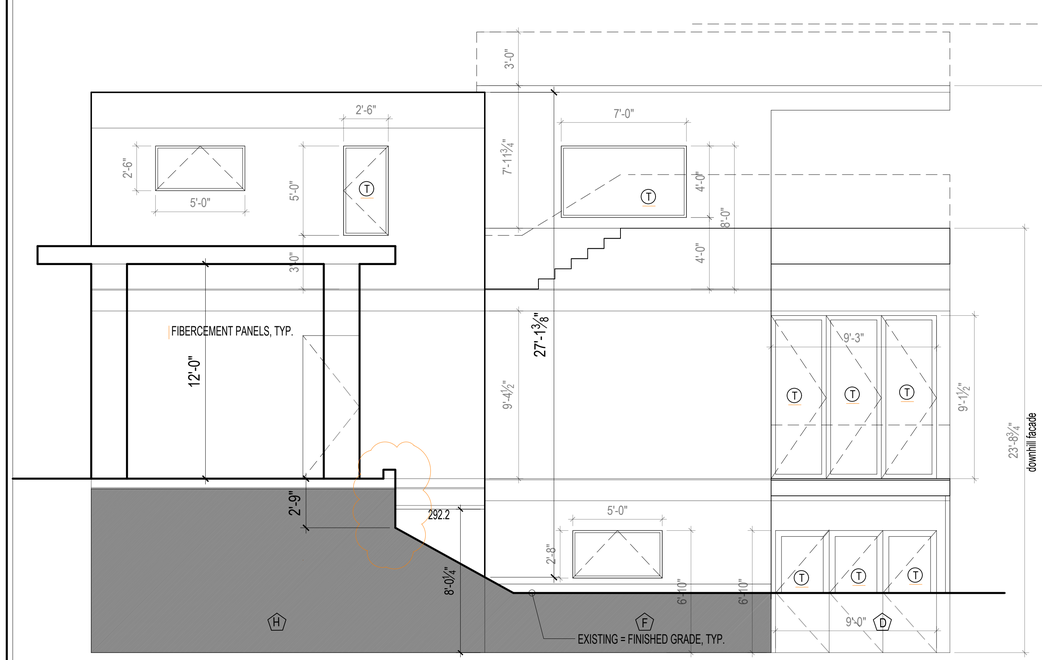
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CONTENTS
Basement Plan

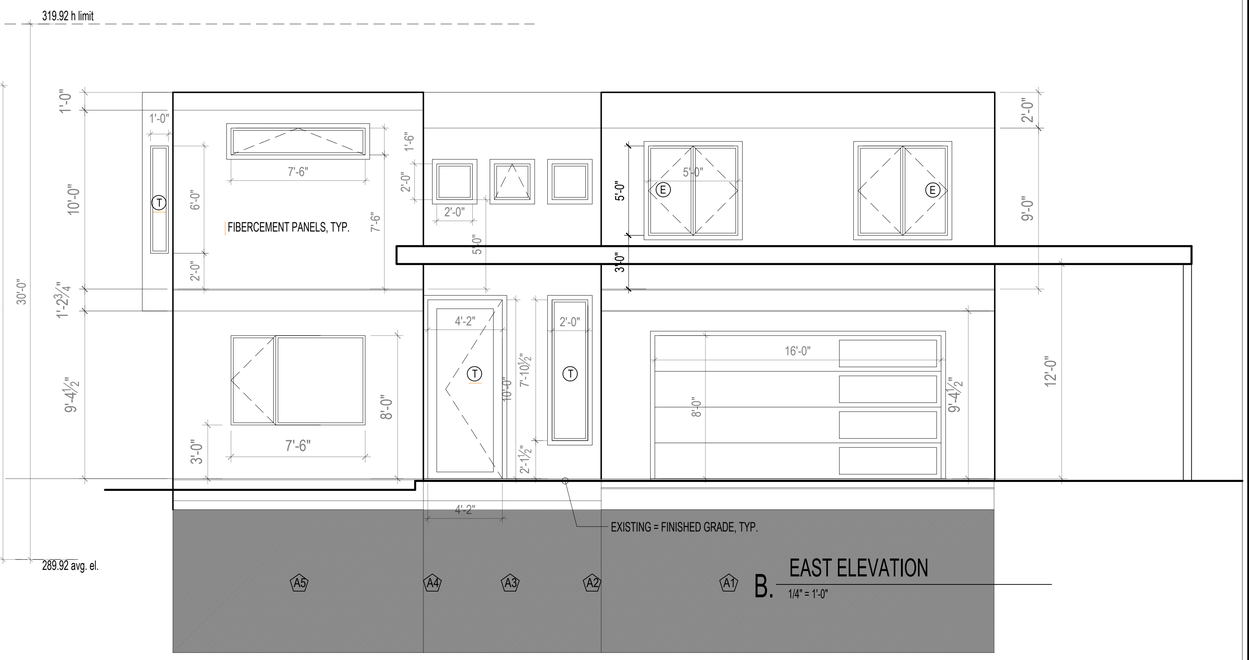
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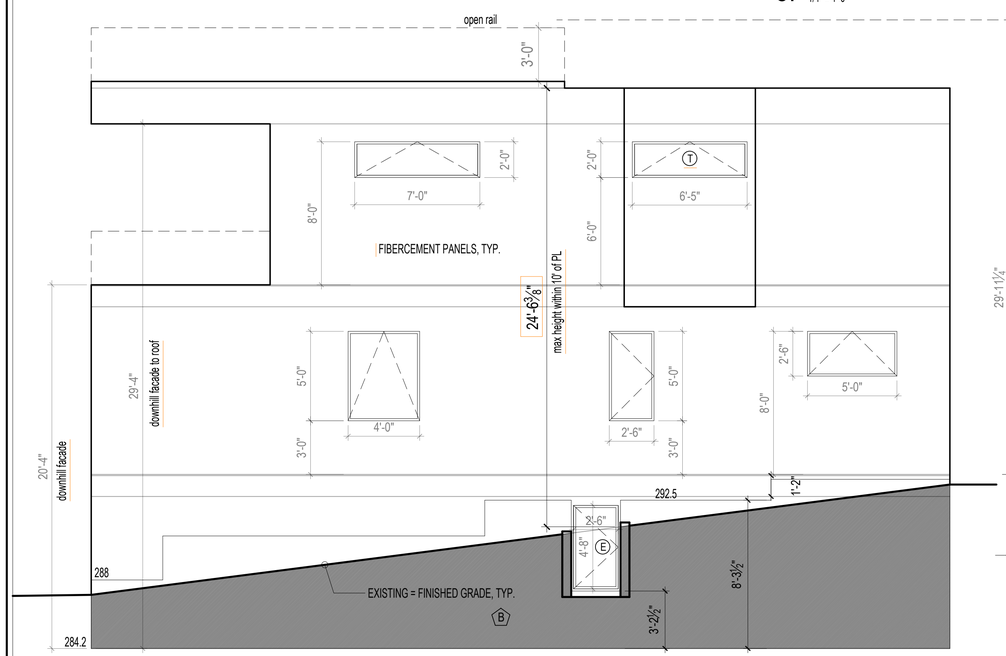
C. NORTH ELEVATION
1/4" = 1'-0"



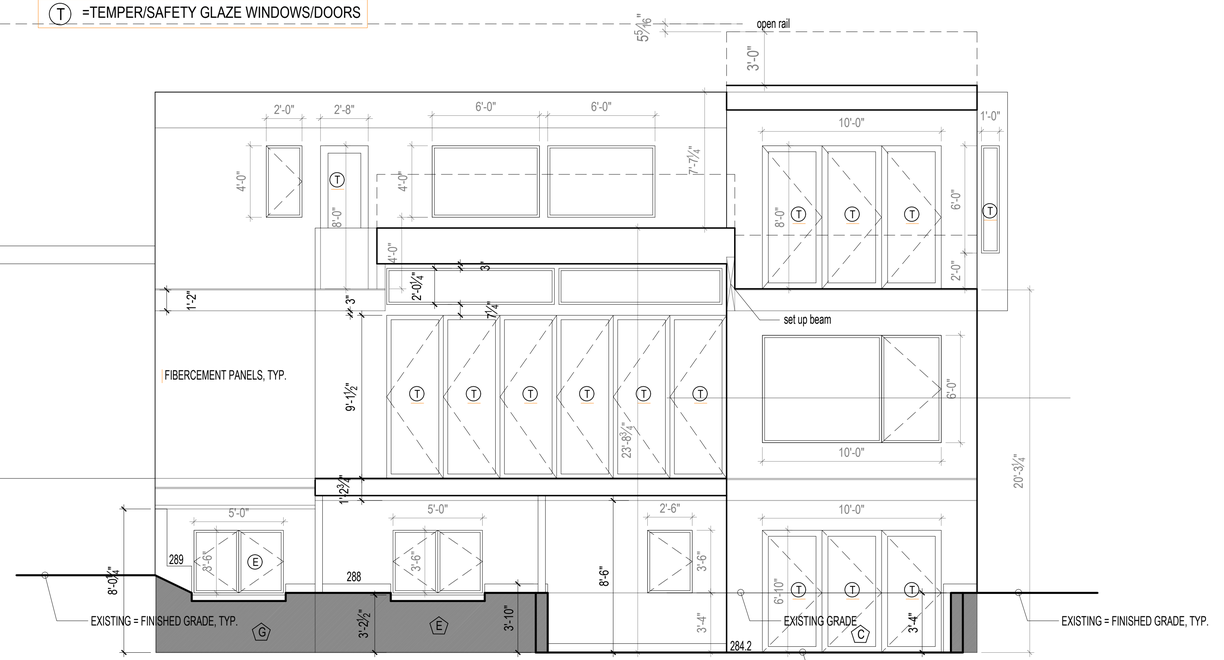
B. EAST ELEVATION
1/4" = 1'-0"

SHADED AREAS EXCLUDED FROM BASEMENT FAR CALC

(T) =TEMPER/SAFETY GLAZE WINDOWS/DOORS



D. SOUTH ELEVATION
1/4" = 1'-0"



A. WEST ELEVATION
1/4" = 1'-0"

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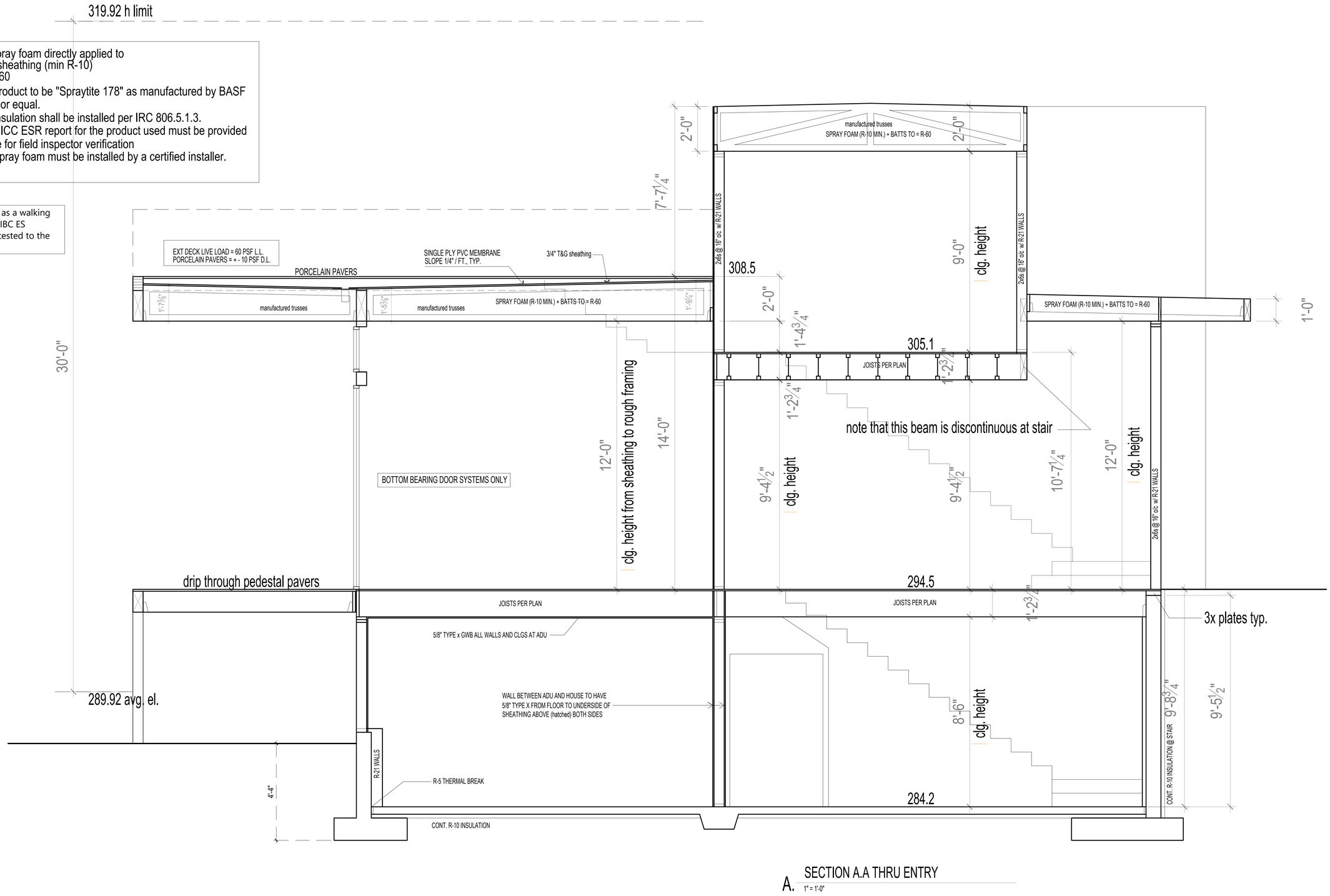
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CONTENTS
Elevations

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A. SECTION A.A THRU ENTRY
1" = 1'-0"

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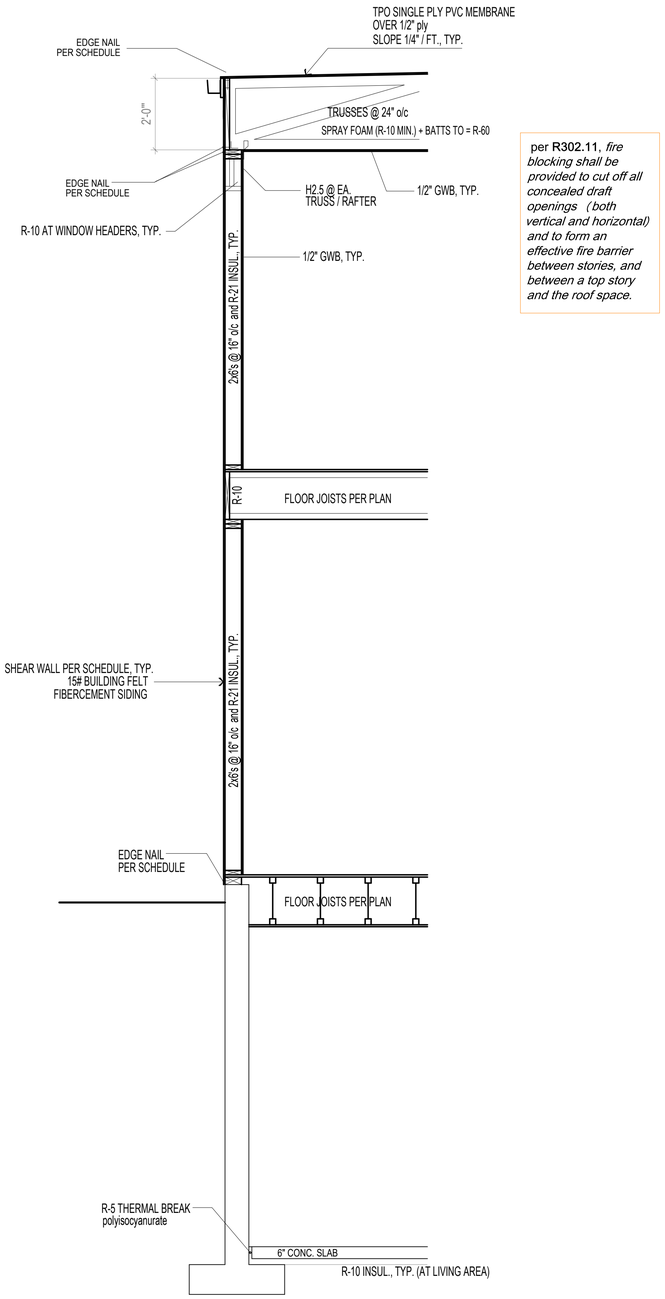
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Sections

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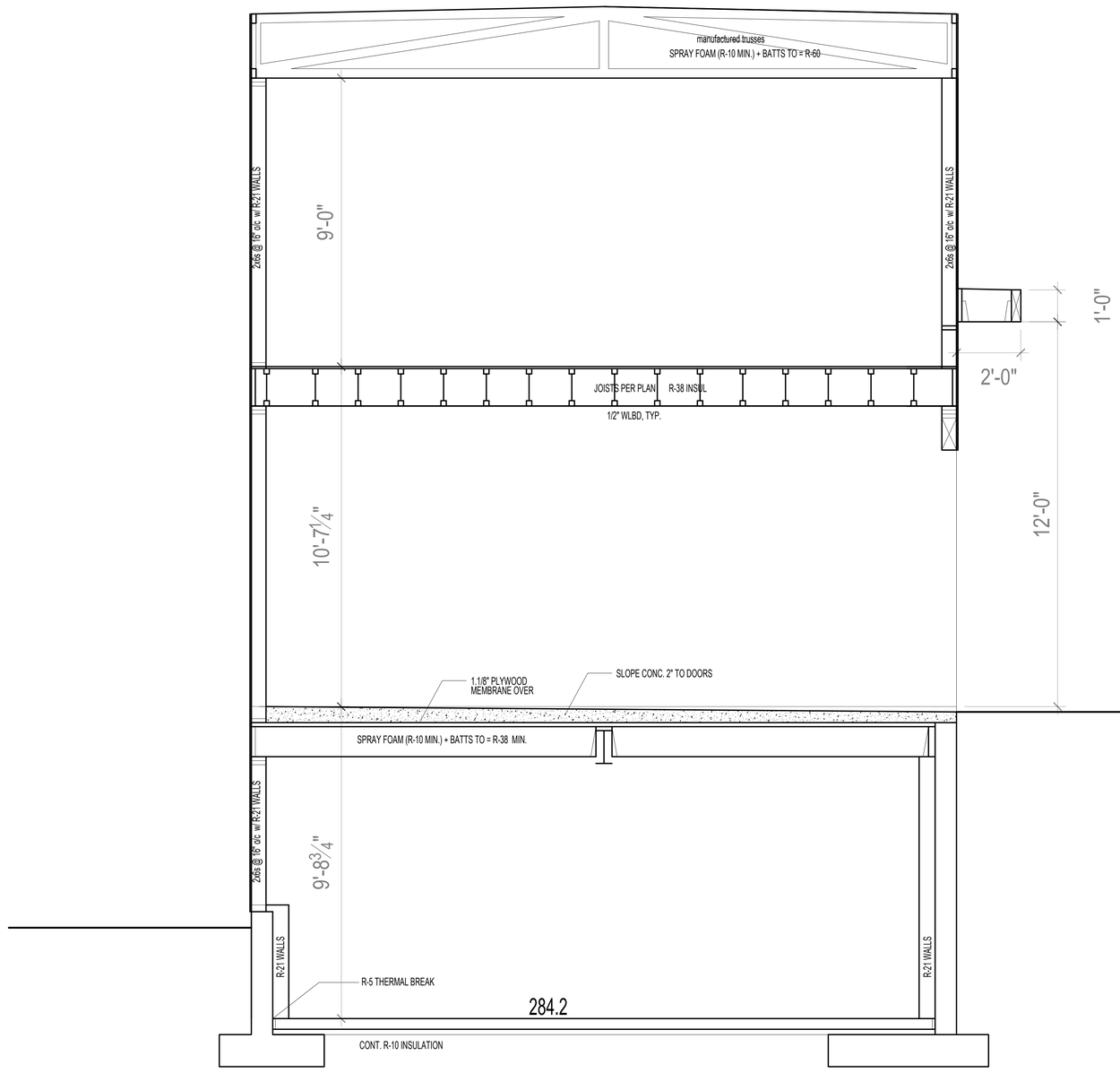
05



per R302.11, *fire blocking shall be provided to cut off all concealed draft openings (both vertical and horizontal) and to form an effective fire barrier between stories, and between a top story and the roof space.*

B. TYPICAL SECTION

1/2" = 1'-0"



A. SECTION B.B THRU GARAGE

1" = 1'-0"

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Sections

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5.1

Project Information	Messages / Comments *	RESULT= PASS
House Primary	Note: Review required for custom entries: - Doors UA Reduction = 31.03. Proposed UA is better than baseline by 6% Window area is 15% of floor area - Whole House Mechanical Ventilation Airflow Rate: 65 CFM with Run Time Percent of 100%, Balanced, Distributed Maximum allowable total measured duct leakage: 122 CFM25	
Contact Information	* Results assume your inputs are complete and correct. Results do not constitute an approval. Analysis should be reviewed by your AHJ.	

ANALYSIS SET UP

What code compliance pathway are you using?	Total UA Alternative, Whole Building Trade Off Analysis
Project Building Type?	New Construction
Occupancy Type?	R3 Single family dwellings and townhouses
Code Version?	WSEC 2021
Classification:	Medium Dwelling Unit – 3039 sq. ft.
Baseline Description:	Code Baseline - Maximum baseline window area is 15% of floor area.
About Your Selection:	No exempt window or door areas
	-

RESULTS - Comparison of Baseline and Proposed Design **

Component Performance, R occupancies	Baseline Design U	Baseline Design Area	Baseline Design UA	Proposed Design U	Proposed Design Area	Proposed Design UA
Doors U =	0.300	409	122.8	0.317	409	129.5
Overhead Glazing U =	0.500	0	0.0		0	0.0
Vertical Glazing U =	0.300	446	133.7	0.300	446	133.7
Flat/Vaulted Ceilings U =	0.024	1,410	33.8	0.025	1,410	36.0
Wall (above grade) U =	0.056	1,373	76.9	0.054	1,373	74.2
Floors over Crawlspace U =	0.029	415	12.0	0.029	415	12.0
Slab on Grade F =	0.540	0	0.0		0	0.0
Below Grade Wall U =	0.040	870	34.8	0.032	870	27.8
Below Grade Slab F =	0.560	133	74.5	0.333	133	44.3

* Values from Table R402.1.2 (Oct 2023)

Baseline UA Total	488.6	Proposed UA Total	457.5
Required Credits	8.0	Proposed Credits	8.0 from Tables 406.2 and 406.3
		UA Percent Reduction	6%
		UA Reduction	31.0

** Results assume your inputs are complete and correct. Results do not constitute an approval. Analysis should be reviewed by your AHJ.

