GENERAL NOTES

1 All materials, workmanship, design, and construction shall conform to the drawings, specifications, and the following applicable codes used in the design:
2021 INTERNATIONAL RESIDENTIAL CODE
2021 WASINGTON STATE ENERGY CODE

2 Contractor shall contact architect immediately in case of any discrepancy between drawings and site conditions or code requirements.

3 Unvented Enclosed Rafter Assemblies per IRC R806.5

4 Dimensions are to face of concrete and face of stud unless noted otherwise.

5 Applicable codes, ordinances, and minimum structural requirements take precedence over all drawings, notes, specifications, and sizes.

6 Verify dimensions before beginning work.

7 Do not scale drawings.

8 Provide approved draft-stopping in concealed space between ceiling and floor per IRC R502.12 & R302.12.

9 Provide approved fireblocking in walls, concealed spaces, soffits, drop ceilings, and under stairs per IRC R602.8 & R302.11.

10 Provide solid wood blocking as support for all wall mounted fixtures.

11 All exterior openings exposed to weather shall be flashed to make weatherproof per IRC R703.2 , R703.4, R703.7.3, R703.8, R903, and R905. All flashing, counter-flashing, and coping shall be minimum 26 ga. galvanized.

12 Provide weather resistive barrier per IRC 703.2 and R903.

13 Caulk all openings per mfg specifications. All exterior joints shall be sealed, caulked, gasketed, or weather-stripped to limit air flow at windows, doors, openings between walls and foundations, walls and roof, utility service penetrations, etc.

14 Provide flow control devices for all new fixtures; showers @ 1.8 gpm., Toilets @ 1.28 gallons max per flush, lavatory faucets @ 1.2 gpm, and kitchen faucets @ 1.8 gpm max. All flow rates for plumbing fixtures to comply with WAC 51-56-0400.

15 A 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.

16 Smoke detectors located and installed per IRC R314 to be hardwired with battery backup and conected to sound alarm in all locations on trigger. Carbon Monoxide detectors shall be located and installed, per IRC R315, outside of each separate sleeping area in the immediate vicinity of each bedroom as required. Placement per plan.

17 Safety glazing is required to be permanently marked. Provide tempered glass at required hazardous locations and category ii glass enclosure doors and panels per IRC 308.4.

18 All skylights shall conform to IRC R308.6 and be installed per MFR's details and specifications.

19 All shower enclosures shall be finished to a height of 72" with a hard, non-absorbent material.

20 Water heaters shall meet the requirements of 1987 NAECA and be so labeled. Water heaters shall be strapped to resist displacement by an earthquake per UPC.

21 All structural panel components within conditioned space shall be identified as exposure I, exterior or HUD-approved per R702.5.

22 Provide emergency escape route for bedrooms per IRC R310.

23 Stairways, exits and handrails shall conform to IRC R311.7 requirements. Stairways with 4 or more risers shall have a continuous 1 1/2" handrail, 34"-38" above nosing of tread, which returns to a newel post or wall. Openings in rail shall be less than 4" clear in any direction.

24 Decks and guardrails to conform to IRC R312 requirements.

25 All ceiling heights shall conform to IRC R305. Habitable space, hallways and portions of basements containing habitaable spaces shall have a ceiling height of not less than 7 feet. Toilet rooms and laundry rooms shall have a ceiling height of not less than 6 feet 8 inches

26 Clearances of listed appliances from combustible materials shall be specified in appliance label and in manufacturer's installation instructions. Unspecified shall comply with IRC M304.9.

27 All wood in contact with concrete or ground to be treated or naturally decay resistant per IRC R317.1.

28 Vapor barrier under all concrete slabs, lapped min 12" at all seams and taped.

29 Mechanical and service hot water piping to be insulated per WSEC R403.4 and R403.5.

30 Per IRC R401.3, surface drainage shall be diverted into a storm sewer or other point of collection.

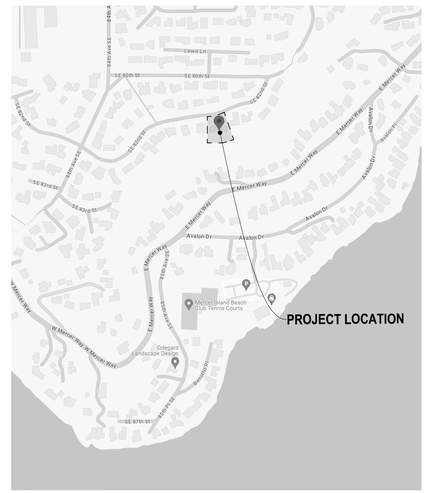
31 Existing roof/ceiling, wall or floor cavities exposed during construction shall be filled with insulation per WSEC R503.

32 Construction erosion control measures must be in place and approved by the Authority Having Jurisdiction prior to any earth disturbance.

33 No sediment shall be tracked into the street or onto paved surfaces. Sediment shall be removed from trucks and equipment prior to leaving the site. In the event of failure of erosion control system resulting in sediment being tracked onto paved surfaces, the contractor shall immediately implement measures to correct the situation, and street sweeping shall be employed on an emergency basis. If street sweeping vehicles are utilized, they shall be of the type that actually removes sediment from the pavement.

VIEW FROM NE/STREET

VIEW FROM SW



VICINITY MAP

PROJECT INFORMATION

CAST PROJECT NUMBER: 2215

OWNER:
RAHUL PATHAK AND SEVERINE KELLEY
8541 SE 82ND ST
MERCER ISLAND, WA 98040

PROJECT ADDRESS:
8541 SE 82ND ST
MERCER ISLAND, WA 98040

PROJECT DESCRIPTION:
INTERIOR REMODEL OF (E) SINGLE-FAMILY RESIDENCE. CONVERT (E) CARPORT TO (N) ATTACHED GARAGE WITH UTILITY ROOM. NO NEW CONDITIONED AREA.

SHEET INDEX

a.00	GENERAL INFO
a.01	SURVEY
a.02	SITE PLAN - EXISTING
a.03	SITE PLAN - PROPOSED
a.04	SITE PLAN DIAGRAMS
a.05	SITE PLAN DIAGRAMS
a.06	SITE PLAN DIAGRAMS
a.07	TREE PROTECTION PLAN
a.08	TREE PROTECTION PLAN
a.09	TREE PROTECTION PLAN
a.07	BUILDING VALUATION DIAGRAMS
a.11	LOWER FLOOR DEMO PLAN
a.12	UPPER FLOOR DEMO PLAN
a.13	PROPOSED FOUNDATION PLAN
a.14	PROPOSED LOWER FLOOR PLAN
a.15	PROPOSED UPPER FLOOR PLAN
a.16	PROPOSED ROOF PLAN
a.17	BUILDING ELEVATIONS
a.18	BUILDING ELEVATIONS
a.19	BUILDING SECTIONS
a.20	BUILDING SECTIONS
a.21	BUILDING SECTIONS
a.22	ASSEMBLIES
a.23	SCHEDULES
a.24	DETAILS
a.25	DETAILS
a.26	ENERGY CODE INFO
a.27	ENERGY CODE INFO
a.28	MECHANICAL CODE INFO
S1.1	GENERAL STRUCTURAL NOTES
S1.2	GENERAL STRUCTURAL NOTES, CONT.
S2.1	FOUNDATION PLAN
S2.2	UPPER FLOOR FRAMING PLAN
S2.3	ROOF FRAMING PLAN
S3.1	CONCRETE DETAILS
S3.2	CONCRETE DETAILS
S4.1	WOOD DETAILS
S4.2	WOOD DETAILS
S4.3	WOOD DETAILS
S5.1	STEEL DETAILS

PROJECT CONTACTS

OWNERS:
RAHUL PATHAK AND SEVERINE KELLEY
8541 SE 82ND ST
MERCER ISLAND, WA 98040

ARCHITECTS:
STEFAN HAMPDEN, GEORGE LEE
CAST ARCHITECTURE
115 NORTH 36TH ST
SEATTLE, WA 98103
(206) 360-8822
stefan@castarchitecture.com, george@castarchitecture.com

CONTRACTOR:
JEFF WENZEL
MERCER BUILDERS, LLC
3026 78TH AVE SE
MERCER ISLAND, WA 98040
(206) 719-0069
jeff.wenzel@mercerbuilders.com
LICENSE #: MERCEBL942J7
EXP: 04/27/26

STRUCTURAL ENGINEER:
GREG COONS, LAN NGUYEN
SWENSON SAY FAGET
2124 3RD AVE, SUITE 100
SEATTLE, WA 98121
206-443-6212
gcoons@ssfengineers.com

SURVEYOR:
TERRANE
10801 MAIN STREET, STE 102,
BELLEVUE, WA 98004
425-458-4488
info@terrane.net

GEOTECHNICAL ENGINEER:
PANGEO INC.
3213 EASTLAKE AVE E, SUITE B
SEATTLE, WA 98102
206-262-0370

ARBORIST:
DANIEL MAPLE
A.B.C. CONSULTING ARBORISTS LLC
12402 N DIVISION ST, SUITE 294
SPOKANE, WA 99218
DANIEL@ABCARBORIST.COM
509-953-0293

CAST
ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT 8217 STATE OF WASHINGTON

Approved by:

issue	issue date	description
	10.17.23	PRELIMINARY PRICING SET
	02.19.24	VE COORDINATION SET
	03.25.24	COORDINATION SET
	07.03.24	PERMIT APPLICATION SET
	11.27.24	PERMIT CORRECTIONS 01 SET
	01.16.25	PERMIT CORRECTIONS 02 SET

printed 1/16/2025

GENERAL INFO

a.00

1/16/2025 2:50 PM /25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln

TOPOGRAPHIC & BOUNDARY SURVEY

LEGAL DESCRIPTION

(PER CHICAGO TITLE COMPANY "GUARANTEE", ORDER NO. 0248356-ETU)

LOT 5, ISLAND POINT, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 75 OF PLATS, PAGE 88, RECORDS OF KING COUNTY, WASHINGTON;

SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

BASIS OF BEARINGS

A LINE COMPUTED PER REFERENCE NO. 1 BETWEEN FOUND MONUMENTS BEARS S 81°48'51" W, AS SHOWN HEREON.

REFERENCES

R1. ISLAND POINT, VOL. 75 OF PLATS, PG. 88, RECORDS OF KING COUNTY, WASHINGTON.

VERTICAL DATUM

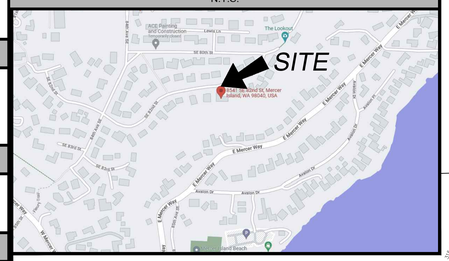
NAVD 88 PER CITY OF MERCER ISLAND BENCHMARK NO. 1722
DESCRIPTION: BRASS NIPPLE IN CONC (DN 0.9')
LOCATION: SE 82ND ST, OPP HSE #8500
ELEVATION: 321.936'

SURVEYOR'S NOTES

1. THE TOPOGRAPHIC SURVEY SHOWN HEREON WAS PERFORMED IN NOVEMBER OF 2022. 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. 362550-0050
5. SUBJECT PROPERTY AREA PER THIS SURVEY IS 16,138 ±S.F. (0.37 ACRES)
6. ALL TITLE INFORMATION SHOWN ON THIS MAP HAS BEEN EXTRACTED FROM CHICAGO TITLE INSURANCE COMPANY'S "GUARANTEE", ORDER NO. 0248356-ETU, DATED OCTOBER 31, 2022. IN PREPARING THIS MAP, TERRANE, INC. HAS CONDUCTED NO INDEPENDENT TITLE SEARCH NOR IS TERRANE, INC. AWARE OF ANY TITLE ISSUES AFFECTING THE SURVEYED PROPERTY OTHER THAN THOSE SHOWN ON THE MAP AND DISCLOSED BY THE REFERENCED "SUBDIVISION GUARANTEE". TERRANE, INC. HAS RELIED WHOLLY ON NAME.NAME NAME.NAME TITLE INSURANCE COMPANY'S REPRESENTATIONS OF THE TITLE'S CONDITION TO PREPARE THIS SURVEY AND TERRANE, INC. QUALIFIES THE MAP'S ACCURACY AND COMPLETENESS TO THAT EXTENT.
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 5-SECOND TOTAL STATION AND/OR SURVEY GRADE GPS OBSERVATIONS. ALL ANGULAR AND LINEAR RELATIONSHIPS ARE ACCURATE AND MEET THE STANDARDS SET BY WAC 332-130-090.

VICINITY MAP

N.T.S.



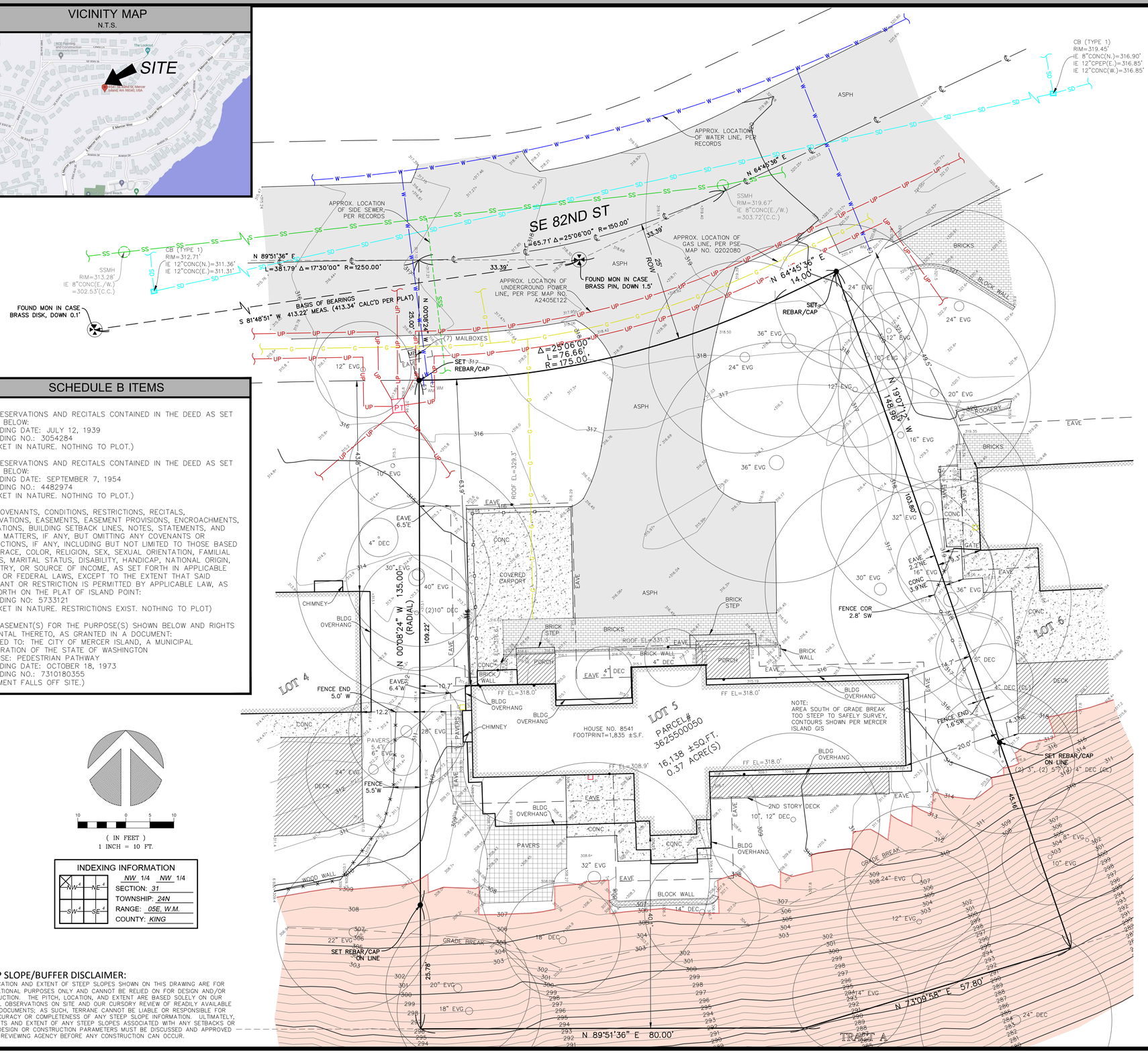
SCHEDULE B ITEMS

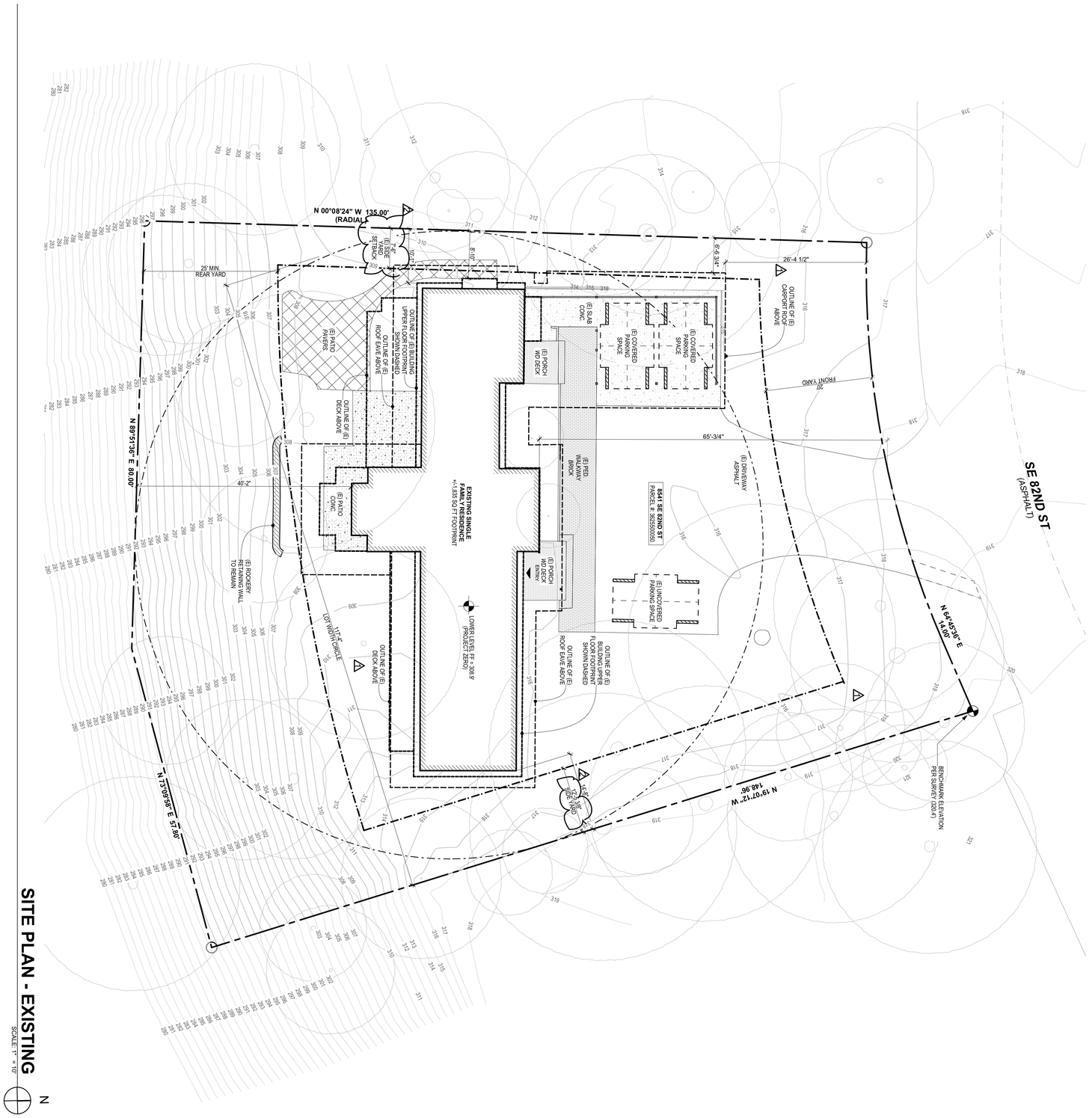
1. RESERVATIONS AND RECITALS CONTAINED IN THE DEED AS SET FORTH BELOW:
RECORDING DATE: JULY 12, 1939
RECORDING NO.: 3054284
(BLANKET IN NATURE. NOTHING TO PLOT.)

2. RESERVATIONS AND RECITALS CONTAINED IN THE DEED AS SET FORTH BELOW:
RECORDING DATE: SEPTEMBER 7, 1954
RECORDING NO.: 4482974
(BLANKET IN NATURE. NOTHING TO PLOT.)

3. COVENANTS, CONDITIONS, RESTRICTIONS, RECITALS, RESERVATIONS, EASEMENTS, EASEMENT PROVISIONS, ENCROACHMENTS, DEDICATIONS, BUILDING SETBACK LINES, NOTES, STATEMENTS, AND OTHER MATTERS, IF ANY, BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, INCLUDING BUT NOT LIMITED TO THOSE BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, ANCESTRY, OR SOURCE OF INCOME, AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW, AS SET FORTH ON THE PLAT OF ISLAND POINT:
RECORDING NO: 5733121
(BLANKET IN NATURE. RESTRICTIONS EXIST. NOTHING TO PLOT)

4. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: THE CITY OF MERCER ISLAND, A MUNICIPAL CORPORATION OF THE STATE OF WASHINGTON
PURPOSE: PEDESTRIAN PATHWAY
RECORDING DATE: OCTOBER 18, 1973
RECORDING NO.: 7310180355
(EASEMENT FALLS OFF SITE.)