Table R406.2 Energy Equalization Credits

System No.	Full Description	Select System Type	Fuel Normalization Credits (406.2)	Energy Credits (406.3)	Total Credits (406.2 & 406.3)
4	For heating system using a heat pump that meets federal standards for the equipment listed in Table C403.3.2(2) or Table C403.3.2(9) OR Air to Water heat pump units that are configured to provide both heating and cooling and are rated in accordance with AHRI 550/590	Variable Refrigerant Heat Pump or Air-to-Water Heat Pump	3.0	5.0	8.0

Table R406.3 Energy Credits

Option No.	Category	Select Options	Energy Credits	Brief Description of Selected Options*
1	Efficient Building Envelope	Not Selected	0.0	-
2	Air Leakage Control and Efficient Ventilation	Option 2.2	1.5	Per Section R402.4.1.2 (1.5 ACH50 / For R-2, 0.20 cfm per ft2 at 50 Pa. / HRV with min SHR eff of 0.75 per IRC Section M1505.3 or MC Section 403.8
3.1 -3.10	High Efficiency HVAC	Option 3.6	1.0	Air source ducted Heat Pump w/ Min HSPF2 of 9.4 (HSPF of 11). A ducted cold climate variable capacity heat pump on the NEEP qualified product list with a min HSPF2 of 8.5 (HSPF of 10) may be used to satisfy this requirement. If fdg design temp is 23F or below,a cold climate variable capacity heat pump is required.
3.11	High Efficiency HVAC: Smart Thermostat		NA	
4	High Efficiency HVAC Distribution System		0.0	
5.1	Efficient Water Heating: Drain Heat Recovery		0.0	
5.2	Efficient Water Heating: Compact Hot Water Distribution	Option 5.2	0.5	Compact Hot Water Distribution System Max volume between heat source and fixture is 16 Oz per section R403.5.2, on demand circ. Pump may be required.
5.3-5.8	Efficient Water Heating	Option 5.6	2.0	Electric heat pump water heater meeting NEEA Tier 3.
6	Renewable Electric Energy 3,000 kWh		0.0	
7	Appliance Package		0.0	
		Energy Credits	5.0	

Refer to WSEC 2021 Table R406.3 for complete option descriptions and requirements https://sbcc.wa.gov/state-codes-regulations-guidelines/state-building-code/energy-code

THERMAL ENVELOPE DETAILS - Proposed Design

Conditioned Floor Area, Proposed Design: 3,039 sq. ft.
Classification: Medium Dwelling Unit
Notes:

Exterior Doors

Plan ID	Component Description	Ref.	Door U	Qt.	Width Feet	Width Inch	Height Feet	Height Inch	Area	UA
entry	Code Baseline, U=0.30	-	0.30	1	4	1	6	10	28	8.5
gar	Code Baseline, U=0.30	-	0.30	1	3	7	6	10	22	6.5
living	Fold-Slide	Custom	0.32	1	19	5	9	11	173	55.5
dining	Fold-Slide	Custom	0.32	1	9	5	9	11	84	27.0
playroom	Code Baseline, U=0.30	-	0.30	1	2	8	8	5	21	6.4
mbed	Fold-Slide	Custom	0.32	1	10	7	8	5	80	25.6
									0	0.0
									0	0.0
									0	0.0
									0	0.0
							Sum of Area and UA		409	129.5
							Exterior Doors Area Weighted U			0.317

Refer to WSEC R402.1
Refer to WSEC R402.1
Refer to WSEC R402.1

Overhead Glazing

Plan ID	Component Description	Ref.	Glazing U	Qt.	Width Feet	Width Inch	Height Feet	Height Inch	Area	UA
									-	
									-	
									-	
									-	
									-	
							Sum of Area and UA		0.0	0
							Overhead Glazing Area Weighted U			

Vertical Glazing Schedule

Rows to Show: 24

	Plan ID	Component Description	Ref.	Glazing U	Qt.	Width Feet	Width Inch	Height Feet	Height Inch	Area	UA
1	entry	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	5	7	10.5	15.8	4.73
2	living	U=0.30 (Code Baseline)	Table 406.2	0.30	1	19	5	2	5	38.0	11.40
3	din	U=0.30 (Code Baseline)	Table 406.2	0.30	1	10	5	6	5	60.0	18.00
4	kitchen	U=0.30 (Code Baseline)	Table 406.2	0.30	1	4	5	5	5	20.0	6.00
5	pantry	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	5	5	5	12.5	3.75
6	office	U=0.30 (Code Baseline)	Table 406.2	0.30	1	5	5	2	5	12.5	3.75
7	office	U=0.30 (Code Baseline)	Table 406.2	0.30	1	7	5	5	5	37.5	11.25
8	stairs	U=0.30 (Code Baseline)	Table 406.2	0.30	3	2	5	2	5	12.0	3.60
9	bf1	U=0.30 (Code Baseline)	Table 406.2	0.30	1	5	5	5	5	25.0	7.50
10	b2	U=0.30 (Code Baseline)	Table 406.2	0.30	1	5	5	5	5	25.0	7.50
11	b2	U=0.30 (Code Baseline)	Table 406.2	0.30	1	5	5	2	5	12.5	3.75
12	bath	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	5	5	5	12.5	3.75
13	bath	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	5	4	5	8.0	2.40
14	play	U=0.30 (Code Baseline)	Table 406.2	0.30	2	6	5	4	5	48.0	14.40
15	mbed	U=0.30 (Code Baseline)	Table 406.2	0.30	1	7	5	4	5	28.0	8.40
16	mbed	U=0.30 (Code Baseline)	Table 406.2	0.30	1	7	5	2	5	14.0	4.20
17	tub	U=0.30 (Code Baseline)	Table 406.2	0.30	1	6	5	2	5	12.8	3.86
18	tub	U=0.30 (Code Baseline)	Table 406.2	0.30	2	1	5	6	5	12.0	3.60
19	mcb	U=0.30 (Code Baseline)	Table 406.2	0.30	1	7	5	1	5	10.5	3.15
20	b3	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	5	4	5	11.7	3.50
21	rec	U=0.30 (Code Baseline)	Table 406.2	0.30	1	5	5	3	5	17.5	5.25
22									-	-	
23									-	-	
24									-	-	
								Sum of Area and UA		445.8	133.7
								Vertical Glazing Area Weighted U			0.300
								Vertical Glazing and Doors Area Weighted U			0.308

Flat/Vaulted Ceilings

Plan ID	Component Description	Ref.	Attic U	Area	UA
Flat	R60 blown Attic STD baffled	10-7	0.025	1,060	26.5
LR	R49 blown Attic STD baffled (2018 Code Baseline, 1.1.1	10-7	0.027	350	9.5
				-	-
				-	-
			Sum of Area and UA	1,410	36.0
			Area Weighted U-Value		0.025

Floor (over crawl or exterior)

Plan ID	Component Description	Ref.	Floor U	Area	UA
gar	R30 vented Joist (Code Baseline)	10-3	0.029	415	12
			Sum of Area and UA	415	12
			Area Weighted U-Value		0.029

Slab on Grade (less than 2 feet below grade)

Plan ID	Component Description	Ref.	Slab F	Slab Perim	FP
			Sum of Perimeter and FP	0	0
			Area Weighted U-Value		

Below Grade Walls and Slabs

Plan ID	Component Description	Slab Depth	Ref.	Wall U	Wall Area	Wall UA	Slab F	Slab Perim	Slab UA
bg walls	R21 Batt + R5 ci R10 Fully Underslab	3.5' depth	Baylon & Ker	0.032	870	27.8	0.333	133	44
			Sum of Area, Length and UA		870	28		133	44
			Weighted U- and F-values			0.032			0.333

Links to Download Forms, Checklists and Other Resources

	Link	
Compliance Certificate	Compliance Certificate	Instructions
Insulation Certificate for Residential New Construction	Insulation Certificate	
Duct Testing Affadavits		
Existing Construction	Affidavit, Existing	
New Construction	Affidavit, New	
Prescriptive Checklist for 2018 WSEC	Prescriptive Checklist	
Alterations (Remodel) Worksheet	Worksheet	
EER SEER2 COP HSPF2 Converter	https://www.ajdcotengineering.com/eer-seer2-cop-hspf2-kwton-converter	

Show Ventilation Calculator? Show

Ventilation Requirements

Conditioned Floor Area	3,039 sq. ft.
Number of Bedrooms	3
Run-Time Percent in Each 4-Hour Segment	100%
Is the system Balanced?	Balanced — Verify system meets definition of 'Balanced Whole-House Ventilation'
Is the system Distributed?	Distributed — Verify system meets definition of 'Distributed Whole-House Ventilation'
Ventilation Code Section	IRC, Chapter 15
Whole House Mechanical Ventilation Airflow Rate	65 CFM

Show Distribution System Calculator? Show

HVAC Thermal Distribution System — Download RS-33 (2018) http://www.energy.wsu.edu/Documents/Duct%20Testing%20Standards%20_2018%20

Is this a hydronic heating system?	No
Location of Ducts	Conditioned Space
Location of Air Handler	Unconditioned Space
Is Duct Testing Required?	Yes
Maximum Duct Leakage:	
Is this a post-construction test?	Yes
Maximum total measured duct leakage per square foot	0.04 CFM25 per sq. ft.
Maximum allowable total measured duct leakage	122 CFM25

A maximum of 10 feet of return ducts and 5 feet of supply ducts are allowed to be located outside of the building thermal envelope, if insulated and sealed per R403.3.7.

Show Heating System Sizing? Show

Heating System Sizing - Proposed Design — Try Out BetterBuiltNW's HVAC Sizing Tool: https://betterbuiltnw.com/resources/hvac-sizing-tool

Nearest Weather Station	Mercer Island
Indoor Design Temperature	70 F
Outdoor Design Temperature	25 F
Design Temperature Difference (ΔT)	45 F
Conditioned Floor Area, Proposed Design	3,039 ft2
Conditioned Volume (Leave blank to use default of 8.5 ft. ceiling height)	37,912 ft3 — Ave ceiling = 12.5 ft. Check: Higher than expected conditioned volume

Walls (Above Grade)

Plan ID	Component Description	Ref.	Wall U	Net Area	UA
Walls (Ab	R21 cavity+R9 foam INT 2X6W Lap (Code Baseline)	10-5	0.054	1,373	74
			Sum of Net Area and UA	1,373	74
			Gross Wall Area	2,228 ft2	
			Area Weighted U-Value		0.054

PRESCRIPTIVE REQUIREMENTS

(see thermal envelope details above for project specific requirements)

All Climate Zones Table 402.1.3	R-Value [a]	U-Factor [a]
Fenestration U-Factor [b,i]	n/a	0.30
Skylight U-Factor [b]	n/a	0.50
Ceiling [e]	60	n/a
Wood Frame Wall [g,i]	20+5 or 13+10	n/a
Floor	30	n/a
Below Grade Wall [c,h]	10/15/21 int + 5TB	n/a
Slab [d,f] R-Value & Depth	10, 4 ft	n/a

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.

i. The first value is cavity insulation, the second value is continuous insulation. Therefore, as an example, "R13+10" means R-13 cavity insulation plus R-10 continuous insulation

j. A maximum U-factor of 0.32 shall apply to vertical fenestration products installed in buildings located above 4000 feet in elevation above sea level, or in windborne debris regions where protection of openings is required under Section R301.2.1.2 of the International Residential Code.

Average ceiling height	12.5 ft
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Conditioned Space
Sum of UA	458
Envelope Heat Load (Sum of UA X 37.5)	20,589 Btu / Hour
Air Leakage Heat Load ((Volume X 0.6) X 1) X 0.18))	18,425 Btu / Hour
Building Design Heat Load (Air Leakage + Envelope Heat Loss	39,014 Btu / Hour
Building and Duct Heat Load (For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1	39,014 Btu / Hour
For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1	
Maximum Heat Equipment Output (Building and Duct Heat Loss X 1.25 for heat pumps	48,767 Btu / Hour
Building and Duct Heat Loss X 1.40 for all other systems	14.3 kW

PRIMARY RESIDENCE HVAC NOTES

DUCTED HEAT PUMP (HSPF>11.0) INT. AIR HANDLER
HEAT RECOVERY VENTILATION
REQUIRED VENTING = CONTINUOUS 120CFM
SET TO OPERATE AT 240 CFM FOR 2 HOURS IN EA. 4 HR PERIOD (50%)
PROVIDED BY VARIABLE SPEED HIGH EFF. FAN (MAX .35 WATTS/CFM)
CONTOLLED TO OPERATE AT LOW SPEED IN VENTILATION
MODE ONLY.

A certificate is required to be posted on a wall in the space where the furnace is located, a utility room, or on an electrical panel per **WSEC R401.3** and include the following: predominate R-values, U-values of fenestration, results from duct system and building envelope air leakage testing, the results from the whole-house mechanical ventilation system flow rate test, and the types and efficiencies of heating/cooling/whole-house mechanical ventilation/water heating equipment.

Maximum WSEC R402.4, the building thermal Envelope shall be constructed to limit air leakage to 2.0 air changes per hour maximum. The results of the test shall be signed by the party conducting the test and provided to the code official (R402.4.1.2). Per WSEC R403.1.1, at least one thermostat per dwelling unit shall be capable of controlling the heating and cooling system on a daily schedule. Per WSEC R403.2.2, Ducts, air handlers, and filter boxes shall be sealed.

All permanently installed lighting fixtures, excluding kitchen appliance lighting fixtures, shall contain only high-efficacy lighting sources.

R404.2 Interior lighting controls. Permanently installed interior lighting fixtures shall be controlled with either a dimmer, an occupant sensor control or other control that is installed or built into the fixture. Exception: Lighting controls shall not be required for the following: 1. Bathrooms. 2. Hallways. 3. Lighting designed for safety or security.

R404.3 Exterior lighting controls. Where the total permanently installed exterior lighting power is greater than 30 watts, the permanently installed exterior lighting shall comply with the following: 1. Lighting shall be controlled by a manual on and off switch which permits automatic shut-off actions. Exception: Lighting serving multiple dwelling units. 2. Lighting shall be automatically shut off when daylight is present and satisfies the lighting needs. 3. Controls that override automatic shut-off actions shall not be allowed unless the override automatically returns automatic control to its normal operation within 24 hours.

9317 REGISTERED ARCHITECT CHRISLUTH STATE OF WASHINGTON

CENTERLINE DESIGN
4737 37th AVE SW
SEATTLE
206.935.4684
www.Centerline-Design.com

3427 72nd PL SE
Mercer Island WA

CONTENTS
C3 Energy Code House

DRAWN BY
CRL

DATE
9.29.25
1.30.26

E1

Project Information	Messages / Comments *	RESULT= PASS
ADU	Note: Review required for custom entries: - Doors	
	UA Reduction = 21.3. Proposed UA is better than baseline by 16%	
Contact Information	Window area is 6% of floor area	
	Whole House Mechanical Ventilation Airflow Rate: 50 CFM with Run Time Percent of 100%, Balanced, Not Distributed	
	Maximum allowable total measured duct leakage: 26 CFM25	

* Results assume your inputs are complete and correct. Results do not constitute an approval. Analysis should be reviewed by your AHJ.

ANALYSIS SET UP

What code compliance pathway are you using?	Total UA Alternative, Whole Building Trade Off Analysis
Project Building Type?	New Construction
Occupancy Type?	R3 Single family dwellings and townhouses
Code Version?	WSEC 2021
Classification:	Small Dwelling Unit -- 646 sq. ft.
Baseline Description:	Code Baseline - Maximum baseline window area is 15% of floor area.
About Your Selection:	No exempt window or door areas

RESULTS - Comparison of Baseline and Proposed Design **

Component Performance, R occupancies	Baseline Design U	Baseline Design Area	Baseline Design UA	Proposed Design U	Proposed Design Area	Proposed Design UA
Doors U =	0.300	130	39.0	0.320	130	41.5
Overhead Glazing U =	0.500	0	0.0		0	0.0
Vertical Glazing U =	0.300	40	11.9	0.300	40	11.9
Flat/Vaulted Ceilings U =	0.024	0	0.0		0	0.0
Wall (above grade) U =	0.056	347	19.4	0.054	347	18.7
Floors over Crawlspace U =	0.029	0	0.0		0	0.0
Slab on Grade F =	0.540	0	0.0		0	0.0
Below Grade Wall U =	0.040	205	8.2	0.032	205	6.6
Below Grade Slab F =	0.560	95	53.2	0.333	95	31.6

* Values from Table R402.1.2 (Oct 2023)

Baseline UA Total	131.7	Proposed UA Total	110.4
Required Credits	5.0	Proposed Credits	5.0 from Tables 406.2 and 406.3
		UA Percent Reduction	16%
		UA Reduction	21.3

** Results assume your inputs are complete and correct. Results do not constitute an approval. Analysis should be reviewed by your AHJ.

Table R406.2 Energy Equalization Credits

System No.	Full Description	Select System Type	Fuel Normalization Credits (406.2)	Energy Credits (406.3)	Total Credits (406.2 & 406.3)
5	For heating system based on electric resistance with (1) inverter driven ductless mini-split heat pump system installed in the largest zone in the dwelling OR (2) With 2kW or less total installed heating capacity per dwelling	Electric Resistance with Ductless Heat Pump OR electric resistance with max 2 kW installed capacity	2.0	3.0	5.0

Table R406.3 Energy Credits

Option No.	Category	Select Options	Energy Credits	Brief Description of Selected Options*
1	Efficient Building Envelope	Not Selected	0.0	-
2	Air Leakage Control and Efficient Ventilation	Not Selected	0.0	0.00
3.1 -3.10	High Efficiency HVAC		0.0	
3.11	High Efficiency HVAC: Smart Thermostat	Option 3.11	0.5	Connected Energy Star Certified smart thermostat.
4	High Efficiency HVAC Distribution System		0.0	
5.1	Efficient Water Heating: Drain Heat Recovery		0.0	
5.2	Efficient Water Heating: Compact Hot Water Distribution	Option 5.2	0.5	Compact Hot Water Distribution System Max volume between heat source and fixture is 16 Oz per section R403.5.2, on demand circ. Pump may be required.
5.3-5.8	Efficient Water Heating	Option 5.6	2.0	Electric heat pump water heater meeting NEEA Tier 3.
6	Renewable Electric Energy 3,000 kWh		0.0	
7	Appliance Package		0.0	
	Energy Credits		3.0	

Refer to WSEC 2021 Table R406.3 for complete option descriptions and requirements https://sbcc.wa.gov/state-codes-regulations-guidelines/state-building-code/energy-code

THERMAL ENVELOPE DETAILS - Proposed Design

Conditioned Floor Area, Proposed Design: 646 sq. ft.
Classification: Small Dwelling Unit
Notes:

Exterior Doors

Plan ID	Component Description	Ref.	Door U	Qt.	Width Feet	Width Inch	Height Feet	Height Inch	Area	UA	
liv	Fold-Slide	Custom	0.32	1	10	0	6	0	68	21.9	Refer to WSEC R402.1
liv	Fold-Slide	Custom	0.32	1	9	0	6	0	62	19.7	Refer to WSEC R402.1
									0	0.0	
									0	0.0	
									0	0.0	
									0	0.0	
									0	0.0	
									0	0.0	
									0	0.0	
							Sum of Area and UA		130	41.5	
							Exterior Doors Area Weighted U			0.320	

Overhead Glazing

Plan ID	Component Description	Ref.	Glazing U	Qt.	Width Feet	Width Inch	Height Feet	Height Inch	Area	UA
									-	
									-	
									-	
									-	
							Sum of Area and UA		0.0	0
							Overhead Glazing Area Weighted U			

Vertical Glazing Schedule — Rows to Show: 16

	Plan ID	Component Description	Ref.	Glazing U	Qt.	Width Feet	Width Inch	Height Feet	Height Inch	Area	UA
1	bath	U=0.30 (Code Baseline)	Table 406.2	0.30	1	2	0	3	0	6.8	2.63
2	bed	U=0.30 (Code Baseline)	Table 406.2	0.30	1	5	0	3	0	17.5	5.25
3	bed	U=0.30 (Code Baseline)	Table 406.2	0.30	1	5	0	2	0	13.3	4.00
4										-	-
5										-	-
6										-	-
7										-	-
8										-	-
9										-	-
10										-	-
11										-	-
12										-	-
13										-	-
14										-	-
15										-	-
16										-	-
							Sum of Area and UA		39.6	11.9	
							Vertical Glazing Area Weighted U			0.300	
							Vertical Glazing and Doors Area Weighted U			0.316	

Flat/Vaulted Ceilings

Plan ID	Component Description	Ref.	Attic U	Area	UA
			Sum of Area and UA	0	0.0
			Area Weighted U-Value		

Walls (Above Grade)

Plan ID	Component Description	Ref.	Wall U	Net Area	UA
Down 8.5	R21 cavity+R5 foam INT 2X6W Lap (Code Baseline)	10-5	0.054	347	19
			Sum of Net Area and UA	347	19
			Gross Wall Area	516 ft²	
			Area Weighted U-Value		0.054

Floor (over crawl or exterior)

Plan ID	Component Description	Ref.	Floor U	Area	UA
			Sum of Area and UA	0	0
			Area Weighted U-Value		

Slab on Grade (less than 2 feet below grade)

Plan ID	Component Description	Ref.	Slab F	Slab Perim	FP
			Sum of Perimeter and FP	0	0
			Area Weighted U-Value		

Below Grade Walls and Slabs

Plan ID	Component Description	Slab Depth	Ref.	Wall U	Wall Area	Wall UA	Slab F	Slab Perim	Slab UA
slab	R21 Batt + R5 ci R10 Fully Underslab	3.5' depth	Baylon & Ker	0.032	205	6.6	0.333	95	32
			Sum of Area, Length and UA		205	7		95	32
			Weighted U- and F-values			0.032			0.333

Links to Download Forms, Checklists and Other Resources

	Link	
Compliance Certificate	Compliance Certificate	Instructions
Insulation Certificate for Residential New Construction	Insulation Certificate	
Duct Testing Affadavits		
Existing Construction	Affidavit, Existing	
New Construction	Affidavit, New	
Prescriptive Checklist for 2018 WSEC	Prescriptive Checklist	
Alterations (Remodel) Worksheet	Worksheet	
EER SEER2 COP HSPF2 Converter	https://www.ajdesignengineering.com/eer-seer2-cop-hspf2-kwton-converter	

Show Ventilation Calculator? Show

Ventilation Requirements

Conditioned Floor Area	646 sq. ft.
Number of Bedrooms	3
Run-Time Percent in Each 4-Hour Segment	100%
Is the system Balanced?	Balanced — Verify system meets definition of 'Balanced Whole-House Ventilation'
Is the system Distributed?	Not Distributed
Ventilation Code Section	IRC, Chapter 15
Whole House Mechanical Ventilation Airflow Rate	50 CFM

Show Distribution System Calculator? Show

HVAC Thermal Distribution System — Download RS-33 (2018): http://www.energy.wsu.edu/Documents/Duct%20Testing%20Standards%20_2018%20

Is this a hydronic heating system?	No
Location of Ducts	Unconditioned Space
Location of Air Handler	Unconditioned Space
Is Duct Testing Required?	Yes
Maximum Duct Leakage: Is this a post-contruction test?	Yes
Maximum total measured duct leakage per square foot	0.04 CFM25 per sq. ft.
Maximum allowable total measured duct leakage	26 CFM25

Show Heating System Sizing? Show

Heating System Sizing - Proposed Design — Try Out BetterBuiltNW's HVAC Sizing Tool: https://betterbuiltnw.com/resources/hvac-sizing-tool

Nearest Weather Station	Vancouver	
Indoor Design Temperature	70 F	
Outdoor Design Temperature	22 F	
Design Temperature Difference (ΔT)	48 F	
Conditioned Floor Area, Proposed Design	646 ft2	
Conditioned Volume (Leave blank to use default of 8.5 ft. ceiling height)	ft3	Volume assuming ceiling height of 8.5 ft = 5491 ft3

PRESCRIPTIVE REQUIREMENTS

(see thermal envelope details above for project specific requirements)

All Climate Zones Table 402.1.3	R-Value [a]	U-Factor [a]
Fenestration U-Factor [b,i]	n/a	0.30
Skylight U-Factor [b]	n/a	0.50
Ceiling [g]	60	n/a
Wood Frame Wall [d,i]	20+5 or 13+10	n/a
Floor	30	n/a
Below Grade Wall [c,h]	10/15/21 int + STB	n/a
Slab [d,f] R-Value & Depth	10, 4 ft	n/a

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.

i. The first value is cavity insulation, the second value is continuous insulation. Therefore, as an example, "R13+10" means R-13 cavity insulation plus R-10 continuous insulation

j. A maximum U-factor of 0.32 shall apply to vertical fenestration products installed in buildings located above 4000 feet in elevation above sea level, or in windborne debris regions where protection of openings is required under Section R301.2.1.2 of the International Residential Code.

Average ceiling height	8.5 ft
HVAC System Type	Heat Pump
Location of HVAC Distribution System	Unconditioned Space
Sum of UA	110
Envelope Heat Load (Sum of UA X 37.)	5,297 Btu / Hour
Air Leakage Heat Load (Volume X 0.6) X (T) X .018))	2,847 Btu / Hour
Building Design Heat Load (Air Leakage + Envelope Heat Loss	8,144 Btu / Hour
Building and Duct Heat Load (For ducts located in unconditioned space: Sum of Building Heat Loss X 1.1 / For ducts located in conditioned space or ductless: Sum of Building Heat Loss X 1	8,958 Btu / Hour
Maximum Heat Equipment Output (Building and Duct Heat Loss X 1.25 for heat pumps / Building and Duct Heat Loss X 1.40 for all other systems	12,541 Btu / Hour = 3.7 kW

ADU RESIDENCE HVAC NOTES

MINI-SPLIT HEAT PUMP (HSPF>10.0)
HEAT RECOVERY VENTILATION
REQUIRED VENTING = CONTINUOUS 120CFM
SET TO OPERATE AT 240 CFM FOR 2 HOURS IN EA. 4 HR PERIOD (50%)
PROVIDED BY VARIABLE SPEED HIGH EFF. FAN (MAX .35 WATTS/CFM)
CONTOLLED TO OPERATE AT LOW SPEED IN VENTILATION
MODE ONLY.

A certificate is required to be posted on a wall in the space where the furnace is located, a utility room, or on an electrical panel per **WSEC R401.3** and include the following: predominate R-values, U-values of fenestration, results from duct system and building envelope air leakage testing, the results from the whole-house mechanical ventilation system flow rate test, and the types and efficiencies of heating/cooling/whole-house mechanical ventilation/water heating equipment.

Maximum flow rates for shower heads and kitchen sink - 1.75 GPM or less. All other lavatory faucets - 1.0 GPM or less.

Per WSEC R402.4, The building thermal Envelope shall be constructed to limit air leakage to 2.0 air changes per hour maximum. The results of the test shall be signed by the party conducting the test and provided to the code official (R402.4.1.2). Per WSEC R403.1.1, at least one thermostat per dwelling unit shall be capable of controlling the heating and cooling system on a daily schedule. Per WSEC R403.2.2, Ducts, air handlers, and filter boxes shall be sealed.

All permanently installed lighting fixtures, excluding kitchen appliance lighting fixtures, shall contain only high-efficacy lighting sources.

R404.2 Interior lighting controls. Permanently installed interior lighting fixtures shall be controlled with either a dimmer, an occupant sensor control or other control that is installed or built into the fixture. Exception: Lighting controls shall not be required for the following: 1. Bathrooms. 2. Hallways. 3. Lighting designed for safety or security.

R404.3 Exterior lighting controls. Where the total permanently installed exterior lighting power is greater than 30 watts, the permanently installed exterior lighting shall comply with the following: 1. Lighting shall be controlled by a manual on and off switch which permits automatic shut-off actions. Exception: Lighting serving multiple dwelling units. 2. Lighting shall be automatically shut off when daylight is present and satisfies the lighting needs. 3. Controls that override automatic shut-off actions shall not be allowed unless the override automatically returns automatic control to its normal operation within 24 hours.

9317 REGISTERED ARCHITECT CHRIS LUTH STATE OF WASHINGTON

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4737 37th AVE SW
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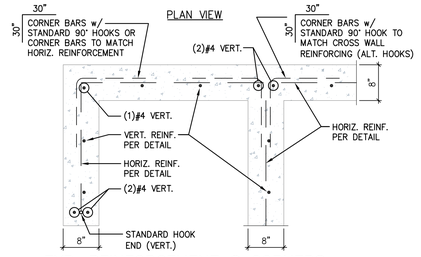
3427 72nd PL SE
Mercer Island WA

CONTENTS
C3 Energy Code House

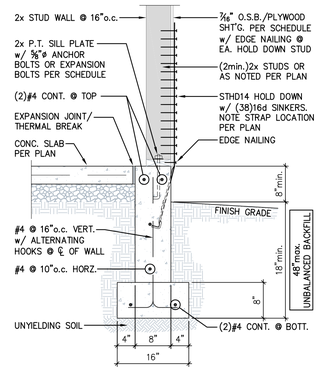
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9.29.25
1.30.26

E2

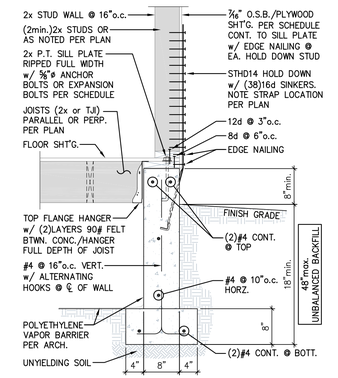


A0 TYP. REINFORCEMENT @ CORNERS & INTERSECTIONS
N.T.S.