SE 82ND ST
N 89°51'36" E
L=381.79' Δ=17°30'00" R=1250.00'
R=65.71' Δ=25°06'00" R=150.00'
33.39'
S 81°48'51" W 413.22' MEAS. (413.34' CALC'D PER PLAT)
BASIS OF BEARINGS
FOUND MON IN CASE BRASS DISK, DOWN 0.1'
FOUND MON IN CASE BRASS PIN, DOWN 1.5'
SET 3/4" REBAR/CAP
Δ=25°06'00" L=76.66' R=175.00'
N 64°45'36" E 14.00'
S87° REBAR/CAP
N 19°07'12" W 148.96'
N 00°08'24" W 135.00' (RAD/AL)
109.22'
N 73°09'52" E 57.80'
N 89°51'36" E 80.00'
APPROX. LOCATION OF SIDE SEWER, PER RECORDS
APPROX. LOCATION OF WATER LINE, PER RECORDS
APPROX. LOCATION OF GAS LINE, PER PSE-MAP NO. Q202080
APPROX. LOCATION OF UNDERGROUND POWER LINE, PER PSE MAP NO. A2405E122
SSMH RIM=313.28' IE 8"CONC(E./W.)=302.53'(C.C.)
CB (TYPE 1) RIM=312.71' IE 12"CONC(N.)=311.36' IE 12"CONC(E.)=311.31'
SSMH RIM=319.67' IE 8"CONC(E./W.)=303.72'(C.C.)
CB (TYPE 1) RIM=319.45' IE 8"CONC(N.)=316.90' IE 12"CPEP(E.)=316.85' IE 12"CONC(W.)=316.85'
(7) MAILBOXES
HOUSE NO. 8541 FOOTPRINT=1,835 ±S.F.
LOT 5 PARCEL# 3625500050 16,138 ±SQ.FT. 0.37 ACRE(S)
NOTE: AREA SOUTH OF GRADE BREAK TOO STEEP TO SAFELY SURVEY. CONTOURS SHOWN PER MERCER ISLAND GIS
FENCE COR 2.8' SW
FENCE END 5.0' W
FENCE 5.5'W
FENCE END 1.6' SW
SET REBAR/CAP ON LINE
(2) 3"-(2) 5"-(2) 4" DEC (TYP)
ASPH
BRICKS
CONC
DECK
PAVERS
BLOCK WALL
ROCKERY
COVERED CARPORT
BRICK WALL
BRICK STEP
PORCH
2ND STORY DECK
GRADE BREAK
WOOD WALL
ROOF EL=329.3'
ROOF EL=331.1'
FF EL=318.0'
FF EL=308.9'
BLDG OVERHANG
CHIMNEY
EAVE
LOT 4
LOT 6
25' ROW
103.80'
45.16'
25.78'
63.9'
10.7'
12.2'
14.7'
20.0'
4.3'
5' DEC
4" DEC (TYP)
24" EVG
36" EVG
32" EVG
30" EVG
28" EVG
22" EVG
20" EVG
18" EVG
16" EVG
14" EVG
12" EVG
10" EVG
8" EVG
40" EVG
(2)10" DEC
18" DEC
14" DEC
12" DEC
10", 12" DEC
8" DEC
4" DEC (TYP)
4" DEC (TYP)
4" DEC (TYP)



SITE PLAN - EXISTING

SCALE: 1" = 10'

N

SITE PLAN - EXISTING	issue	issue date	description printed 1/16/2025
a.02		10.17.23	PRELIMINARY PRICING SET
		02.19.24	VE COORDINATION SET
		03.25.24	COORDINATION SET
		07.03.24	PERMIT APPLICATION SET
		11.27.24	PERMIT CORRECTIONS 01 SET
		01.16.25	PERMIT CORRECTIONS 02 SET

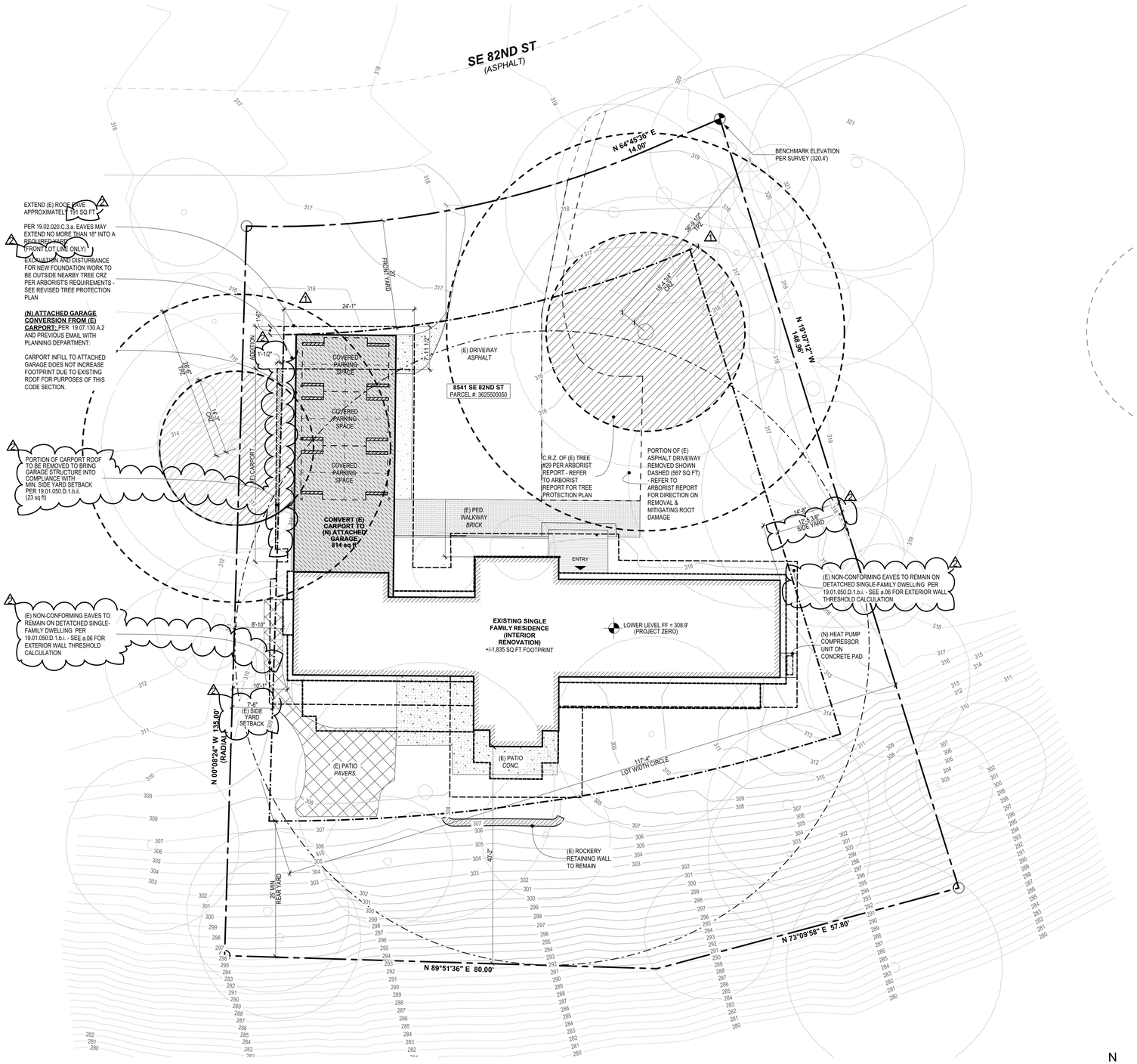
Approved by:

9217 REGISTERED ARCHITECT
STEFAN MOSER-HARDEN
STATE OF WASHINGTON

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

CAST ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886



SITE PLAN - PROPOSED

SCALE: 1" = 10'

N

SITE INFO

LEGAL DESCRIPTION:
(PER CHICAGO TITLE COMPANY "GUARANTEE", ORDER NO. 0248356-ETU)

LOT 5, ISLAND POINT, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 75 OF PLATS, PAGE 88, RECORDS OF KING COUNTY, WASHINGTON;

SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

PARCEL TAX NUMBER:	362550-0050
ZONING:	R-9.6
HEIGHT LIMIT:	30 FT
CONSTRUCTION TYPE:	V-B
SETBACKS:	
FRONT:	20'
SIDE (TOTAL WIDTH REQUIRED):	117.33' x 17% = 19.95' (19'-11 3/8") FOR LOTS WITH A WIDTH OF 90'+ THE SIDE YARDS SHALL BE A WIDTH THAT IS EQUAL TO AT LEAST 17% OF THE LOT WIDTH.
SIDE (TOTAL WIDTH PROPOSED):	19'-11 3/8"

THE PROJECT PROPOSES TO MAINTAIN LEGALLY NON-CONFORMING STATUS FOR THE PRINCIPAL STRUCTURE PER 19.01.050.D.1.b.i. - SEE a.06 FOR EXTERIOR STRUCTURAL WALL ALTERATION THRESHOLD CALCULATION. FOR THE ATTACHED ACCESSORY STRUCTURE (CARPORT/ATTACHED GARAGE), THE PROJECT PROPOSES TO BRING THE ACCESSORY STRUCTURE INTO COMPLIANCE WITH SIDE YARD REQUIREMENTS BY REMOVE THE NON-CONFORMING PORTION OF THE EAVES WHICH ENCROACH ON THE MINIMUM REQUIRED SIDE YARD WIDTH - SEE a.03.

MINIMUM SIDE YARD WIDTH:	19.95' x 33% = 6.58' (~6'-7") THE MINIMUM SIDE YARD WIDTH IS FIVE FEET OR 33 PERCENT OF THE AGGREGATE SIDE YARD WIDTH, WHICHEVER IS GREATER.
VARIABLE SIDE YARD WIDTH:	MINIMUM 7.5' (7'-6") REQUIRED FOR LOTS WITH AN AREA OF 6,000 SQUARE FEET OR MORE, THE MINIMUM SIDE YARD DEPTH ABUTTING AN INTERIOR LOT LINE - SINGLE-FAMILY DWELLINGS SHALL PROVIDE A MINIMUM SIDE YARD DEPTH OF 7.5' FEET FOR GABLED ROOF END BUILDINGS, (WHERE) THE HEIGHT IS MORE THAN 18 FEET MEASURED FROM EXISTING OR FINISHED GRADE, WHICHEVER IS LOWER, TO THE TOP OF THE GABLED ROOF END ADJOINING THE SIDE YARD.
REAR:	25'
LOT DEPTH:	65% of lot (with exceptions)
LOT WIDTH:	117'-4" SEE LOT WIDTH CIRCLE AND DIMENSION INDICATED ON SITE PLAN 1/A.03
PARKING:	
REQUIRED:	3
PROVIDED:	3

GROSS FLOOR AREA

A. LOT AREA	16,138 SF
B. ZONE	R-9.6
C. ALLOWED GROSS FLOOR AREA (GFA)	8,000 SF
D. ALLOWED GROSS FLOOR AREA	40% OF LOT

EXISTING

MAIN FLOOR	2,076 SF
BASEMENT	1,751 SF
CARPORT/UNCONDITIONED	802 SF
TOTAL FLOOR AREA	**4,629 SF**
ACCESSORY BUILDINGS	0 SF
2ND & 3RD STORY ROOFED DECKS	285 SF
CLGS 12'-16'	164 SF
CLGS >16'	0 SF
STAIRCASES	90 SF

PROPOSED

MAIN FLOOR	2,075 SF
BASEMENT	1,738 SF
GARAGE/UNCONDITIONED	868 SF
TOTAL FLOOR AREA	**4,681 SF**
ACCESSORY BUILDINGS	0 SF
2ND & 3RD STORY ROOFED DECKS	285 SF
CLGS 12'-16'	167 SF
CLGS >16'	0 SF
STAIRCASES	90 SF
BASEMENT AREA EXCLUDED	913 SF

PROPOSED GFA CALCULATION

4,681 + 0 + 285 + (167 * 0.5) + 0 + 90 = 5,140 SF

5,140 - 913 = **4,227 SF**

E. PROPOSED GROSS FLOOR AREA	**4,227 SF**
F. PROPOSED GROSS FLOOR AREA	**26% OF LOT**

CAST
ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT
9217
STATE OF WASHINGTON

Approved by:

issue	issue date	description	printed 1/16/2025
	10.17.23	PRELIMINARY PRICING SET	
	02.19.24	VE COORDINATION SET	
	03.25.24	COORDINATION SET	
	07.03.24	PERMIT APPLICATION SET	
	11.27.24	PERMIT CORRECTIONS 01 SET	
	01.16.25	PERMIT CORRECTIONS 02 SET	

SITE PLAN - PROPOSED

a.03

1/16/2025 2:50 PM 25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln

LOT SLOPE CALCULATION

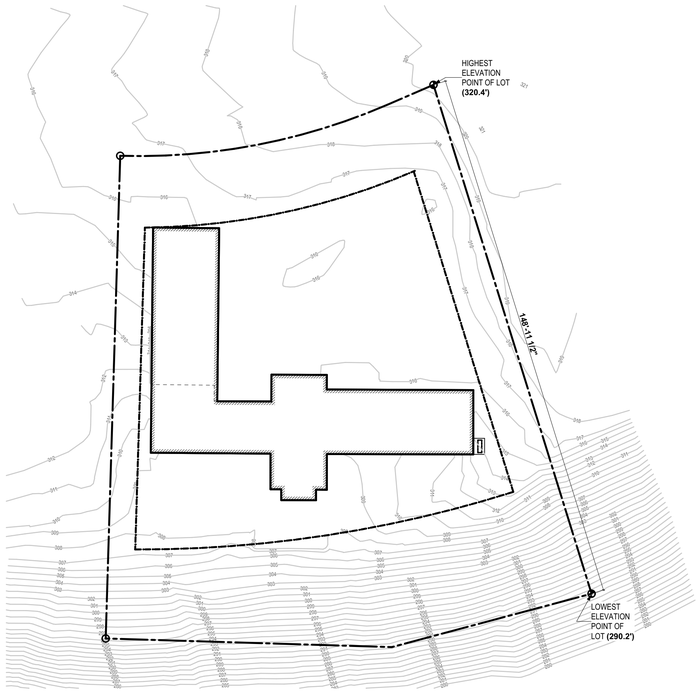
HIGHEST ELEVATION POINT OF LOT: **320.4'**

LOWEST ELEVATION POINT OF LOT: **290.2'**

ELEVATION DIFFERENCE: 320.4 - 290.2 = 30.2'

HORIZONTAL DISTANCE BETWEEN HIGH AND LOW POINTS: 148.96'

LOT SLOPE: 30.2' / 148.96' = .203 * 100 = **20.3%**



SITE PLAN - LOT SLOPE 3
SCALE: 1" = 20'

BASEMENT FLOOR AREA CALCULATION

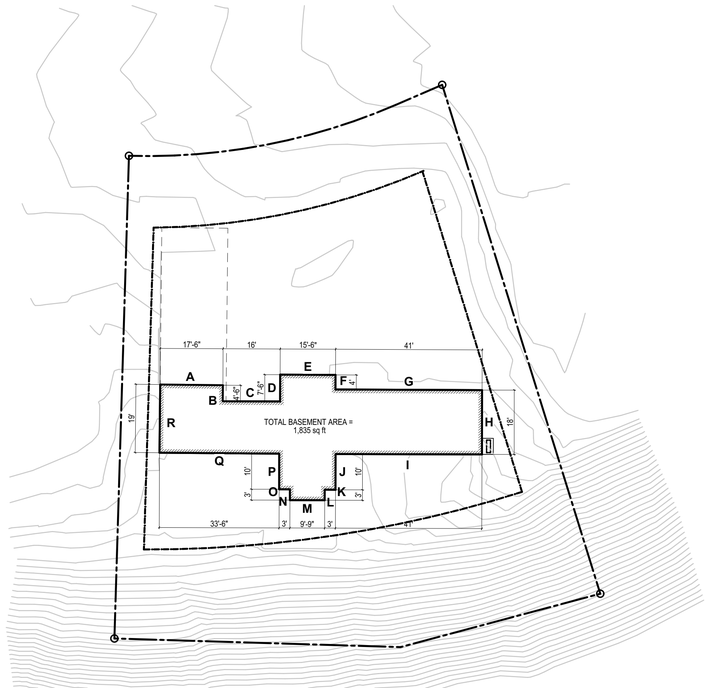
WALL SEGMENT	LENGTH	COVERAGE %	RESULT
A	17.5'	100%	17.5%
B	4.5'	100%	4.5%
C	16'	100%	16%
D	7.5'	100%	7.5%
E	15.5'	100%	15.5%
F	4'	100%	4%
G	41'	100%	41%
H	18'	73%	13%
I	41'	16%	7%
J	10'	0%	0%
K	3'	0%	0%
L	3'	0%	0%
M	9.75'	0%	0%
N	3'	0%	0%
O	3'	0%	0%
P	10'	0%	0%
Q	33.5'	0%	0%
R	19'	18%	3%
TOTALS	**259.25'**	**NA**	**129%**

EXCLUDED BASEMENT FLOOR AREA:

1,835 SF * 129 / 259.25'

= 1,835 SF * 49.76%

= **913 SF** EXCLUDED FROM THE GROSS FLOOR AREA



SITE PLAN - BASEMENT FLOOR AREA 2
SCALE: 1" = 20'

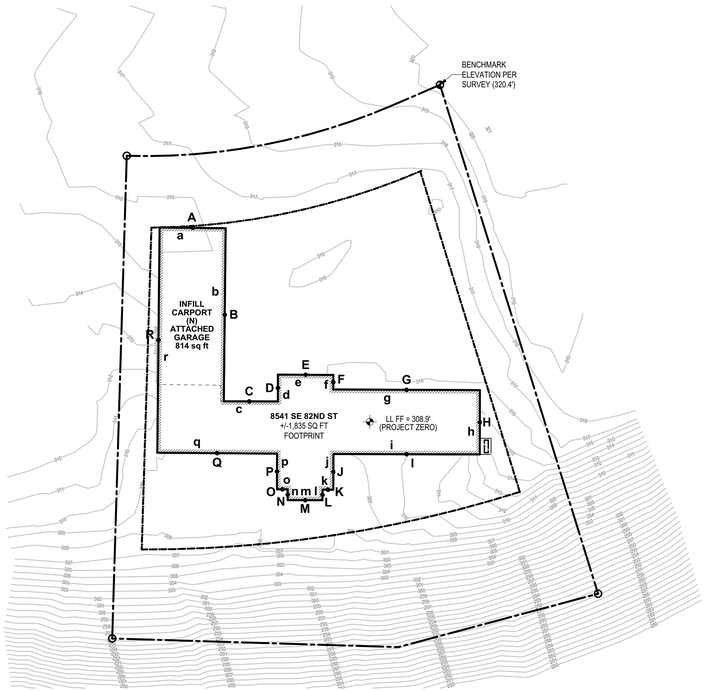
AVERAGE BUILDING ELEVATION CALCULATION

MIDPOINT ELEVATION	WALL SEGMENT LENGTH	
A = 316.0'	a = 18.5'	A*a = 5,846
B = 316.5'	b = 48.5'	B*b = 15,350
C= 315.2'	c = 15.25'	C*c = 4,807
D = 315.1'	d = 7.5'	D*d = 2,363
E = 315.2'	e = 15.5'	E*e = 4,886
F = 315.2'	f = 4'	F*f = 1,261
G = 315.6'	g = 41'	G*g = 12,940
H = 314.7'	h = 18'	H*h = 5,665
I = 312.2'	i = 41'	I*i = 12,800
J = 308.8'	j = 10'	J*j = 3,088
K = 308.8'	k = 3'	K*k = 926
L = 308.8'	l = 3'	L*l = 926
M = 308.8'	m = 9.75'	M*m = 3,011
N = 308.8'	n = 3'	N*n = 926
O = 308.8'	o = 3'	O*o = 926
P = 308.8'	p = 10'	P*p = 3,088
Q = 308.8'	q = 33.5'	Q*q = 10,345
R = 313.2'	r = 63'	R*r = 19,732

ABE CALCULATION:

5,846 + 15,350 + 4,807 + 2,363 + 4,886 + 1,261 + 12,940 + 5,665 + 12,800 + 3,088 + 926 + 926 + 3,011 + 926 + 926 + 3,088 +10,345 + 19,732
/ 18.5 + 48.5 + 15.25 + 7.5 + 15.5 + 4 + 41 + 18 + 41 + 10 + 3 + 3 + 9.75 + 3 + 3 + 10 + 33.5 + 63

108,886' / 347.5' = **313.3'** AVERAGE BUILDING ELEVATION (ABE)



SITE PLAN - AVERAGE BUILDING ELEVATION 1
SCALE: 1" = 20'

CAST ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT 9217 STATE OF WASHINGTON

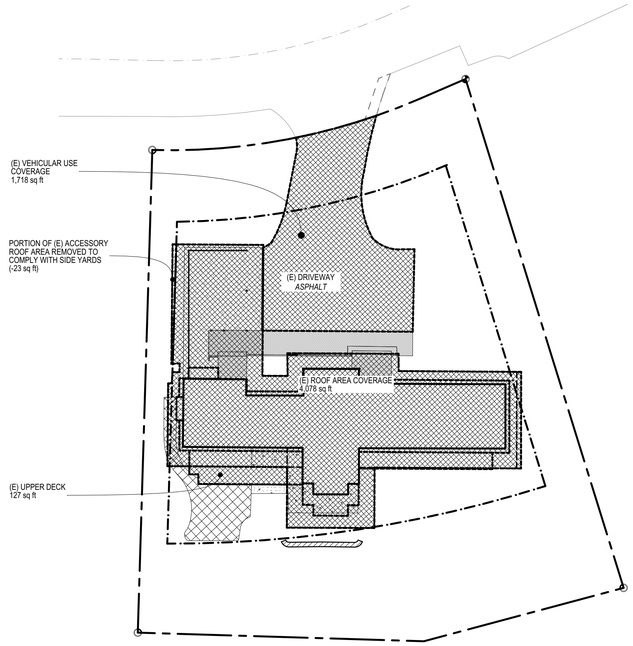
Approved by:

issue	issue date	description	printed 1/16/2025
	10.17.23	PRELIMINARY PRICING SET	
	02.19.24	VE COORDINATION SET	
	03.25.24	COORDINATION SET	
	07.03.24	PERMIT APPLICATION SET	
	11.27.24	PERMIT CORRECTIONS 01 SET	
	01.16.25	PERMIT CORRECTIONS 02 SET	

SITE PLAN DIAGRAMS

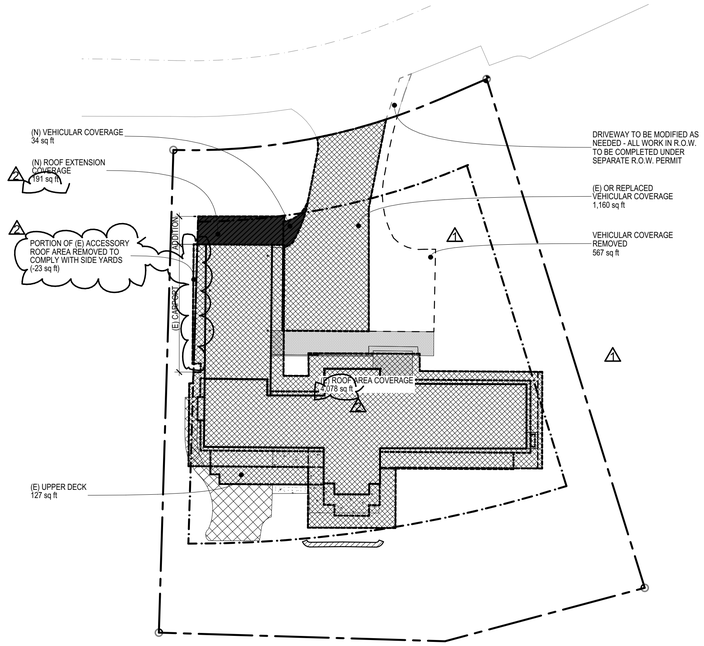
a.04

1/16/2025 2:50 PM /25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln



EXISTING LOT COVERAGE

SCALE: 1" = 20' (1)

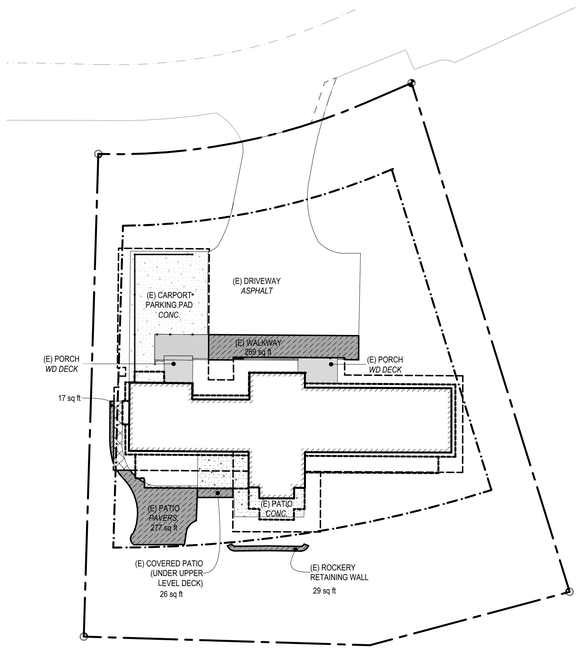


PROPOSED LOT COVERAGE

SCALE: 1" = 20' (2)

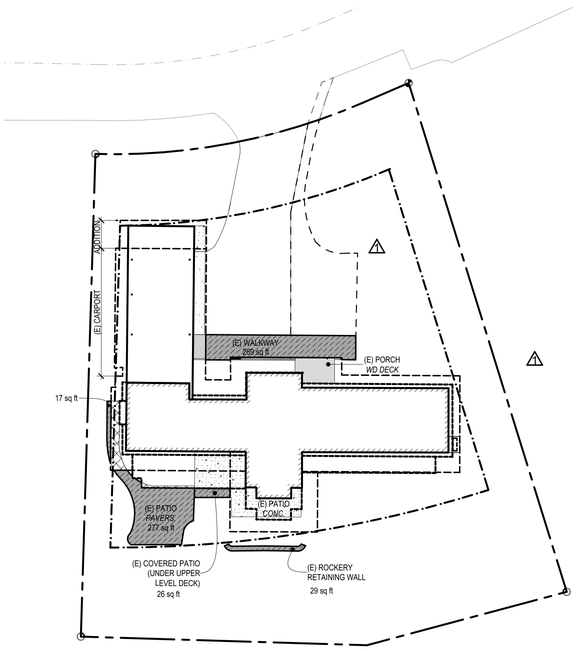
LOT COVERAGE CALCULATIONS

A. GROSS LOT AREA	16,138 SQUARE FEET
B. NET LOT AREA	16,138 SQUARE FEET
C. ALLOWED LOT COVERAGE AREA	5,648 SQUARE FEET
D. ALLOWED LOT COVERAGE	35 % OF LOT
E. EXISTING LOT COVERAGE:	
1. MAIN STRUCTURE ROOF AREA	4,078 SQUARE FEET
2. ACCESSORY BUILDING ROOF AREA	0 SQUARE FEET
3. VEHICULAR USE (DRIVEWAY, PAVED ACCESS EASEMENTS [PORTION USED BY THE LOT FOR ACCESS], PARKING)	1,718 SQUARE FEET
4. COVERED PATIOS AND COVERED DECKS	127 SQUARE FEET
5. TOTAL EXISTING LOT COVERAGE AREA (E1+E2+E3+E4)	5,923 SQUARE FEET
F. (TOTAL LOT COVERAGE AREA REMOVED)	567 SQUARE FEET
G. PROPOSED ADJUSTMENT FOR SINGLE STORY (AREA)	0 SQUARE FEET
H. PROPOSED ADJUSTMENT FOR FLAG LOT	0 SQUARE FEET
I. TOTAL NEW LOT COVERAGE AREA:	
1. MAIN STRUCTURE ROOF AREA	0 SQUARE FEET
2. ACCESSORY STRUCTURE ROOF AREA	191 SQUARE FEET
3. VEHICULAR USE (DRIVEWAY, PAVED ACCESS EASEMENTS [PORTION USED BY THE LOT FOR ACCESS], PARKING)	34 SQUARE FEET
4. COVERED PATIOS AND COVERED DECKS	0 SQUARE FEET
5. TOTAL NEW LOT COVERAGE AREA (I1 + I2 + I3 + I4)	225 SQUARE FEET
J. TOTAL PROJECT LOT COVERAGE AREA = (E5 - F) + I5	5,581 SQUARE FEET
K. PROPOSED LOT COVERAGE AREA = (J/B) X 100 % OF LOT	(5,581/16,138) x 100 = **34.58% < 35% COMPLIES**