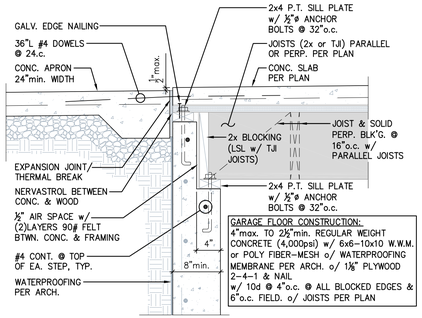
E EXT. SHEARWALL @ SLAB
3/4"=1'-0"

TYPICAL REINFORCEMENT @ CORNERS & INTERSECTIONS PER DETAIL A0/S1



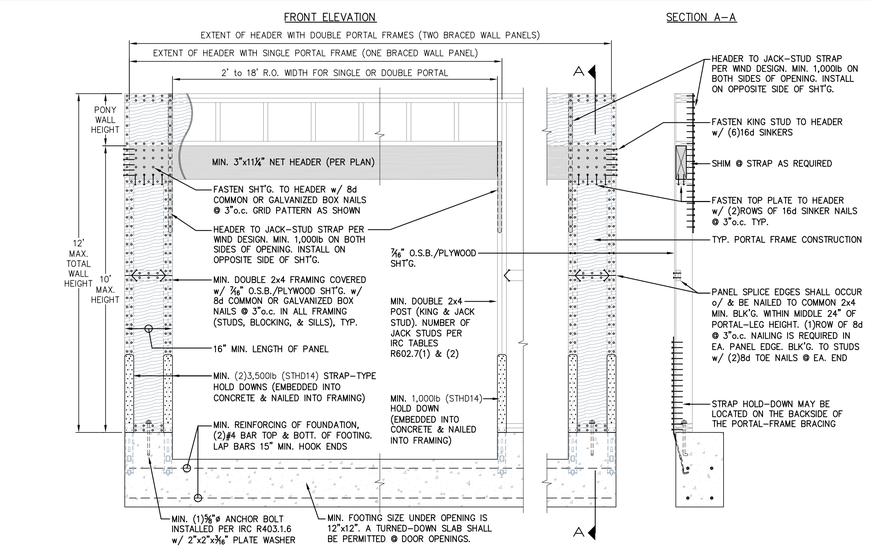
A1 EXT. SHEARWALL @ CRAWLSPACE
3/4"=1'-0"

TYPICAL REINFORCEMENT @ CORNERS & INTERSECTIONS PER DETAIL A0/S1



E2 CONC. SLAB o/ FRAMING @ GARAGE
1"=1'-0"

TYPICAL REINFORCEMENT PER DETAIL C/S1 or C1/S1 or PER PLAN



D APA PORTAL–FRAME w/ HOLD DOWNS
N.T.S.

SHEARWALL SCHEDULE:

SW-4 ——— INDICATES SHEARWALL w/ SHEATHING ONE SIDE

1. SHEATHING: 1/2" PLYWOOD or 7/16" O.S.B., ONE SIDE, BLOCKED, NAIL w/ 8d @ 4"o.c. ALL EDGES & 6"o.c. FIELD.
2. BOLT SILL PLATE TO CONCRETE w/ 5/8 ø x 10" ANCHOR BOLTS @ 32"o.c.
3. NAIL BOTTOM PLATE TO FRAMING BELOW w/ 16d @ 3"o.c.
4. FASTEN DOUBLE TOP PLATE TO JOIST or BLOCKING ABOVE PER DETAILS AS PROVIDED.

SW-3 ——— INDICATES SHEARWALL w/ SHEATHING ONE SIDE

1. SHEATHING: 1/2" PLYWOOD or 7/16" O.S.B., ONE SIDE, BLOCKED, NAIL w/ 8d @ 3"o.c. ALL EDGES & 6"o.c. FIELD.
   a. BOLT (3)2x SILL PLATE TO CONCRETE w/ 5/8 ø x 12" ANCHOR BOLTS @ 16"o.c. PER DETAIL D/S1
   b. BOLT (2)2x SILL PLATE TO CONCRETE w/ 5/8 ø x 12" ANCHOR BOLTS @ 16"o.c.
2. NAIL BOTTOM PLATE TO FRAMING BELOW w/ 16d @ 4"o.c.
3. FASTEN DOUBLE TOP PLATE TO JOIST or BLOCKING ABOVE PER DETAILS AS PROVIDED.
4. USE 3x OR (2)2x @ ALL FRAMING MEMBERS RECEIVING END NAILING FROM ABUTTING PANELS.

(2)SW-3 ——— INDICATES SHEARWALL w/ SHEATHING TWO SIDES

1. SHEATHING: 1/2" PLYWOOD or 7/16" O.S.B., TWO SIDES, BLOCKED, NAIL w/ 8d @ 3"o.c. ALL EDGES & 6"o.c. FIELD.
2. BOLT 3x SILL PLATE TO CONCRETE w/ 5/8 ø x 12" ANCHOR BOLTS @ 16"o.c.
3. FASTEN DOUBLE BOTTOM PLATE TO DOUBLE JOIST or BLOCKING BELOW w/ 2–ROWS & 2–LAYERS 16d @ 4"o.c. or 2–ROWS A35 CLIPS @ 16"o.c.
4. FASTEN DOUBLE TOP PLATE TO DOUBLE JOIST or BLOCKING ABOVE w/ 2–ROWS & 2–LAYERS 16d TOE NAILS @ 4"o.c. & 2–ROWS A35 CLIPS @ 16"o.c. or PER DETAILS AS PROVIDED.
5. USE 3x or DBL. STUDS @ ALL FRAMING MEMBERS RECEIVING END NAILING FROM ABUTTING PANELS.

TYPICAL ROOF SHEATHING:

7/16" O.S.B., INDEX 40/20, UNBLOCKED, w/ FACE GRAIN PERPENDICULAR TO FRAMING BELOW. NAIL AS FOLLOWS:

DIAPHRAGM BOUNDARY, OVER EXTERIOR WALLS, SHEAR WALLS, & DRAG STRUTS:	8d @ 6"o.c.
ALL SUPPORTED EDGES:	8d @ 6"o.c.
FIELD:	8d @ 6"o.c.

TYPICAL FLOOR SHEATHING:

3/4" T&G O.S.B., INDEX 40/20, UNBLOCKED, LAID UP w/ FACE GRAIN PERPENDICULAR TO FRAMING BELOW, STAGGER END JOINTS, GLUE & NAIL AS FOLLOWS:

DIAPHRAGM BOUNDARY, OVER EXTERIOR WALLS, SHEAR WALLS, & DRAG STRUTS:	8d @ 6"o.c.
ALL SUPPORTED EDGES:	8d @ 6"o.c.
FIELD:	8d @ 6"o.c.

NOTES:

1. USE 3"x3"x1/4" PLATE WASHERS ON ALL ANCHOR BOLTS.
2. THE PLATE WASHER SHALL EXTEND TO WITHIN 1/2" OF THE EDGE OF THE BOTTOM PLATE ON THE SIDE(S) w/SHEATHING PER NDS 2021 EDITION (SDPWS) 4.3.6.4.3.
3. 5/8"ø EXPANSION BOLTS MAY BE USED IN LIEU OF ANCHOR BOLTS w/ SAME SPACING & 4–1/2"min. EMBEDMENT.
4. ALL POWDER DRIVEN NAILS SHALL BE 2 3/4" LONG(min.) x 0.156 SHANK ø. w/ MINIMUM 1–1/4" PENETRATION.
5. USE 20d NAILS @ 3x FRAMING MEMBERS.
6. a. 8d NAILS SHALL BE .131 x 2–1/2" LONG
   b. 10d NAILS SHALL BE .148 x 3" LONG
   c. 16d NAILS SHALL BE .162 x 3–1/2" LONG
   d. 20d NAILS SHALL BE .192 x 4" LONG

HANGER SCHEDULE (U.N.O.)			
BEAM (*USE NOTED BM. WIDTH & DEPTH FOR HANGER SIZE)	* SIMPSON HANGER	BEAM	* SIMPSON HANGER
3 1/2" x	HGUS	6 3/4" x	HHQU
5 1/4" x	HGUS	7" x	HGUS
5 1/2" x	HHGU		

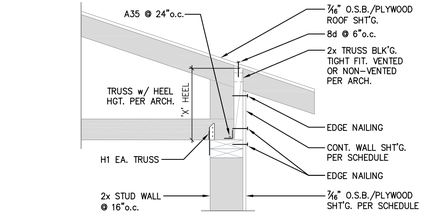
SPECIAL INSPECTION PROGRAM

ESTABLISHED PER CHAPTER 17 OF THE 2021 IBC, UNLESS NOTED OTHERWISE
ALL SPECIAL INSPECTIONS SHALL BE CONTINUOUS, UNLESS NOTED OTHERWISE

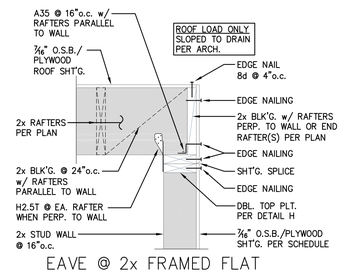
TYPES OF WORK	PERIODIC	CONTINUOUS	COMMENTS
SOILS:			REF. PROJECT SPECIFICATIONS
GRADING, EXCAVATION, & FILL			REF. PROJECT SPECIFICATIONS
DRILLED PIERS / PIN PILES			
CONCRETE:			
PLACEMENT OF REINFORCING STEEL			
BOLTS CAST IN CONCRETE			
PLACING OF CONCRETE > 2,500 psi			
SPECIAL CASES:			
SHEAR WALL NAILING			
WOOD DIAPHRAGMS			
ADHESIVE ANCHOR INSTALLATION		X	PER ICC–ES EVALUATION REPORT
EXPANSION BOLT INSTALLATION			PER ICC–ES EVALUATION REPORT
HOLD DOWNS & STRAPS			PER FOOTNOTE #5

SPECIAL INSPECTION PROGRAM FOOTNOTES:

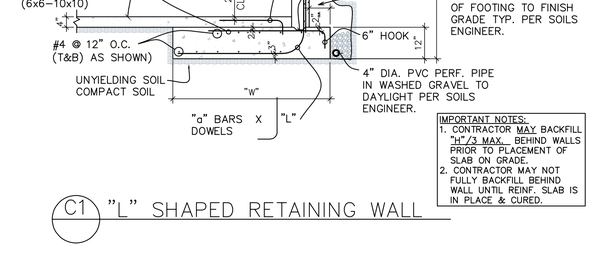
1. THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.
2. SPECIAL INSPECTOR SHALL BE HIRED BY THE PROJECT OWNER.
3. DUTIES OF THE SPECIAL INSPECTOR INCLUDE, BUT ARE NOT LIMITED TO:
   A. ACKNOWLEDGE THE SPECIAL INSPECTION PROGRAM & THE SPECIAL INSPECTION AND TESTING AGREEMENT, PROVIDED BY LOCAL JURISDICTION.
   B. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK FOR CONFORMANCE WITH THE APPROVED PERMIT PLANS & SPECIFICATIONS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED, TO THE ENGINEER & TO THE BUILDING OFFICIAL.
   C. FOR EACH INSPECTION, THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, ARCHITECT, ENGINEER, CONTRACTOR, & OTHER DESIGNATED PARITIES IN A TIMELY MANNER.
   D. THE SPECIAL INSPECTOR SHALL FURNISH A FINAL REPORT STATING WHETHER THE WORK REQUIRING SPECIAL INSPECTION WAS INSPECTED, & WHETHER SAID WORK WAS IN CONFORMANCE WITH THE APPROVED PERMIT PLANS & SPECIFICATIONS, & THE APPLICABLE WORKMANSHIP PROVISIONS OF THE STATE OF WASHINGTON.
4. DUTIES OF THE CONTRACTOR INCLUDE, BUT ARE NOT LIMITED TO:
   A. NOTIFY THE SPECIAL INSPECTOR AT LEAST 24 HOURS IN ADVANCE THAT THE WORK TO BE INSPECTED IS READY FOR SUCH INSPECTION.
   B. ENSURE THAT ALL WORK REQUIRING SPECIAL INSPECTION REMAINS ACCESSIBLE & EXPOSED UNTIL IT HAS BEEN OBSERVED & INDICATED TO BE IN CONFORMANCE BY THE SPECIAL INSPECTOR, & APPROVED BY THE BUILDING OFFICIAL.
   C. PROVIDE THE SPECIAL INSPECTOR WITH ACCESS TO APPROVED PERMIT PLANS & SPECIFICATIONS AT THE JOBSITE.
   D. MAINTAIN AT THE JOBSITE COPIES OF ALL REPORTS SUBMITTED BY THE SPECIAL INSPECTOR.
5. ALL SPECIAL REQUIREMENTS FOR SEISMIC & WIND RESISTING SYSTEMS AS REQUIRED BY IBC SECTION 1704.3.2 & 1704.3.3.



Fb EAVE @ ROOF (TRUSS w/ RAISED HEEL)
1"=1'-0"



F4 EAVE @ 2x FRAMED FLAT ROOF w/ NO OVERHANG
1"=1'-0"



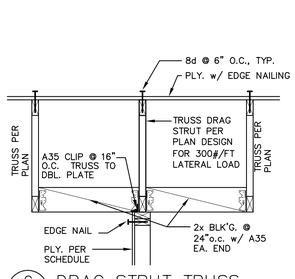
IMPORTANT NOTES:
1. CONTRACTOR MAY BACKFILL "H"/3 MAX. BEHIND WALLS PRIOR TO PLACEMENT OF SLAB ON GRADE.
2. CONTRACTOR MAY NOT FULLY BACKFILL BEHIND WALL UNTIL REINF. SLAB IS IN PLACE & CURED.

C1 "L" SHAPED RETAINING WALL

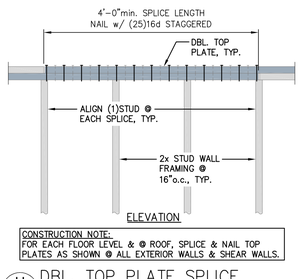
RETAINING WALL NOTES:
1. 1,500 PSF SOIL BEARING, 0.4 CO. OF FRICTION (ASSUMED)
2. 35 PCF EQUIV. FLUID PRESSURE, 250 PCF PASSIVE PRESSURE. (ASSUMED)
3. 2,500 PSI CONCRETE.
4. GRADE 40 OR 60 REINF.
5. CONTRACTOR SHALL VERIFY ALL EXISTING & FINISH GRADES PRIOR TO CONSTRUCTION.
6. REINFORCING SHALL BE INSPECTED PRIOR TO POURING CONCRETE.
7. BUILDING INSPECTOR/SOILS ENGINEER TO INSPECT & APPROVE SOILS BELOW FOOTING PRIOR TO CONSTRUCTION OF FOOTINGS.
8. THIS DESIGN SHALL NOT BE CONSTRUCTED ON SILT OR CLAY BEARING SOILS, OR WITH SILT OR CLAY BACKFILL BEHIND WALLS.
9. CONTRACTOR SHALL COMPLY WITH ALL O.S.H.A. & W.I.S.H.A. HEALTH & SAFETY STANDARDS.
10. BACKFILL SHOULD BE PLACED WITH EXTREME CARE TO AVOID EXCESSIVE HORIZONTAL LOADS ON THE WALL. THIS REQUIREMENT SHOULD TAKE PRECEDENCE OVER COMPLETE ADHERENCE TO THE COMPACTION CRITERIA.

RETAINING WALL SCHEDULE

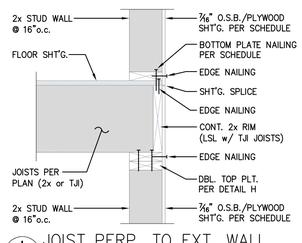
"H" MAX./FT.	"W"	"a"	"b"	"c"	"L"	"t"	"X"
5'	2'-0"	#4@9"	4@9"	#4@9"	3'-6"	8"	6"
6'	2'-6"	#4@9"	4@9"	#4@9"	3'-9"	8"	6"
7'	3'-0"	#4@8"	#4@8"	#4@8"	4'-0"	8"	8"
8'	3'-6"	#4@8"	#4@8"	#4@8"	4'-3"	8"	8"
9'	4'-0"	#5@12"	#5@12"	#5@12"	4'-6"	8"	8"
10'	4'-6"	#5@12"	#5@12"	#5@12"	4'-9"	8"	8"
11'	5'-0"	#5@10"	#5@10"	#5@10"	5'-0"	10"	10"
12'	5'-6"	#5@10"	#5@10"	#5@10"	5'-3"	10"	10"
13'	6'-0"	#5@6"	#5@6"	#5@6"	5'-3"	10"	10"



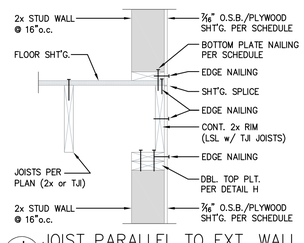
G DRAG STRUT TRUSS
3/4"=1'-0"



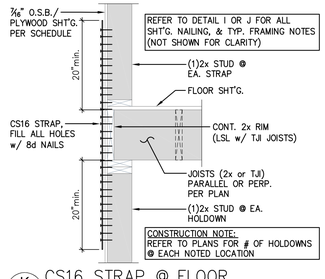
H DBL. TOP PLATE SPLICE
3/4"=1'-0"



I JOIST PERP. TO EXT. WALL
1"=1'-0"



J JOIST PARALLEL TO EXT. WALL
1"=1'-0"



K CS16 STRAP @ FLOOR
3/4"=1'-0"

RB ENGINEERS, INC.
12733 Holmes Point Dr. NE, Kirkland, WA 98034
Tel: (425) 822-3009, Fax: (425) 822-2679
Email: RBE1992@ GMAIL.COM
R-B-Engineers.com

Shearwall Schedule & Structural Details
Artoush Co. & Remodeling LLC SFR
3427 72nd Pl SE, Mercer Island, WA 98040

Jim Taherzadeh — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER
EXPIRES FEB 2027

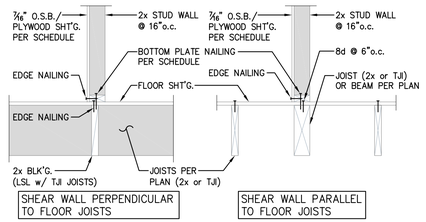
Project: 3427 72nd Pl SE, Mercer Island, 98040
Project No.: .
Drawn By: JT
Date: 9.19.2025
Rev.:

Sheet: S1

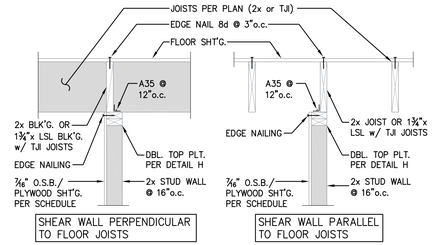
18"x16" PLOT = 1/2 SCALE

R-B-Engineers.com

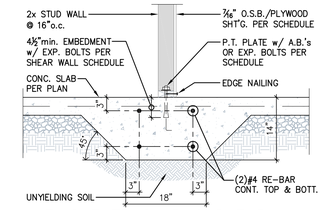
R-B-Engineers.com



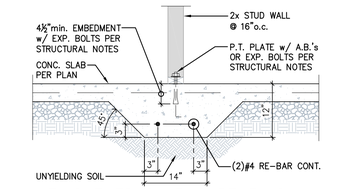
L INTERIOR SHEAR WALL TO FLOOR BELOW
3/4"=1'-0"



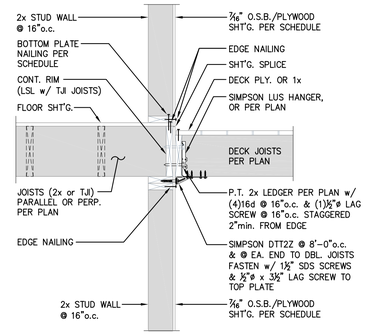
M INTERIOR SHEAR WALL TO FLOOR BELOW
3/4"=1'-0"



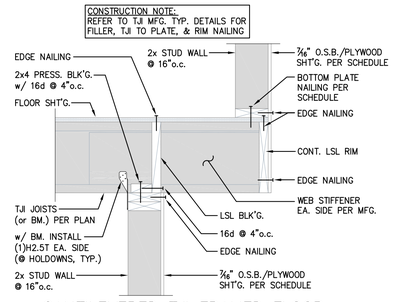
N THICKENED SLAB @ SHEAR WALL
3/4"=1'-0"



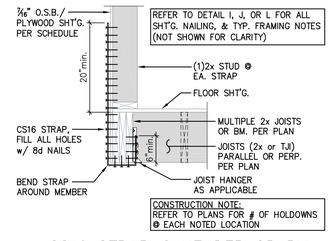
N1 THICKENED SLAB @ BEARING WALL
3/4"=1'-0"



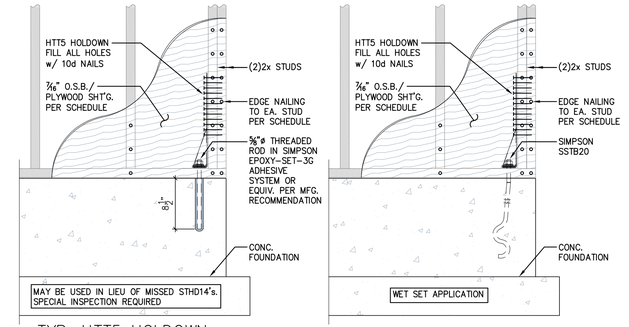
U DECK LEDGER
3/4"=1'-0"



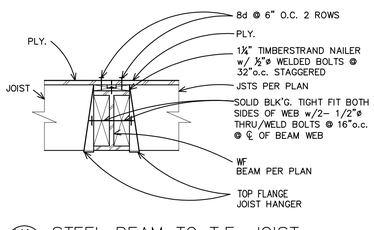
O1 CANTILEVERED TJI FRAMED FLOOR
1"=1'-0"



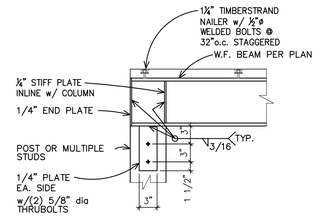
P CS16 STRAP @ HEADER OR BM.
3/4"=1'-0"



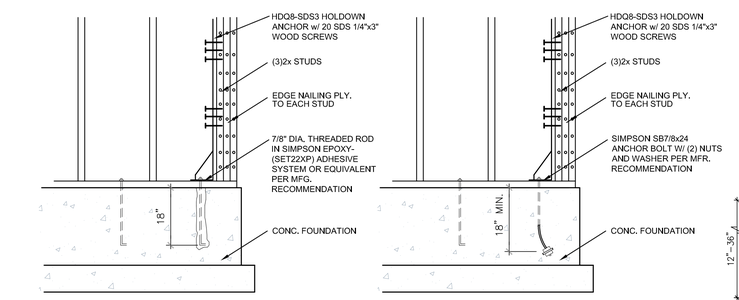
R TYP. HTT5 HOLDOWN
1"=1'-0"



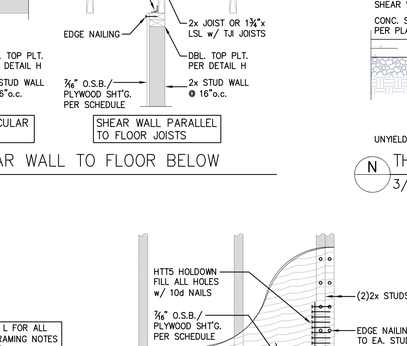
X1 STEEL BEAM TO T.F. JOIST
1"=1'-0"



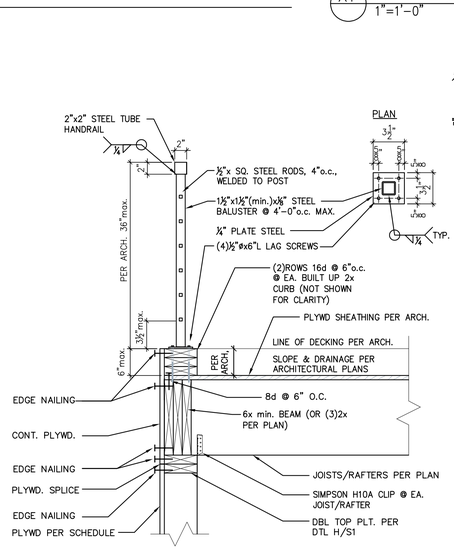
X2 STEEL BEAM DETAIL
1"=1'-0"



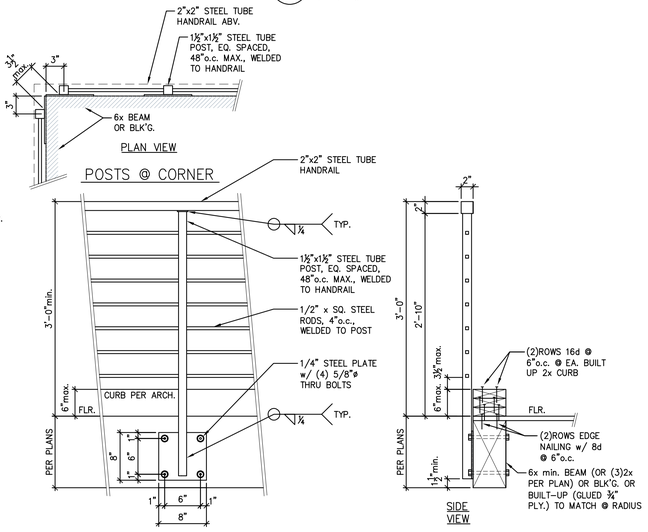
R1 TYP. HDQ8 HOLDOWN
3/4"=1'-0"

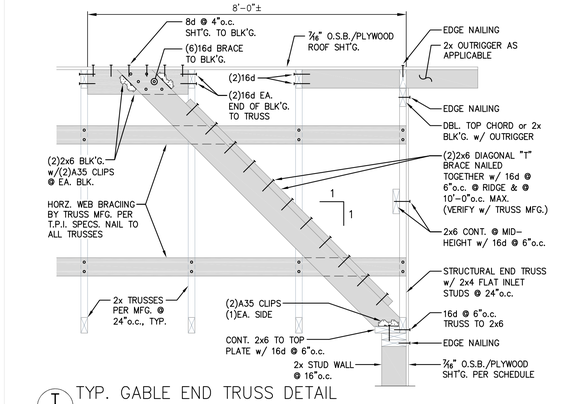


X3b PARAPET RAILING (TRUSSES PARALLEL)
3/4"=1'-0"

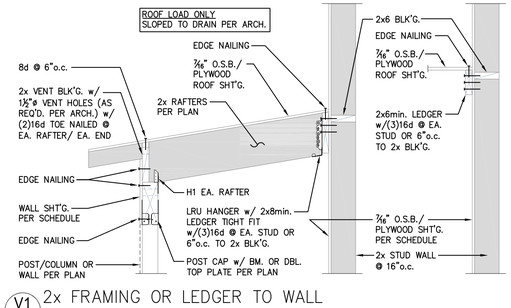


X4 TOP MOUNT RAILING @ 2x CURB
1"=1'-0"

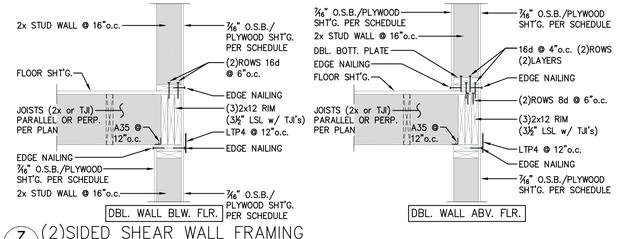




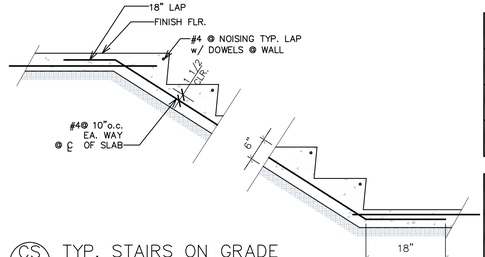
T TYP. GABLE END TRUSS DETAIL
3/4"=1'-0"



V1 2x FRAMING OR LEDGER TO WALL
3/4"=1'-0"



Z (2)SIDED SHEAR WALL FRAMING
3/4"=1'-0"



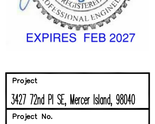
CS TYP. STAIRS ON GRADE
3/4"=1'-0"

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Structural Details

Artoush Co. & Remodeling LLC SFR

3427 72nd Pl SE, Mercer Island, WA 98040



EXPIRES FEB 2027

Project	3427 72nd Pl SE, Mercer Island, 98040
Project No.	.
Drawn By	2521
Date	9.19.2025
Rev.	

Sheet

S2

12"x18" PLOT = 1/2 SCALE

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GENERAL STRUCTURAL NOTES

(The following applies unless specifically indicated otherwise on the plans.)

1. ALL MATERIALS & WORKMANSHIP, DESIGN, & CONSTRUCTION SHALL CONFIRM TO THE REQUIREMENTS OF THE DRAWING SPECIFICATIONS, THE INTERNATIONAL BUILDING CODE, 2021 EDITION.

2. DESIGN CRITERIA

ROOF LIVE LOAD (SNOW)	25 psf
PHOTOVOLTAIC PANEL SYSTEM	4 psf or 175 lb CONCENTRATED LOAD
SPRINKLERS	1.5 psf (IF APPLICABLE)
FLOOR LIVE LOAD (RESIDENTIAL)	40 psf
FLOOR LIVE LOAD (DECK)	60 psf (1.5x AREA SERVED)
HANDRAILS & GUARDS	RAIL LINE LOAD: 50 psf RAIL CONCENTRATE LOAD: 200#
STAIR & CORRIDOR LIVE LOAD	100 psf
MECHANICAL UNITS	WEIGHTS AS FURNISHED BY MFG.
WIND	100mph (BASIC WIND SPEED) EXPOSURE 'C' (RISK CATEGORY II) Kzt = 1.6
EARTHQUAKE	S_S=1.60 S_1=.57 (CLASS 'D') LIGHT FRAMED SHEAR WALL R=6.5
ALLOWABLE SOIL PRESSURE	1,500 psf. (NATURAL SOILS or COMPACTED)

SEE PLANS & COMPUTATIONS FOR ADDITIONAL LOADING CRITERIA PER I.B.C. SECTION 1605–1609.

3. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION w/ ARCHITECTURAL DRAWINGS FOR BIDDING CONSTRUCTION. CONTRACTOR SHALL VERIFY DIMENSIONS & CONDITIONS FOR COMPATIBILITY & SHALL NOTIFY THE ARCHITECT & STRUCTURAL ENGINEER, OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION TO ALLOW ARCHITECT & ENGINEER TO COMPLETE PROPER REVISIONS TO THE WORK.

4. DEMOLITION: CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS BEFORE COMMENCING ANY DEMOLITION. SHORING SHALL BE INSTALLED TO SUPPORT EXISTING CONSTRUCTION AS REQUIRED & IN A MANNER SUITABLE TO THE WORK SEQUENCES. DEMOLITION DEBRIS SHALL NOT BE ALLOWED TO DAMAGE OR OVERLOAD THE EXISTING STRUCTURE. LIMIT CONSTRUCTION LOADING (INCLUDING DEMOLITION DEBRIS) ON EXISTING FLOOR SYSTEMS TO 40 psf.

   CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS, MEMBER SIZES, & CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING (e) CONSTRUCTION SHOWN ON THE DRAWINGS ARE INTENDED AS GUIDELINES ONLY & MUST BE FIELD VERIFIED.

5. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING & SHORING FOR THE STRUCTURE & STRUCTURAL COMPONENTS UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.

6. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED SAFETY PRECAUTIONS & THE METHODS, TECHNIQUES, SEQUENCES & PROCEDURES REQUIRED TO PERFORM HIS WORK.

7. CONTRACTOR–INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ARCHITECT & THE STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. CHANGES SHOWN ON SHOP DRAWINGS ONLY WILL NOT SATISFY THIS REQUIREMENT.

8. DRAWINGS INDICATE GENERAL & TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO REVIEW & APPROVAL BY THE ARCHITECT & STRUCTURAL ENGINEER.

9. ALL STRUCTURAL SYSTEMS WHICH ARE TO BE COMPOSED OF COMPONENTS TO BE FIELD ERECTED, SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE & ERECTION IN ACCORDANCE WITH INSTRUCTIONS PREPARED BY THE SUPPLIER.

10. SHOP DRAWINGS FOR STRUCTURAL STEEL, GLUED LAMINATED MEMBERS, OPEN WEB WOOD TRUSSES, & PLYWOOD WEB JOISTS SHALL BE SUBMITTED TO THE ARCHITECT & STRUCTURAL ENGINEER FOR REVIEW TWO WEEKS PRIOR TO FABRICATION OF THESE ITEMS.

11. SHOP DRAWINGS REVIEW: DIMENSIONS & QUANTITIES ARE NOT REVIEWED BY THE ENGINEER OF RECORD, & THEREFORE MUST BE VERIFIED BY THE CONTRACTOR. CONTRACTOR SHALL REVIEW & STAMP DRAWINGS PRIOR TO REVIEW BY ENGINEER OF RECORD.
    SUBMISSIONS SHALL INCLUDE A REPRODUCIBLE & ONE COPY; REPRODUCIBLE WILL BE MARKED & RETURNED.

   SHOP DRAWINGS SUBMITTALS PROCESSED BY THE ENGINEER ARE NOT CHANGE ORDERS. THE PURPOSE OF SHOP DRAWING SUBMITTALS BY THE CONTRACTOR IS TO DEMONSTRATE TO THE ENGINEER THAT THE CONTRACTOR UNDERSTANDS THE DESIGN CONCEPT, THAT HE DEMONSTRATES HIS UNDERSTANDING BY INDICATING WHICH MATERIAL HE INTENDS TO FURNISH & INSTALL & BY DETAILING THE FABRICATION & INSTALLATION METHODS HE INTENDS TO USE. IF DEVIATIONS, DISCREPANCIES, OR CONFLICTS BETWEEN SHOP DRAWING SUBMITTALS & THE CONTRACT DOCUMENTS ARE DISCOVERED EITHER PRIOR TO OR AFTER SHOP DRAWING SUBMITTALS ARE PROCESSED BY THE ENGINEER, THE DESIGN DRAWINGS & SPECIFICATIONS SHALL CONTROL & SHALL BE FOLLOWED.

GEOTECHNICAL

12. FOUNDATION NOTES:
    SUB–GRADE PREPARATION INCLUDING DRAINAGE, EXCAVATION, COMPACTION, & FILLING REQUIREMENTS, SHALL CONFORM STRICTLY WITH RECOMMENDATIONS GIVEN IN THE SOILS REPORT AS APPLICABLE. FOOTINGS SHALL BEAR ON SOLID UNDISTURBED EARTH (CONTROLLED, COMPACTED STRUCTURAL FILL or BOTH) AT LEAST 18" BELOW LOWEST ADJACENT FINISHED GRADE.
    FOOTING DEPTHS/ELEVATIONS SHOWN ON PLANS (or IN DETAILS) ARE MINIMUM & FOR GUIDANCE ONLY; THE ACTUAL ELEVATIONS OF FOOTINGS MUST BE ESTABLISHED BY THE CONTRACTOR IN THE FIELD WORKING WITH THE TESTING LAB & SOILS ENGINEER AS APPLICABLE. BACKFILL BEHIND ALL RETAINING WALLS WITH FREE DRAINING GRANULAR FILL & PROVIDE FOR SUBSURFACE DRAINAGE.

    STRUCTURAL FILL:
    AS APPLICABLE PER SITE CONDITIONS OR AS DIRECTED BY THE SOILS ENGINEER. FOLLOW ALL RECOMMENDATIONS & SPECIFICATIONS AS GIVEN PER THE SOILS REPORT.

CONCRETE

13. CONCRETE SHALL ATTAIN A 28 DAY STRENGTH OF f'c= 2,500 psi & MIX SHALL CONTAIN NOT LESS THAN 5 1/2 SACKS OF CEMENT PER CUBIC YARD & NO MORE THAN 6 GALLONS OF WATER PER SACK OF CEMENT.

    ALL CONCRETE EXPOSED TO WEATHER SHALL BE AIR–ENTRAINED WITH AN AIR–ENTRAINING AGENT CONFORMING TO I.B.C. THE AMOUNT SHALL BE 4% + 1% BY VOLUME. f'c = 3,000 psi.

14. REINFORCING STEEL SHALL CONFORM TO ASTM A615, (INCLUDING SUPPLEMENT S1) GRADE 60, fy = 60,000 psi. EXCEPTION: COLUMN TIES, BEAM STIRRUPS, BARS TO BE FIELD BENT, BARS TO BE WELDED & ANY OTHER BARS SPECIFICALLY SO NOTED ON THE DRAWINGS SHALL BE GRADE 40, fy = 40,000 psi REINFORCING COMPLYING WITH ASTM A706 (S1) MAY BE WELDED ONLY IF MATERIAL PROPERTY REPORTS INDICATING CONFORMANCE WITH WELDING PROCEDURES SPECIFIED IN A.W.S. D1.4 ARE SUBMITTED. NO REINFORCING SHALL BE WET–SET UNLESS SPECIFICALLY SO DETAILED.

    WELDED WIRE MESH SHALL CONFORM TO ASTM A–185.

15. REINFORCING STEEL SHALL BE DETAILED (INCLUDING HOOKS & BENDS) IN ACCORDANCE WITH ACI 318–19. LAP ALL CONTINUOUS REINFORCEMENT 58 BAR DIAMETERS (2'–6" min.). PROVIDE CORNER BARS AT ALL WALL INTERSECTIONS. LAP CORNER BARS 30 BAR DIAMETERS (2'–6" min.). LAP ADJACENT MATS OF WELDED WIRE FABRIC TWO SQUARES (min. OF 12") AT SIDES & ENDS.

    NO BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL BE FIELD BENT UNLESS SPECIFICALLY SO DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER.

16. CONCRETE PROTECTION (COVER) FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

FOOTINGS & OTHER UNFORMED SURFACES, EARTH FACE	3"
FORMED SURFACES EXPOSED TO EARTH (i.e. WALLS BELOW GROUND) OR WEATHER	
#6 BARS OR LARGER	2"
#5 BARS OR SMALLER	1 1/2"
COLUMN TIES OR SPIRAL & BEAM STIRRUPS	1 1/2"
SLABS & WALLS (INTERIOR FACE)	3/4"

    CAST–IN–PLACE CONCRETE:
    SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS & DIMENSIONS OF DOOR & WINDOW OPENINGS IN ALL CONCRETE WALLS. SEE MECHANICAL DRAWINGS FOR SIZE & LOCATION OF MISCELLANEOUS MECHANICAL OPENINGS THROUGH CONCRETE WALLS. SEE ARCHITECTURAL DRAWINGS FOR ALL GROOVES, NOTCHES, CHAMFERS, FEATURE STRIPS, COLOR, TEXTURE, & OTHER FINISH DETAILS AT ALL EXPOSED CONCRETE SURFACES, BOTH CAST–IN–PLACE & PRECAST.

17. NON–SHRINK GROUT (3,000psi MINIMUM STRENGTH) SHALL BE FURNISHED BY AN APPROVED MANUFACTURER & SHALL BE MIXED & PLACED IN STRICT ACCORDANCE WITH THE MANUFACTURE'S PUBLISHED RECOMMENDATIONS.

STEEL

18. REFERENCE SPECIFICATIONS

STRUCTURAL STEEL	AISC 360 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS"
HIGH STRENGTH BOLTS	SPECIFICATIONS FOR STRUCTURAL JOINT USING HIGH–STRENGTH
WELDING	AWS D1.1 TYPICAL AWS D1.3 FOR STEEL DECK AND COLD–FORMED FRAMING AWS D1.8 SUPPLEMENTAL SEISMIC PROVISIONS
WELDER CERTIFICATION	AMERICAL WEILDING SOCIETY (AWS) WASHINGTON ASSICIATION OF BUILDING OFFICIALS (WABO)
STEEL DECKING	ANSI/SDI C "STANDARD FOR COMPOSITE STEEL FLOOR DECK SLAB". ANSI/ SDI RD "STANDARD FOR STEEL ROOF DECKS". AISI S100 WITH S2 NOTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD–FORMED STEEL STRUCTURAL MEMBERS WITH SUPPLEMENT 2.

19. STRUCTURAL WIDE FLANGE SHAPES& CHANNELS SHALL CONFORM TO — ASTM A992, Fy = 50 ks
    OTHER STRUCTURAL STEEL INCLUDING PLATES& BARS SHALL CONFORM TO — ASTM A36, Fy = 36 ksi or ASTM A572 GR. 50
    ANGLES (L) SHALL CONFORM TO — ASTM A572 GR. 50
    STRUCTURAL TUBES HSS SHALL CONFORM TO — ASTM A500 GR. C
    STEEL PIPE SHALL CONFORM TO — ASTM A53 GR. B
    STRUCTURAL TUBING SHALL CONFORM TO — ASTM A500, Fy = 46 ksm
    STRUCTURAL BOLTS SHALL CONFORM TO — ASTM F3125 GR. A325
    ANCHOR RODS SHALL CONFORM TO — ASTM F1554 GR. 36 (U.N.O.)
    THREADED RODS SHALL CONFORM TO — ASTM A36 (U.N.O.)
    WELDING ELECTRODES ARE 70 KSI, LOW HYDROGEN FOR TYPICAL, AND 60 KSI,MINIMUM FOR STEEL DECKS

STEEL FABRICATION

GENERAL:
ALL WELDING IS REQUIRED TO BE DONE BY A WABO CERTIFIED WELDER & HAVE SPECIAL INSPECTIONS BY WABO CERTIFIED INSPECTION AGENCY, OR BE DONE IN A WABO CERTIFIED FABRICATION SHOP.
HAVE EITHER THE SPECIAL INSPECTION REPORT OR WABO FABRICATION SHOP CERTIFICATION AVAILABLE ON SITE FOR THE BUILDING INSPECTOR.

20. STRUCTURAL STEEL DESIGN, FABRICATION, AND ERECTION SHALL CONFORM TO THE REQUIREMENTS OF IBC CHAPTER 22. ALL MEMBERS ARE TO BE ERECTED WITH NATURAL CAMBER OR INDUCED CAMBER UP UNLESS OTHERWISE NOTED ON THE PLANS. SUBSTITUTION OF MEMBER SIZES OR STEEL GRADE WILL NOT BE ALLOWED WITHOUT PRIOR APPROVAL BY THE ARCHITECT, DESIGNER, OR RECORD ENGINEER. A MINIMUM OF TWO BOLTS IS REQUIRED FOR ALL BEAM CONNECTIONS. ALTERNATIVE CONNECTIONS TO THOSE SHOWN ON THESE DRAWINGS WILL REQUIRE PRIOR APPROVAL BY THE ARCHITECT OR DESIGNER AND ENGINEER OF THE RECORD.

21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ERECTION AIDS AND JOINT PREPARATIONS, INCLUDING, BUT NOT LIMITED TO, ERECTION ANGLES, LIFT HOLDS, AND OTHER AIDS, REQUIRED WELDING PROCEDURES, ROOT OPENINGS, ROOT FACE DIMENSIONS, GROOVE ANGLES, BACKING BARS, COPES, SURFACES, ROUGHNESS VALUES, AND UNIQUE PARTS..

22. FABRICATION:
    1) CONFORM TO AISC 303, SECTION 6 & AISC 360 SECTION M2.

23. VERIFICATION INSPECTION:
    1) STRUCTURAL WELDING INSPECTIONS & QUALIFICATIONS SHALL CONFIRM TO THE AWS D1.1. SEE WELDING NOTES & SPECIAL INSPECTIONS FOR STRUCTURAL STEEL.
    2) SPECIAL INSPECTOR SHALL REVIEW THE PROCEDURES FOR COMPLETENESS & ADEQUACY RELATIVE TO THE CODE & THE WORK. FURTHER SHOP SPECIAL INSPECTIONS MAY BE WAIVED IF THE FABRICATOR IS "AISC CERTIFIED" OR OTHERWISE "APPROVED" BY THE AUTHORITY HAVING JURISDICTION PER IBC SECTION 1704.2.2 SEE SPECIAL INSPECTIONS FOR STRUCTURAL STEEL.

24. ERECTION:
    CONFIRM TO AISC 303, SECTION 7 "ERECTION", SECTION 8 "QUALITY ASSURANCE." & AISC 360, SECTION M4.

25. BRACING & SAFETY PROTECTION:
    THE CONTRACTOR SHALL PROVIDE TEMPORARY BRACING & SAFETY PROTECTION REQUIRED BY AISC 360 SECTION M4.2 & AISC 303 SECTION 7010 & 7.11.

26. PROTECTIVE COATING REQUIREMENTS:
    1) SHOP PAINTING: CONFIRM TO AISC 360 SECTION M3 & AISC 303 SECTION 6.4 UNLESS A MULTI–COAT SYSTEM IS REQUIRED PER THE PROJECT SPECIFICATIONS.

WOOD

27. FRAMING LUMBER SHALL BE KILN DRIED OR MC–15 (MC–192), & GRADED & MARKED IN CONFORMANCE WITH W.C.L.B. STANDARD GRADING RULES FOR WEST COAST LUMBER NO. 16 (172), LATEST EDITION. FURNISH TO THE FOLLOWING MINIMUM STANDARDS:

JOISTS (2x MEMBERS)	HEM–FIR #2
BEAMS & STRINGERS	DOUGLAS FIR #1
POSTS & TIMBERS	DOUGLAS FIR #1
STUDS, PLATES & MISC. LIGHT FRAMING	DOUGLAS FIR or HIM–FIR STAND. GRADE
TOP & BOTTOM PLATES @ BEARING & SHEAR WALLS	DOUGLAS FIR #2 or CONST. GRADE
BOLTED STUDS, LEDGERS & PLATES	HEM–FIR #2 or CONST. GRADE 2
2x6 STUDS	HEM–FIR #2 or HEM–FIR CONST. GRADE 2

28. GLUE–LAMINATED MEMBERS SHALL BEAR AN AITC IDENTIFICATION MARK & SHALL BE ACCOMPANIED BY AN AITC CERTIFICATION OF CONFORMANCE.
    ALL SIMPLE SPAN BEAMS SHALL BE DOUGLAS FIR COMBINATION 24F–V4, Fb= 2,400 psi, Fv = 240 psi.
    ALL CONT. & CANTILEVER BEAMS SHALL BE DOUGLAS FIR COMBINATION 24F–V8, Fb = 2,400 psi, Fv = 240 psi.

29. LAMINATED VENEER LUMBER SHALL BE FABRICATED IN CONFORMANCE WITH ICC–ES ESR–1387. EACH MEMBER SHALL BEAR AN IDENTIFICATION MARK.
    ALL BEAMS SHALL BE WESTERN SPECIES, GRADE 1.8E, Fb = 2,600 psi, Fv = 285 psi.

30. LAMINATED STRAND LUMBER (TIMBERSTRAND LSL) SHALL BE FABRICATED IN CONFORMANCE WITH CODE EVALUATION ICC ES ESR–1387. EACH MEMBER SHALL BEAR AN IDENTIFICATION MARK.
    ALL BEAMS SHALL BE WESTERN SPECIES, GRADE 1.55E, Fb = 2,325 psi, Fv = 310 psi.

31. PARALLEL STRAND LUMBER SHALL BE FABRICATED IN CONFORMANCE WITH ICC–ES ESR–1387. EACH MEMBER SHALL BEAR AN IDENTIFICATION MARK.
    ALL BEAMS SHALL BE DOUGLAS FIR, GRADE 2.0E, Fb = 2,900 psi, Fv = 290 psi

32. [DEFERRED SUBMITTAL:] PREFABRICATED OPEN WEB WOOD TRUSSES (or COMBINATION WOOD & METAL) SHALL BE DESIGNED BY THE MANUFACTURER FOR THE SPANS & CONDITIONS SHOWN ON THE PLANS & SHALL BE FURNISHED & INSTALLED IN CONFORMANCE WITH THE MANUFACTURER'S PUBLISHED SPECIFICATIONS. ALL NECESSARY BRACING, BRIDGING, BLOCKING, PRE–NOTCHED PLATES ETC., SHALL BE DETAILED & FURNISHED BY THE MANUFACTURER.

    SUBMIT SHOP DRAWINGS & DESIGN CALCULATIONS (COMPLETE WITH STRESS DIAGRAMS) TO THE ARCHITECT & THE STRUCTURAL ENGINEER FOR REVIEW TWO WEEKS PRIOR TO FABRICATION.

    DESIGN SUBMITTALS SHALL BEAR THE STAMP OF A REGISTERED PROFESSIONAL ENGINEER, STATE OF WASHINGTON.

    PERMANENT & TEMPORARY BRIDGING & BRACING SHALL BE INSTALLED IN CONFORMANCE WITH MANUFACTURER'S SPECIFICATIONS.

33. PLYWOOD SHEATHING SHALL BE GRADE C–D EXTERIOR GLUE or STRUCTURAL II, EXTERIOR GLUE ORIENTED STRAND BOARD OF EQUIVALENT THICKNESS, EXPOSURE 1 RATING & PANEL INDEX MAY BE USED IN LIEU OF PLYWOOD.
    SEE PLANS FOR THICKNESS, PANEL IDENTIFICATION INDEX & NAILING REQUIREMENTS.
    STRUCTURAL WOOD SHEATHING PANELS SHALL HAVE APA GRADE TRADEMARK OF THE AMERICAN PLYWOOD ASSOCIATION.

34. ALL WOOD PLATES & BLOCKING IN DIRECT CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE–TREATED WITH AN A.W.P.A. APPROVED PRESERVATIVE.
    PROVIDE 2–LAYERS OF ASPHALT IMPREGNATED BUILDING PAPER BETWEEN UNTREATED LEDGERS, BLOCKING, ETC., & CONCRETE OR MASONRY.

35. TIMBER CONNECTORS CALLED OUT BY LETTERS & NUMBERS SHALL BE BY SIMPSON COMPANY, AS SPECIFIED IN THEIR CATALOG. EQUIVALENT DEVICES BY OTHER MANUFACTURERS MAY BE SUBSTITUTED, PROVIDED THEY HAVE ICC APPROVAL FOR EQUAL or GREATER LOAD CAPACITIES. PROVIDE NUMBER & SIZE OF FASTENERS AS SPECIFIED BY MANUFACTURER. CONNECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
    WHERE CONNECTORS STRAPS CONNECT TWO MEMBERS, PLACE HALF OF THE NAILS or BOLTS IN EACH MEMBER.
    ALL BOLTS IN WOOD MEMBERS SHALL CONFORM TO ASTM A307. PROVIDE WASHERS UNDER THE HEADS & NUTS OF ALL BOLTS & LAG SCREWS BEARING ON WOOD UNLESS NOTED OTHERWISE.
    ALL NAILS SHALL BE COMMON.
    ALL SHIMS SHALL BE SEASONED & DRIED & THE SAME GRADE (MINIMUM) AS MEMBERS CONNECTED.
    ALL JOISTS SHALL BE CONNECTED TO FLUSH BEAMS WITH "U" SERIES HANGERS.
    ALL DOUBLE JOIST BEAMS SHALL BE CONNECTED TO FLUSH BEAMS WITH "U" SERIES HANGERS.
    ALL TRIPLE JOIST BEAMS SHALL BE CONNECTED TO FLUSH BEAMS WITH "U" SERIES HANGERS.
    TJI JOIST HANGERS PER MANUFACTURER TJI SHOP DRAWINGS (U.N.O.)

36. PROTECTION OF CONNECTORS IN CONTACT WITH PRESSURE TREATED WOOD ALL BOLTS, NAILS, JOIST HANGERS & ANY OTHER CONNECTORS SHALL BE HOT DIPPED GALVANIZED FASTENERS RECOMMENDED TO CONFORM WITH ASTM STANDARD A–153 & HOT DIPPED GALVANIZED CONNECTORS SHOULD CONFORM TO ASTM A165, CLASS G–183. STAINLESS STEEL FASTENERS & CONNECTORS SHOULD BE TYPE 304 OF 316 SIMPSON PRODUCT FINISHES CORRESPONDING TO THESE REQUIREMENTS ARE ZMAX 9158 (HOT DIPPED GALVANIZED) & SST3000 (STAINLESS STEEL).

37. ALL WOOD FRAMING DETAILS – THE FOLLOWING APPLY UNLESS OTHERWISE SHOWN ON THE PLANS.

A. MINIMUM NAILING REQUIREMENTS: UNLESS OTHERWISE NOTED, MINIMUM NAILING SHALL BE IN ACCORDANCE WITH TABLE 2304.10.1 OF THE INTERNATIONAL BUILDING CODE.

B. AT SAWN TIMBER JOIST AREAS: PROVIDE CROSS–BRIDGING @ 8'–0"o.c. max. SPACING & SOLID BLOCKING AT BEARING POINTS. PROVIDE DOUBLE JOISTS UNDER ALL PARTITIONS. PROVIDE DOUBLE JOISTS EACH SIDE OF OPENINGS UNLESS DETAILED OTHERWISE.

C. PROVIDE DOUBLE JOIST UNDER ALL PARALLEL PARTITIONS THAT EXTEND MORE THAN HALF THE JOIST LENGTH & DOUBLE JOIST HEADERS & DOUBLE JOISTS EACH SIDE OF ALL OPENINGS IN FLOORS & ROOFS UNLESS DETAILED OTHERWISE. COORDINATE SIZE & LOCATION OF ALL OPENINGS WITH ARCHITECTURAL & MECHANICAL DRAWINGS.

D. PROVIDE TWO 2x10 HEADERS OVER & DOUBLE STUDS EACH SIDE OF ALL OPENINGS IN STUD BEARING WALLS NOT DETAILED OTHERWISE.

E. PROVIDE SOLID BLOCKING FOR WOOD COLUMNS & MULTIPLE STUD POSTS THROUGH FLOORS TO SUPPORTS BELOW.

F. PROVIDE CONTINUOUS SOLID BLOCKING AT MID OF ALL STUDS OVER 10' IN HEIGHT.

G. TOENAIL JOISTS TO SUPPORTS WITH 2–16d NAILS. ATTACH ALL BEAMS AT THE ROOF EXCEEDING 8'–0" IN LENGTH TO SUPPORTS WITH ST22 STRAP EACH END.