EXISTING HARDSCAPE

SCALE: 1" = 20' (3)



PROPOSED HARDSCAPE

SCALE: 1" = 20' (4)

HARDSCAPE CALCULATIONS

A. GROSS LOT AREA	16,138 SQUARE FEET
B. NET LOT AREA	16,138 SQUARE FEET
C. AREA BORROWED FROM LOT COVERAGE	0 SQUARE FEET
D. ALLOWED HARDSCAPE AREA = 9% OF LOT AREA + C	9% OF LOT
E. ALLOWED HARDSCAPE AREA	1,452 SQUARE FEET
F. TOTAL EXISTING HARDSCAPE AREA:	
1. UNCOVERED DECKS	0 SQUARE FEET
2. UNCOVERED PATIOS	(277+17+26) = 320 SQUARE FEET
3. WALKWAYS	269 SQUARE FEET
4. STAIRS	0 SQUARE FEET
5. ROCKERIES AND RETAINING WALLS	29 SQUARE FEET
6. OTHER	0 SQUARE FEET
7. TOTAL EXISTING HARDSCAPE AREA (F1+F2+F3+F4+F5+F6)	618 SQUARE FEET
G. (TOTAL HARDSCAPE AREA REMOVED)	0 SQUARE FEET
H. TOTAL NEW HARDSCAPE AREA:	
1. UNCOVERED DECKS	0 SQUARE FEET
2. UNCOVERED PATIOS	0 SQUARE FEET
3. WALKWAYS	0 SQUARE FEET
4. STAIRS	0 SQUARE FEET
5. ROCKERIES AND RETAINING WALLS	0 SQUARE FEET
6. OTHER	0 SQUARE FEET
7. TOTAL NEW HARDSCAPE AREA (H1+H2+H3+H4+H5+H6)	0 SQUARE FEET
I. TOTAL PROJECT HARDSCAPE AREA = (F7 - G) + H7	(618-0) + 0 = 618 SQUARE FEET
J. TOTAL PROJECT HARDSCAPE COVERAGE = (I/B)x100	(618/16,138) x 100 = **3.8% < 9% COMPLIES**

CAST
ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT 8217 STATE OF WASHINGTON

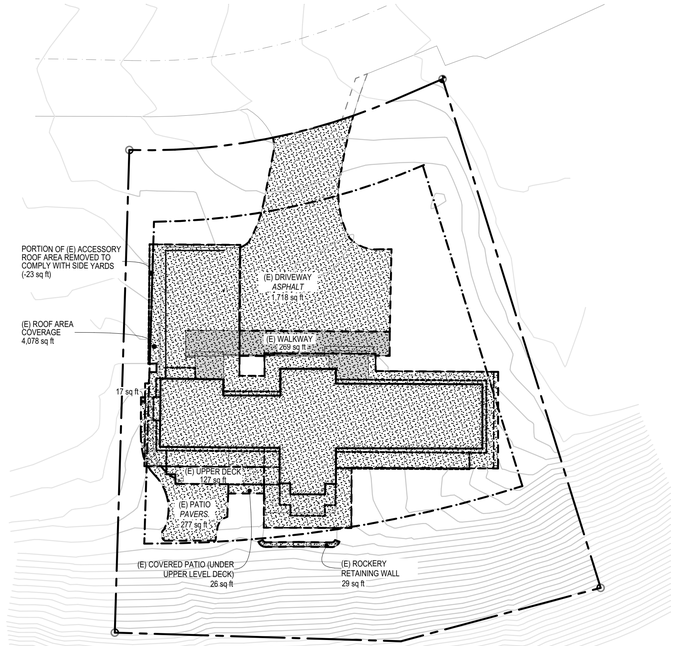
Approved by:

issue	issue date	description	printed 1/16/2025
	10.17.23	PRELIMINARY PRICING SET	
	02.19.24	VE COORDINATION SET	
	03.25.24	COORDINATION SET	
	07.03.24	PERMIT APPLICATION SET	
	11.27.24	PERMIT CORRECTIONS 01 SET	
	01.16.25	PERMIT CORRECTIONS 02 SET	

SITE PLAN DIAGRAMS

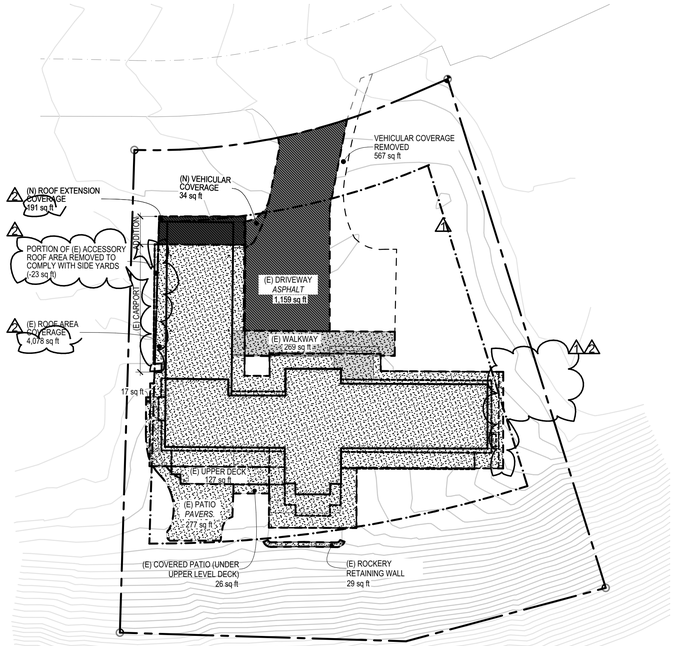
a.05

1/16/2025 2:50 PM 25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln



EXISTING STORMWATER/IMPERVIOUS AREAS 1

SCALE: 1" = 20'

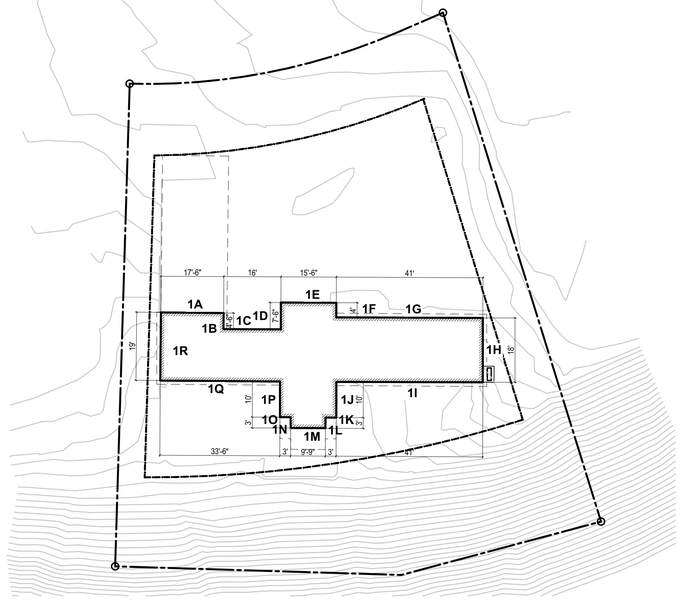


PROPOSED STORMWATER/IMPERVIOUS AREAS 2

SCALE: 1" = 20'

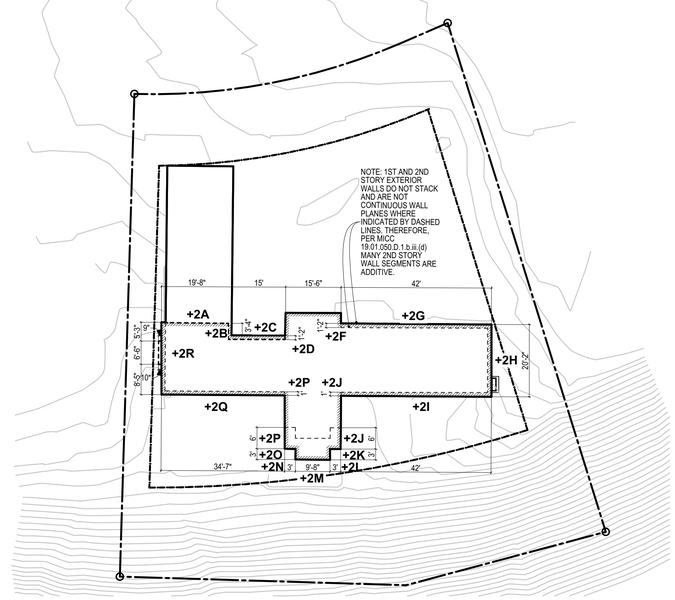
STORMWATER AREA CALCULATIONS

A. EXISTING IMPERVIOUS SURFACE AREA	
1. MAIN STRUCTURE ROOF AREA	4,101 SQUARE FEET
2. VEHICULAR USE (DRIVEWAY)	1,718 SQUARE FEET
3. UNCOVERED DECKS	127 SQUARE FEET
4. HARDSCAPE	269 SQUARE FEET
	277 SQUARE FEET
	17 SQUARE FEET
	26 SQUARE FEET
	29 SQUARE FEET
5. TOTAL EXISTING IMPERVIOUS SURFACE AREA	6,564 SQUARE FEET
B. TOTAL IMPERVIOUS SURFACE AREA REMOVED	
1. MAIN STRUCTURE ROOF AREA	23 SQUARE FEET
2. VEHICULAR USE (DRIVEWAY)	567 SQUARE FEET
3. UNCOVERED DECKS	0 SQUARE FEET
4. HARDSCAPE	0 SQUARE FEET
5. TOTAL REMOVED IMPERVIOUS SURFACE AREA	590 SQUARE FEET
C. TOTAL NEW IMPERVIOUS SURFACE AREA:	
1. MAIN STRUCTURE ROOF AREA	191 SQUARE FEET
2. VEHICULAR USE (DRIVEWAY)	34 SQUARE FEET
3. UNCOVERED DECKS	0 SQUARE FEET
4. HARDSCAPE	225 SQUARE FEET
5. TOTAL NEW IMPERVIOUS SURFACE AREA:	225 SQUARE FEET
D. TOTAL NEW PLUS REPLACED HARD SURFACE AREA (C5)	
E. TOTAL NET INCREASE IN IMPERVIOUS SURFACE AREA (C5-B5)	0 SQUARE FEET



SITE PLAN - LVL 1 ALTERED EXTERIOR WALLS 3

SCALE: 1" = 20'



SITE PLAN - LVL 2 ALTERED EXTERIOR WALLS 4

SCALE: 1" = 20'

STRUCTURAL ALTERATION OF EXISTING EXTERIOR WALLS PER MICC 19.01.050.D.b.iii.

WALL SEGMENT	(E) LENGTH	ALTERED?
1A	17'-6"	NO
1B	4'-6"	NO
1C	16'	NO
1D	7'-6"	NO
1E	15'-6"	NO
1F	4'	NO
1G	41'	NO
1H	18'	NO
1I	41'	NO
1J	10'	NO
1K	3'	NO
1L	3'	NO
1M	9'-9"	NO
1N	3'	NO
1O	3'	NO
1P	10'	NO
1Q	33'-6"	YES, 33'-6"
1R	19'	NO
+2A	19'-8"	YES, 19'-8"
+2B	3'-4"	YES, 3'-4"
+2C	15'	NO
+2D	1'-2"	NO
(2E INCLUDED IN 1E)	-	NO
+2F	1'-2"	NO
+2G	42'	NO
+2H	20'-2"	NO
+2I	42'	NO
+2J	7'	NO
+2K	3'	NO
+2L	3'	NO
+2M	9'-8"	NO
+2N	3'	NO
+2O	3'	NO
+2P	6'	NO
+2Q	34'-7"	YES, 34'-7"
+2R	21'-9"	PARTIAL YES, 8'-1"
TOTALS	**494'-9"**	**99'-2"**

40% THRESHOLD CALCULATION FOR STRUCTURAL ALTERATION OF EXISTING EXTERIOR WALLS :

99'-2" ALTERED / 494'-9" EXISTING

= 0.20 = **20% < 40%**

PER MICC 19.01.050.D.b.i., LEGALLY NON-CONFORMING DETATCHED SINGLE-FAMILY DWELLING MAY BE INTENTIONALLY ALTERED WITHOUT LOSING ITS LEGAL NONCONFORMING STATUS.

CALCULATION APPLIES TO THE DETATCHED SINGLE-FAMILY RESIDENTIAL STRUCTURE ONLY

THE ATTACHED ACCESSORY STRUCTURE (ATTACHED CARPORT CONVERTED TO ATTACHED GARAGE) WILL BE BROUGHT INTO COMPLIANCE WITH RESPECT TO MINIMUM SIDE SETBACKS - SEE a.03 PROPOSED SITE PLAN.

CAST
ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT
8217
JOSEPH W. CASTRO
STATE OF WASHINGTON

Approved by:

issue	issue date	description	printed 1/16/2025
	10.17.23	PRELIMINARY PRICING SET	
	02.19.24	VE COORDINATION SET	
	03.25.24	COORDINATION SET	
	07.03.24	PERMIT APPLICATION SET	
	11.27.24	PERMIT CORRECTIONS 01 SET	
	01.16.25	PERMIT CORRECTIONS 02 SET	

SITE PLAN DIAGRAMS

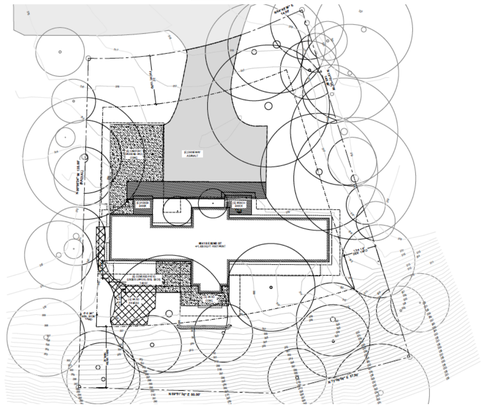
a.06

1/16/2025 2:50 PM 25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln

ATTACHMENTS

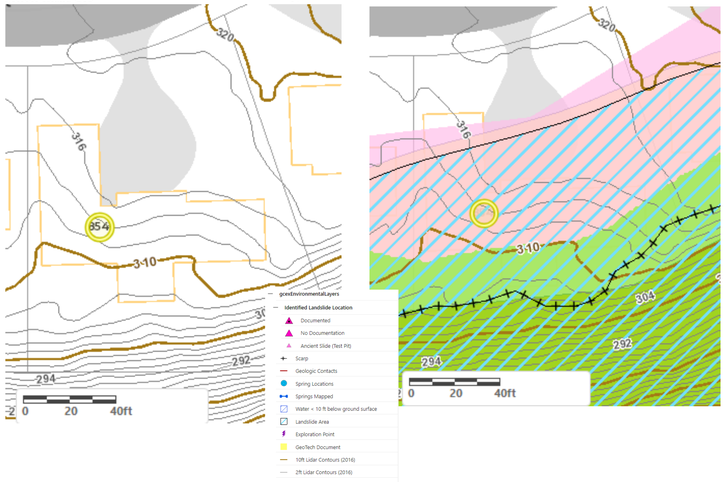
ATTACHMENT 1 - SITE IMAGES..... 8
ATTACHMENT 2 - TREE SUMMARY, TPZ, CRZ..... 11
ATTACHMENT 3 - TREE PROTECTION..... 12
ATTACHMENT 4 - MULCHING..... 17
ATTACHMENT 5 - TREE INVENTORY AND REPLACEMENT..... 19
ATTACHMENT 6 - EXCEPTIONAL TREE LIST..... 21
ATTACHMENT 7 - ASSUMPTIONS AND LIMITING CONDITIONS..... 22
ATTACHMENT 8 - REFERENCES..... 23

Conceptual Plan



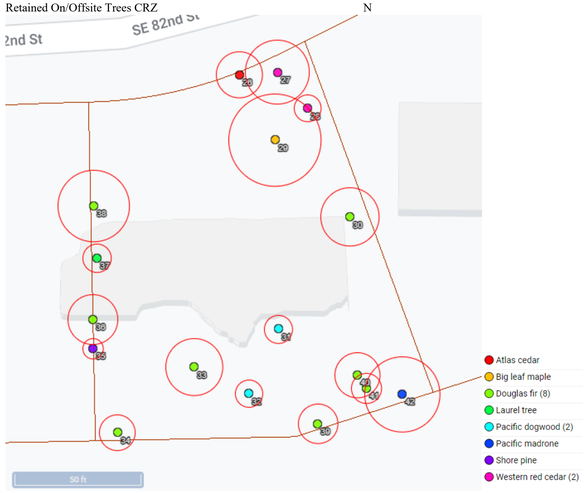
ATTACHMENT 1 - SITE IMAGES

Mercer Island GIS N



Retained On/Offsite Trees TPZ N

Retained On/Offsite Trees CRZ N



ATTACHMENT 2 - TREE SUMMARY, TPZ, CRZ

ID	Species	*Latin*	DBH	Spread	Condition - Health	Condition - Structure	Landmark Grove[6] Exceptional	Development	TPZ-Radius [ft]	CRZ - Radius [ft]	Notes
26	Atlas cedar	*Cedrus atlantica*	24.5	30	Good	Good	NO	R-Viable	18.375	9.1875	Viable
27	Western red cedar	*Thuja plicata*	25.5	Good	Poor	Fair to poor Risk assess	No	R-Assess	25.5	12.75	Woodpecker holes noted assessment recommended
28	Western red cedar	*Thuja plicata*	10.7	12	Fair	Good	NO	R-Viable	10.7	5.35	Crowded
29	Big leaf maple	*Acer macrophyllum*	36.8	40	Good	Good	Exceptional	R-Viable	36.8	18.4	Nice specimen tree
30	Douglas fir	*Pseudotsuga menziesii*	31	40	Good	Good	Exceptional	R-Viable	23.25	11.625	Good health and vigor
31	Pacific dogwood	*Cornus nuttallii*	14.92	16	Fair	Good	Exceptional	R-Poor Condition	11.19	5.595	S fork in poor condition
32	Pacific dogwood	*Cornus nuttallii*	14.5	15	Fair	Poor	NO in Poor Condition	R-Poor Condition	10.875	5.4375	Tree is declining. Decay in the trunk.
33	Douglas fir	*Pseudotsuga menziesii*	30.3	33	Good	Good	Exceptional	R-Impacted	22.725	11.3625	May conflict with plans, arborist oversight, required during any earth work inside the TPZ
34	Douglas fir	*Pseudotsuga menziesii*	19	21	Good	Good	NO	R-Viable	14.25	7.125	asymmetrical. In good health at this time
35	Shore pine	*Pinus contorta*	6.5	8	Fair	Fair	NO	R-Poor Condition	8.125	4.0625	Suppressed
36	Douglas fir	*Pseudotsuga menziesii*	26.5	30	Good	Good	NO	R-Viable	19.875	9.9375	Good health and vigor
37	Laurel tree	*Laurus nobilis*	11.31	12	Good	Fair	NO	R-Viable	11.31	5.655	unmaintained
38	Douglas fir	*Pseudotsuga menziesii*	38	37	Good	Good	Exceptional	R-Viable	28.5	14.25	Good health and vigor
39	Douglas fir	*Pseudotsuga menziesii*	21	26	Good	Good	NO	R-Viable	15.75	7.875	Limbed for a view window
40	Douglas fir	*Pseudotsuga menziesii*	24	26	Good	Good	NO	R-Viable	18	9	Good health and vigor
41	Douglas fir	*Pseudotsuga menziesii*	16	20	Fair	Fair	No	R-Viable	12	6	Suppressed limbed for view
42	Pacific madrone	*Arbutus menziesii*	22	30	Fair	Fair	Exceptional	R-Viable	30	15	Fair condition

1. The TPZ listed shall be the TPZ that is used. 2. The TPZ can be reduced to the CRZ, unless noted otherwise, as long as the TPZ is not reduced by more than 20%. 3. This may be further reduced on a case-by-case basis, upon review, approval, and under the direct over site of A.B.C. Consulting Arborists LLC. 4. Install Fencing Per Attachment 3, prior to starting construction activity.

	Total Trees	Hazard Non-Viable	Conflict W/ plans	Trees Retained	Viable Trees Removed	Replacement Ratio	Required Replant
>36+&Exceptional	6	0	0	6	0	6:1	0
Lg 24-36	4	0	0	4	0	3:1	0
Lg 10-24	6	0	0	6	0	2:1	0
Small < 10[7]	1	0	0	1	0	1:1	0
Small < 10	0	0	0	0	0	Exempt	0
TOTAL	17	0	0	17	0		0

[6] **MMCC 19.16.010 Grove** = 8 or more trees ≥ 10-inches DBH that form a continuous canopy (exceptional unless hazardous).
[7] In a Critcal Area or Critical Area Buffer or On Public Property.

ATTACHMENT 3 - TREE PROTECTION

The following minimum Tree Protection Measures can be copied and introduced into all relevant documents such as site plans, permit applications and conditions of approval, and bid documents so that everyone involved is aware of the requirements.

1. Tree Protection Fencing Shall Be Continuous 6' min. Chain Link or like Fencing and.:

   a. Tree Protection Fences will need to be placed around each tree or group of trees to be retained.

      i. Tree Protection Fences are to be placed according to the attached drawing (bottom of attachment) at a distance of not less than 10' feet outside the dripline of the tree or group of trees to be saved, **or at the designated TPZ See Attachment 2 for TPZ/CRZ**
      ii. Tree Protection Fences must be inspected prior to the beginning of any demolition or construction work activities.
      iii. Nothing must be parked or stored within the Tree Protection Fences—no equipment, vehicles, soil, debris, or construction supplies of any sorts.

   b. Signs:

      i. The Tree Protection Fences need to be clearly marked with the following or similar text in four inch or larger letters every 40'

      TREE PROTECTION FENCE, DO NOT ENTER!
      DO NOT PARK OR STORE MATERIALS WITHIN THE PROTECTION AREA

      Questions contact Daniel Maple of A.B.C. Consulting Arborists LLC.
      Cell: (509) 953-0293 **Email:** Daniel@AbcArborist.Com

Signs along the TPZ may be waived at the discretion of the City and/or its officials.

2. Cement Trucks/Washout:

   a. Cement trucks must not be allowed to deposit waste or wash out materials from their trucks within the Tree Protection Fences.
   b. No waste, wash out, or contaminated water shall be allowed to flow into the Tree Protection Area.

3. Canopy Pruning:

   a. The canopies of some of the trees may need to be properly pruned to allow Sight lines (vehicular), access of equipment, materials, or building and construction clearance.
   b. If so, the pruning must be done by an International Society of Arboriculture, (ISA) Certified Arborist using current industry standard pruning techniques. (ANSI A300 Pruning Standards and ANSI Z131.1 Safety Standards as well as all OSHA, WISHA, and local standards must be followed.)
   c. Plant debris can be chipped and utilized on site for the mulch under the trees.

CAST ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT 8217 STATE OF WASHINGTON

issue	issue date	description	printed 1/16/2025
	10.17.23	PRELIMINARY PRICING SET	
	02.19.24	VE COORDINATION SET	
	03.25.24	COORDINATION SET	
	07.03.24	PERMIT APPLICATION SET	
	11.27.24	PERMIT CORRECTIONS 01 SET	
	01.16.25	PERMIT CORRECTIONS 02 SET	

Approved by:

TREE PROTECTION PLAN

a.07

1/16/2025 2:50 PM /25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln

5. When excavation occurs near trees that are scheduled for retention, the following procedure must be followed to protect the long-term survivability of the tree:

   a. An International Society of Arboriculture, (ISA) Certified Arborist must be working with all equipment operators.
      i. The Certified Arborist should be outfitted with an Airspade™, shovel, hand pruners, a pair of loppers, a handsaw, and a power saw (a "saws all" type reciprocating saw is recommended).
   b. The hoe must be placed to "comb" the material directly away from the trunk as opposed to cutting across the roots.
      i. Combing is the gradual excavation of the ground cover plants and soil in depths that only extend as deep as the tines of the hoe.
   c. When any roots of one-inch diameter or greater, of the tree to be retained, is struck by the equipment, the Certified Arborist should stop the equipment operator.
   d. The Certified Arborist should then excavate around the tree root by Airspade™ (recommended) or by hand/shovel and cleanly cut the tree root.
      i. The Certified Arborist should then instruct the equipment operator to continue.

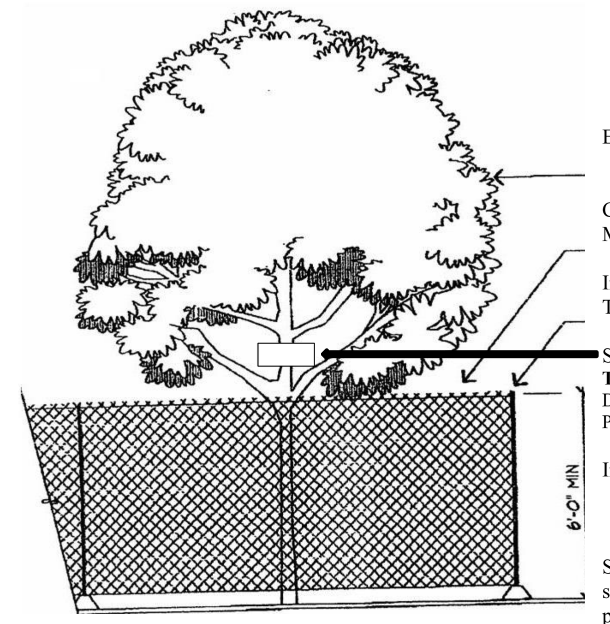
6. Putting Utilities Under the Root Zone:

   a. Boring under the root systems of trees (and other vegetation) shall be done under the supervision of an ISA Certified Arborist. This is to be accomplished by excavating a limited trench or pit on each side of the critical root zone of the tree and then hand digging or pushing the pipe through the soil under the tree. The closest pit walls shall be a minimum of 7 feet from the center of the tree and shall be sufficient depth to lay the pipe at the grade as shown on the plan and profile.
   b. Tunneling under the roots of trees shall be done under the supervision of an ISA Certified Arborist in an open trench by carefully excavating and hand digging around areas where large roots are exposed. No roots 1 inch in diameter or larger shall be cut.
   c. The contractor shall verify the vertical and horizontal location of existing utilities to avoid conflicts and maintain minimum clearances; adjustment shall be made to the grade of the new utility as required.

7. Watering:

The trees will require significant watering throughout the summer and early fall in order to survive long-term. An easy and economical watering can be done using soaker hoses placed three feet from the trunk of the tree and spiraled around the tree. One 75-foot soaker hose per tree is adequate. It is best to place the soakers using landscape staples, (available from HD Fowler in Bellevue for pennies apiece) then cover the area with three to six inches of mulch. The mulch will minimize evaporation and will also stimulate the microbial activity of the soil which is another benefit to the health of the tree.

   a. Water the tree to a depth of 18 to 20 inches. I recommended leaving the water on the soaker hoses for six to eight hours and then digging down to determine how deep your water is penetrating. Then adjust accordingly. It may take a good two days of watering to reach the proper depth.
   b. Once the water reaches the proper depth, turn off the hoses for four weeks and then water again. Water more often when temperatures increase— every three weeks when temperatures exceed 80 degrees and every two weeks when temperatures exceed 90 degrees. This drying out of the soil in between watering is important to prevent soil pathogens from attacking the trees.



Existing Significant Tree

Continuous 6' min. chain link or like fencing. Fence post @ 10' Max O.C.

Install as shown on plans 5' min past Dripline, or per specific TPZ/CRZ instructions.

Signs installed every 40'
TREE PROTECTION FENCE DO NOT ENTER!
DO NOT PARK OR STORE MATERIALS WITHIN THE PROTECTION AREA

Include Arborist Contact Info.

Six-foot high temporary chain link (or like material) fencing shall be installed as shown on plans. Fencing shall be installed prior to construction activity and remain in place until construction is completed. Fencing panels are recommended. Fencing shall completely encircle the tree(s). Install fence posts using pier blocks. Avoid driving posts or stakes into major roots.

Make a clean straight cut, using loppers, reciprocal saw, or like tool, to remove damaged portion of root(s) over 1" inch diameter that are damaged during construction. **ALL** exposed roots shall be temporarily covered with damp burlap and covered with soil the same day, if possible, to prevent drying out. If not possible, the burlap must be kept moist at all times.

Work within the protection fencing shall be done manually. No stockpiling of materials, soil, debris, vehicular traffic, or storage of machinery or equipment shall be allowed within the limits of the fencing.

Cement trucks must not be allowed to deposit waste or wash out materials from their trucks within the tree protection fences, or in a manner that would allow the waste or wash out material to enter the TPZ.

The area within the tree protection fencing she'd be covered with wood chips, hog fuel, or similar materials, to a depth of 3 to 6 inches. The materials should be placed prior to beginning construction and remain until the tree protection fencing was taken down.

Should the tree protection fencing need to be installed inside the TPZ to allow for construction activity, then the following shall be done.
For construction equipment, cover the area from the tree protection fencing to the outer edge of the TPZ with 8 to 10 inches of wood chips, hog fuel, or similar materials, to reduce compaction cover area with steel plates.
For foot traffic' cover the area from the tree protection fencing to the outer edge of the TPZ with 6 inches of wood chips, hog fuel, or similar materials, to reduce compaction, cover with ¾ inch to 1-inch plywood.

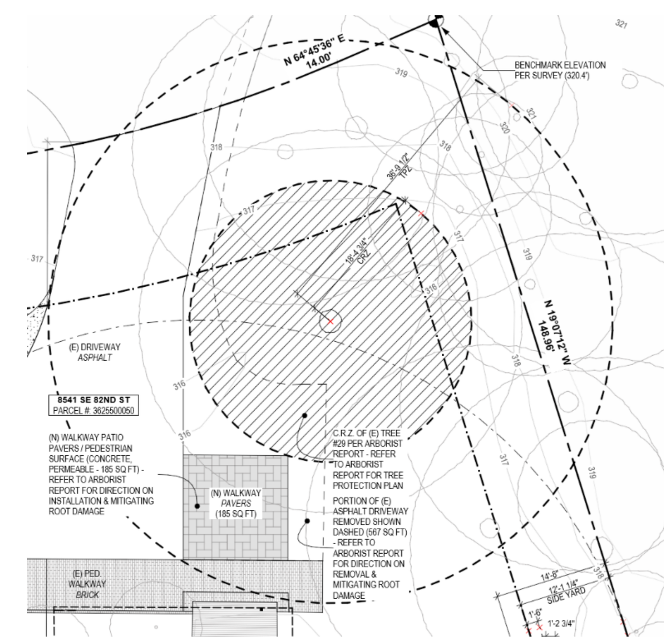
The steel plates, plywood and wood chips are to remain in place until all construction activity is completed. The steel plates, plywood and woodchips shall then be removed and the tree protection fencing installed along the outer edge of the tree protection zone.

TREE 29 Additional Required Tree Protection Measures.

ID	Species	*Latin*	DBH	Spread	Condition - Health	Condition - Structure	Landmark Grove[8] Exceptional	Development	TPZ-Radius [ft]	CRZ - Radius [ft]	Notes
29	Big leaf maple	*Acer macrophyllum*	36.8	40	Good	Good	Exceptional	R-Viable	36.8	18.4	Nice specimen tree

Big leaf maples have a low tolerance to construction and are not tolerant of fill. (Mathey, Clark). Removal of the asphalt under the tree is required. If done with care the removal of the asphalt will have many health benefits for the tree and greatly increase its long-term viability. Originally it was proposed to remove the asphalt and install pavers. The installation of the pavers has been removed from the plans. The following shall be done to ensure that the maple tree has little to no impact from the proposed work.

1) All work within the trees CRZ and TPZ shall be overseen by a Qualified ISA or ASCA Arborist. The Arborist shall have the authority to stop all work needed to protect the tree.
2) The asphalt shall be removed with a small to medium sized track hoe or mini excavator.
3) The asphalt shall be removed slowly so as not to injure any roots that may be near the surface, and in such a manner that the equipment stays on the undisturbed asphalt.
4) Immediately upon completion of the asphalt removal; the 6' tall chain link tree protection fencing shall be installed along the TPZ, and inspected, prior to any additional construction activity commencing.
5) 4-inches of woody mulch or bark shall be installed under the tree's dripline (keep mulch a min. of 8-inches away from the tree's trunk). Watering with roughly 1 to 1.5-inches of water is recommended as well.
6) Supplemental watering shall be done bi-monthly June – September as needed.
7) These requirements are in addition to the tree protection details found in Attachment-3.



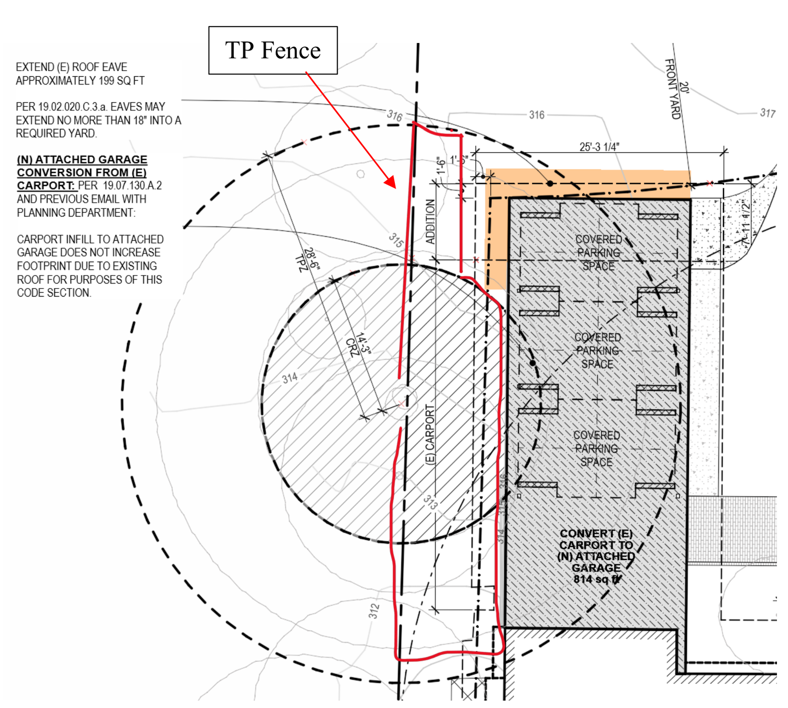
[8] **MMCC 19.16.010** **Grove** = 8 or more trees ≥ 10-inches DBH that form a continuous canopy (exceptional unless hazardous).

TREE #38 Additional Required Tree Protection Measures.

38	Douglas fir	*Pseudotsuga menziesii*	38	37	Good	Good	Exceptional	R-Viable	28.5	14.25	Good health and vigor

Douglas fir trees are listed as moderately tolerant to construction and tolerant to root pruning (Mathey, Clark). Tree #38 was in good health and vigor at the time of my assessment. As the proposed work[9] is outside the CRZ, will only impact a small portion of the TPZ, and minimal root pruning is anticipated; it is my professional opinion that the proposed work is viable and should have little to no long-term impact of tree #38, provided:

1) Install 6' tall chain link fencing along the TPZ/CRZ. Fencing shall be installed, and inspected, prior to any construction activity. (Install as shown below).
2) A Qualified ISA or ASCA Arborist Shall oversee ALL work that is done within the TPZ.
3) The Arborist shall prune any roots 1-inch in diameter or greater with a Sawzall or like device.
4) The Arborist shall have the authority to stop any and all work within the (as needed) to protect the tree.
5) These requirements are in addition to the other tree protection details listed.



[9] In lieu of over excavations below the new garage footings, we understand that the footings will be supported on 2-inch diameter pin piles, as shown on Sheet S2.1 of the current structural plans, with revisions dated October 1, 2024. Our recommendations for 2-inch pin piles are provided in our geotechnical report, with revisions dated June 5, 2024. We anticipate that the construction excavations for the new footing construction will be limited to no more than about 2 to 3 feet below existing grades. In our opinion, the excavations will not negatively impact the tree root zones site. As such, no mitigation measures are required.

ATTACHMENT 4 - MULCHING

Mulching is one of the easiest and most effective ways to improve urban soil quality entry health. Mulching is the application materials to the soil surface to improve or protect the tree and/or soil. Most materials can be organic or inorganic. When selecting mulch, organic materials are usually preferred over inorganic materials. Organic mulches moderate soil temperatures reduce soil compaction and erosion, and increase soil organic matter; thereby stimulating microbial activity, soil aggregation, and nutrient availability. Inorganic mulches may be fire resistant, do not decompose, reflect, or transfer heat more readily into the soil, and tend to be more stable when exposed to high wind or flooding.

Table 2) Potential uses and limitations of typical mulches for urban trees.

Mulch	Uses								Limitations						
	Prevent compaction	Prevent erosion	Limit evaporation	Deter past	Control weeds	Promote aggregation	Increase organic matter	Increase nutrients	Expensive or limited availability	Crusting or matting	Unstable	Anaerobic soils	Salts or contaminants	Potential N immobilization	Temporary or unknown effects
Grass clippings		X				X	X	X		X	X				X
Fresh leaves		X				X	X	X			X				X
Needles		X	X			X	X	X							
Hay/straw		X	X			X	X	X						X	
*Arborist woodchips	X	X	X		X	X	X	X						X	
Bark	X	X	X	X	X	X	X	X						X	
Eucalyptus		X	X	X		X	X	X	X						
Cypress		X	X	X		X	X	X	X						
Pecan shells		X	X			X	X	X	X						
Leaf mold		X	X			X	X	X		X					
Compost		X	X			X	X	X					X		
Fabrics		X			X				X			X			
Recycled rubber	X	X		X	X				X				X		
Stone/gravel	X	X			X				X						
Black plastic		X	X		X				X			X			

*Arborist woodchips are less costly and hold up better, they are the preferred mulch, in moderate to high traffic areas.

Mulching guidelines for urban landscapes

1. Depth of mulch application is dependent upon mulch texture, density, material decomposition rate, and climate. Wooden chip mulch should be applied and maintained at depths of 3-6 inches for trees. Materials that are finer, denser, and slower to decompose should be applied at lesser depths. thicker mulch layers should be applied in arid regions to retain more water in the soil.
2. Apply a sufficiently thick layer of mulch, usually 2-4 inches, to kill existing weeds and prevent new weed seeds from germinating or reaching the soil surface. If thinner layers are applied, kill or remove weeds prior to installing mulch.
3. Do not place impervious plastic sheeting or fabric barriers under mulch. Impervious barriers stop water movement and limit incorporation of organic matter into the soil.
4. The mulch area should cover as much of the tree root zone as possible, from near the trunk to the dripline, is considered ideal.
5. For recent transplants, mulch beyond the root ball. The minimum recommended radius is 3 feet. Maintain mulch for at least three years to facilitate root growth and protect trees from mechanical damage.
6. For larger existing trees, the minimum radius for mulch is at least three times the trunk diameter.
7. Mulch applied as a continuous bed around multiple trees is more effective than single rings around individual trees.
8. Average chip size of most organic mulches should be 1-2 inch.
9. Avoid woodchips from trees that are known to have allelopathic affects (e.g., *Juglans nigra*) and from individual trees that may have soil transmittable diseases (e.g., Verticillium wilt).

On wet sites, soil drying can be promoted by removing organic mulches. Be aware of some other potential negative impacts of mulches, including: toxicity (allelopathy and "sour" anaerobic mulches with pH of <2.5), slime molds (unsightly, but mostly harmless), matting (hydrophobic layers from fungal mats and mulches), flammability, and some fungus problems (e.g., Sphaerobolus, Mutinuscaninu, and M. elegans).

CAST
ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE
8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT
STEFAN MOORE HAMPDEN
STATE OF WASHINGTON
9217

Approved by:

issue	issue date	description printed 1/16/2025
	10.17.23	PRELIMINARY PRICING SET
	02.19.24	VE COORDINATION SET
	03.25.24	COORDINATION SET
	07.03.24	PERMIT APPLICATION SET
	11.27.24	PERMIT CORRECTIONS 01 SET
	01.16.25	PERMIT CORRECTIONS 02 SET

2

TREE PROTECTION PLAN

a.08

1/16/2025 2:50 PM /25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln

0 1/2" 1" 2"

ATTACHMENT 5 - TREE INVENTORY AND REPLACEMENT

TREE INVENTORY & REPLACEMENT SUBMITTAL INFORMATION

EXCEPTIONAL TREES

Exceptional Trees- means a tree or group of trees that because of its unique historical, ecological or aesthetic value constitutes an important community resource. A tree that is rare or exceptional by virtue of its size, species, condition, cultural/historical importance, age, and/or contribution as part of a tree grove. Trees with a diameter of more than 36 inches, or with a diameter that is equal to or greater than the diameter listed in the Exceptional Tree Table shown in MICC 19.16 under Tree, Exceptional.

List the total number of trees for each category and the tree identification numbers from the arborist report.

Number of trees 36" or greater: 2
List tree numbers: 29, 38

Number of trees 24" or greater (including 36" or greater): 7
List tree numbers: 26, 27, 29, 33, 36, 38, 40

Number of trees from Exceptional Tree Table (MICC 19.16):
List tree numbers: 29, 30, 31, 33, 38, 42

LARGE REGULATED TREES

Large Regulated Trees- means any tree with a diameter of 10 inches or more, and any tree that meets the definition of an Exceptional Tree.

Number of Large Regulated Trees on site: 16 (A)
List tree numbers: 26-34 36-42

Number of Large Regulated Trees on site proposed for removal: 0 (B)
List tree numbers:

Percentage of trees to be retained ((A-B)/Ax100) note: must be at least 30%: 100 %

RIGHT OF WAY TREES

Right of Way Trees- means a tree that is located in the street right of way adjacent to the project property.

Number of Large Regulated Trees in right of way: 0
List tree numbers:

Number of Large Regulated Trees in right of way proposed for removal:
List tree numbers;

Reason for removal:

TREE REPLACEMENT

Tree replacement- removed trees must be replaced based on the ratio in the table below. Replacement trees shall be conifers at least six feet tall and or deciduous at least one and one-half inches in diameter at base.

Diameter of Removed Tree (measured 4.5' above ground)	Tree replacement Ratio	Number of Trees Proposed for Removal	Number of Tree Required for Replacement Based on Size/Type
Less than 10"	1	0	0
10" up to 24"	2	0	0
Greater than 24" up to 36"	3	0	0
Greater than 36" and any Exceptional Tree	6	0	0
		TOTAL TREE REPLACEMENTS	0

	Total Trees	Hazard Non-Viable	Conflict W/ plans	Trees Retained	Viable Trees Removed	Replacement Ratio	Required Replant
>36+&Exceptional	6	0	0	6	0	6:1	0
Lg 24-36	4	0	0	4	0	3:1	0
Lg 10-24	6	0	0	6	0	2:1	0
Small < 10[10]	1	0	0	1	0	1:1	0
Small < 10	0	0	0	0	0	Exempt	0
TOTAL	17	0	0	17	0		0

[10] In a Critcal Area or Critical Area Buffer or On Public Property.

REPLANTING

MICC 19.10.070 Table A; trees that are remove shall be replanted at the ratio:
<10" 1:1, **10" to 24"** 2:1, **24" to 36"** 3:1 **>36" and exceptional trees** 6:1

	Total Trees	Hazard Non-Viable	Conflict W/ plans	Trees Retained	Viable Trees Removed	Replacement Ratio	Required Replant
>36+&Exceptional	6	0	0	6	0	6:1	0
Lg 24-36	4	0	0	4	0	3:1	0
Lg 10-24	6	0	0	6	0	2:1	0
Small < 10[4]	1	0	0	1	0	1:1	0
Small < 10	0	0	0	0	0	Exempt	0
TOTAL	17	0	0	17	0		0

No additional trees are required to be planted[5]. See *Attachment 6-Tree Inventory and Replacement*

TREE PROTECTION ZONES (TPZ)

In order for trees to survive the stresses placed upon them in the construction process, tree protection must be planned in advance of equipment arrival on site. With proper preparation, often costing little or nothing extra to the project budget, trees can survive and thrive after construction. This is critical for tree survival because damage prevention is the single most effective treatment for trees on construction sites. Once trees are damaged, the treatment options available are limited.

General

1. The TPZ is the optimal protection zone set to preserve trees during construction. The TPZ radius generally is 8-Inches to 18-Inches of protection for every 1-Inch of DBH, based on the trees size, vigor and construction tolerances (*ANSI A300 Part 5 BMP, Matheny, Clark, 1998*).
2. The TPZ can usually safely be reduced by 20% as long as it does not impact the CRZ. Greater than 20% reductions may be possible, pending review, written permission, and direct over site of the work, by the Consulting Arborist.
3. The trees to be saved, must be protected during construction by temporary 6' tall chain-link, or like fencing, located 10' beyond the edge of the trees farthest extending limbs on all sides (dripline). The individual tree protection zones (TPZ) are 10' past the driplines of the tree(s), unless otherwise delineated by A.B.C. Consulting Arborist LLC. See **Attachment 2** for tree specific TPZ and CRZ.
4. No irrigation lines, trenches, or other utilities shall be installed within the TPZ, without detailed written instructions and the oversite of the Consulting Arborist, to reduce the impacts to the tree roots, and construction related stressors. Cuts or fills should impact no more than 20% of a tree's root system. If topsoil is added to the root zone of a protected tree, the depth should not exceed 2 inches of a sandy loam or loamy fine sand topsoil and should not cover more than 20% of the root system.
5. If roots are encountered outside the TPZ during construction, they shall be cut cleanly with a saw (not ripped or torn) and covered immediately with moist soil. Noxious vegetation within the critical root zone should be removed by hand. If a proposed save tree must be impacting by grading or fills, then the tree should be re-evaluated by A.B.C. Consulting Arborist LLC to determine if the tree can be saved with mitigating measures, or if the tree should be removed. See **Attachment 3** for tree protection instructions.

[4] In a Critcal Area or Critical Area Buffer or On Public Property.
[5] Replacement trees SHALL primarily be native / Conifers ≥6-feet / Deciduous ≥ 1.5-inch caliper. Landscape plan to be provided by client.

CRITICAL ROOT ZONES (CRZ)

1. The CRZ is the area where the roots vital for the tree's survival are located, the CRZ is generally ½ of the TPZ. At no time or for any reason shall the roots within the CRZ be impacted.

FENCING

1. 6' tall chain link (or like fencing) shall be installed the TPZs prior to commencement of site clearing and shall remain in place for the duration of the project. When possible, it is preferred that trees be fenced as a group, rather than individuals. At no time shall any vehicle or equipment be allowed inside the TPZ/Fencing. No placing or stock-piling of any material of any kind shall be allowed inside the TPZ.
2. Removal of any vegetation within the TPZ shall be done by hand. Should any disturbance be required inside the TPZ to install utilities or any other needs during the construction period, they will require project specific instructions by the Consulting Arborist and approval by the city prior to undertaking any said activity in the TPZ.

ROOT PROTECTION

1. Any roots encountered of 1" in diameter or greater, shall be cut with loppers, pruners, reciprocal saw or like device to provide a clean smooth cut. At no time, shall 1" or greater diameter roots be ripped or torn. Exposed roots shall be covered with wet burlap, or like item, to keep roots from drying out and shall be covered with soil as soon as reasonably possible.
2. Protect tree root systems from damage due to noxious materials caused by runoff or spillage while mixing, placing, or storing construction materials. Protect root systems from flooding, eroding, or excessive wetting caused by dewatering operations. Protect root systems from damage due to removal of adjacent trees.

SEE ATTACHMENT 3 For Complete Tree Protection Instructions – Including specific instructions for tree #29 and offsite tree #38

Thank you for contacting A.B.C. Consulting Arborists LLC for your arboricultural needs.