H. ATTACH TIMBER JOISTS TO FLUSH HEADERS AND BEAMS WITH "U" SERIES METAL JOIST HANGERS TO SUIT THE JOIST SIZE.

I. WALL FRAMING ALL STUD WALL SHOWN & NOT OTHERWISE NOTED SHALL BE 2x4 STUDS @ 16"o.c. AT INTERIOR WALLS & 2x6 STUDS @ 16" o.c. AT EXTERIOR WALLS.

J. NOTATIONS ON DRAWINGS RELATING TO FRAMING CLIPS, JOIST HANGERS, & OTHER CONNECTING DEVICES REFER TO CATALOG NUMBERS OF CONNECTORS MANUFACTURED BY SIMPSON STRONG–TIE COMPANY OR EQUIVALENT DEVICES BY OTHER MANUFACTURES MAY BE SUBSTITUTED. PROVIDED THEY HAVE ICC–ES APPROVAL FOR EQUAL LOAD CAPACITIES.

K. INDIVIDUAL MEMBERS OF BUILT–UP POSTS & BEAMS SHALL EACH BE ATTACHED WITH 16d NAILS @ 6"o.c. STAGGERED.

L. ALL WOOD STUDS WALLS SHALL HAVE LOWER WOOD PLATE ATTACHED TO WOOD FRAMING BELOW WITH 16d NAILS @ 6" o.c. STAGGERED UNLESS SHOWN OTHERWISE.

M. ALL WOOD FRAMING DETAILS NOT SHOWN OTHERWISE SHALL BE CONSTRUCTED TO MINIMUM STANDARDS OF THE INTERNATIONAL BUILDING CODE.

N. PLYWOOD ROOF SHEATHING & FLOOR SHEATHING UNLESS OTHERWISE NOTED ON PLANS SHALL BE LAID UP WITH FACE GRAIN PERPENDICULAR TO SUPPORTS & NAILED WITH 8d NAILS @ 6" o.c. TO FRAMED PANEL EDGES & OVER STUD WALLS SHOWN ON PLANS & @ 12"o.c. (10"o.c. AT FLOORS TO INTERMEDIATE SUPPORTS. PROVIDE APPROVED EDGE CLIPS @ 16"o.c. AT UNBLOCKED ROOF SHEATHING EDGES.
    PROVIDE SOLD BLOCKING AT LINES OF SUPPORT AT FLOORS.
    TOENAIL BLOCKING TO SUPPORTS WITH 16d NAILS @ 12"o.c. UNLESS OTHERWISE NOTED IN THE SHEAR WALL SCHEDULE.

O. PLYWOOD WALL SHEATHING SHALL HAVE SOLID BLOCKING AT ALL EDGES.

P. ALL WOOD STUD WALLS SHALL HAVE LOWER WOOD PLATE ATTACHED TO WOOD FRAMING BELOW WITH 16d NAILS AT 6"o.c. STAGGERED or BOLTED TO CONCRETE WITH 5/8" DIA. ANCHOR BOLTS @ 4'–0"o.c. UNLESS SHOWN OTHERWISE.

Q. PLYWOOD NAILING: (USE UNLESS GREATER NAILING IS DETAILED OR SPECIFIED)

8d @ 6"o.c.	AT SHEET EDGES
8d @ 6"o.c.	AT INTERMEDIATE BEARING POINTS

R.
1. PROVIDE ABU POST BASE @ ISOLATED POSTS TO CONCRETE CONNECTION
2. PROVIDE (2)A35 CLIPS @ TOP & BOTTOM OF ALL POST TO OTHER FRAMING MEMBERS
3. PROVIDE AC or ACE POST CAP @ ISOLATED POSTS TO BEAM CONNECTIONS
4. PROVIDE MIN. (2)A35 CLIPS @ POST TO BEAM CONNECTION (U.N.O.)
5. PROVIDE (2)CS16 x 30" AT ALL CUT DOUBLE TOP PLATES, TYPICAL.

S. PROVIDE (2)CS16 x 36" AT ALL CUT DOUBLE TOP PLATE, TYP.

T. ANCHORAGE:
    EPOXY–GROUTED ITEMS (THREADED RODS OR REINFORCING BAR) SPECIFIED ON THE DRAWINGS SHALL BE INSTALLED USING "SET–XP" HIGH STRENGTH EPOXY AS MANUFACTURED BY THE SIMPSON STRONG–TIE COMPANY. INSTALL IN STRICT ACCORDANCE WITH ICC–ES REPORT NO. ESR–2508. MINIMUM BASE MATERIAL TEMPERATURE IS 50°F. RODS SHALL BE ASTM A–36 UNLESS OTHERWISE NOTED. PERIODIC SPECIAL INSPECTION OF INSTALLATION IS REQUIRED TO VERIFY ANCHOR OR EMBEDDED BAR TYPE & DIMENSIONS, LOCATION, ADHESIVE IDENTIFICATION & EXPIRATION, HOLE DIMENSIONS, HOLE CLEANING PROCEDURE, ANCHOR EMBEDMENT & ADHERENCE TO THE INSTALLATION INSTRUCTIONS. CONTINUOUS SPECIAL INSPECTION IS REQUIRED FOR HORIZONTAL & OVERHEAD INSTALLATIONS.

    EPOXY–GROUTED ITEMS (THREADED RODS OR REINFORCING BAR) SPECIFIED ON THE DRAWINGS SHALL BE INSTALLED USING "AT–XP" AS MANUFACTURED BY SIMPSON STRONG–TIE COMPANY. INSTALL IN STRICT ACCORDANCE WITH IAMPO REPORT NO. ER–0281. MINIMUM BASE MATERIAL TEMPERATURE IS 14°F. RODS SHALL BE ASTM A–36 UNLESS OTHERWISE NOTED. PERIODIC SPECIAL INSPECTION OF INSTALLATION IS REQUIRED TO VERIFY ANCHOR OR EMBEDDED BAR TYPE & DIMENSIONS, LOCATIONS, ADHESIVE IDENTIFICATIONS & EXPIRATION, HOLE DIMENSIONS, HOLE CLEANING PROCEDURE, ANCHOR EMBEDMENT, & ADHERENCE TO THE INSTALLATION INSTRUCTIONS. CONTINUOUS SPECIAL INSPECTION IS REQUIRED FOR HORIZONTAL & OVERHEAD INSTALLATIONS.

IBC2021

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General Structural Notes

Artoush Co. & Remodeling LLC SFR

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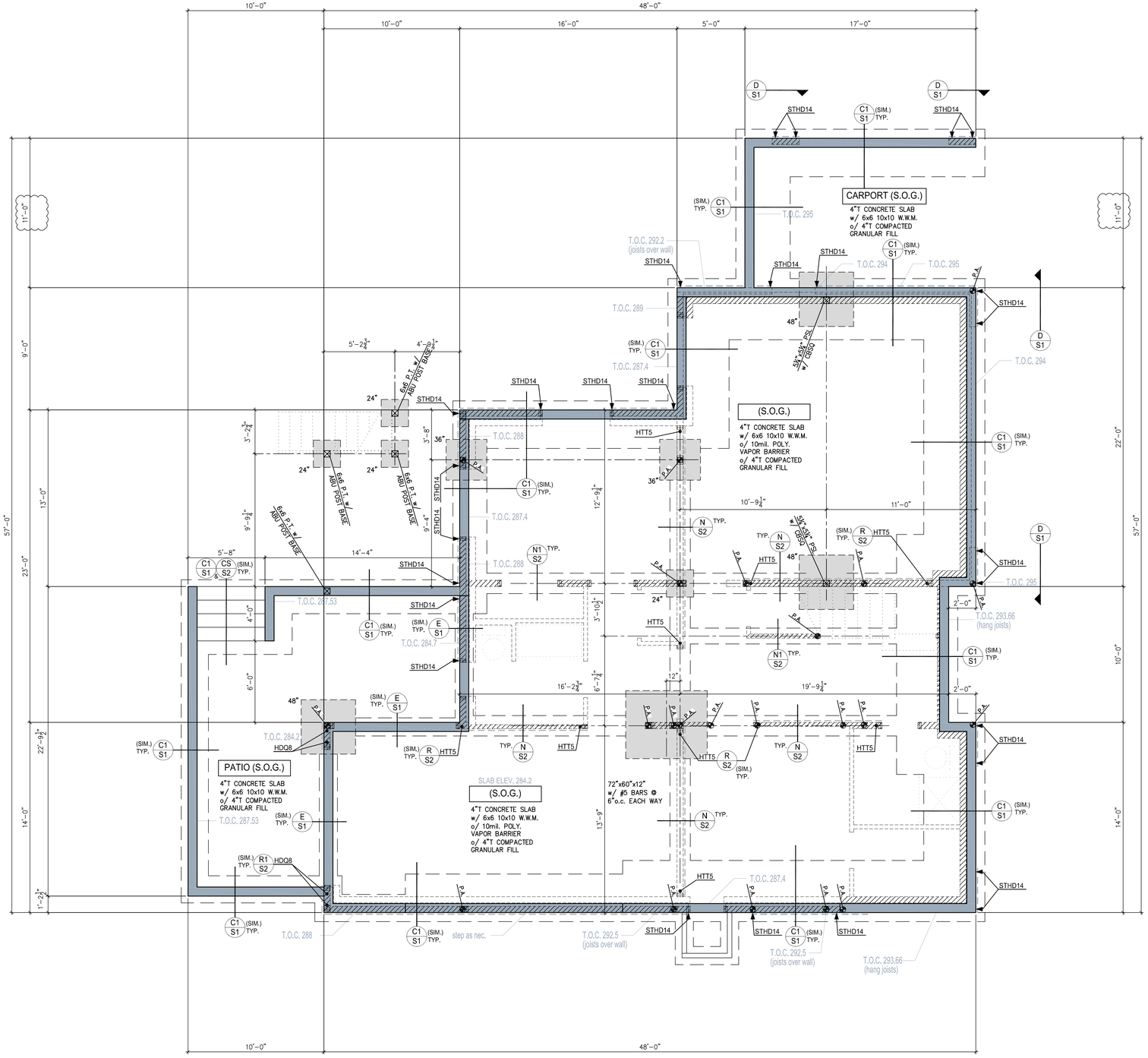
Jim Taherzadeh, STATE OF WASHINGTON, REGISTERED PROFESSIONAL ENGINEER
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Drawn By	
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S3

17"x11" PLOT = 1/2" SCALE

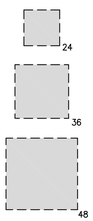
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IMPORTANT NOTES:
SEE ARCHITECTURAL PLANS FOR ALL DIMENSIONS & VERIFY WITH STRUCTURAL PLANS

SEE ARCHITECTURAL PLANS TO CONFIRM ALL ROOF SLOPES AND PLATE HEIGHTS.

FOOTING SCHEDULE



P.A. – DENOTES POINT LOAD FROM ABV.

– DENOTES BEARING WALL ABV. (EXTERIOR BEARING WALLS ASSUMED)

FOUNDATION CONSTRUCTION NOTES:
CONFIRM FOUNDATION TOP OF WALL STEPS & BOTTOM OF FOOTING STEPS PER ARCHITECTURAL (CONFIRM INDICATED NOTES)

PROVIDE CONTROL JOINTS @ ALL SLAB ON GRADE (S.O.G.) LOCATIONS. LAYOUT PER ARCHITECT or
4" THICK CONCRETE = 10'-0"max. EACH WAY
5" THICK CONCRETE = 15'-0"max. EACH WAY

ALL METAL HARDWARE USED IN CONJUNCTION w/ PRESS. TREATED WOOD SHALL BE SIMPSON Z-MAX OR HDG GRADE ZINC COATING.

foundation plan

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

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PROFESSIONAL ENGINEER

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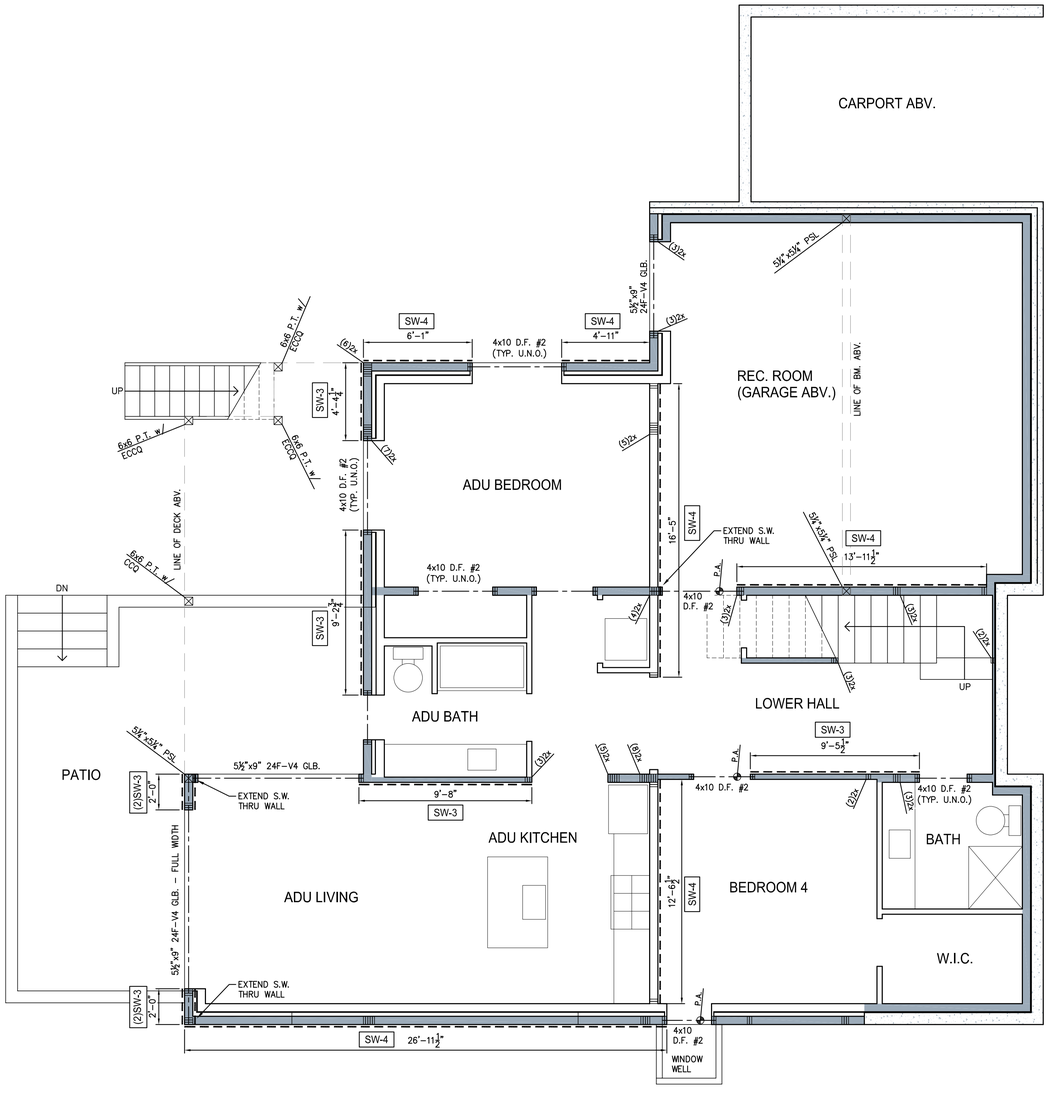
S4

12"x18" PLOT = 1/2 SCALE

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IMPORTANT NOTES:
SEE ARCHITECTURAL PLANS FOR ALL DIMENSIONS & VERIFY WITH STRUCTURAL PLANS

SEE ARCHITECTURAL PLANS TO CONFIRM ALL ROOF SLOPES AND PLATE HEIGHTS.



FLOOR PLAN CONSTRUCTION NOTES:
ALL HEADERS SHALL BE 4x10 D.F. #2 (U.N.O.)

USE (2)2x H.F. #2 TRIMMERS @ ALL HEADERS (U.N.O.)

USE (2)2x H.F. #2 STUDS @ ALL BEAMS (U.N.O.)

SEE ENGINEERING 'S' SHEETS FOR SHEARWALL SCHEDULE

SEE ALSO ARCHITECTURAL PLANS

basement floor plan

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

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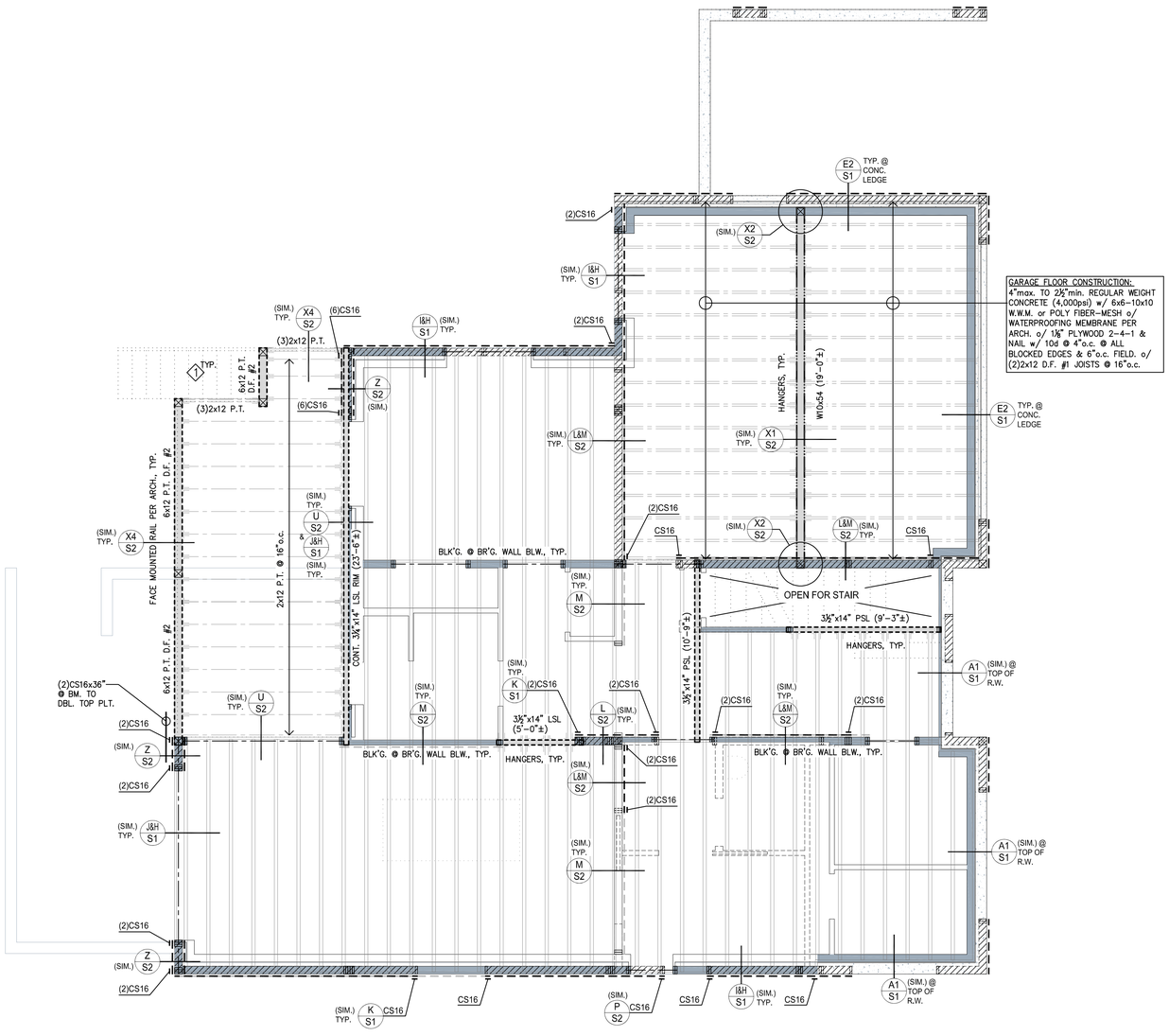
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S5

READ RULES OF USE

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IMPORTANT NOTES:
SEE ARCHITECTURAL PLANS FOR ALL DIMENSIONS & VERIFY WITH STRUCTURAL PLANS

SEE ARCHITECTURAL PLANS TO CONFIRM ALL ROOF SLOPES AND PLATE HEIGHTS.



KEYNOTES

1 2x12 H.F. #2 STRINGERS @ 12"o.c.

TYPICAL FLOOR DESIGN (BY MFG.) NOTE:
LL=40psf w/ L/600 Deflection
LL=60psf @ DECK w/ L/600 Deflection
DL=15psf w/ L/480 Total Load Deflection

P.P. – DENOTES POINT LOAD FROM ABV.
– DENOTES FLUSH BEAM AS NOTED PER FLOOR FRAMING PLAN
– DENOTES FLUSH STEEL BEAM AS NOTED PER FLOOR FRAMING PLAN
– DENOTES BEARING WALL BLW. (EXTERIOR BEARING WALLS ASSUMED)
– DENOTES BEARING WALL ABV. (EXTERIOR BEARING WALLS ASSUMED)

FLOOR FRAMING CONSTRUCTION NOTES:
14" 230 TJI's @ 16"o.c. TYPICAL FLOOR JOISTS (U.N.O.)

ALL FLOOR JOISTS TO BE BLOCKED @ BEARING

SEE FLOOR PLAN (BELOW) FOR HEADER SIZES (U.N.O.)

USE (2)2x H.F. #2 STUDS @ ALL BEAMS (U.N.O.)

main floor framing plan

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

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Rev.:

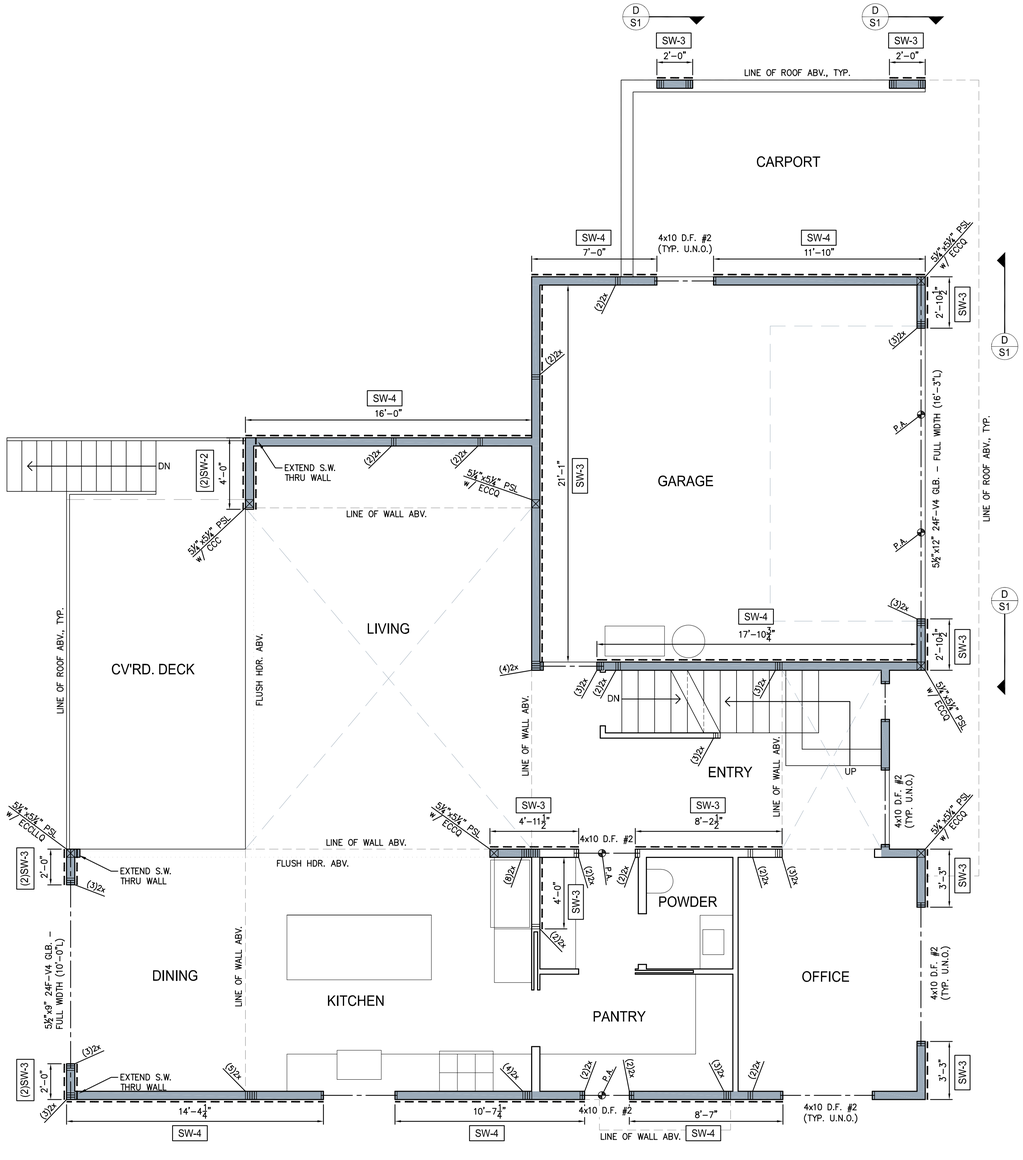
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12"x18" PLOT = 1/2 SCALE

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IMPORTANT NOTES:
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SEE ARCHITECTURAL PLANS TO CONFIRM ALL ROOF SLOPES AND PLATE HEIGHTS.



P.A. – DENOTES POINT LOAD FROM ABV.

– DENOTES BEARING WALL (EXTERIOR BEARING WALLS ASSUMED)

FLOOR PLAN CONSTRUCTION NOTES:
ALL HEADERS SHALL BE 4x10 D.F. #2 (U.N.O.)

USE (2)2x H.F. #2 TRIMMERS @ ALL HEADERS (U.N.O.)

USE (2)2x H.F. #2 STUDS @ ALL BEAMS (U.N.O.)