Sincerely,

Daniel Maple

Daniel Maple, Consulting Arborist

Registered Consulting Arborist #627
ISA Municipal Specialist #PN-7970AM
ISA Tree Risk Assessment Qualified (TRAQ)
ISA Board Certified Master Arborist #PN-7970BM

CAST ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT 8217 STATE OF WASHINGTON

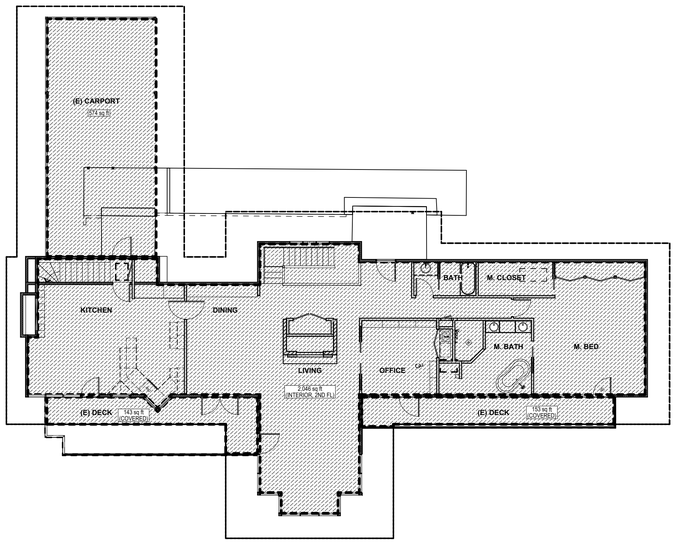
Approved by:

issue	issue date	description	printed 1/16/2025
	10.17.23	PRELIMINARY PRICING SET	
	02.19.24	VE COORDINATION SET	
	03.25.24	COORDINATION SET	
	07.03.24	PERMIT APPLICATION SET	
	11.27.24	PERMIT CORRECTIONS 01 SET	
	01.16.25	PERMIT CORRECTIONS 02 SET	

TREE PROTECTION PLAN

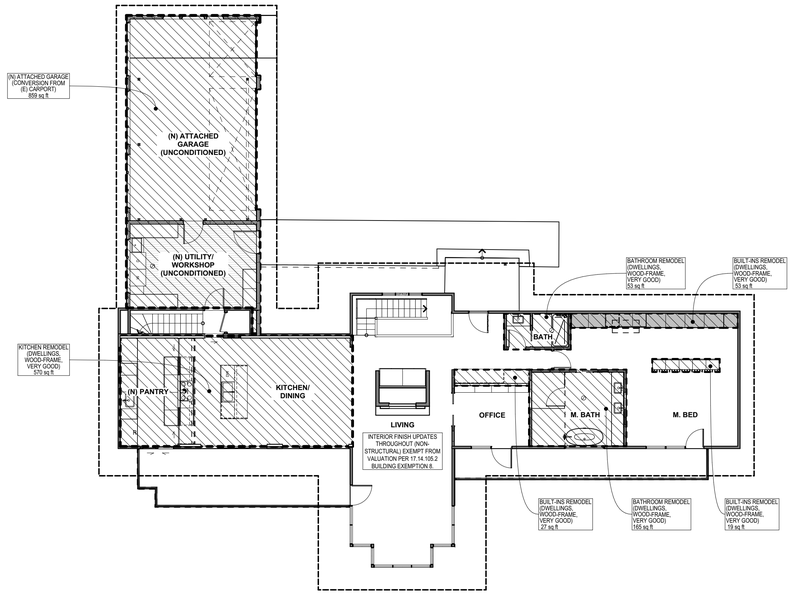
a.09

1/16/2025 2:50 PM /25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln



EXISTING UPPER FLOOR PLAN

SCALE: 3/32" = 1'-0" (3)



VALUATION CALC - PLANNED UPPER FLOOR

SCALE: 3/32" = 1'-0" (1)

GENERAL NOTES

- PER MICC 17.14 105.2 CERTAIN ELEMENTS OF THE PROJECT BELOW HAVE BEEN EXCLUDED FROM THE BUILDING VALUATION AND THE FIRE VALUATION CALCULATION.

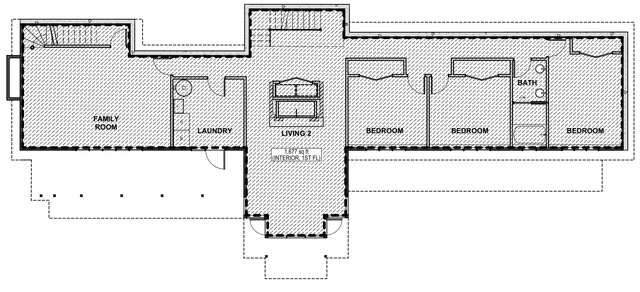
-PER BUILDING EXCEPTION #8, INTERIOR FINISH UPDATES THROUGHOUT INCLUDING PAINTING AND NON-STRUCTURAL FINISH WORK SUCH AS FLOORING, DOOR & HARDWARE REPLACEMENT, AND OTHER FINISH CARPENTRY.

-PER BUILDING EXCEPTION #6, SIDEWALKS, DECKS, AND DRIVEWAY CONSTRUCTION.

PROPOSED BUILDING VALUATION CALCULATION

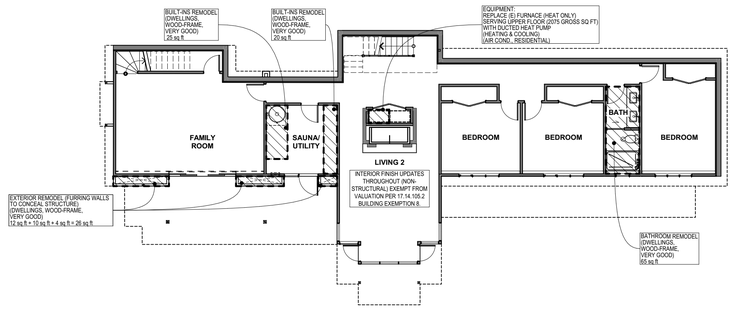
- UNIT COSTS PER 2024 MERCER ISLAND FEE SCHEDULE, APPENDIX A - 2024 MERCER ISLAND BUILDING VALUATION DATA TABLE.

COMPONENT	AREA	VALUATION FACTOR	VALUATION
UPPER FLOOR:			
1. (N) GARAGE/UTILITY	859 SF	$43.99 (GARAGE, WOOD)	$37,787.41
2. KITCHEN REMODEL	570 SF	$268.22 (DWELLING,V. GOOD)	$152,885.40
3. BUILT-INS REMODEL (ENTRY)	27 SF	$268.22 (DWELLING,V. GOOD)	$7,241.94
4. BUILT-INS REMODEL (M. BED)	19 SF	$268.22 (DWELLING,V. GOOD)	$5,096.18
5. BUILT-INS REMODEL (M. CLOSET)	53 SF	$268.22 (DWELLING,V. GOOD)	$14,215.66
6. MAIN BATH REMODEL	165 SF	$268.22 (DWELLING,V. GOOD)	$44,256.30
7. BATHROOM REMODEL	53 SF	$268.22 (DWELLING,V. GOOD)	$14,215.66
LOWER FLOOR:			
1. BUILT-INS REMODEL	25 SF	$268.22 (DWELLING,V. GOOD)	$6,705.50
2. BUILT-INS REMODEL	20 SF	$268.22 (DWELLING,V. GOOD)	$5,364.40
3. EXTERIOR REMODEL	26 SF	$268.22 (DWELLING,V. GOOD)	$6,973.72
4. BATHROOM REMODEL	63 SF	$268.22 (DWELLING,V. GOOD)	$16,897.86
EQUIPMENT:			
1. FURNANCE TO HEAT PUMP (HEATING & COOLING, UPPER FLOOR ONLY)	2075 SF	$6.49 (AIR COND., RESIDENTIAL)	$13,466.75
		TOTAL	$325,106.78



EXISTING LOWER FLOOR PLAN

SCALE: 3/32" = 1'-0" (4)



VALUATION CALC - PROPOSED LOWER FLOOR

SCALE: 3/32" = 1'-0" (2)

CAST
ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT
8217
STATE OF WASHINGTON

Approved by:

issue	issue date	description printed 1/16/2025
	10.17.23	PRELIMINARY PRICING SET
	02.19.24	VE COORDINATION SET
	03.25.24	COORDINATION SET
	07.03.24	PERMIT APPLICATION SET
	11.27.24	PERMIT CORRECTIONS 01 SET
	01.16.25	PERMIT CORRECTIONS 02 SET

BUILDING VALUATION DIAGRAMS

a.07

1/16/2025 2:50 PM /25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln

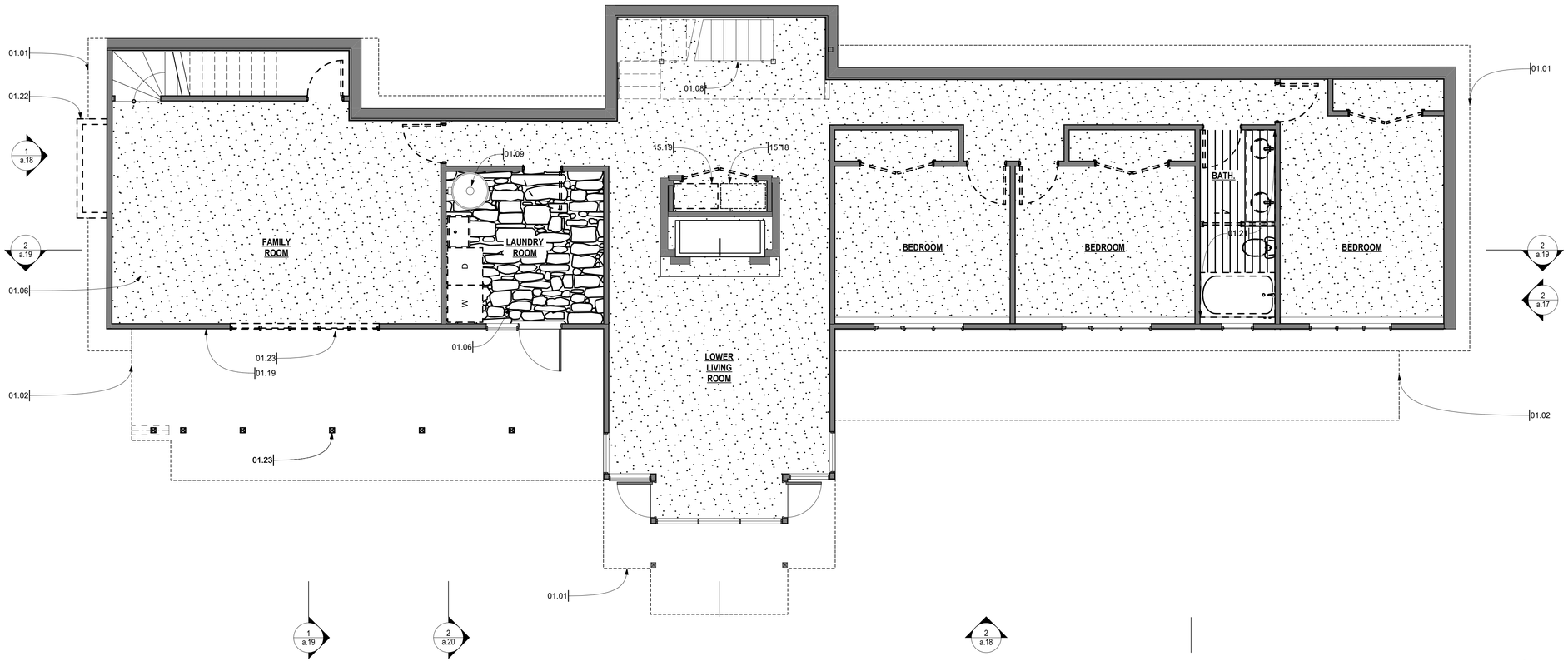
NOTE: ALL EXISTING CONDITIONS TO BE FIELD VERIFIED BY GENERAL CONTRACTOR.

KEY NOTES

01.	**GENERAL**
01.01	OUTLINE OF (E) BUILDING ABOVE
01.02	OUTLINE OF (E) DECK ABOVE
01.06	REMOVE (E) FLOORING
01.08	DEMO (E) WOODEN STAIR RAILING
01.09	(E) WATER HEATER TO REMAIN
01.19	REMOVE PORTION OF (E) WALL AND PREP FOR NEW OPENING AS INDICATED
01.21	DEMO (E) BATHROOM FIXTURES AND FINISHES FOR IN-PLACE REPLACEMENT
01.22	REMOVE ENTIRE (E) MASONRY FIREPLACE CHIMNEY & ENCLOSURE
01.23	PROVIDE TEMPORARY SHORING AND REMOVE (E) DECK COLUMNS PER STRUCTURAL, TYP
15.	**MECHANICAL**
15.18	(E) FURNACE SERVING LOWER FLOOR TO REMAIN IN PLACE, HEATING ONLY
15.19	REMOVE (E) FURNACE (HEAT ONLY) AND PREP FOR (N) DUCTED HEAT PUMP PER PLANS

GENERAL NOTES:

- REMOVE ALL (E) LOWER FLOOR FLOORING UNO
- REMOVE ALL (E) DOORS AND PREPARE (E) FRAMES FOR (N) REPLACEMENT DOORS



PLAN LEGEND

- (E) FOUNDATION WALL TO REMAIN
- (E) WALL TO REMAIN
- (E) WALL TO BE DEMOLISHED

LOWER FLOOR DEMO PLAN

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

N

CAST
ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT 9217 JEREMY M. CASTRO STATE OF WASHINGTON

Approved by:

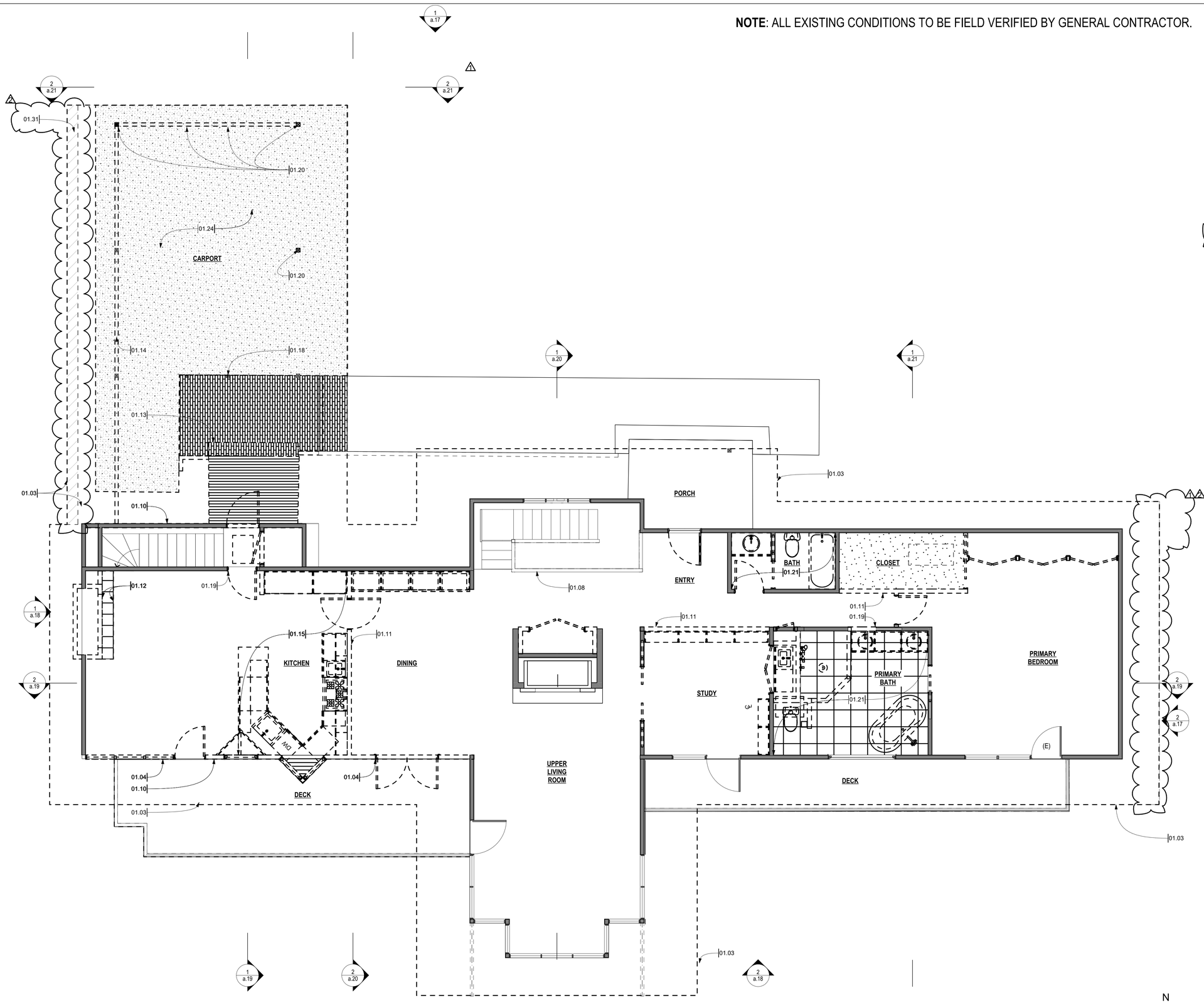
issue	issue date	description printed 1/16/2025
	10.17.23	PRELIMINARY PRICING SET
	02.19.24	VE COORDINATION SET
	03.25.24	COORDINATION SET
	07.03.24	PERMIT APPLICATION SET
	11.27.24	PERMIT CORRECTIONS 01 SET
	01.16.25	PERMIT CORRECTIONS 02 SET

LOWER FLOOR DEMO PLAN

a.11

1/16/2025 2:50 PM /25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln

NOTE: ALL EXISTING CONDITIONS TO BE FIELD VERIFIED BY GENERAL CONTRACTOR.



KEY NOTES

01.	**GENERAL**
01.03	**OUTLINE OF (E) ROOF ABOVE**
01.04	**REMOVE (E) WINDOWS/DOORS AS INDICATED, TYP.**
01.08	**DEMO (E) WOODEN STAIR RAILING**
01.10	**DEMO (E) EXTERIOR WALL AS INDICATED, TYP.** PRESERVE AND RETAIN (E) LOAD-BEARING STRUCTURE TO SUPPORT LOADS ABOVE AS REQUIRED AND PER STRUCTURAL ENGINEER'S DRAWINGS. PROVIDE TEMPORARY SUPPORT AS NEEDED.
01.11	**DEMO (E) INTERIOR WALL AS INDICATED, TYP.** PRESERVE AND RETAIN (E) LOAD-BEARING STRUCTURE TO SUPPORT LOADS ABOVE AS REQUIRED AND PER STRUCTURAL ENGINEER'S DRAWINGS
01.12	**DEMO (E) MASONRY FIREPLACE, WALL FRAMING, AND TILE BASE**
01.13	**DEMO (E) MASONRY PORCH AND EXTERIOR PAVERS**
01.14	**DEMO (E) NON-STRUCTURAL WOOD SCREEN**
01.15	**DEMO (E) KITCHEN PLUMBING FIXTURES, CASEWORK, COUNTERTOPS, FINISHES, AND WALLS. PREP FOR REMODELING**
01.18	**EXISTING LOAD-BEARING STRUCTURE TO REMAIN** PRESERVE AND RETAIN (E) LOAD-BEARING STRUCTURE TO SUPPORT LOADS ABOVE AS REQUIRED AND PER STRUCTURAL ENGINEER'S DRAWINGS
01.19	**REMOVE PORTION OF (E) WALL AND PREP FOR NEW OPENING AS INDICATED**
01.20	**REMOVE (E) CARPORT POSTS AND PROVIDE TEMPORARY SUPPORT AND/OR NEW TRANSFER BEAM FRAMING PER STRUCTURAL DRAWINGS**
01.21	**DEMO (E) BATHROOM FIXTURES AND FINISHES FOR IN-PLACE REPLACEMENT**
01.24	**REMOVE (E) CARPORT SLAB PER STRUCTURAL, TYP. PROVIDE TEMPORARY SUPPORT AND PROTECTION FOR (E) ROOF AND COLUMN STRUCTURE TO REMAIN AS NEEDED**
01.31	**REMOVE THE PORTION OF (E) CARPORT ROOF AS NECESSARY TO COMPLY WITH MINIMUM SIDE YARD SETBACK, SEE a.03 SITE PLAN FOR EXACT LOCATION**

GENERAL NOTES:

- (E) HARDWOOD FLOOR TO REMAIN AS INDICATED, PATCH & REPAIR AS NEEDED
- REMOVE ALL (E) DOORS AND PREPARE (E) FRAMES FOR (N) REPLACEMENT DOORS

PLAN LEGEND

- (E) FOUNDATION WALL TO REMAIN
- (E) WALL TO REMAIN
- (E) WALL TO BE DEMOLISHED

UPPER FLOOR DEMO PLAN

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

N

CAST
ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT 9217 JEREMY WILLIAMSON STATE OF WASHINGTON

Approved by:

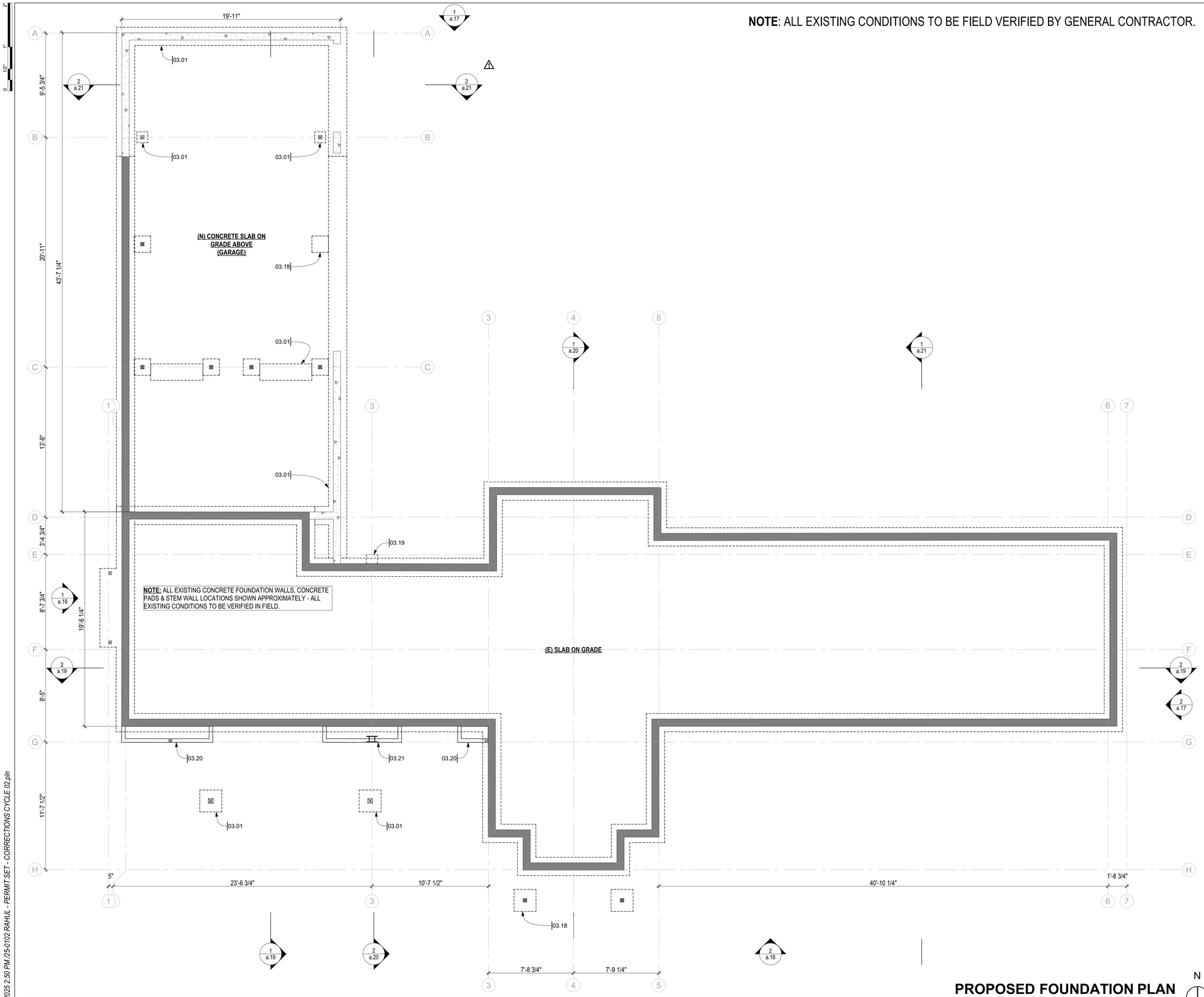
issue	issue date	description (printed 1/16/2025)
	10.17.23	PRELIMINARY PRICING SET
	02.19.24	VE COORDINATION SET
	03.25.24	COORDINATION SET
	07.03.24	PERMIT APPLICATION SET
	11.27.24	PERMIT CORRECTIONS 01 SET
	01.16.25	PERMIT CORRECTIONS 02 SET

UPPER FLOOR DEMO PLAN

a.12

1/16/2025 2:50 PM /25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln

NOTE: ALL EXISTING CONDITIONS TO BE FIELD VERIFIED BY GENERAL CONTRACTOR.