SEE ENGINEERING 'S' SHEETS FOR SHEARWALL SCHEDULE

SEE ALSO ARCHITECTURAL PLANS

main floor plan

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

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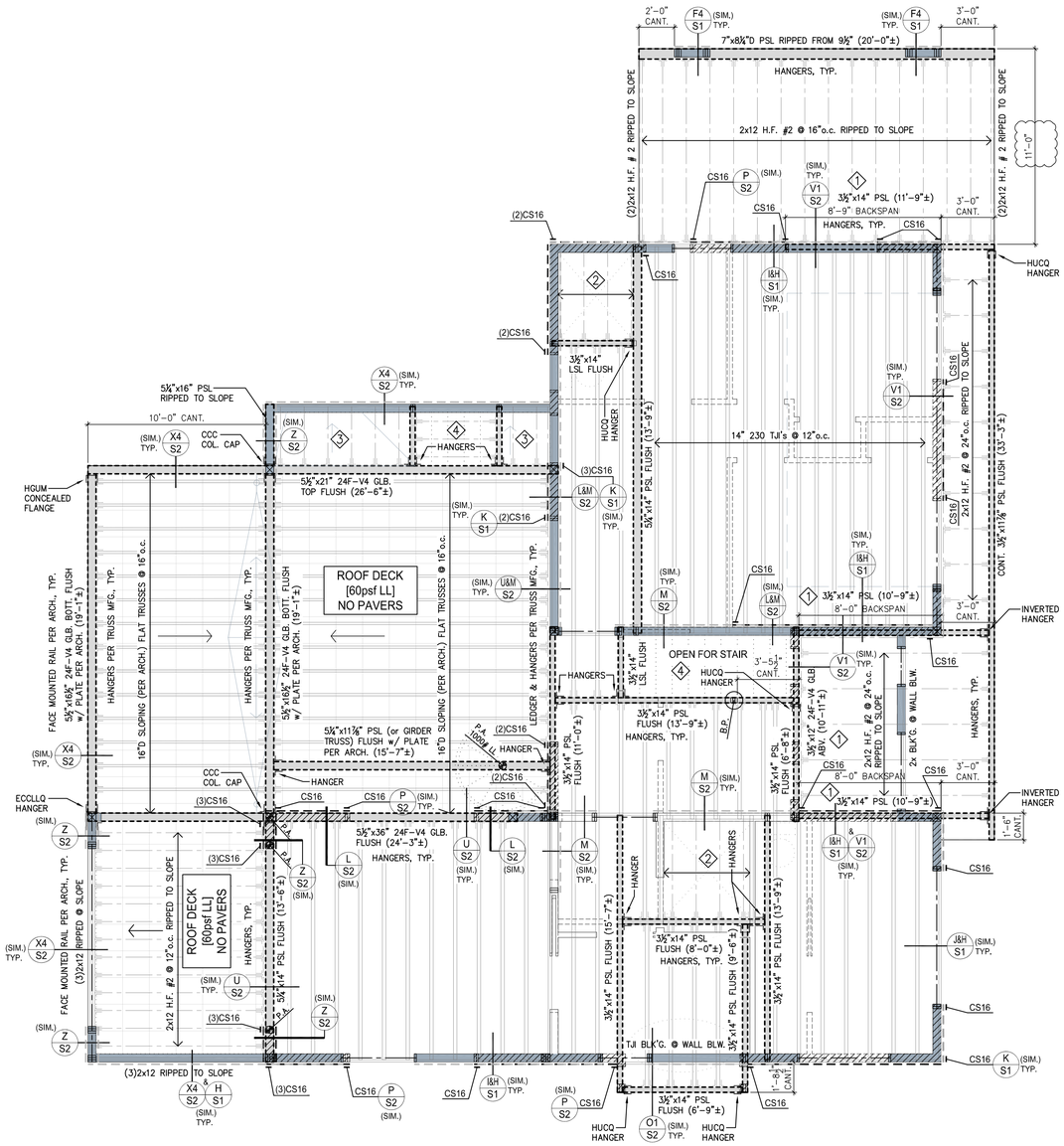
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Jim Taherzadeh
STATE OF WASHINGTON
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IMPORTANT NOTES:
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SEE ARCHITECTURAL PLANS TO CONFIRM ALL ROOF SLOPES AND PLATE HEIGHTS.

HANGER SCHEDULE (U.N.O.)

BEAM	* SIMPSON HANGER	BEAM	* SIMPSON HANGER
(*USE NOTED BM. WIDTH & DEPTH FOR HANGER SIZE)			
3 1/2" x	HGUS	6 3/4" x	HHGU
5 1/4" x	HGUS	7" x	HGUS
5 1/2" x	HHGU		

KEYNOTES

1. FULL SPAN BEAM ABOVE. FRAMED INTO STUD WALL FRAMING BOTTOM FLUSH w/ MAIN FLOOR ROOF FRAMING PER ARCH.
2. 2x8min. H.F. #2 @ 16"o.c. w/ HANGERS @ CURBLESS SHOWER
3. 2x12min. H.F. #2 @ 16"o.c. RIPPED TO SLOPE PER ARCH. w/ HANGERS
4. 2x12 H.F. #2 STRINGERS @ 12"o.c.

TYPICAL FLOOR DESIGN (BY MFG.) NOTE:
LL=40psf w/ L/600 Deflection
LL=60psf @ DECK w/ L/600 Deflection
DL=15psf w/ L/480 Total Load Deflection

P.A. – DENOTES POINT LOAD FROM ABV.
– DENOTES FLUSH BEAM AS NOTED PER FLOOR FRAMING PLAN
– DENOTES BEARING WALL BLW. (EXTERIOR BEARING WALLS ASSUMED)
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ALL FLOOR JOISTS TO BE BLOCKED @ BEARING

SEE FLOOR PLAN (BELOW) FOR HEADER SIZES (U.N.O.)

USE (2)2x H.F. #2 STUDS @ ALL BEAMS (U.N.O.)

upper floor framing plan

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

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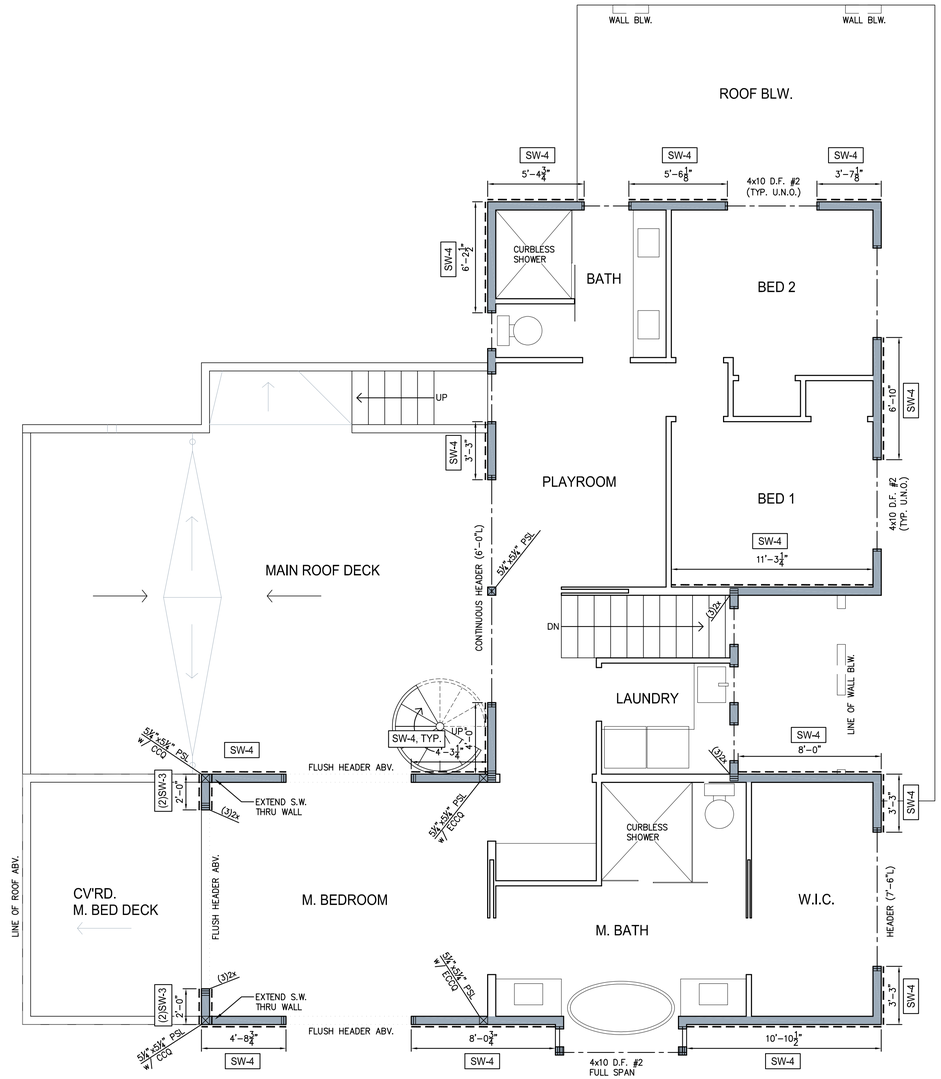
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12"x18" PLOT = 1/2 SCALE

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IMPORTANT NOTES:
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SEE ARCHITECTURAL PLANS TO CONFIRM ALL ROOF SLOPES AND PLATE HEIGHTS.



P.A. – DENOTES POINT LOAD FROM ABV.

– DENOTES BEARING WALL (EXTERIOR BEARING WALLS ASSUMED)

FLOOR PLAN CONSTRUCTION NOTES:
ALL HEADERS SHALL BE 4x10 D.F. #2 (U.N.O.)

ALL HEADER SPANS 4'–0" OR LESS:
USE (1)2x H.F. #2 TRIMMER EACH END (U.N.O.)

ALL HEADER SPANS GREATER THAN 4'–0":
USE (2)2x H.F. #2 TRIMMERS EACH END (U.N.O.)

USE (2)2x H.F. #2 STUDS @ ALL BEAMS (U.N.O.)

SEE ENGINEERING 'S' SHEETS FOR SHEARWALL SCHEDULE

SEE ALSO ARCHITECTURAL PLANS

upper floor plan

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

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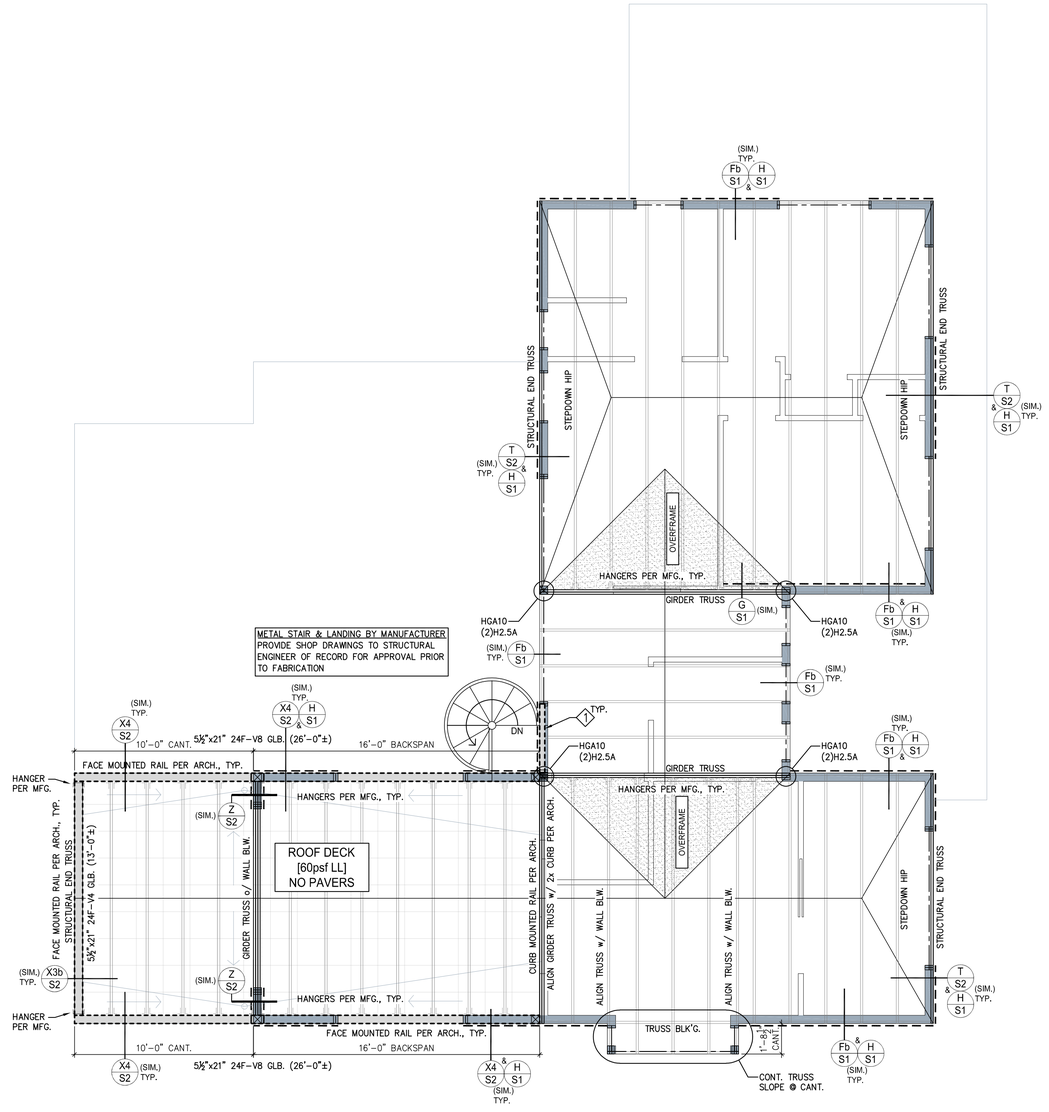
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18 x 16" PLOT = 1/2 SCALE

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METAL STAIR & LANDING BY MANUFACTURER
PROVIDE SHOP DRAWINGS TO STRUCTURAL ENGINEER OF RECORD FOR APPROVAL PRIOR TO FABRICATION

roof framing plan

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

IMPORTANT NOTES:
SEE ARCHITECTURAL PLANS FOR ALL DIMENSIONS & VERIFY WITH STRUCTURAL PLANS

SEE ARCHITECTURAL PLANS TO CONFIRM ALL ROOF SLOPES AND PLATE HEIGHTS.

TRUSS CONSTRUCTION NOTES:
ALL TRUSSES SHALL CARRY MFG. STAMP.

ALL TRUSSES SHALL BE INSTALLED & BRACED TO MFG. SPECIFICATIONS.

TRUSSES WILL NOT BE FIELD ALTERED WITHOUT PRIOR BLDG. DEPT. APPROVAL OR MFG. ENGINEERING CALC's.

ALL TRUSSES SHALL HAVE DESIGN DETAILS & DRAWINGS ON SITE FOR FRAMING INSPECTION.

SEALED CALCULATION SHALL BE SUBMITTED BY STAMPED BY AN ENGINEER REGISTERED IN THE STATE OF WASHINGTON.

ALL NON-BEARING WALLS SHALL BE HELD AWAY FROM TRUSS BOTTOM CHORD w/ AN APPROVED FASTENER TO INSURE NON-BEARING OF TRUSS ON WALL.

SPECIFIED APPROVED HANGERS MUST BE USED @ ALL CONNECTIONS OF RAFTERS, JACK OR HIP TRUSSES TO THE MAIN GIRDER AS PROVIDED BY TRUSS MFG.

KEYNOTES

1 MODIFY TRUSS TO ALLOW 4x12 D.F. #2 RIM FOR SPIRAL STAIR LANDING ATTACHMENT

– HATCH INDICATES OVERFRAMING AND/OR CRICKETS PER ARCHITECT. DRILL 2½"ø HOLES @ 24"o.c. EA. WAY IN CONTINUOUS ROOF SHEATHING BLW. TO ALLOW CROSS-VENTILATION

– DENOTES FLUSH BEAM AS NOTED PER FLOOR FRAMING PLAN

– DENOTES BEARING WALL BLW. (EXTERIOR BEARING WALLS ASSUMED)

ROOF CONSTRUCTION NOTES:
24"D TRUSSES w/ SLOPED TOP CHORD (¼:12) PER PLAN SPACED @ 24"o.c. (U.N.O.) w/ CONTINUOUS RIBBON TRUSS @ EAVE AS APPLICABLE.

FINAL DESIGN BY TRUSS MFG.

ALL SLOPES & DRAINAGE PER ARCHITECTURAL DRAWINGS.

SEE FLOOR PLAN (BELOW) FOR HEADER SIZES (U.N.O.)

PROVIDE ROOF VENTILATION PER ARCHITECTURAL PLANS

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12"x18" PLOT = 1/2 SCALE

TREE PROTECTION AREA (TPZ)

KEEP OUT!

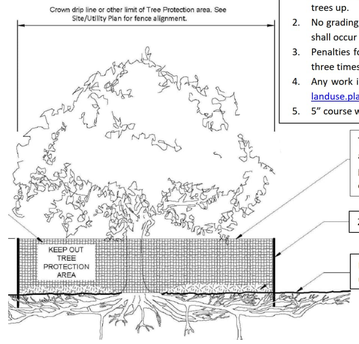
DO NOT REMOVE OR ADJUST THE APPROVED LOCATION OF THIS TREE PROTECTION AREA

Trees enclosed by this fence are protected and are subject to the conditions of the tree permit. Violation of tree conditions may lead to:

1. Correction Notices or Stop Work Orders until compliance is achieved
2. RE Inspection Fees/financial penalties
3. Arborist reports recommending mitigation

Notes

1. No pruning shall be performed unless under the direction of the Project Arborist. Including limbing trees up.
2. No grading, excavation, storage (materials, equipment, vehicles, etc.), or other unpermitted activity shall occur inside the protective fencing.
3. Penalties for damaging by root damage/compaction or removing a saved tree may be a fine up to three times the value of the tree plus restoration (MICC 19.10.160).
4. Any work in approved TPZ must be with the permission of the Land Use and Planning Division at landuse.planning@mercergov.org
5. 5" course woodchips within the tree protection zone, but not against the tree trunk.



Tree protection fence: 4-6" **chain link** fence, solidly anchored into the ground, or if authorized High-density polyethylene fencing with 3.5" x 1.5" openings; color orange. Steel posts installed at 8' o.c.

2" x 6" steel posts or approved equal

Maintain existing grade with the tree protection fence unless otherwise indication on the plans

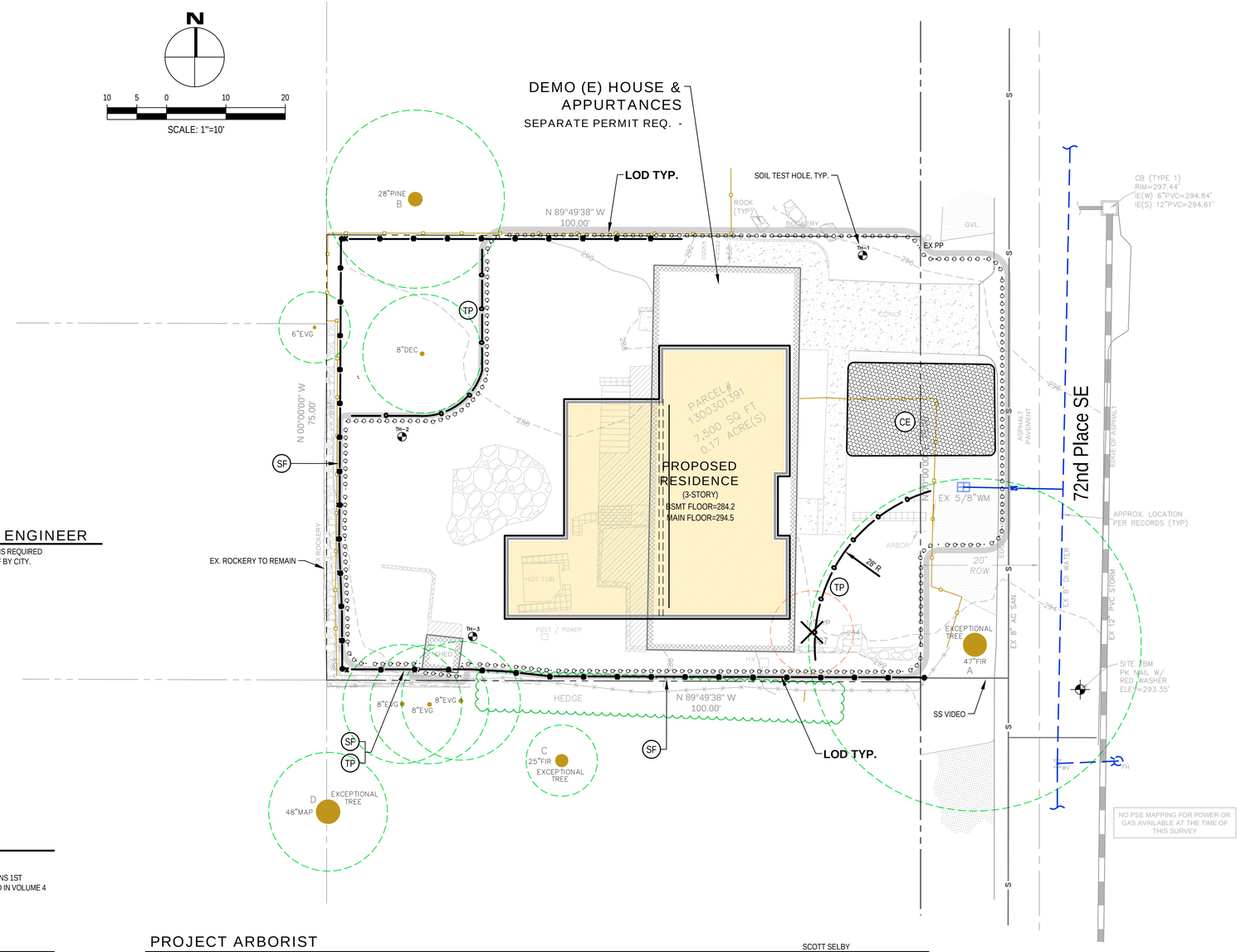
Any Work in the protected area must be with the permission of the Land Use and Planning Division at landuse.planning@mercergov.org

EROSION CONTROL LEGEND

LIMITS OF DISTURBANCE		
FILTER FABRIC FENCE (SILT FENCE)	SF	
STABILIZED CONSTRUCTION ENTRANCE	CE	CE
CATCH BASIN INLET PROTECTION	IP	
TYPE A TEMPORARY SWALE	IS	
TREE PROTECTION FENCING	TP	
CHECK DAM	CD	
STRAW WATTLES	SW	USE AS NEEDED

SOIL INSPECTION REQUIRED BY ENGINEER

A POST CONSTRUCTION INSPECTION & CERTIFICATION OF AMENDED SOILS IS REQUIRED BY A LICENSED CIVIL ENGINEER. THIS IS REQUIRED BEFORE FINAL SIGN-OFF BY CITY.



LEGAL DESCRIPTION

(PER PERSONAL REPRESENTATIVE'S DEED REC. NO. 20190510000378)

THE SOUTH HALF OF LOT 8, AND ALL OF LOTS 9 AND 10, BLOCK 5, C.C. CALKINS 1ST ADDITION TO EAST SEATTLE, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 88, IN KING COUNTY, WASHINGTON.

PROJECT ARBORIST TREE PROTECTION RECOMMENDATIONS

1. OBTAIN ALL NECESSARY PERMITS AND APPROVAL FROM THE CITY PRIOER TO COMMENCEMENT OF SITE WORK.

2. UPDATE SITE PLANS TO INCLUDE LIMITS OF DISTURBANCE.

3. TREE PROTECTION CONSISTING OF CHAIN-LINK FENCING SHOULD BE INSTALLED AT THE RLOD LISTED IN THE TABLE OF TREES (SEE ARBORIST REPORT).

4. ADD A 4" LAYER OF COARSE ARBORIST WOODCHIPS THROUGHOUT THE TREE PROTECTION AREA. KEEP WOODCHIPS ONE FOOT FROM THE TRUNK OF THE TREE.

5. ALL TREE RETENTION AND REMOVAL REGULATONS MST BE FOLLOWED. ANY PRUNING OF TREES ON PRIVATE PROPERTY MUST BE CONDUCTED BY AN ISA CERTIFIED ARBORSIT TO THE STANDARDS OUTLINED IN THE ANSI A300 STANDARDS.

6. ENSURE TREE PROTECTOIN STANDARDS COMPLY WITH CITY CODE AND ISA BEST MANAGEMENT PRACTICES, MANAGING TREES DURING CONSTRUCTION .

ORGANIC SOIL REQUIREMENT

MINIMUM 10% ORGANIC MULCH & COMPOST SOIL REQUIRED

SOIL AMENDMENT REQUIRED

COMPOST AMENDED SOIL REQUIRED ON ALL LANDSCAPED AREAS AFTER CONSTRUCTION. SEE DETAIL ON C3.5.

PROJECT ARBORIST

SCOTT SELBY

Tree #	Common Name	Scientific Name	*DSH	**CRZ	N	E	S	W	Dripline Avg Radius	***RLOD (TPZ)	Condition	Comments	Proposal	Exceptional
87	Sawara cypress	*Chamaecyparis pisifera*	11.4	11	9	7	8	6	7	n/a	good	M5:7x9	remove	no
A	Douglas-fir	*Pseudotsuga menziesii*	47	47	25	27	27	24	28	28	good		n/a	yes
B	Ponderosa pine	*Pinus ponderosa*	28	28			15		15	15	good		n/a	no
C	Douglas-fir	*Pseudotsuga menziesii*	25	25	6				6	6	good		n/a	yes
D	Big leaf maple	*Acer macrophyllum*	48	48	10				10	10	good		n/a	yes

Tree ID is numerical if on-site and alphabetical if off-site.

**Diameter at Standard Height (inches).*

***Critical Root Zone (from ISA BMP), radial feet.*

****Recommended Limit of Disturbance, Tree Protection Zone or Average Dripline Radius (feet).*

#2510-046

NO.	DATE	BY	REVISIONS

APPLICANT:
ARTOUSH FANAIYAN
ARTOUSH CONSTRUCTION AND REMODELING
13101 NE 50th STREET
BELLEVUE, WA
(425) 890-9995

DATE: Jan 27, 2026
JOB# 2126
DRAFTED: SS DESIGN: SS
DIGITAL SIGNATURE

Jan 27, 2026 JEFFREY E. DUFFY 39766 REGISTERED PROFESSIONAL ENGINEER

CIVIL ENGINEERING SOLUTIONS
908 NW 51st STREET
206.930.0342
SEATTLE, WA 98107
DUFFY@CESOLUTIONS.US

TESC PLAN
TREE RETENTION PLAN

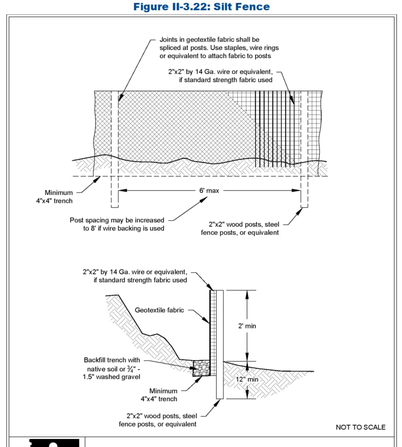
PROPOSED RESIDENCE
3427 72nd PLACE SE, MERCER ISLAND, WA 98040

DRAWING NO:
C1.0

APN 130030-1391
2510-046

SILT FENCE DETAIL **DOE**

Figure II-3.22: Silt Fence

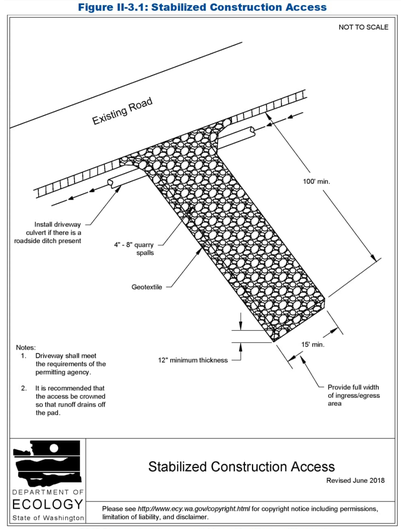


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CONSTRUCTION ENTRANCE **DOE**

Figure II-3.1: Stabilized Construction Access



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RECOMMENDED CONSTRUCTION SEQUENCE

A DETAILED CONSTRUCTION SEQUENCE IS NEEDED TO ENSURE THAT EROSION AND SEDIMENT CONTROL MEASURES ARE APPLIED AT THE APPROPRIATE TIMES. A RECOMMENDED CONSTRUCTION SEQUENCE IS PROVIDED BELOW:

1. HOLD AN ONSITE PRE-CONSTRUCTION MEETING.

2. POST SIGN WITH NAME AND PHONE NUMBER OF ESC SUPERVISOR (MAY BE CONSOLIDATED WITH THE REQUIRED NOTICE OF CONSTRUCTION SIGN).