PROPOSED FOUNDATION PLAN

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

KEY NOTES

03.	**CONCRETE**
03.01	**(N) CONCRETE FOOTING** REINFORCED CONCRETE FOOTING PER STRUCTURAL, TYP.
03.18	**(E) CONCRETE FOOTING TO REMAIN**
03.19	**(N) CONCRETE FOOTING** REINFORCED CONCRETE FOOTING PER STRUCTURAL DETAIL 7/S4.3
03.20	**(N) CONCRETE FOOTING** REINFORCED CONCRETE FOOTING PER STRUCTURAL DETAIL 4/S3.2
03.21	**(N) CONCRETE FOOTING** REINFORCED CONCRETE FOOTING PER STRUCTURAL DETAIL 9/S3.2

GENERAL NOTES:

-

PLAN LEGEND

- **EXISTING WALL**
- **NEW INTERIOR WALL**
- **NEW EXTERIOR WALL OR INFILL IN EXISTING WALL**
- **KITCHEN FAN**
  100 CFM MIN. INTERMITTENT FAN PER IRC R1507.4
- **BATH/LAUNDRY FAN**
  50 CFM INTERMITTENTLY OR 20 CFM CONTINUOUS, PER IRC TABLE M1507.4.
- **SMOKE DETECTOR** (SD)
  HARDWIRE AND INTERCONNECTED WITH BATTERY BACKUP, PER IRC 314 AND IRC 315.1
- **COMBO SMOKE / MONOXIDE DETECTOR** (SD/CM)
  HARDWIRE AND INTERCONNECTED WITH BATTERY BACKUP, PER IRC 314 AND IRC 315.1
- **HEAT DETECTOR** (HD)
  INSTALLED PER MANUFACTURER'S INSTRUCTIONS AND CENTRALLY LOCATED IN NEW ATTACHED GARAGE, PER IRC R314.2.3

CAST
ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT 9217 JOSEPH M. CASTRO STATE OF WASHINGTON

Approved by:

issue	issue date	description (printed 1/16/2025)
	10.17.23	PRELIMINARY PRICING SET
	02.19.24	VE COORDINATION SET
	03.25.24	COORDINATION SET
	07.03.24	PERMIT APPLICATION SET
	11.27.24	PERMIT CORRECTIONS 01 SET
	01.16.25	PERMIT CORRECTIONS 02 SET

PROPOSED FOUNDATION PLAN

a.13

NOTE: ALL EXISTING CONDITIONS TO BE FIELD VERIFIED BY GENERAL CONTRACTOR.

KEY NOTES

01. GENERAL
01.01 OUTLINE OF (E) BUILDING ABOVE
01.02 OUTLINE OF (E) DECK ABOVE

05. METALS
05.30 (N) INFILL METAL GUARDRAIL BETWEEN (E) POSTS TO TO REMAIN, TYP.
PER R312.1, MIN. 36" HEIGHT, MAX. OPENINGS SUCH THAT A 4" SPHERE CANNOT PASS THROUGH, DESIGN TO RESIST A 200 LB CONCENTRATED LOAD ON TOP OF RAIL AND 50 PSF ON ALL GUARDRAIL INFILL COMPONENTS.

06. WOOD & PLASTIC
06.38 (N) DECK BEAM
REPLACE (E) DAMAGED DECK STRUCTURE W NEW PER STRUCTURAL
06.39 (N) POST AND FOUNDATION PER STRUCTURAL
PAINTED, COLOR TO MATCH EXTERIOR TRIM COLOR

07. THERMAL & MOISTURE
07.65 (N) FURRING WALL TO CONCEAL NEW STRUCTURE
07.66 (N) WING WALL TO CONCEAL NEW POST PER STRUCTURAL

08. DOORS & WINDOWS
08.05 REPLACE DOORS IN (E) OPENINGS, TYP.

15. MECHANICAL
15.15 (E) HW HEATER TO REMAIN
15.17 REPLACE (E) FURNACE (HEAT ONLY) SERVING UPPER FLOOR WITH (N) DUCTED HEAT PUMP (HEATING & COOLING FUNCTION) UTILIZING (E) DUCTS
SEE HEATING & COOLING SIZING CALCULATOR ON a.21 MECHANICAL CODE INFO

16. ELECTRICAL
16.04 (E) ELECTRICAL PANEL

GENERAL NOTES:

- ALL (N) FLOORING AT LOWER FLOOR UNO
- ALL (N) INTERIOR DOORS AND TRIM IN (E) OPENINGS UNO

TOILETS
HIGH PERFORMANCE LOW-FLUSH (1.28 GPF OR DUAL-FLUSH TOILET

SHOWERHEADS
MAX. FLOW RATE 1.75 GPM OR LESS

KITCHEN FAUCET
FAUCET 1.75 GPM OR LESS

BATH FAUCET
FAUCET 1.2 GPM OR LESS

MONITORED FIRE ALARM SYSTEM:

A 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.

PLAN LEGEND

- **EXISTING WALL**
- **NEW INTERIOR WALL**
- **NEW EXTERIOR WALL OR INFILL IN EXISTING WALL**
- **KITCHEN FAN** — 100 CFM MIN. INTERMITTENT FAN PER IRC R1507.4
- **BATH/LAUNDRY FAN** — 50 CFM INTERMITTENTLY OR 20 CFM CONTINUOUS, PER IRC TABLE M1507.4.
- **SMOKE DETECTOR** (SD) — HARDWIRE AND INTERCONNECTED WITH BATTERY BACKUP, PER IRC 314 AND IRC 315.1
- **COMBO SMOKE / MONOXIDE DETECTOR** (SD/CM) — HARDWIRE AND INTERCONNECTED WITH BATTERY BACKUP, PER IRC 314 AND IRC 315.1
- **HEAT DETECTOR** (HD) — INSTALLED PER MANUFACTURER'S INSTRUCTIONS AND CENTRALLY LOCATED IN NEW ATTACHED GARAGE, PER IRC R314.2.3

PROPOSED LOWER FLOOR

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

N

CAST
ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT 9217 JEFFREY M. CHRISTENSEN STATE OF WASHINGTON

Approved by:

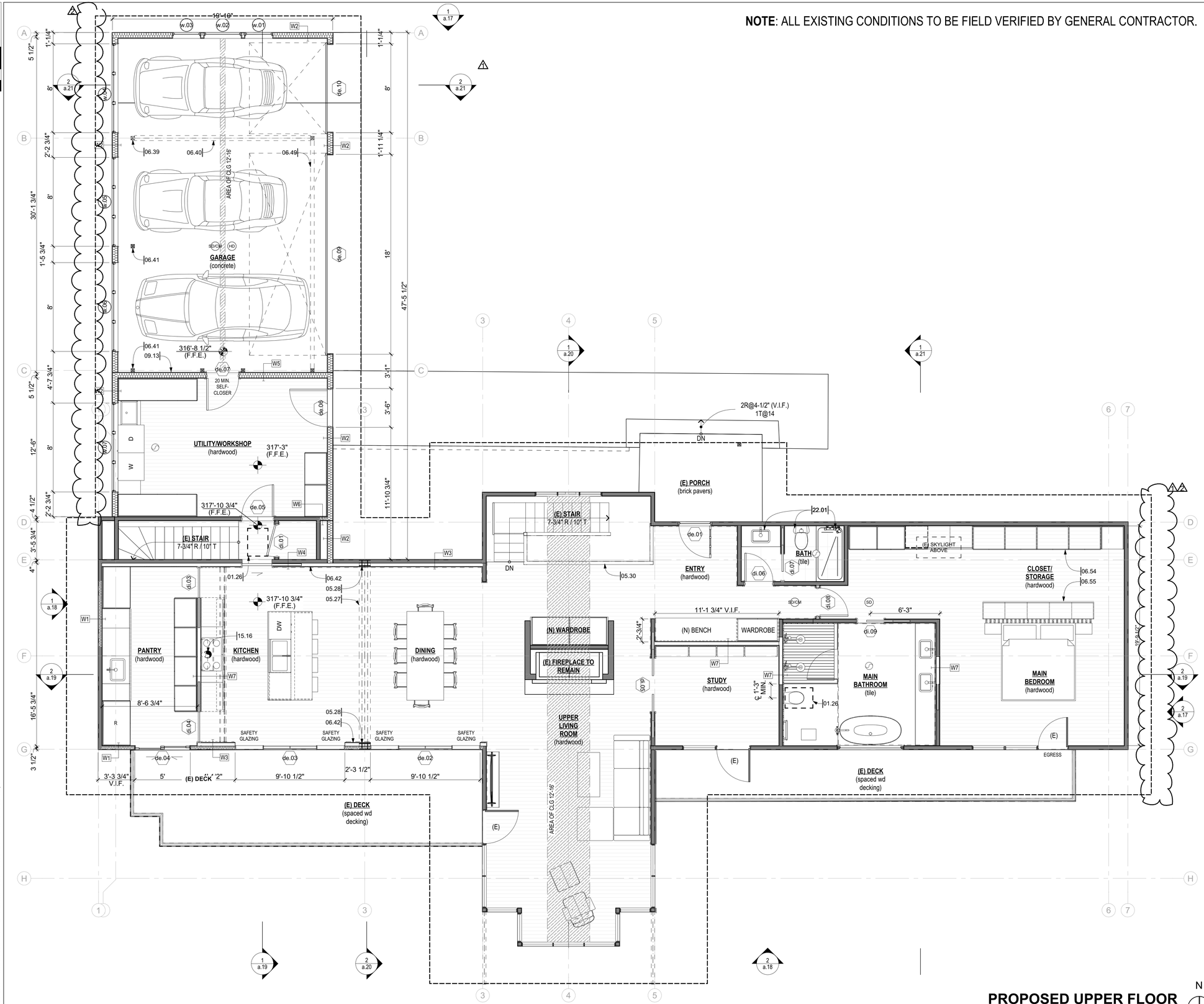
issue	issue date	description	printed 1/16/2025
	10.17.23	PRELIMINARY PRICING SET	
	02.19.24	VE COORDINATION SET	
	03.25.24	COORDINATION SET	
	07.03.24	PERMIT APPLICATION SET	
	11.27.24	PERMIT CORRECTIONS 01 SET	
	01.16.25	PERMIT CORRECTIONS 02 SET	

PROPOSED LOWER FLOOR PLAN

a.14

1/16/2025 2:50 PM /25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln

NOTE: ALL EXISTING CONDITIONS TO BE FIELD VERIFIED BY GENERAL CONTRACTOR.



KEY NOTES

01. GENERAL

01.26 **ATTIC ACCESS HATCH**
PER R807.1 ATTIC ACCESS OPENING MIN. 22" x 30" WITH MIN. 30" UNOBSTRUCTED HEADROOM

05. METALS

05.27 **(N) STEEL BEAMS**
(2) WIDE FLANGE STEEL MOMENT FRAME BEAMS PER STRUCTURAL

05.28 **(2) WIDE FLANGE STEEL MOMENT FRAME COLUMNS PER STRUCTURAL**

05.30 **(N) INFILL METAL GUARDRAIL BETWEEN (E) POSTS TO TO REMAIN, TYP.**
PER R312.1, MIN. 36" HEIGHT, MAX. OPENINGS SUCH THAT A 4" SPHERE CANNOT PASS THROUGH, DESIGN TO RESIST A 200 LB CONCENTRATED LOAD ON TOP OF RAIL AND 50 PSF ON ALL GUARDRAIL INFILL COMPONENTS.

06. WOOD & PLASTIC

06.39 **(N) POST AND FOUNDATION PER STRUCTURAL**
PAINTED, COLOR TO MATCH EXTERIOR TRIM COLOR

06.40 **(N) BEAM & KING POSTS ABOVE PER STRUCTURAL**
PAINTED, COLOR TO MATCH EXTERIOR TRIM COLOR

06.41 **(E) CARPORT STRUCTURE TO REMAIN, TYP.**

06.42 **(N) FURRED OUT WALL**
TO CONCEAL MOMENT FRAME MEMBERS

06.49 **(N) BEAM PER STRUCT.**

06.54 **(N) WARDROBE CASEWORK, TYP.**

06.55 **(N) LOW STORAGE BUREAU CASEWORK INTEGRATED WITH WD SCREEN HEADBOARD**

09. FINISHES

09.13 **5/8" TYPE X GWB**

15. MECHANICAL

15.16 **RANGE HOOD FOR ELECTRIC RANGE**
REQUIRED: MINIMUM 160 CFM INTERMITTENT PER M1505.4.4.(1) & M1505.4.4.(3) PROPOSED: 1100 CFM INTERMITTENT - MAKEUP AIR SYSTEM AND MAKEUP AIR DAMPER TO BE PROVIDED PER M1503.6.

22. PLUMBING

22.01 **ALL (N) PLUMBING FIXTURES IN (E) LOCATIONS**

GENERAL NOTES:

- (E) HARDWOOD FLOOR TO REMAIN AS INDICATED, PATCH & REPAIR AS NEEDED
- ALL (N) INTERIOR DOORS AND TRIM IN (E) OPENINGS UNO

TOILETS
HIGH PERFORMANCE LOW-FLUSH (1.28 GPF OR DUAL-FLUSH TOILET

SHOWERHEADS
MAX. FLOW RATE 1.75 GPM OR LESS

KITCHEN FAUCET
FAUCET 1.75 GPM OR LESS

BATH FAUCET
FAUCET 1.2 GPM OR LESS

MONITORED FIRE ALARM SYSTEM:

A 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.

PLAN LEGEND

- EXISTING WALL
- NEW INTERIOR WALL
- NEW EXTERIOR WALL OR INFILL IN EXISTING WALL
- KITCHEN FAN — 100 CFM MIN. INTERMITTENT FAN PER IRC R1507.4
- BATH/LAUNDRY FAN — 50 CFM INTERMITTENTLY OR 20 CFM CONTINUOUS, PER IRC TABLE M1507.4.
- SD — SMOKE DETECTOR — HARDWIRE AND INTERCONNECTED WITH BATTERY BACKUP, PER IRC 314 AND IRC 315.1
- SD/CM — COMBO SMOKE / MONOXIDE DETECTOR — HARDWIRE AND INTERCONNECTED WITH BATTERY BACKUP, PER IRC 314 AND IRC 315.1
- HD — HEAT DETECTOR — INSTALLED PER MANUFACTURER'S INSTRUCTIONS AND CENTRALLY LOCATED IN NEW ATTACHED GARAGE, PER IRC R314.2.3

PROPOSED UPPER FLOOR

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

N

CAST
ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT 9217 JOSEPH M. CASTRO STATE OF WASHINGTON

Approved by:

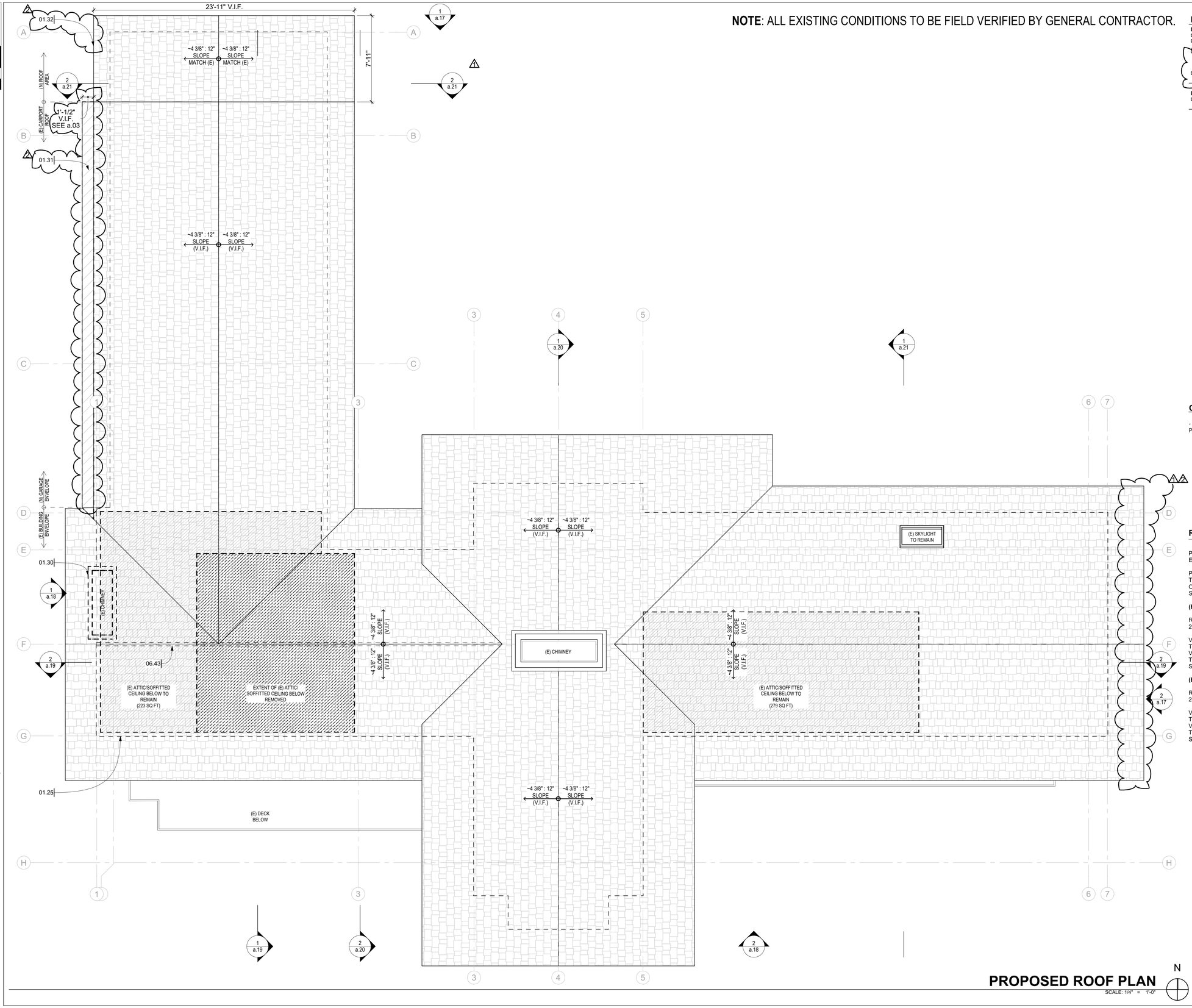
issue	issue date	description
	printed 1/16/2025	
	10.17.23	PRELIMINARY PRICING SET
	02.19.24	VE COORDINATION SET
	03.25.24	COORDINATION SET
	07.03.24	PERMIT APPLICATION SET
	11.27.24	PERMIT CORRECTIONS 01 SET
	01.16.25	PERMIT CORRECTIONS 02 SET

PROPOSED UPPER FLOOR PLAN

a.15

1/16/2025 2:50 PM /25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln

NOTE: ALL EXISTING CONDITIONS TO BE FIELD VERIFIED BY GENERAL CONTRACTOR.



KEY NOTES

01.	**GENERAL**
01.25	OUTLINE OF (E) BUILDING BELOW SHOWN DASHED
01.30	CHIMNEY TO BE REMOVED OUTLINE SHOWN DASHED
01.31	REMOVE THE PORTION OF (E) CARPORT ROOF (SHOWN HATCHED) AS NECESSARY TO COMPLY WITH MINIMUM SIDE YARD SETBACK, SEE a.03 SITE PLAN FOR EXACT LOCATION
01.32	VERIFY (N) ROOF AREA DOES NOT ENCROACH ON MINIMUM SIDE YARD SETBACK PER a.03
06.	**WOOD & PLASTIC**
06.43	(N) RIDGE BEAM BELOW ROOF DECK PER STRUCTURAL

GENERAL NOTES:

- (N) CEDAR SHAKE ROOFING TO MATCH (E) CEDAR SHAKE ROOFING. PATCH AND REPAIR AS NEEDED.

ROOF VENTING NOTES:

PER R806.1 PROVIDE REQUIRED VENTILATION TO ENCLOSED ATTICS AND RAFTER SPACES.

PER R806.2 - OPENINGS FOR ATTIC VENTILATION: THE MINIMUM NET AREA OF VENTILATING AREA OF OPENINGS SHALL BE 1 SQUARE FOOT FOR EACH 150 SQUARE FEET OF THE VENTED SPACE.

(E) PANTRY/KITCHEN VENTED ROOF CALC:

REQUIRED VENTILATION AREA =
223 SQFT / 150 SQ FT = +/- 1.49 SQ FT

VERIFY PORTION OF EXISTING ATTIC TO REMAIN INCLUDES THE REQUIRED VENTILATION AREA AND PROTECTED VENTILATION OPENINGS. IF DEFICIENT, ATTIC VENTILATION TO BE PROVIDED THROUGH EITHER DRILLED HOLES OR SQUARE VENTS.

(E) MAIN BATHROOM/OFFICE VENTED ROOF CALC:

REQUIRED VENTILATION AREA =
279 SQFT / 150 SQ FT = +/- 1.86 SQ FT

VERIFY PORTION OF EXISTING ATTIC TO REMAIN INCLUDES THE REQUIRED VENTILATION AREA AND PROTECTED VENTILATION OPENINGS. IF DEFICIENT, ATTIC VENTILATION TO BE PROVIDED THROUGH EITHER DRILLED HOLES OR SQUARE VENTS.

PROPOSED ROOF PLAN

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

CAST
ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT 9217 STATE OF WASHINGTON

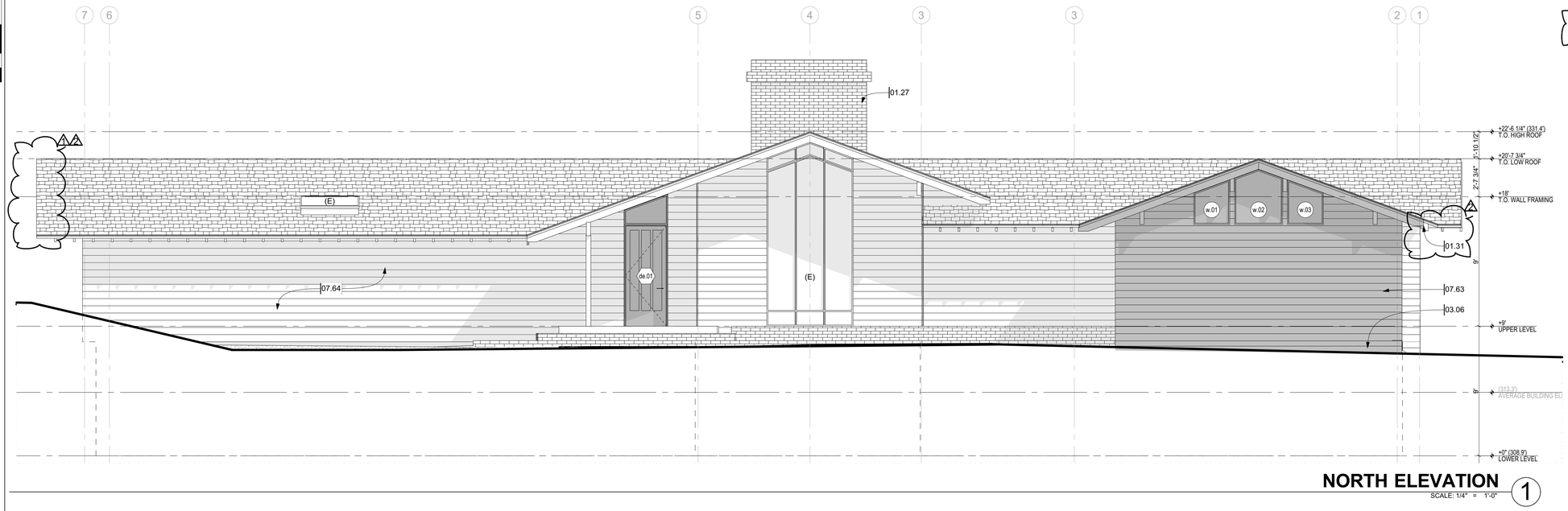
Approved by:

issue	issue date	description	printed 1/16/2025
	10.17.23	PRELIMINARY PRICING SET	
	02.19.24	VE COORDINATION SET	
	03.25.24	COORDINATION SET	
	07.03.24	PERMIT APPLICATION SET	
	11.27.24	PERMIT CORRECTIONS 01 SET	
	01.16.25	PERMIT CORRECTIONS 02 SET	

PROPOSED ROOF PLAN

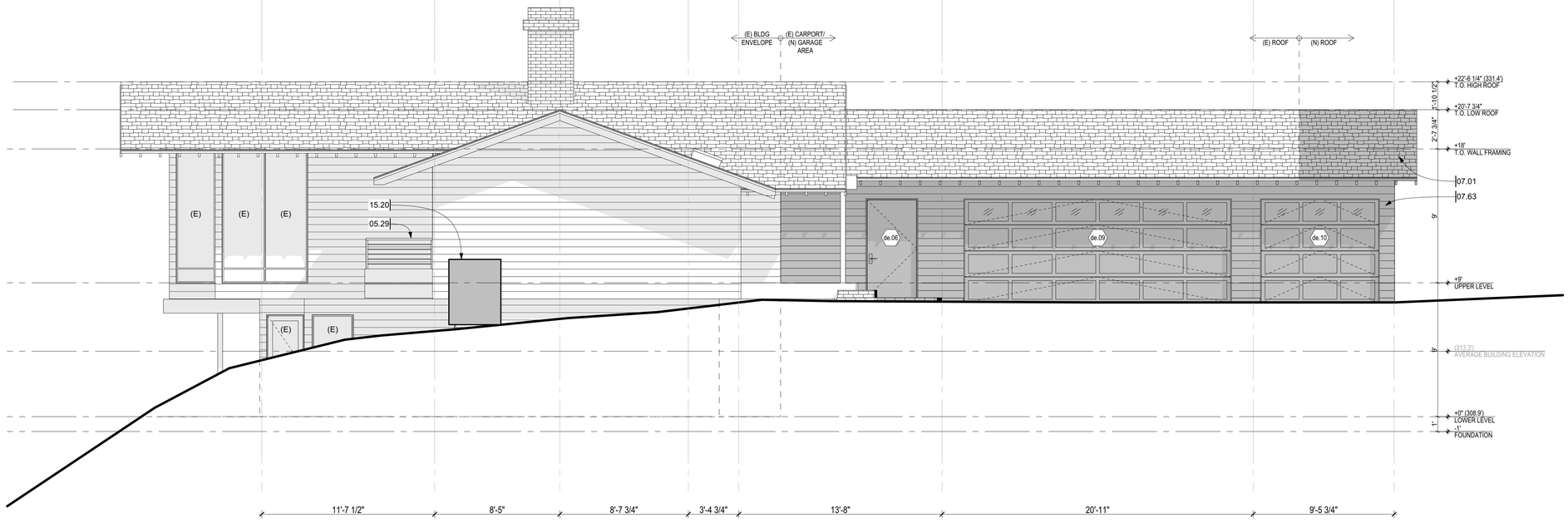
a.16

1/16/2025 2:50 PM 25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln



NORTH ELEVATION

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



EAST ELEVATION

SCALE: 1/4" = 1'-0" (2)

KEY NOTES

01. GENERAL
01.27 **(E) MASONRY CHIMNEY TO REMAIN**
01.31 **REMOVE THE PORTION OF (E) CARPORT ROOF (SHOWN HATCHED) AS NECESSARY TO COMPLY WITH MINIMUM SIDE YARD SETBACK, SEE a.03 SITE PLAN FOR EXACT LOCATION**

03. CONCRETE
03.06 **FOUNDATION STEM WALLS**
PER STRUCTURAL

05. METALS
05.29 **(E) GUARDRAIL TO REMAIN, TYP.**
PER R312.1, MIN. 36" HEIGHT, MAX. OPENINGS SUCH THAT A 4" SPHERE CANNOT PASS THROUGH, DESIGN TO RESIST A 200 LB CONCENTRATED LOAD ON TOP OF RAIL AND 50 PSF ON ALL GUARDRAIL INFILL COMPONENTS.