3. FLAG OR FENCE CLEARING LIMITS.

4. INSTALL CATCH BASIN PROTECTION, IF REQUIRED.

5. GRADE AND INSTALL CONSTRUCTION ENTRANCE(S).

6. INSTALL PERIMETER PROTECTION (SILT FENCE, BRUSH BARRIER, ETC.).

7. CONSTRUCT SEDIMENT PONDS AND TRAPS.

8. GRADE AND STABILIZE CONSTRUCTION ROADS.

9. CONSTRUCT SURFACE WATER CONTROLS (INTERCEPTOR DIKES, PIPE SLOPE DRAINS, ETC.) SIMULTANEOUSLY WITH CLEARING AND GRADING FOR PROJECT DEVELOPMENT.

10. MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH CITY OF MERCER ISLAND STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.

11. RELOCATE SURFACE SURFACE WATER CONTROLS OR TESC MEASURES, OR INSTALL NEW MEASURES SO THAT AS SITE CONDITIONS CHANGE, THE TESC IS ALWAYS IN ACCORDANCE WITH CITY OF MERCER ISLAND TESC REQUIREMENTS.

12. COVER ALL AREAS THAT WILL BE UN-WORKED FOR MORE THAN SEVEN DAYS DURING THE DRY SEASON (MAY 1 TO SEPT 30) OR TWO DAYS DURING THE WET SEASON (OCT 1 TO APRIL 30) WITH STRAW, WOOD FIBER MULCH, COMPOST, PLASTIC SHEETING, OR EQUIVALENT.

13. STABILIZE ALL AREAS WITHIN SEVEN DAYS OF REACHING FINAL GRADE.

14. SEED, SOD, STABILIZE, OR COVER ANY AREAS TO REMAIN UNWORKED FOR MORE THAN 30 DAYS.

15. UPON COMPLETION OF THE PROJECT, STABILIZE ALL DISTURBED AREAS AND REMOVE BMPS IF APPROPRIATE.

DENUDED AREAS REQUIREMENTS

APRIL 1 TO SEPT 30
ALL DENUDED AREAS MUST BE STABILIZED WITHIN 7 DAYS OF CONSTRUCTION. PLEASE READ ALL CITY TESC NOTES ON SHEET C1.2.

OCT 1 TO MARCH 31
ALL DENUDED AREAS MUST BE STABILIZED WITHIN 2 DAYS OF GRADING. IF AN EROSION PROBLEM ALREADY EXISTS ON THE SITE, OTHER COVER PROTECTION AND EROSION CONTROL WILL BE REQUIRED.

EROSION CONTROL NOTES

D.8.2 STANDARD ESC PLAN NOTES
THE STANDARD ESC PLAN NOTES MUST BE INCLUDED ON ALL ESC PLANS. AT THE APPLICANT'S DISCRETION, NOTES THAT IN NO WAY APPLY TO THE PROJECT MAY BE OMITTED; HOWEVER, THE REMAINING NOTES MUST NOT BE RENUMBERED. FOR EXAMPLE, IF ESC NOTE #3 WERE OMITTED, THE REMAINING NOTES SHOULD BE NUMBERED 1, 2, 4, 5, 6, ETC.

1. APPROVAL OF THIS EROSION AND SEDIMENTATION CONTROL (ESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G., SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.).

2. THE IMPLEMENTATION OF THESE ESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE APPLICANT/ESC SUPERVISOR UNTIL ALL CONSTRUCTION IS APPROVED.

3. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED BY SURVEY TAPE OR FENCING, IF REQUIRED, PRIOR TO CONSTRUCTION (SWDM APPENDIX D). DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE CLEARING LIMITS SHALL BE PERMITTED. THE CLEARING LIMITS SHALL BE MAINTAINED BY THE APPLICANT/ESC SUPERVISOR FOR THE DURATION OF CONSTRUCTION.

4. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES, SUCH AS CONSTRUCTED WHEEL WASH SYSTEMS OR WASH PADS, MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN AND TRACK OUT TO ROAD RIGHT OF WAY DOES NOT OCCUR FOR THE DURATION OF THE PROJECT.

5. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING SO AS TO ENSURE THAT THE TRANSPORT OF SEDIMENT TO SURFACE WATERS, DRAINAGE SYSTEMS, AND ADJACENT PROPERTIES IS MINIMIZED.

6. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND MODIFIED TO ACCOUNT FOR CHANGING SITE CONDITIONS (E.G. ADDITIONAL COVER MEASURES, ADDITIONAL SUMP PUMPS, RELOCATION OF DITCHES AND SILT FENCES, PERIMETER PROTECTION ETC.) AS DIRECTED BY CITY OF MERCER ISLAND.

7. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE APPLICANT/ESC SUPERVISOR AND MAINTAINED TO ENSURE CONTINUED PROPER FUNCTIONING. WRITTEN RECORDS SHALL BE KEPT OF WEEKLY REVIEWS OF THE ESC FACILITIES.

8. ANY AREAS OF EXPOSED SOILS, INCLUDING ROADWAY EMBANKMENTS, THAT WILL NOT BE DISTURBED FOR TWO CONSECUTIVE DAYS DURING THE WET SEASON OR SEVEN DAYS DURING THE DRY SEASON SHALL BE IMMEDIATELY STABILIZED WITH THE APPROVED ESC METHODS (E.G., SEEDING, MULCHING, PLASTIC COVERING, ETC.).

9. ANY AREA NEEDING ESC MEASURES THAT DO NOT REQUIRE IMMEDIATE ATTENTION SHALL BE ADDRESSED WITHIN SEVEN (7) DAYS.

10. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH DURING THE DRY SEASON, BI-MONTHLY DURING THE WET SEASON, OR WITHIN TWENTY FOUR (24) HOURS FOLLOWING A STORM EVENT.

11. AT NO TIME SHALL MORE THAN ONE (1) FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT-LADEN WATER INTO THE DOWNSTREAM SYSTEM.

12. ANY PERMANENT RETENTION/DETENTION FACILITY USED AS A TEMPORARY SETTLING BASIN SHALL BE MODIFIED WITH THE NECESSARY EROSION CONTROL MEASURES AND SHALL PROVIDE ADEQUATE STORAGE CAPACITY. IF THE FACILITY IS TO FUNCTION ULTIMATELY AS AN INFILTRATION SYSTEM, THE TEMPORARY FACILITY MUST BE ROUGH GRADED SO THAT THE BOTTOM AND SIDES ARE AT LEAST THREE FEET ABOVE THE FINAL GRADE OF THE PERMANENT FACILITY.

13. COVER MEASURES WILL BE APPLIED IN CONFORMANCE WITH APPENDIX D OF THE SURFACE WATER DESIGN MANUAL

14. PRIOR TO THE BEGINNING OF THE WET SEASON (OCT. 1), ALL DISTURBED AREAS SHALL BE REVIEWED TO IDENTIFY WHICH ONES CAN BE SEEDED IN PREPARATION FOR THE WINTER RAINS. DISTURBED AREAS SHALL BE SEEDED WITHIN ONE WEEK OF THE BEGINNING OF THE WET SEASON.

CITY NOTES

1. **ANY CHANGES TO THE APPROVED PLANS REQUIRES CITY APPROVAL THROUGH A REVISION.**
2. **APPLICANT IS RESPONSIBLE FOR ANY DAMAGES TO UNDERGROUND UTILITIES CAUSED FROM THIS CONSTRUCTION.**
3. **CATCH BASIN FILTERS SHOULD BE PROVIDED FOR ALL STORM DRAIN CATCH BASINS/INLETS DOWNSLOPE AND WITHIN 500 FEET OF THE CONSTRUCTION AREA. CATCH BASIN FILTERS SHOULD BE DESIGNED BY THE MANUFACTURER FOR USE AT CONSTRUCTION SITES AND APPROVED BY THE CITY INSPECTOR. CATCH BASIN FILTERS SHOULD BE INSPECTED FREQUENTLY, ESPECIALLY AFTER STORM EVENTS. IF THE FILTER BECOMES CLOGGED, IT SHOULD BE CLEANED OR REPLACED.**
4. **CONTRACTORS SHALL VERIFY LOCATIONS AND DEPTHS OF UTILITES.**
5. **AT LEAST 48 HOURS PRIOR TO CONSTRUCTION, CALL "ONE CALL" AT 1.800.424.5555**
6. **DO NOT BACKFILL WITH NATIVE MATERIAL ON PUBLIC RIGHT-OF-WAY. ALL MATERIAL MUST BE IMPORTED**
7. **EROSION CONTROL: ALL "LAND DISTURBING ACTIVITY" IS SUBJECT TO PROVISIONS OF MERCER ISLAND ORDINANCE 95C-118 "STORM WATER MANAGEMENT." SPECIFIC ITEMS TO BE FOLLOWED AT YOUR SITE:**
8. **PROTECT ADJACENT PROPERTIES FROM ANY INCREASED RUNOFF OR SEDIMENTATION DUE TO THE CONSTRUCTION PROJECT THROUGH THE USE OF APPROPRIATE "BEST MANAGEMENT PRACTICES" (BMP) EXAMPLES INCLUDE, BUT ARE NOT LIMITED TO, SEDIMENT TRAPS, SEDIMENT PONDS, FILTER FABRIC FENCES, VEGETATIVE BUFFER STRIPS OR BIOENGINEERED SWALES.**
9. **CONSTRUCTION ACCESS TO THE SITE SHOULD BE LIMITED TO ONE ROUTE. STABILIZE ENTRANCE WITH QUARRY SPALLS TO PREVENT SEDIMENT FROM LEAVING THE SITE OR ENTERING THE STORM DRAINS.**
10. **PREVENT SEDIMENT, CONSTRUCTION DEBRIS, PAINTS, SOLVENTS, ETC., OR OTHER TYPES OF POLLUTION FROM ENTERING PUBLIC STORM DRAINS. KEEP ALL POLLUTION ON YOUR SITE.**
11. **ALL EXPOSED SOILS SHALL REMAIN DENUDED FOR NO LONGER THAN SEVEN (7) DAYS AND SHALL BE STABILIZED WITH MULCH, HAY, OR THE APPROPRIATE GROUND COVER. ALL EXPOSED SOILS SHALL BE COVERED IMMEDIATELY DURING ANY RAIN EVENT.**
12. **INSTALLATION OF CONCRETE DRIVEWAYS, TREES, SHRUBS, IRRIGATION, BOULDERS, BERMS, WALLS, GATES, AND OTHER IMPROVEMENTS ARE NOT ALLOWED IN THE PUBLIC RIGHT-OF-WAY WITHOUT PRIOR APPROVAL, AND AN ENCROACHMENT AGREEMENT AND RIGHT OF WAY PERMIT FROM THE SENIOR DEVELOPMENT ENGINEER.**
13. **OWNER SHALL CONTROL DISCHARGE OF SURFACE DRAINAGE RUNOFF FROM EXISTING AND NEW IMPERVIOUS AREAS IN A RESPONSIBLE MANNER. CONSTRUCTION OF NEW GUTTERS AND DOWNSPOUTS, DRY WELLS, LEVEL SPREADERS OR DOWNSTREAM CONVEYANCE PIPE MAY BE NECESSARY TO MINIMIZE DRAINAGE IMPACT TO YOUR NEIGHBORS. CONSTRUCTION OF MINIMUM DRAINAGE IMPROVEMENTS SHOWN OR CALLED OUT ON THIS PLAN DOES NOT IMPLY RELIEF FROM CIVIL LIABILITY FOR YOUR DOWNSTREAM DRAINAGE.**
14. **POT HOLING THE PUBLIC UTILITIES IS REQUIRED PRIOR TO ANY GRADING ACTIVITIES LESS THAN 6" OVER THE PUBLIC MAINS (WATER, SEWER AND STORM SYSTEMS). IF THERE IS A CONFLICT, THE APPLICANT IS REQUIRED TO SUBMIT A REVISION FOR APPROVAL PRIOR TO ANY GRADING ACTIVITIES OVER THE PUBLIC MAINS.**
15. **REMEMBER: EROSION CONTROL IS YOUR FIRST INSPECTION.**
16. **ROOF DRAINS MUST BE CONNECTED TO THE STORM DRAIN SYSTEM AND INSPECTED BY THE PUBLIC WORKS DEPARTMENT PRIOR TO ANY BACKFILLING OF PIPE.**
17. **SILENT FENCE: CLEAN AND PROVIDE REGULAR MAINTENANCE OF THE SILT FENCE. THE FENCE IS TO REMAIN VERTICAL AND IS TO FUNCTION PROPERLY THROUGHOUT THE TERM OF THE PROJECT.**
18. **WORK IN PUBLIC RIGHT OF WAY REQUIRES A RIGHT-OF-WAY USE PERMIT.**
19. **REFER TO WATER SERVICE PERMIT FOR ACTUAL LOCATION OF NEW WATER METER AND SERVICE LINE DETERMINED BY MERCER ISLAND WATER DEPARTMENT.**
16. **THE TV INSPECTION OF THE EXISTING SIDE SEWER TO THE CITY SEWER MAIN IS REQUIRED. IF THE RESULT OF THE TV INSPECTION IS NOT IN SATISFACTORY CONDITION, AS DETERMINED BY THE CITY OF MERCER ISLAND INSPECTOR, THE REPLACEMENT OF THE EXISTING SIDE SEWER IS REQUIRED. ALTERNATELY, A PRESSURE TEST OF THE SIDE SEWER, FROM SEWER MAIN TO POINT OF CONNECTION, MAY BE SUBSTITUTED FOR THE VIDEO INSPECTION.**
20. **NEWLY INSTALLED SIDE SEWER REQUIRES A 4 P.S.I. AIR TEST OR PROVIDE 10' OF HYDROSTATIC HEAD TEST.**
21. **POT HOLING THE PUBLIC UTILITIES IS REQUIRED PRIOR TO ANY GRADING ACTIVITIES LESS THAN 6" OVER THE PUBLIC MAINS (WATER, SEWER AND STORM SYSTEMS). IF THERE IS A CONFLICT, THE APPLICANT IS REQUIRED TO SUBMIT A REVISION FOR APPROVAL PRIOR TO ANY GRADING ACTIVITIES OVER THE PUBLIC MAINS.**
22. **THE LIMITS AND EXTENDS OF THE PAVEMENT IN THE PUBLIC RIGHT OF WAY SHALL BE DETERMINED BY THE CITY ENGINEER PRIOR TO FINALIZE THE PROJECT.**

NO.	DATE	BY	REVISIONS

APPLICANT:
ARTOUSH FANAIYAN
ARTOUSH CONSTRUCTION AND REMODELING
13101 NE 50th STREET
BELLEVUE, WA
(425) 890-9995

DATE: Aug 20, 2025
JOB# 2126
DRAFTED: SS DESIGN: DE
DIGITAL SIGNATURE

Aug 20, 2025
JEFFREY E. KLEIN
STATE OF WASHINGTON
39758
REGISTERED
PROFESSIONAL ENGINEER

CIVIL ENGINEERING SOLUTIONS
701 N 36TH STREET
206.930.0342
SEATTLE, WA 98103
DUFFY@CESOLUTIONS.US

TESC & CITY NOTES
TESC DETAILS

PROPOSED RESIDENCE
3427 72nd PLACE SE, MERCER ISLAND, WA 98040

DRAWING NO:
C1.2

APN 130030-1391

SANITARY SEWER IMPROVEMENTS

1 -

2 -6" SDR 35 PVC SANITARY SEWER(SS) @ MIN 1.0 %.

3 -

4 -

7 -LOCATE AND VIDEO CONDITION OF EXISTING SANITARY SIDE SEWER. REPLACE LINE IF FOUND DEFECTIVE AS DETERMINED BY CITY INSPECTOR.

WATER IMPROVEMENTS

10 -

11 -1.5" 250 PSI PRIVATE HDPE WATER (ASTM D2239) FROM METER TO HOUSE. RECOMMENDED DEPTH=36". COORDINATE HOUSE ENTRY WITH BUILDER/OWNER.

12 -

14 -

STORM DRAIN PIPE KEY NOTES

20 -4" STORM DRAIN (3034 PVC) @ MIN 2 % GRADE. USE HDPE DUAL WALL OR EQUIVALENT WHEN PIPE COVER <24" IN PAVED AREAS.

21 -4" FOUNDATION DRAIN (3034 PVC) @ MIN 1 % GRADE

22 -6" STORM DRAIN (3034 PVC) @ MIN 2 % GRADE. USE HDPE DUAL WALL OR EQUIVALENT WHEN PIPE COVER <24" IN PAVED AREAS.

23 -

24 -

25 -STORM DRAIN FORCE MAIN @ MIN. 30" DEPTH. SEE PLAN FOR DIAMETER. SUITABLE PIPE OPTIONS INCLUDE SIDR-7 PE 250 PSI OR EQUAL.

-

-

-

STORM STRUCTURE KEY NOTES

30 -

31 -

32 -

33 -

34 -

35 -PRIVATE 18" YARD DRAIN (OR EQUAL) WITH SOLID LID

36 -6" WIDE NDS DURASLOPE CHANNEL DRAIN KIT OR EQUAL. CLASS B VEHICLE RATED GRATE.

36A -

37 -PRIVATE STORM CLEANOUT. PROVIDE PROTECTIVE COVER IF WARRANTED.

39 -SADDLE-TEE CONNECTION: ROMAC CB SEWER SADDLE (OR EQUAL)

40 -TYPE 40 PRIVATE CATCH BASIN OR EQUAL. PROVIDE RISOR WITH TURNED-DOWN ELBOW FOR IMPROVED WATER QUALITY FUNCTION.

41 -

43 ~~-30" ID DUPLEX STORM PUMP STRUCTURE. SOLID LID. SEE PROFILE C4.0 FOR DEPTH CALCULATION. SEE PUMP CYCLE. SEE PUMP SPECS ON SHEET C5.0.~~

46 -PUMPS: DUPLEX ½HP STORM PUMPS PLACED IN MINIMUM 30 INCH DIA PUMP BASIN. SEE 5.0 FOR PUMP CALCULATIONS & SPECIFICATIONS. COORDINATE PUMP PACKAGE, RAILS, HARDWARE, 122 CONTROLLER ETC WITH FOWLER PUMP OR EQUAL.

47 -

48 -

-

-

STORM BMP's

50 -COMPOST AMENDED SOIL TO ALL DISTURBED AREAS (SEE DETAIL SHEET C3.5). TILL 2-3" OF COMPOST INTO UPPER 8" OF SOIL. LOOSEN COMPACTED SUBSOIL, IF NEEDED BY RIPPING TO 12" DEPTH. MULCH LANDSCAPE BEDS AFTER PLANTING.

51 -

52 -

53 -

54 -

55 -

56 -

57 -

58 -

SOILS

SEE AUGUST 2025 REPORT BY GEOTECH CONSULTANTS, INC.
SOIL IS GLACIAL TILL
INFILTRATION AND DISPERSION ARE NOT RECOMMENDED

SURVEYOR

TOPOGRAPHIC SURVEY BY:
TERRANE
11235 SE 6th STREET, SUITE 130
BELLEVUE, WA 98004
PHONE 425-458-4488
info@terrane.net

VERTICAL DATUM

NAVD 88 PER WGS SURVEY DATA WAREHOUSE 6457
SEE SURVEY

LEGAL DESCRIPTION

SEE C1.0

SOIL AMENDMENT REQUIRED

COMPOST AMENDED SOIL REQUIRED ON ALL LANDSCAPED AREAS AFTER CONSTRUCTION. SEE DETAIL ON C3.5.

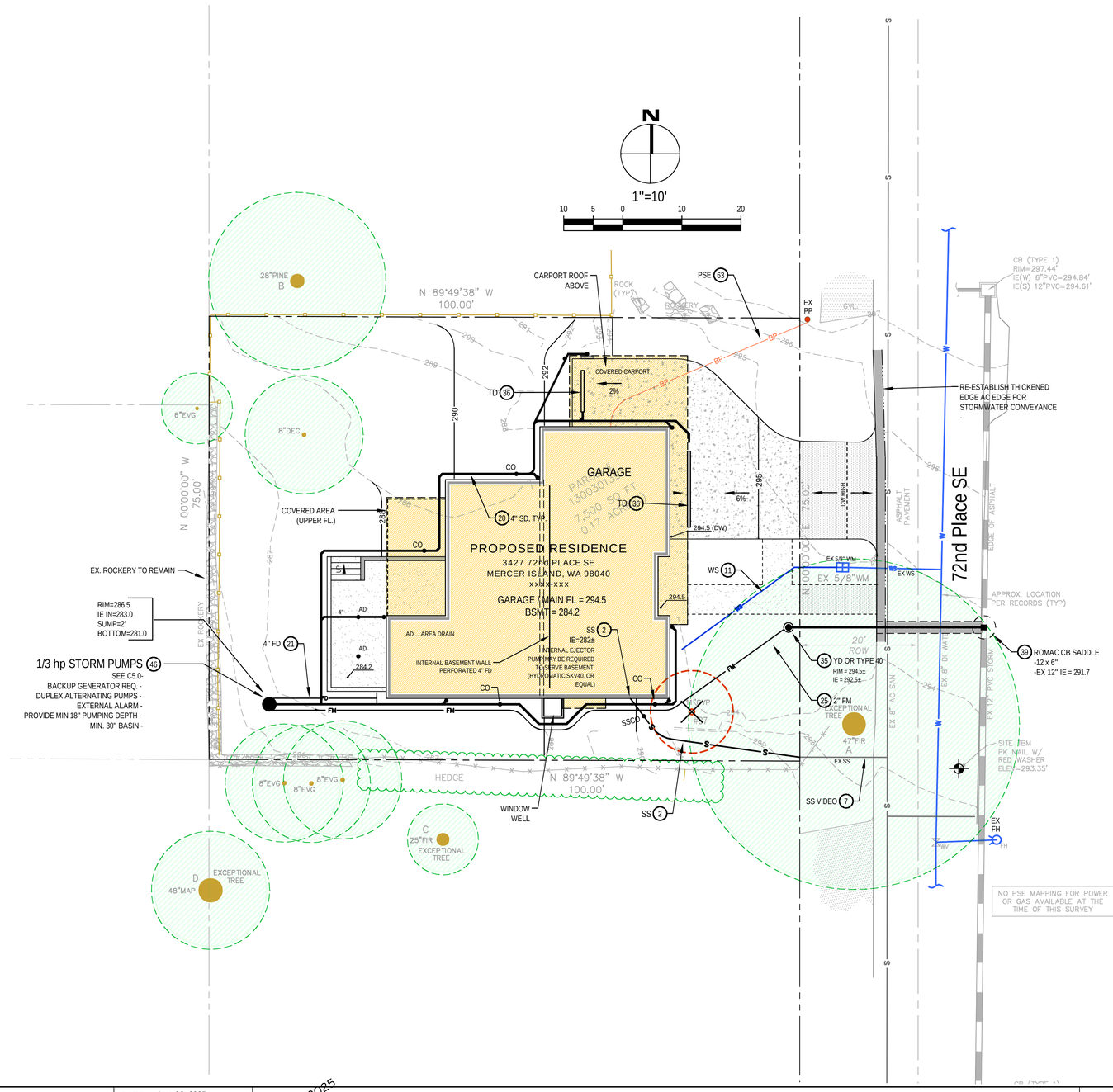
SOIL CERTIFICATION REQUIRED

A POST CONSTRUCTION INSPECTION & CERTIFICATION OF AMENDED SOILS IS REQUIRED BY A LICENSED CIVIL ENGINEER. THIS IS REQUIRED BEFORE FINAL PERMIT & CERT. OF OCCUPANCY SIGN-OFF BY CITY.

CRITICAL AREA NOTE

SITE HAS MAPPED LANDSLIDE AND EROSION HAZARD
SEE GEOTECH REPORT BY GEOTECH CONSULTANTS, INC. FOR DISCUSSION OF BOTH

MINIMUM 10% ORGANIC - COMPOST & MULCH SOIL REQUIRED



NO.	DATE	BY	REVISIONS

APPLICANT:
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ARTOUSH CONSTRUCTION AND REMODELING
13101 NE 50th STREET
BELLEVUE, WA
(425) 890-9995

DATE: Aug 20, 2025
JOB# 2126
DRAFTED: DE DESIGN: DE
DIGITAL SIGNATURE

Aug 20, 2025 — JEFFREY E. DUFFY — 39766 — REGISTERED PROFESSIONAL ENGINEER

CIVIL ENGINEERING SOLUTIONS
701 N 36TH STREET SEATTLE, WA 98103
206.930.0342 DUFFY@CESOLUTIONS.US

DRAINAGE / CIVIL PLAN

PROPOSED RESIDENCE
3427 72nd PLACE SE, MERCER ISLAND, WA 98040

DRAWING NO:
C2.0
APN 130030-1391

MINIMUM 10% ORGANIC - COMPOST SOIL REQUIRED

SOIL AMENDMENT REQUIRED

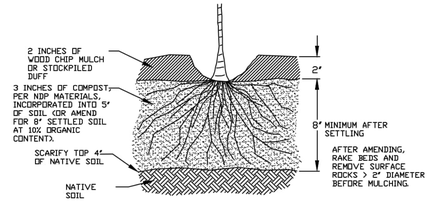
COMPOST AMENDED SOIL REQUIRED ON ALL LANDSCAPED AREAS AFTER CONSTRUCTION. SEE DETAIL BELOW.

SOIL INSPECTION REQUIRED BY ENGINEER

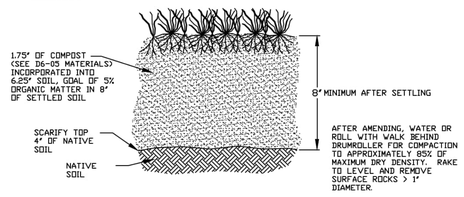
A POST CONSTRUCTION INSPECTION & CERTIFICATION OF AMENDED SOILS IS REQUIRED BY A LICENSED CIVIL ENGINEER.
THIS IS REQUIRED BEFORE FINAL SIGN-OFF BY CITY.

COMPOST AMENDED SOIL SPEC

AMENDMENT FOR LANDSCAPED AREAS



SOIL AMENDMENT FOR GRASS OR TURF AREAS



NOTES:

1. AMEND SOILS PER DOE MANUAL, VOL. V, 5.31, BMP T5.13, (2012 OR CURRENT) OR WWW.SOILSFORSALMONIDS.
2. DO NOT AMEND SOILS IN AREAS WITH UNDISTURBED SOIL AND NATIVE VEGETATION.
3. OPTIONAL ALTERNATIVE: STOCKPILE NATIVE TOPSOIL ONSITE, AMEND IF NEEDED, AND REPLACE BEFORE PLANTING.
4. OPTIONAL ALTERNATIVE: IMPORT TOPSOIL MIX OF SUFFICIENT ORGANIC CONTENT AND DEPTH TO MEET REQUIREMENTS.

JANUARY 2023 NO SCALE

City of Bellevue — STORM AND SURFACE WATER UTILITY

TITLE: AMENDED SOILS

NO. ~~NDP-1~~

NO.	DATE	BY	REVISIONS

APPLICANT:
ARTOUSH FANAIYAN
ARTOUSH CONSTRUCTION AND REMODELING
13101 NE 50th STREET
BELLEVUE, WA
(425) 890-9995

DATE: Aug 20, 2025
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Aug 20, 2025 — JEFFREY E. DUFFY — STATE OF WASHINGTON — 39766 — REGISTERED PROFESSIONAL ENGINEER

CIVIL ENGINEERING SOLUTIONS
701 N 36TH STREET SEATTLE, WA 98103
206.930.0342 DUFFY@CESOLUTIONS.US

BMP DETAILS

PROPOSED RESIDENCE
3427 72nd PLACE SE, MERCER ISLAND, WA 98040

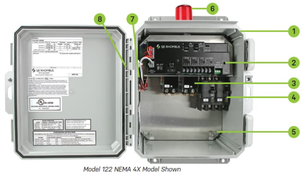
DRAWING NO: **C3.5**

APN 130030-1391

MODEL 122 CONTROL PANEL CUT SHEET (OR EQUAL)

MODEL 122 CONTROL PANEL

The Model 122 control panel is designed to alternately control two 120, 208, or 240 VAC single phase pumps in water and sewage installations. The controller is provided with a pump selector switch that can be set to alternate the pumps to equalize wear or to call either pump to activate first with the other pump to activate in lag condition. If an alarm occurs, the alarm activates the audible-visual system. The alarm conditions include: high water, float out-of-sequence, pump fail-to-run, seal failure (optional). Common applications include: lift stations, pump chambers, and irrigation systems.



Model 122 NEMA 4X Model Shown

PANEL COMPONENTS

1. Newly designed larger NEMA 4X enclosure for indoor/outdoor use
   a. Drip shield
   b. (2) heavy duty wide clamping securable latches
   c. Stainless steel 1/4 turn cover set screw
   d. Low profile hinged padlockable cover
   e. Integral mounting flanges
2. Duplex Controller
   a. Pump HOA switches with green/red LED indicators
   b. Control Power ON/OFF switch
   c. Power ON green LED indicator
   d. Float status red LED indicators
   e. Float push-to-test buttons
   f. Pump selector switch
   g. Auxiliary alarm contacts
   h. Terminal blocks for incoming power and float switches
   j. Option: adjustable seal failure circuits and red LED indicators (must select option SE when ordering)
3. Magnetic Motor Contactors control pumps by switching electrical lines.
4. Circuit Breakers (optional) provides pump disconnect and branch circuit protection
5. Ground Lugs
6. Red LED Alarm Beacon
7. Alarm Horn (not visible)
8. Exterior Alarm Test/Normal/Silence Switch (not visible)

FEATURES

- Touch safe circuit board housing and low voltage 12 VDC float circuits
- Alarm (field programmable to flash)
- Alarm automatic reset (field programmable to manual alarm reset)
- Float out-of-sequence detection
- Pump fail-to-run detection (field programmable to deactivate)
- Controller protected by four auto resettable fuses (control, alarm, pump 1, and pump 2), no fuse replacement
- Three second lag pump delay time, prevents simultaneous pump start-up
- Standard package includes three 20' control switches or EZconnex® float system
- Five-year limited warranty

c UL us LISTED

SJE RHOMBUS

Phone: +1 218 847 1317
email: customer.service@sjeinc.com
www.sjerhombus.com

SEE BACK SIDE FOR COMPLETE LISTING OF AVAILABLE OPTIONS.

B.9

Standard Control Panels
Standard Control Panels

122							6A19B

MODEL 122

ALARM PACKAGE
0 = select options or no alarm package
1 = alarm package (includes test/normal/silence switch, fuse, red light, & horn)

ENCLOSURE RATING
I = indoor, NEMA 1 (metal)
W = Weatherproof, NEMA 4X (engineered thermoplastic)

STARTING DEVICE
1 = magnetic motor contactor 120/208/240V
9 = magnetic motor contactor 120V only

PUMP FULL LOAD AMPS
0 = 0.7 FLA
1 = 7-15 FLA
2 = 15-20 FLA
3 = 20-30 FLA

PUMP DISCONNECTS
0 = no pump disconnect
4 = circuit breaker 120V (select STARTING DEVICE option 9 above) 120/208/240V (select STARTING DEVICE option 1 above)

FLOAT SWITCH APPLICATION
H or L = pump down or pump up (select 17 option)
E = EZconnex® float switch system (select 34 or 35 option)
X = no floats

OPTIONS *Listed below*

★ ENCLOSURE UPSIZE - If you selected one or more of the ★ options.

CODE	DESCRIPTION
1A	Red beacon only / no audio *(must select "0" for alarm package)*
1C	Horn only / no visual *(must select "0" for alarm package)*
3A	Alarm flasher *(factory programmed)*
3B	Manual alarm reset *(factory programmed)*
4A	Redundant off *(select Option 4D if floats included)*
4B	Red redundant off indicator & alarm *(must select Option 4A)*
4D	Redundant off float *(must select 4A and 17 options)*
5A	Thermal cutout/heat sensor auto reset (for pumps w/thermal switch leads)
5E	Seal failure circuit (8 red indicator (2 wire)
6A	Auxiliary alarm contact, Form C *(included as standard)*
8A	Elapsed time meter
8C	Event (cycle) counter
9,A	Pump overload specify amperage after number 9 followed by letter "A". Example: 912A = 12 amp pump.
	9-25 FLA
	25-30 FLA
☑	10E Lockable latch - NEMA 4X *(included as standard)*
	10E Lockable latch - NEMA 1
	10F Lightning arrestor *(select pump circuit breaker)*
	10K Anti-condensation heater
	11C NEMA 1 alarm panel
	11D NEMA 4X alarm panel
▲	14B Main disconnect (rotary style, mounted through door, non-fused, padlockable in the OFF-position, door interlock in the ON-position) *(must select circuit breaker)*
	20 FLA (total of both pumps)
	20-60 FLA (total of both pumps)

CODE	DESCRIPTION
	16A 10' cord in lieu of 20' *(per float)*
	16B 15' cord in lieu of 20' *(per float)*
	16C 30' cord in lieu of 20' *(per float)*
	16D 40' cord in lieu of 20' *(per float)*
	17C Sensor Float® / internally weighted ▲ *(per float)*
	17D Sensor Float® / externally weighted ▲ *(per float)*
	17E Sensor Float® Mini / pipe clamp ▲ *(per float)*
	17F Sensor Float® Mini / externally weighted ▲ *(per float)*
	17G SJE MiliAmpMaster™/ pipe clamp ● *(per float)*
	17H SJE MiliAmpMaster™/ externally weighted ● *(per float)*
	17J Sensor Float® / pipe clamp ▲ *(per float)*
☑	19B Lead lag selector switch *(included as standard)*
	19F Fourth float to separate alarm function from lag
	19T TOA (Test/Off/Automatic) switches and pump run lights through door mounted
	19U HOA (Hand/Off/Automatic) switches and pump run lights through door mounted
	19X Door mounted pump run indicators
	34D EZconnex® 4-Port, 25', w/10' floats (3) /pipe clamp, sealing plug ✱
	34E EZconnex® 4-Port, 50', w/10' floats (3) /pipe clamp, sealing plug ✱
	34G EZconnex® 4-Port, 25', w/20' floats (3) /pipe clamp, sealing plug ✱
	34H EZconnex® 4-Port, 50', w/20' floats (3) /pipe clamp, sealing plug ✱
	35D EZconnex® 4-Port, 25', w/10' floats (4) /pipe clamp ✱
	35E EZconnex® 4-Port, 50', w/10' floats (4) /pipe clamp ✱
	35G EZconnex® 4-Port, 25', w/20' floats (4) /pipe clamp ✱
	35H EZconnex® 4-Port, 50', w/20' floats (4) /pipe clamp ✱

● Mechanically-activated ▲ Mercury-activated
✱ EZconnex® mechanically-activated, narrow angle float switches with quick release connections.

85007RE 10/19
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B.10

STORM PUMP SPEC (LIBERTY FL31M OR EQUAL)

FL30-SERIES
Effluent Pumps

Liberty Pumps
A Family and Employee Owned Company

1/3 hp
3/4" Solids handling

Specifically designed for STEP Systems, LPP Systems, Mound Systems, Liquid Waste Transfer and Commercial Sump Applications

Features

- Vortex impeller, made of high temperature engineered polymer, permits passage of solids without clogging
- Cast iron construction with all stainless and brass fasteners
- 416 stainless steel rotor shaft
- Oil-filled, thermally protected motor
- Permanently lubricated ball bearings
- Unitized shaft seal
- 1-1/2" FNPT discharge
- Quick-connect 10' standard power cord allows replacement of cord in seconds without breaking seals to motor (25', 35', or 50' lengths optional)

Models

FL31M 115V, 10.5A, Manual
FL31A 115V, 10.5A, Automatic
FL32M 208–230V, 5.5A, Manual
FL32A 208–230V, 5.5A, Automatic

Automatic model features a mercury-free wide-angle float switch with series plug – allows for manual operation of pump separate from float switch.



FL30-Series

Impeller
Vortex style high temperature polymer

Paint
Powder coat

Max Fluid Temperature
140°F (60°C)

Motor
Class A windings, oil-filled, thermally protected

Power Cord Type
SJTW, Quick-connect 10' standard length (25', 35', or 50' lengths optional)

Motor Housing
Class 25 cast iron

Volute
Class 25 cast iron

Dimensional Data
Weight: FL31M: 32 lbs
Height: 9.6"
Major Width: 9.8" (manual model)

Shaft
Stainless housing and BUNA-N elastomers

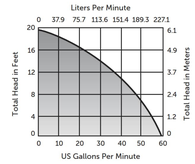
Hardware
Stainless

Mechanical Shaft Seal
Unitized ceramic carbon

Bearings
Upper and lower ball bearings

Float Switch (automatic models)
Wide-angle float switch with piggyback plug

Performance Curve
60 Hz, 1725 RPM



MODEL	HP	VOLTS	PHASE	AMPS	DISCHARGE	AUTOMATIC	IMPELLER
FL31M	1/3	115	1	10.5	1-1/2" FNPT	No	Vortex
FL31A	1/3	115	1	10.5	1-1/2" FNPT	Yes	Vortex
FL32M	1/3	208-230	1	5.5	1-1/2" FNPT	No	Vortex
FL32A	1/3	208-230	1	5.5	1-1/2" FNPT	Yes	Vortex

10' cord standard on above models. 25', 35', and 50' cord lengths available (50' cord not available on automatic models). Add '-2', '-3', and '-5' suffix to model number. Example: FL31A-2 for 25' cord.

innovate. evolve

Specifications subject to change without notice.
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Liberty Pumps - 7000 Apple Tree Avenue - Bergen, New York 14416
Phone 800-543-2590 - Fax 585-494-1839 - LibertyPumps.com

(BASED ON 30 INCH DIAMETER BASIN)

PUMPING DEPTH CYCLE CALC

Storm Pump-Float Depth / Pump Interval Calculator

7/18/2025

	Value	Units	Comments
Input Pump Basin Diameter (feet)=	2.5	feet	recommended basin diameter for duplex pumps
Calculate pump basin radius=	1.3	feet	
Calculate cross section Area of basin=	4.91	sf	
Input a pump depth to achieve 2 min run time=	1.5	feet	Input pump depth here
Calculate volume of water per pump cycle=	7.4	cf	
Convert volume to gallons	55.1	gallons	convert to gallons pumped
Input pump rate based on pump curve and TDH	28	gpm	
Calculate time for pump to operate per cycle	2.0	minutes	ensure time is minimum 2 minutes

RECOMMENDED PUMP CYCLE DEPTH (30" BASIN)
ACHIEVE 2 MINUTE MIN. RUN TIME PER CYCLE

TOTAL DYNAMIC HEAD CALCULATOR

Pump Flow Rate	Pipe Diameter(ID)	Pipe Length	Differential Elevation	Pipe Material	Total Dynamic Head(TDH)
US GPM	in.	ft.	ft.	Plastic	ft.
18	2	90	14		14.6379044630539 85

Compute Total Dynamic Head(TDH) | Reset

BASED ON 2 INCH DIAMETER FORCE MAIN SIZE

MATCH GPM/TDH RESULTS TO MATCH PUMP

PUMP DESIGN HYDROLOGY

Peak Flow Rates in Puget Sound

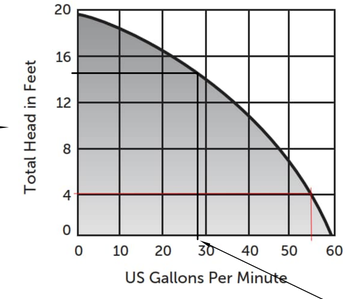
100 year, 24 hour storm event
I=4.0 inches/24 hours per isopluvials

		SBUH	SBUH	SBUH	SBUH	WWHM	WWHM	Average
		(CFS)	(GPM)	(CFS)	(GPM)	(cfs)	445 gpm	gpm
Impervious Area	Acres	Tc=6.3		Tc=10				
1,000	0.023	0.02	9	0.023	10	0.0178	7.9	**9**
2,000	0.046	0.041	18	0.045	20	0.0356	15.8	**18**
3,000	0.069	0.062	28	0.067	30	0.0534	23.8	**27**
4,000	0.092	0.082	36	0.09	40	0.0712	31.7	**36**
5,000	0.115	0.103	46	0.112	50	0.089	39.6	**45**
6,000	0.138	0.124	55	0.135	60	0.1068	47.5	**54**
7,000	0.161	0.143	64	0.156	69	0.1246	55.4	**62**

SELECT INDIVIDUAL PUMP THAT CAN MEET OR EXCEED ½ OF 36, OR 18 GPM MIN RATE PER PUMP. AN UPPER FLOAT CAN ACTIVATE BOTH PUMPS DURING EXCESSIVE STORM EVENTS.

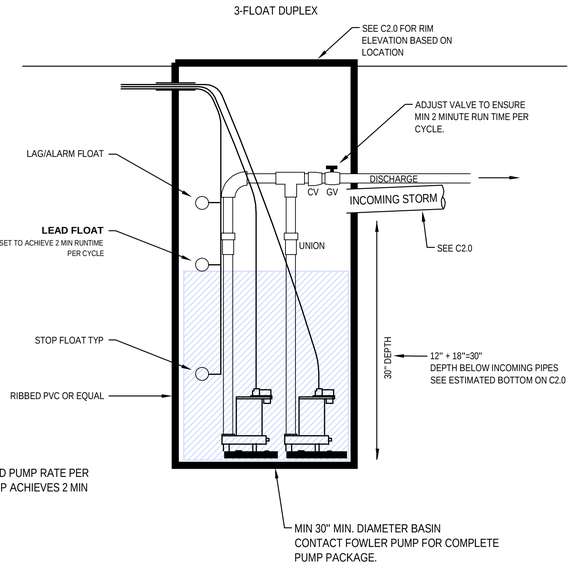
STORM PUMPS RECOMMENDATION:

- LIBERTY FL31M PUMPS, OR EQUAL
- 1/3 hp
- FORCE MAIN SIZE = 2.0"
- BASIN SIZE RECOMMENDATION = 30"- Ø
- DUPLEX PUMPS REQUIRED
- CONTACT FOWLER PUMP IN BELLEVUE FOR PUMP PACKAGE



USE 28 GPM AS ESTIMATED PUMP RATE PER PUMP. SET DEPTH SO PUMP ACHIEVES 2 MIN RUNTIME PER CYCLE.

STORM PUMP & BASIN SCHEMATIC



NO.	DATE	BY	REVISIONS

APPLICANT:
ARTOUSH FANAIYAN
ARTOUSH CONSTRUCTION AND REMODELING
13101 NE 50th STREET
BELLEVUE, WA
(425) 890-9995

DATE: Aug 20, 2025
JOB# 2126
DRAFTED: SS DESIGN: DE
DIGITAL SIGNATURE

Aug 20, 2025
JEFFREY E. DUFFY
STATE OF WASHINGTON
39766
REGISTERED
PROFESSIONAL ENGINEER

CIVIL ENGINEERING SOLUTIONS
701 N 36TH STREET SEATTLE, WA 98103
206.930.0342 DUFFY@CESOLUTIONS.US

DUPLEX STORM PUMPS

PROPOSED RESIDENCE
3427 72nd PLACE SE, MERCER ISLAND, WA 98040

DRAWING NO:
C5.0

APN 130030-1391

TOPOGRAPHIC & BOUNDARY SURVEY

LEGAL DESCRIPTION

(PER PERSONAL REPRESENTATIVE'S DEED REC. NO. 20190510000378)

THE SOUTH HALF OF LOT 8, AND ALL OF LOTS 9 AND 10, BLOCK 5, C.C. CALKINS 1ST ADDITION TO EAST SEATTLE, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 88, IN KING COUNTY, WASHINGTON.

BASIS OF BEARINGS

ACCEPTED THE BEARING OF N 89°54'00" E, BETWEEN MONUMENTS FOUND ALONG THE CENTERLINE OF 32ND AVE SE, PER REFERENCE NO. 1.

REFERENCES

R1. BOUNDARY LINE ADJUSTMENT, VOL. 226, PG. 146, RECORDS OF KING COUNTY, WASHINGTON.
R2. RECORD OF SURVEY, VOL. 207, PG. 33 RECORDS OF KING COUNTY, WASHINGTON.
R3. C.C. CALKINS FIRST ADDITION, VOL. 7 OF PLATS, PG. 88 RECORDS OF KING COUNTY, WASHINGTON.

VERTICAL DATUM

NAVD 88 PER WGS SURVEY DATA WAREHOUSE 6457
DESCRIPTION: 2" BRASS CAP WITH CHISELED "X" IN CONC. MON (DN 1.0')
LOCATION: 5' OFFSET MON AT INTX SE 32ND ST & 74TH AVE SE
ELEVATION: 324.56'

SITE TEMP. BENCHMARK
DESCRIPTION: PK NAIL W/ RED WASHER
LOCATION: 1.3'S & 26.9'E FROM THE SE PROPERTY COR
ELEVATION: 293.35'

SURVEYOR'S NOTES

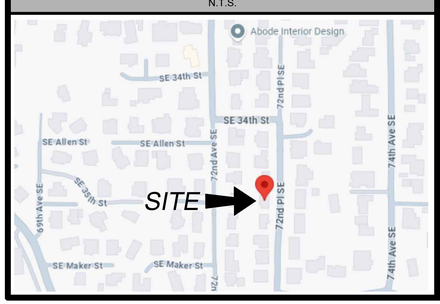
1. THE TOPOGRAPHIC SURVEY SHOWN HEREON WAS PERFORMED IN MAY OF 2025. THE FIELD DATA WAS COLLECTED AND RECORDED ON MAGNETIC MEDIA THROUGH AN ELECTRONIC THEODOLITE. THE DATA FILE IS ARCHIVED ON DISC OR CD. WRITTEN FIELD NOTES MAY NOT EXIST. CONTOURS ARE SHOWN FOR CONVENIENCE ONLY. DESIGN SHOULD RELY ON 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. 1300301391
5. SUBJECT PROPERTY AREA PER THIS SURVEY IS 7,500 S.F. (0.17 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. EXISTING STRUCTURE(S) LOCATION AND DIMENSIONS ARE MEASURED FROM THE FACE OF THE SIDING UNLESS OTHERWISE NOTED.
8. FIELD DATA FOR THIS SURVEY WAS OBTAINED BY DIRECT FIELD MEASUREMENTS WITH A CALIBRATED ELECTRONIC 3-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.

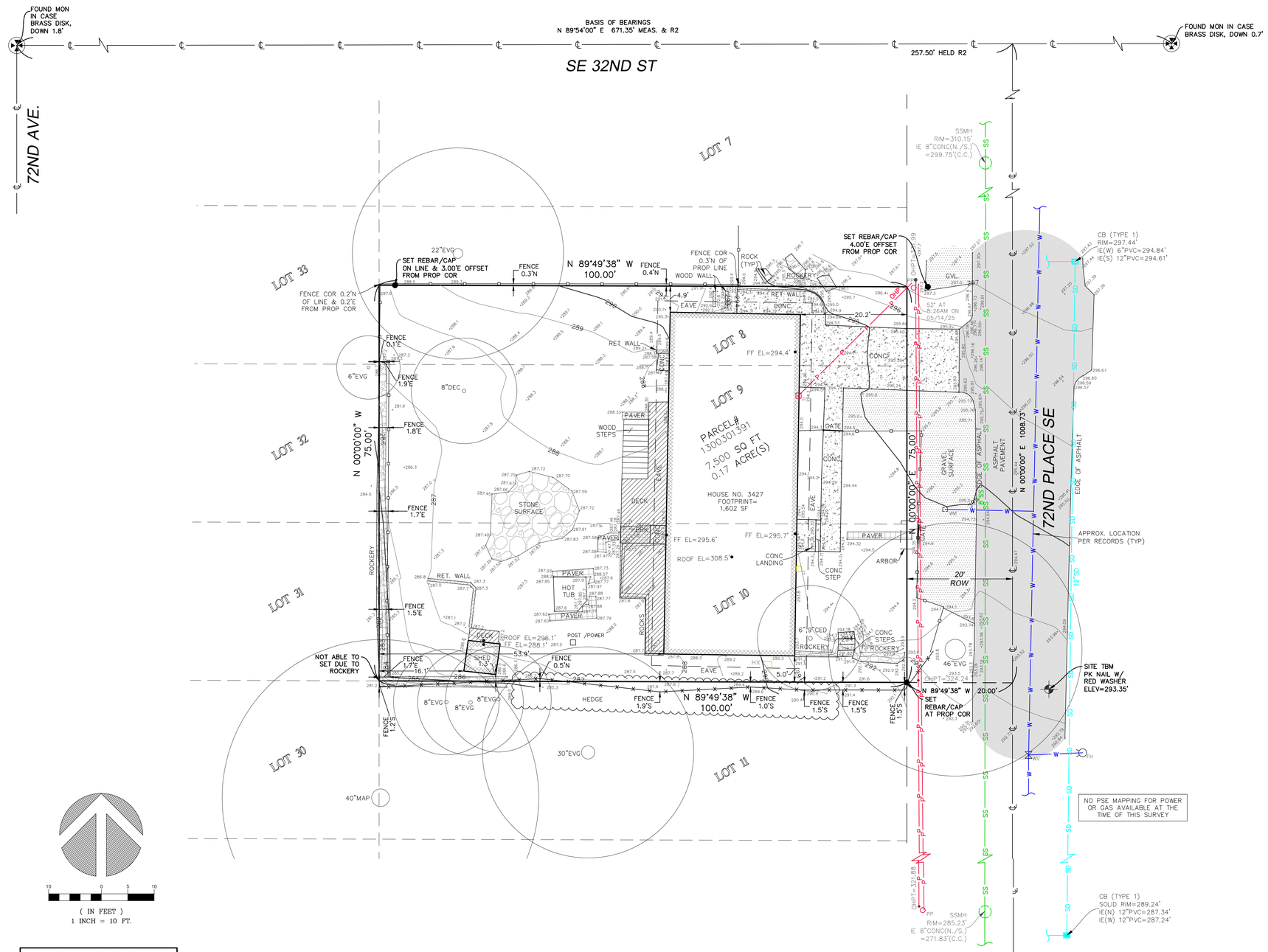
LEGEND

BENCHMARK		BUILDING	
CENTERLINE ROW		BRICK SURFACE	
FENCE LINE (WOOD)		CONCRETE SURFACE	
MONUMENT (IN CASE, FOUND)		DECK	
MONUMENT (SURFACE, FOUND)		ROCKERY	
NAIL AS NOTED	G	GAS METER	
PROPERTY LINES (ADJACENT)	GV	GAS VALVE	
PROPERTY LINE (SUBJECT)	G	GAS LINE	
REBAR & CAP (SET)	P	POWER METER	
REBAR AS NOTED (FOUND)	P	POWER (OVERHEAD)	
RETAINING WALL	CONC	CONCRETE	
RIGHT-OF-WAY LINES	FF	FINISH FLOOR	
SUBDIVISION LINES	G	GAS	
SIZE TYPE TREE (AS NOTED)	OHT	OVERHEAD TELEPHONE	
ASPHALT SURFACE	PROP	PROPERTY	

VICINITY MAP

N.T.S.





10 0 5 10
(IN FEET)
1 INCH = 10 FT.

INDEXING INFORMATION

NE 1/4 SW 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.

We are the measure | terrane.net

TOPOGRAPHIC & BOUNDARY SURVEY
PARCEL NO. 1300301391

3427 72ND PL SE

3427 72ND PLACE SOUTHEAST
MERCER ISLAND, WA 98040

GOODMAN MILLER JACOB — STATE OF WASHINGTON — REGISTERED PROFESSIONAL LAND SURVEYOR — 05/16/25

TERRANE
11235 SE 6th St, Suite 130
Bellevue, WA 98004
p: 425-458-4488 | e: info@terrane.net

JOB NUMBER:	250967
DATE:	05/16/25
DRAFTED BY:	MBC
CHECKED BY:	JGM
SCALE:	1" = 10'

REVISION HISTORY

SHEET NUMBER
1 OF 1