07. THERMAL & MOISTURE
07.01 **CEDAR SHAKE ROOFING**
MATCH EXISTING
07.63 **(N) WOOD SIDING**
1 x 6 PAINTED CEDAR SHIPLAP SIDING TO MATCH GRADE, SURFACE TEXTURE AND EXPOSURE OF EXISTING SIDING - CONTRACTOR TO PROVIDE SAMPLES FOR APPROVAL
07.64 **(E) PAINTED WOOD SIDING, TYP.**

15. MECHANICAL
15.20 **(N) DUCTED HEAT PUMP COMPRESSOR ON FOUNDATION PAD**
MITSUBISHI H2i® HYPER-HEATING 42,000 BTU 5-ZONE SMART MULTI HEAT PUMP UNIT MODEL: MXZ-SM42NAMHZ

ELEVATION LEGEND

- EXISTING ELEMENTS TO REMAIN
- NEW ELEMENTS

CAST
ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT
8217
STATE OF WASHINGTON

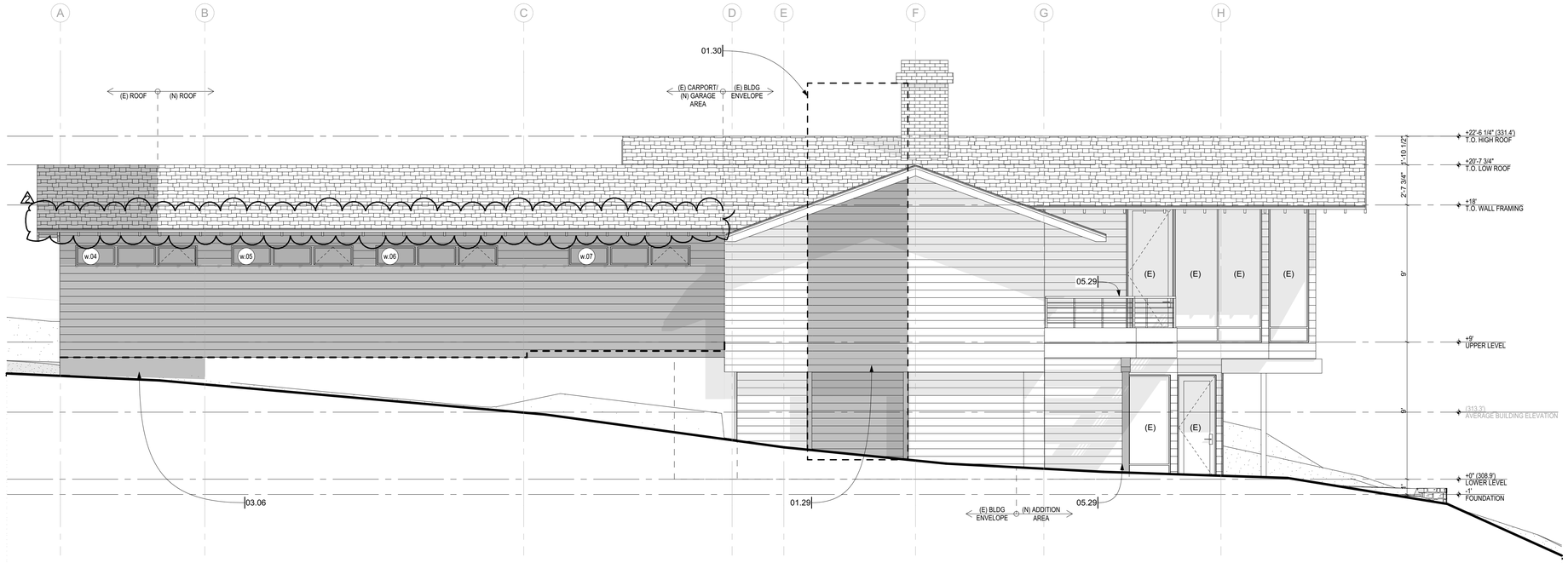
Approved by:

issue	issue date	description printed 1/16/2025
	10.17.23	PRELIMINARY PRICING SET
	02.19.24	VE COORDINATION SET
	03.25.24	COORDINATION SET
	07.03.24	PERMIT APPLICATION SET
	11.27.24	PERMIT CORRECTIONS 01 SET
	01.16.25	PERMIT CORRECTIONS 02 SET

BUILDING ELEVATIONS

a.17

1/16/2025 2:50 PM /25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln



WEST ELEVATION

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

SOUTH ELEVATION

SCALE: 1/4" = 1'-0" (2)

KEY NOTES

01. GENERAL
- **01.28 (E) OPENINGS TO BE DEMOLISHED** SHOWN DASHED IN RED. INFILL (E) OPENINGS AS REQUIRED.
- **01.29 INFILL WALL** AS NECESSARY TO DEMOLISH (E) CHIMNEY
- **01.30 CHIMNEY TO BE REMOVED** OUTLINE SHOWN DASHED

03. CONCRETE
- **03.06 FOUNDATION STEM WALLS** PER STRUCTURAL

05. METALS
- **05.29 (E) GUARDRAIL TO REMAIN, TYP.** PER R312.1, MIN. 36" HEIGHT, MAX. OPENINGS SUCH THAT A 4" SPHERE CANNOT PASS THROUGH. DESIGN TO RESIST A 200 LB CONCENTRATED LOAD ON TOP OF RAIL AND 50 PSF ON ALL GUARDRAIL INFILL COMPONENTS.

06. WOOD & PLASTIC
- **06.48 (N) POST PER STRUCT.**
- **06.49 (N) BEAM PER STRUCT.**

07. THERMAL & MOISTURE
- **07.63 (N) WOOD SIDING** 1 x 6 PAINTED CEDAR SHIPLAP SIDING TO MATCH GRADE, SURFACE TEXTURE AND EXPOSURE OF EXISTING SIDING - CONTRACTOR TO PROVIDE SAMPLES FOR APPROVAL
- **07.64 (E) PAINTED WOOD SIDING, TYP.**

15. MECHANICAL
- **15.20 (N) DUCTED HEAT PUMP COMPRESSOR ON FOUNDATION PAD** MITSUBISHI H2i® HYPER-HEATING 42,000 BTU 5-ZONE SMART MULTI HEAT PUMP UNIT MODEL: MXZ-SM42NAMHZ

ELEVATION LEGEND

- EXISTING ELEMENTS TO REMAIN
- NEW ELEMENTS

CAST ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT 8217 STATE OF WASHINGTON

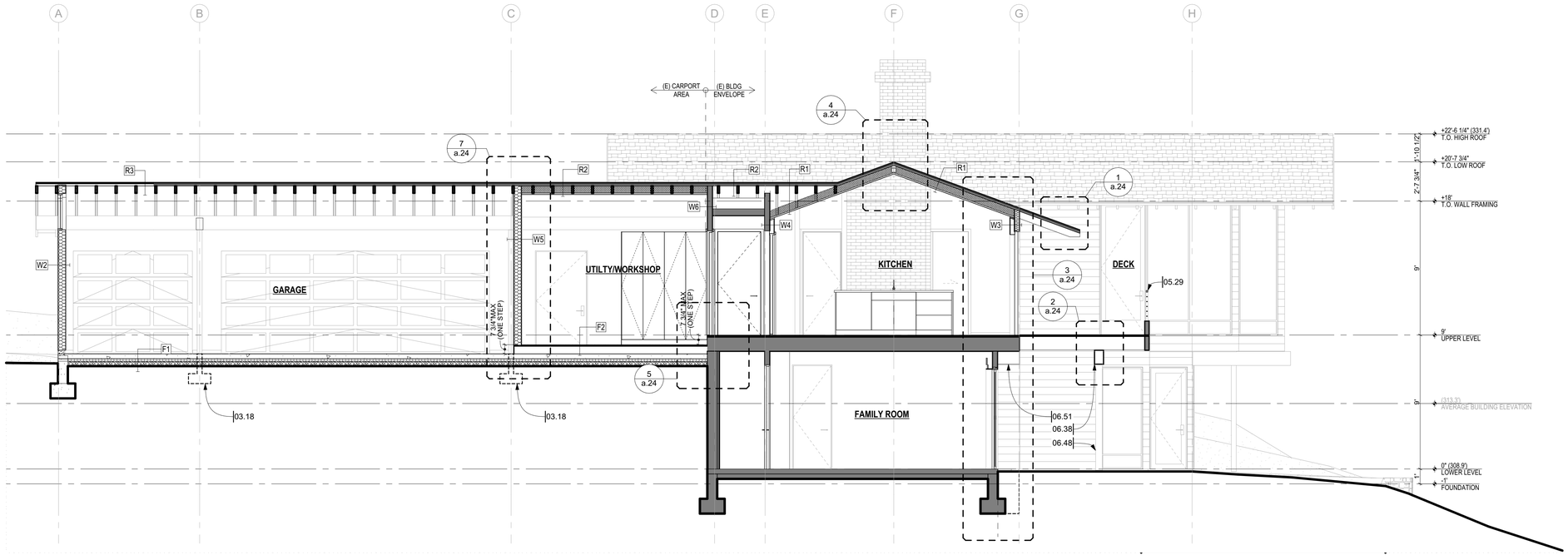
Approved by:

issue	issue date	description (printed 1/16/2025)
	10.17.23	PRELIMINARY PRICING SET
	02.19.24	VE COORDINATION SET
	03.25.24	COORDINATION SET
	07.03.24	PERMIT APPLICATION SET
	11.27.24	PERMIT CORRECTIONS 01 SET
	01.16.25	PERMIT CORRECTIONS 02 SET

BUILDING ELEVATIONS

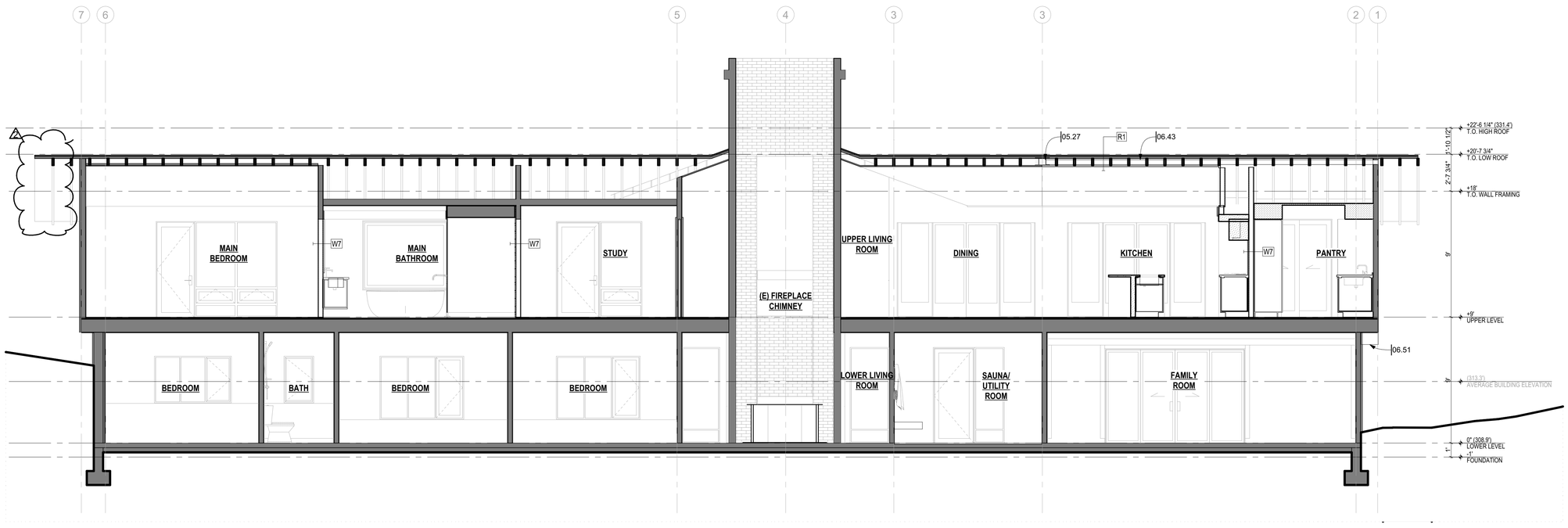
a.18

1/16/2025 2:50 PM /25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln



E/W-E SECTION 1

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



N/S-E SECTION 2

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

KEY NOTES

03.	**CONCRETE**
03.18	**(E) CONCRETE FOOTING TO REMAIN**
05.	**METALS**
05.27	**(N) STEEL BEAMS** (2) WIDE FLANGE STEEL MOMENT FRAME BEAMS PER STRUCTURAL
05.29	**(E) GUARDRAIL TO REMAIN, TYP.** PER R312.1, MIN. 36" HEIGHT, MAX. OPENINGS SUCH THAT A 4" SPHERE CANNOT PASS THROUGH, DESIGN TO RESIST A 200 LB CONCENTRATED LOAD ON TOP OF RAIL AND 50 PSF ON ALL GUARDRAIL INFILL COMPONENTS.
06.	**WOOD & PLASTIC**
06.38	**(N) DECK BEAM** REPLACE (E) DAMAGED DECK STRUCTURE W NEW PER STRUCTURAL
06.43	**(N) RIDGE BEAM** BELOW ROOF DECK PER STRUCTURAL
06.48	**(N) POST PER STRUCT.**
06.51	**(N) SOFFIT** FURRED DOWN TO CONCEAL DROP BEAM

SECTION LEGEND

- **EXISTING WALL**
- **NEW INTERIOR WALL**
- **NEW EXTERIOR WALL OR INFILL IN EXISTING WALL**

CAST ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT 8217 STATE OF WASHINGTON

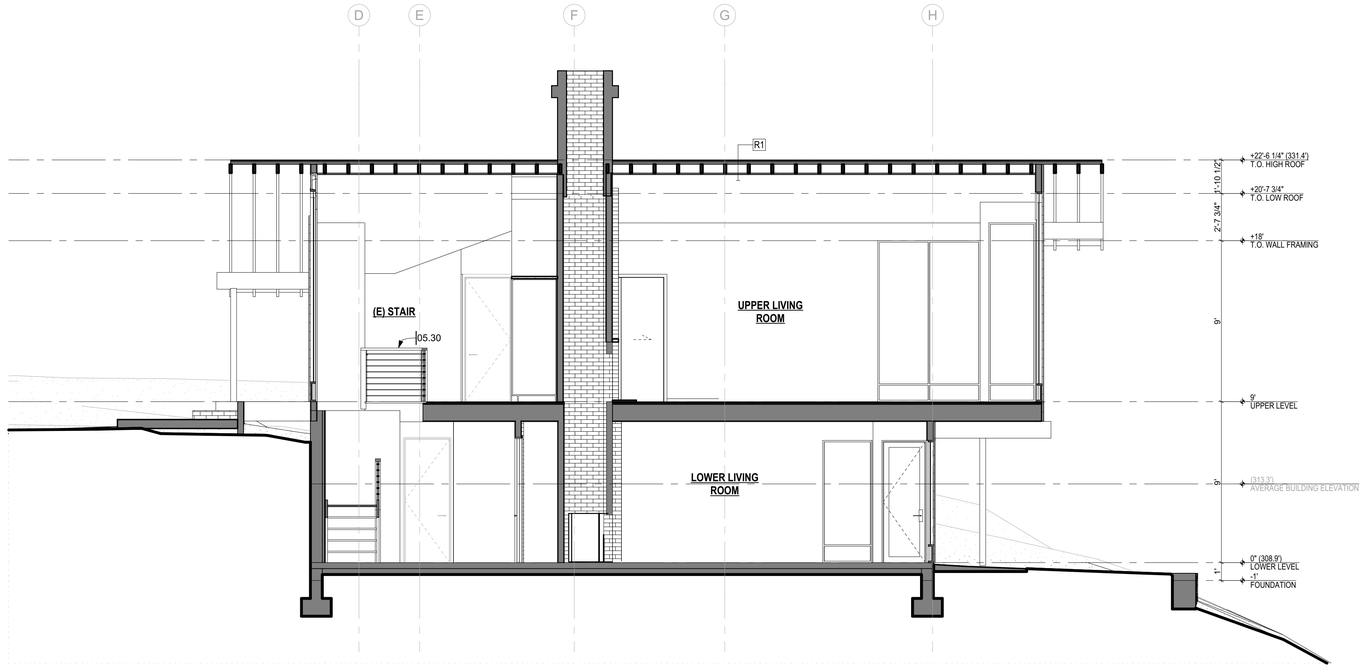
Approved by:

issue	issue date	description printed 1/16/2025
	10.17.23	PRELIMINARY PRICING SET
	02.19.24	VE COORDINATION SET
	03.25.24	COORDINATION SET
	07.03.24	PERMIT APPLICATION SET
	11.27.24	PERMIT CORRECTIONS 01 SET
	01.16.25	PERMIT CORRECTIONS 02 SET

BUILDING SECTIONS

a.19

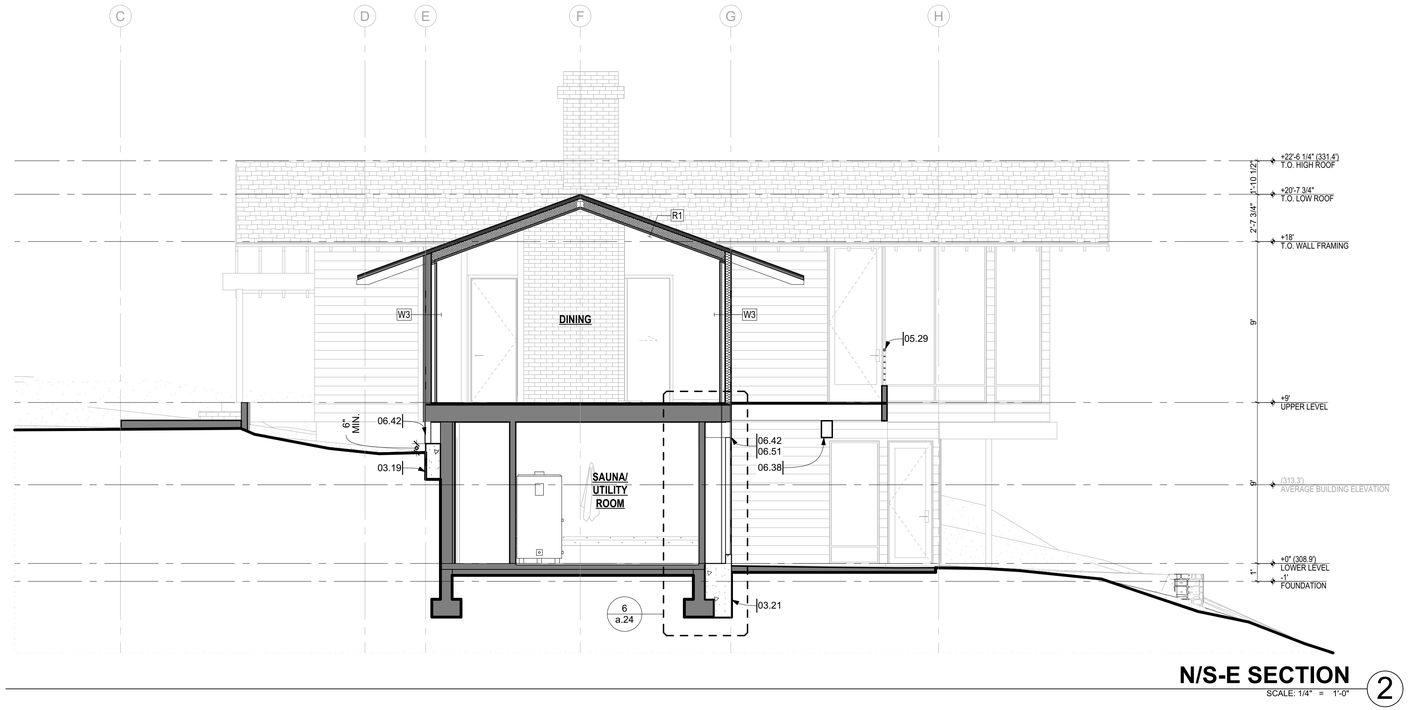
1/16/2025 2:50 PM /25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln



E/W-E SECTION

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

1



N/S-E SECTION

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

2

KEY NOTES

03. CONCRETE

03.19 **(N) CONCRETE FOOTING**
REINFORCED CONCRETE FOOTING PER STRUCTURAL DETAIL 7/S4.3

03.21 **(N) CONCRETE FOOTING**
REINFORCED CONCRETE FOOTING PER STRUCTURAL DETAIL 9/S3.2

05. METALS

05.29 **(E) GUARDRAIL TO REMAIN, TYP.**
PER R312.1, MIN. 36" HEIGHT, MAX. OPENINGS SUCH THAT A 4" SPHERE CANNOT PASS THROUGH, DESIGN TO RESIST A 200 LB CONCENTRATED LOAD ON TOP OF RAIL AND 50 PSF ON ALL GUARDRAIL INFILL COMPONENTS.

05.30 **(N) INFILL METAL GUARDRAIL BETWEEN (E) POSTS TO TO REMAIN, TYP.**
PER R312.1, MIN. 36" HEIGHT, MAX. OPENINGS SUCH THAT A 4" SPHERE CANNOT PASS THROUGH, DESIGN TO RESIST A 200 LB CONCENTRATED LOAD ON TOP OF RAIL AND 50 PSF ON ALL GUARDRAIL INFILL COMPONENTS.

06. WOOD & PLASTIC

06.38 **(N) DECK BEAM**
REPLACE (E) DAMAGED DECK STRUCTURE W NEW PER STRUCTURAL

06.42 **(N) FURRED OUT WALL**
TO CONCEAL MOMENT FRAME MEMBERS

06.51 **(N) SOFFIT**
FURRED DOWN TO CONCEAL DROP BEAM

SECTION LEGEND

- EXISTING WALL
- NEW INTERIOR WALL
- NEW EXTERIOR WALL OR INFILL IN EXISTING WALL

CAST
ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT
8217
STATE OF WASHINGTON

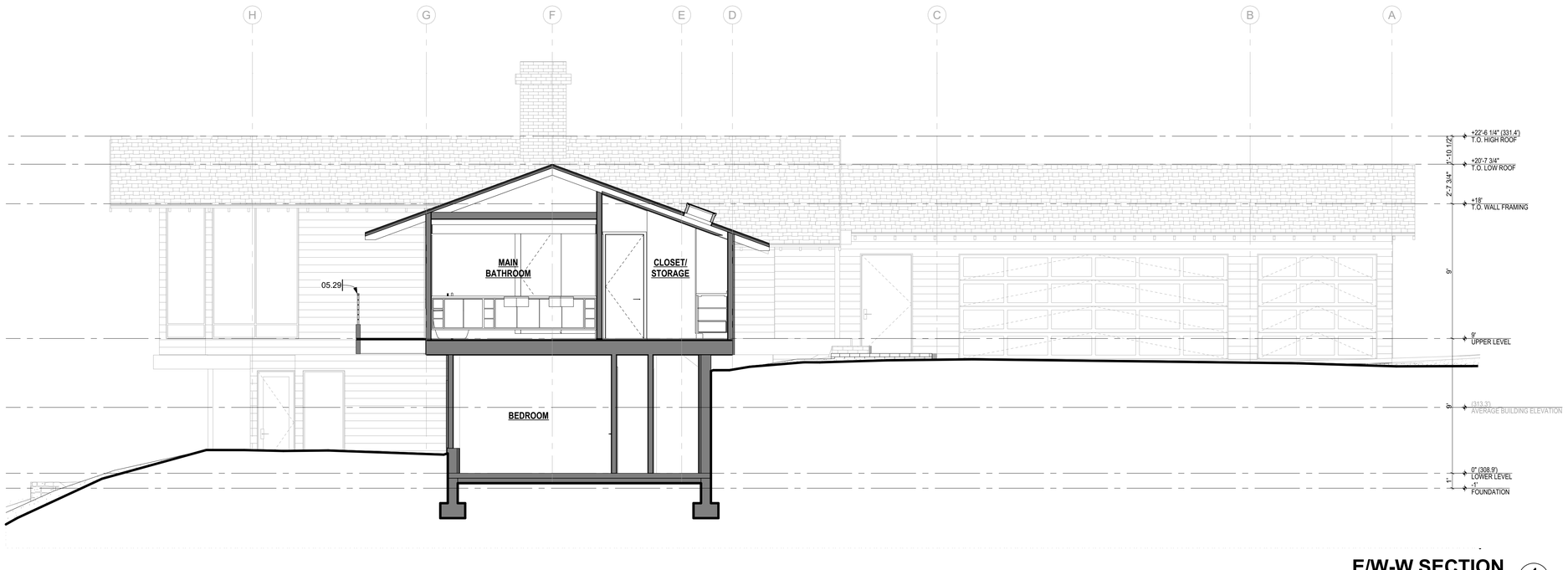
Approved by:

issue	issue date	description	printed 1/16/2025
	10.17.23	PRELIMINARY PRICING SET	
	02.19.24	VE COORDINATION SET	
	03.25.24	COORDINATION SET	
	07.03.24	PERMIT APPLICATION SET	
	11.27.24	PERMIT CORRECTIONS 01 SET	
	01.16.25	PERMIT CORRECTIONS 02 SET	

BUILDING SECTIONS

a.20

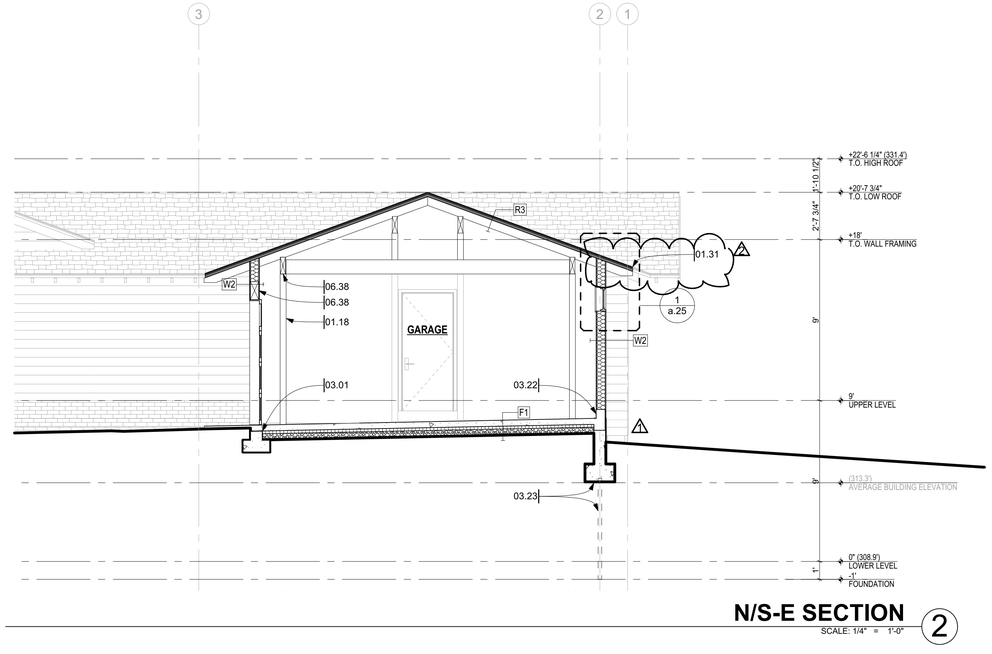
1/16/2025 2:50 PM /25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln



E/W-W SECTION

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

1



N/S-E SECTION

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

2

KEY NOTES

01. GENERAL

01.18 **EXISTING LOAD-BEARING STRUCTURE TO REMAIN**
PRESERVE AND RETAIN (E) LOAD-BEARING STRUCTURE TO SUPPORT LOADS ABOVE AS REQUIRED AND PER STRUCTURAL ENGINEER'S DRAWINGS

01.31 **REMOVE THE PORTION OF (E) CARPORT ROOF (SHOWN HATCHED) AS NECESSARY TO COMPLY WITH MINIMUM SIDE YARD SETBACK, SEE a.03 SITE PLAN FOR EXACT LOCATION**

03. CONCRETE

03.01 **(N) CONCRETE FOOTING**
REINFORCED CONCRETE FOOTING PER STRUCTURAL, TYP.

03.22 **(N) CONCRETE CURB**
REINFORCED CONCRETE PER STRUCTURAL DETAIL 12/ S3.2

03.23 **(N) CONCRETE FOOTING & PIN PILES**
PER STRUCTURAL DETAIL 2/S4.1 & 3/S4.1

05. METALS

05.29 **(E) GUARDRAIL TO REMAIN, TYP.**
PER R312.1, MIN. 36" HEIGHT, MAX. OPENINGS SUCH THAT A 4" SPHERE CANNOT PASS THROUGH, DESIGN TO RESIST A 200 LB CONCENTRATED LOAD ON TOP OF RAIL AND 50 PSF ON ALL GUARDRAIL INFILL COMPONENTS.

06. WOOD & PLASTIC

06.38 **(N) DECK BEAM**
REPLACE (E) DAMAGED DECK STRUCTURE W NEW PER STRUCTURAL

SECTION LEGEND

- EXISTING WALL
- NEW INTERIOR WALL
- NEW EXTERIOR WALL OR INFILL IN EXISTING WALL

CAST
ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT
STATE OF WASHINGTON
8217

issue	issue date	description printed 1/16/2025
	10.17.23	PRELIMINARY PRICING SET
	02.19.24	VE COORDINATION SET
	03.25.24	COORDINATION SET
	07.03.24	PERMIT APPLICATION SET
	11.27.24	PERMIT CORRECTIONS 01 SET
	01.16.25	PERMIT CORRECTIONS 02 SET

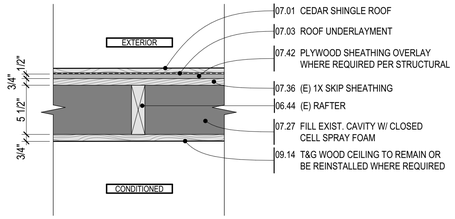
Approved by:

BUILDING SECTIONS

a.21

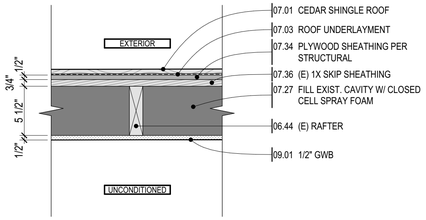
1/16/2025 2:50 PM /25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln

ROOF ASSEMBLIES



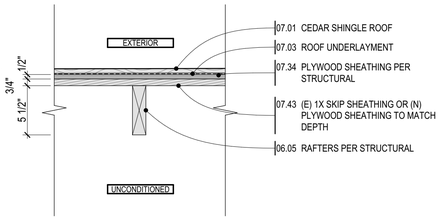
R1

PROPOSED ROOF ASSEMBLY
AT CONDITIONED SPACE



R2

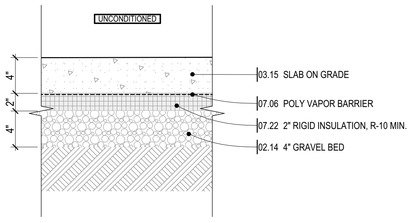
PROPOSED ROOF ASSEMBLY
AT UTILITY/WORKSHOP,
UNCONDITIONED SPACE,
INSULATED



R3

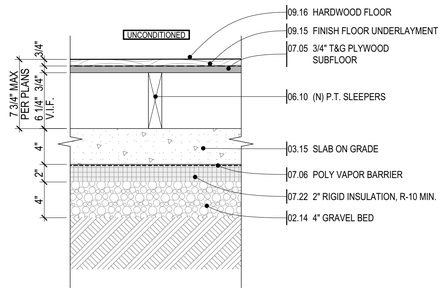
PROPOSED ROOF ASSEMBLY
AT GARAGE

FLOOR ASSEMBLIES



F1

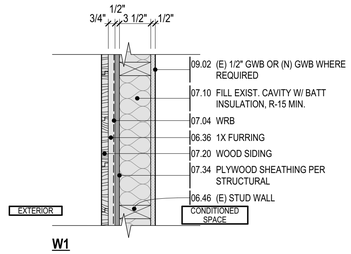
PROPOSED SLAB ON GRADE



F2

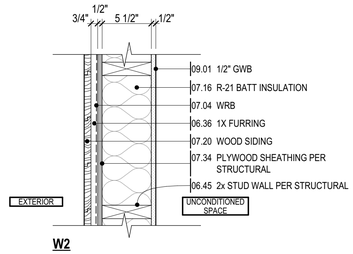
PROPOSED FINISHED FLOOR
OVER SLAB ON GRADE

WALL ASSEMBLIES



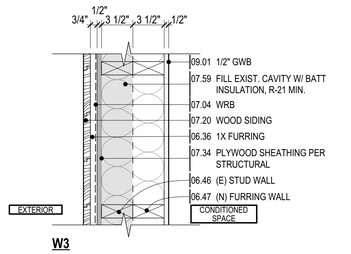
W1

(E) 2X4 EXTERIOR WALL AT
CONDITIONED SPACE



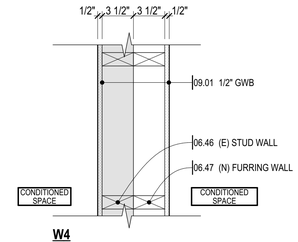
W2

PROPOSED 2X6 EXTERIOR WALL
AT UNCONDITIONED SPACE



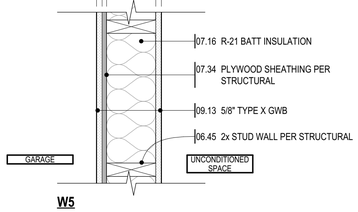
W3

PROPOSED FURRING WALL
OVER (E) EXTERIOR WALL



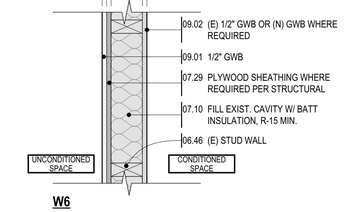
W4

PROPOSED INTERIOR FURRING WALL
OVER (E) INTERIOR PARTITION WALL



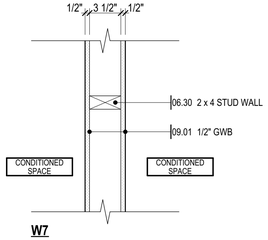
W5

PROPOSED 2X6 GARAGE/
DWELLING SEPARATION WALL
AT UNCONDITIONED SPACE



W6

(E) 2X4 WALL AT CONDITIONED &
UNCONDITIONED SPACE

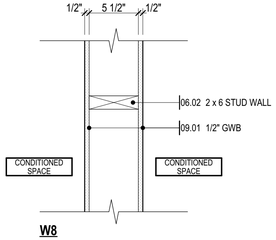


W7

2X4 INTERIOR PARTITION WALL, TYP.

W7A

SOUND INSULATION OPTIONAL PER PLANS



W8

2X6 INTERIOR PARTITION WALL, TYP.

W8A

SOUND INSULATION OPTIONAL PER PLANS

KEY NOTES

02.	**SITE**
02.14	4" GRAVEL BED
03.	**CONCRETE**
03.15	SLAB ON GRADE
06.	**WOOD & PLASTIC**
06.02	2 x 6 STUD WALL
06.05	RAFTERS PER STRUCTURAL
06.10	(N) P.T. SLEEPERS
06.30	2 x 4 STUD WALL
06.36	1X RAINSCREEN FURRING
06.44	(E) RAFTER
06.45	2x STUD WALL PER STRUCTURAL
06.46	(E) STUD WALL
06.47	(N) FURRING WALL
07.	**THERMAL & MOISTURE**
07.01	CEDAR SHAKE ROOFING MATCH EXISTING
07.03	ROOF UNDERLAYMENT WATER RESISTIVE AIR BARRIER; VAPOR PERMEABLE
07.04	SELF-ADHERED WRB VAPROSHIELD WRAPSHIELD SA; WATER RESISTIVE AIR BARRIER; VAPOR PERMEABLE
07.05	3/4" T&G PLYWOOD SUBFLOOR
07.06	POLY VAPOR BARRIER UNDER SLAB SOIL BARRIER WITH SEALED SEAMS AND PENITRATIONS
07.10	FILL EXIST. CAVITY W/ BATT INSULATION, R-15 MIN.
07.16	R-21 BATT INSULATION
07.20	WOOD SIDING WHERE REPLACED - 1" x 6" TIGHT KNOT, CLEAR BOARD (KD) CEDAR WOOD HORIZONTAL SIDING TO MATCH EXISTING, SAMPLE TO CONFIRM, PAINTED
07.22	2" RIGID INSULATION, R-10 MIN. OPTIONAL, CONFIRM W OWNER
07.27	FILL EXIST. CAVITY W/ CLOSED CELL SPRAY FOAM WHEN FRAMING IS EXPOSED, FILL ENTIRE DEPTH OF CAVITY WHFO CLOSED CELL SPRAY FOAM; HEATLOK HFO PRO OR SIMILAR. SEE SHEET a.23 for CODE EVALUATION REPORT
07.29	PLYWOOD SHEATHING WHERE REQUIRED PER STRUCTURAL
07.34	PLYWOOD SHEATHING PER STRUCTURAL
07.36	(E) 1X SKIP SHEATHING
07.42	PLYWOOD SHEATHING OVERLAY WHERE REQUIRED PER STRUCTURAL
07.43	(E) 1X SKIP SHEATHING OR (N) PLYWOOD SHEATHING TO MATCH DEPTH MATCH EXISTING
07.58	FILL EXIST. CAVITY W/ BATT INSULATION, R-21 MIN.
09.	**FINISHES**
09.01	1/2" GWB W/ VAPOR SEMI-PERMEABLE LATEX PAINT AND PRIMER
09.02	(E) 1/2" GWB OR (N) GWB WHERE REQUIRED
09.13	5/8" TYPE X GWB
09.14	T&G WOOD CEILING TO REMAIN OR BE REINSTALLED WHERE REQUIRED
09.15	FINISH FLOOR UNDERLAYMENT
09.16	HARDWOOD FLOOR

CAST
ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT
8217
STEVEN WOO YOUNG CHOI
STATE OF WASHINGTON

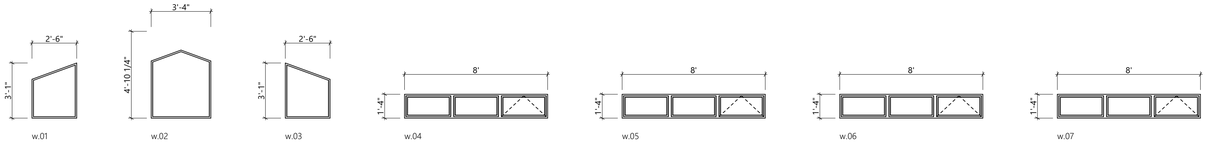
Approved by:

issue	issue date	description	printed 1/16/2025
	10.17.23	PRELIMINARY PRICING SET	
	02.19.24	VE COORDINATION SET	
	03.25.24	COORDINATION SET	
	07.03.24	PERMIT APPLICATION SET	
	11.27.24	PERMIT CORRECTIONS 01 SET	
	01.16.25	PERMIT CORRECTIONS 02 SET	

ASSEMBLIES

a.22

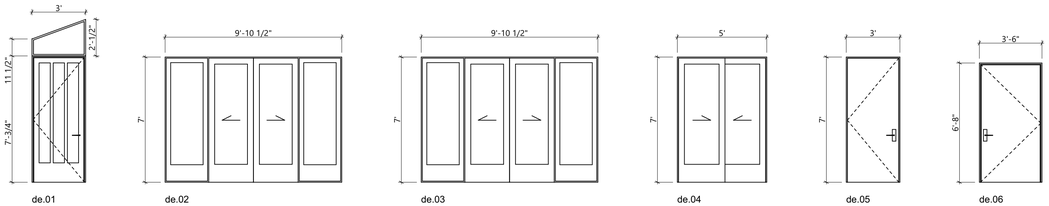
1/16/2025 2:50 PM I25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln



ALL WINDOWS TO COMPLY WITH 2021 WSEC PER TABLE R402 & TO BE NFRC 100, LABELED AND CERTIFIED BY THE MANUFACTURER.

ID	UNIT SIZE	AREA	U-VALUE	MFG.	TYPE	MATERIALS	FINISH	OPT. & NOTES
w.01	2'-6"×3'-1"	7.71	0.30	LOEWEN	FIXED	TBD	MATCH EXISTING	
w.02	3'-4"×4'-10 1/4"	16.18	0.30	LOEWEN	FIXED	TBD	MATCH EXISTING	
w.03	2'-6"×3'-1"	7.71	0.30	LOEWEN	FIXED	TBD	MATCH EXISTING	
w.04	8'×1'-4"	10.67	0.30	LOEWEN	AWNING	TBD	MATCH EXISTING	
w.05	8'×1'-4"	10.67	0.30	LOEWEN	AWNING	TBD	MATCH EXISTING	
w.06	8'×1'-4"	10.67	0.30	LOEWEN	AWNING	TBD	MATCH EXISTING	
w.07	8'×1'-4"	10.67	0.30	LOEWEN	AWNING	TBD	MATCH EXISTING	

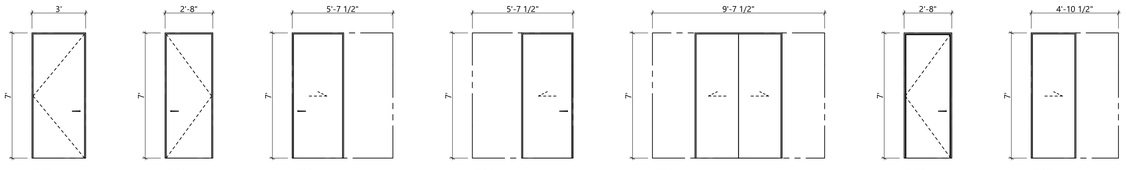
EXTERIOR WINDOW SCHEDULE 1

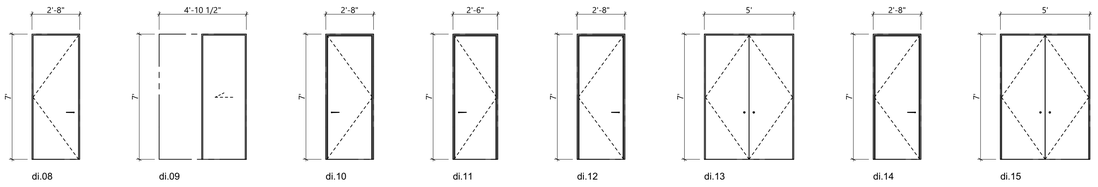


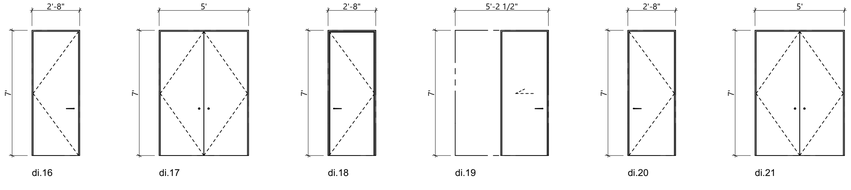
ALL EXTERIOR DOORS TO COMPLY WITH 2021 WSEC PER TABLE R402 & TO BE NFRC 100, LABELED AND CERTIFIED BY THE MANUFACTURER.

ID	WIDTH	HEIGHT	LEAF -W	LEAF-H	AREA	U-VALUE	MFG.	TYPE	MATERIALS	FINISH	OPT. & NOTES
de.01	3'	7'-3/4"	2'-10 1/2"	7'	21.19	0.30	TBD	SINGLE SWING ENTRY DOOR	TBD	TBD	TRAPEZOIDAL TRANSOM WINDOW ABOVE DOOR PER ELEVATIONS
de.02	9'-10 1/2"	7'	2'-4 1/2"	6'-11 1/4"	69.13	0.30	LOEWEN	OUTSWING FRENCH DOOR	TBD	TBD	2 SIDELITES ON EITHER SIDE, FULL LITE GLAZING
de.03	9'-10 1/2"	7'	2'-4 1/2"	6'-11 1/4"	69.13	0.30	LOEWEN	OUTSWING FRENCH DOOR	TBD	TBD	2 SIDELITES ON EITHER SIDE, FULL LITE GLAZING
de.04	5'	7'	2'-7 1/4"	6'-11 1/4"	35.00	0.30	LOEWEN	SLIDING GLASS DOOR	TBD	TBD	
de.05	3'	7'	2'-10 1/2"	6'-11 1/4"	21.00	0.30	TBD	SINGLE SWING	TBD	TBD	
de.06	3'-6"	6'-8"	3'-4 1/2"	6'-7 1/4"	23.33	0.30	TBD	SINGLE SWING	TBD	TBD	
de.07	3'	6'-8"	2'-10 1/2"	6'-7 1/4"	20.00	0.30	TBD	SINGLE SWING	TBD	TBD	20 MIN. FIRE-RATED, SELF-CLOSER
de.08	10'	6'-8 3/4"	2'-5 3/4"	6'-8"	67.29	0.30	LOEWEN	FRENCH SLIDER, 4 PANEL	AL CLAD WD	TBD	2 SIDELITES ON EITHER SIDE, FULL LITE GLAZING, SAFETY GLAZING
de.09	18'	7'	---	---	126.00	0.30	NW DOOR	OVERHEAD GARAGE DOOR	TBD	TBD	SECTIONAL, TOP ROW GLAZED PER ELEVATIONS
de.10	8'	7'	---	---	56.00	0.30	NW DOOR	OVERHEAD GARAGE DOOR	TBD	TBD	SECTIONAL, TOP ROW GLAZED PER ELEVATIONS

EXTERIOR DOOR SCHEDULE 2







ID	NOMINAL SIZE	MFG.	TYPE	MATERIALS	FINISH	OPT. & NOTES
di.01	3"×7'		SWING			
di.02	5'-5"×6'-9 3/4"					
di.03	5'-5 3/4"×6'-10"		POCKET			
di.04	5'-5 3/4"×6'-10"		POCKET			
di.05	9'-6"×7'		POCKET, PAIR			
di.06	2'-8"×7'		SWING			
di.07	4'-9 3/4"×7'		POCKET			
di.08	2'-8"×7'		SWING			
di.09	4'-9 3/4"×7'		POCKET			
di.10	2'-8"×7'		SWING			
di.11	2'-6"×7'		SWING			
di.12	2'-8"×7'		SWING			
di.13	5'×7'		SWING, PAIR			
di.14	2'-8"×7'		SWING			
di.15	5'×7'		SWING, PAIR			
di.16	2'-8"×7'		SWING			
di.17	5'×7'		SWING, PAIR			
di.18	2'-8"×7'		SWING			
di.19	5'-1 3/4"×7'		POCKET			
di.20	2'-8"×7'		SWING			
di.21	5'×7'		SWING, PAIR			

INTERIOR DOOR SCHEDULE 3

CAST
ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

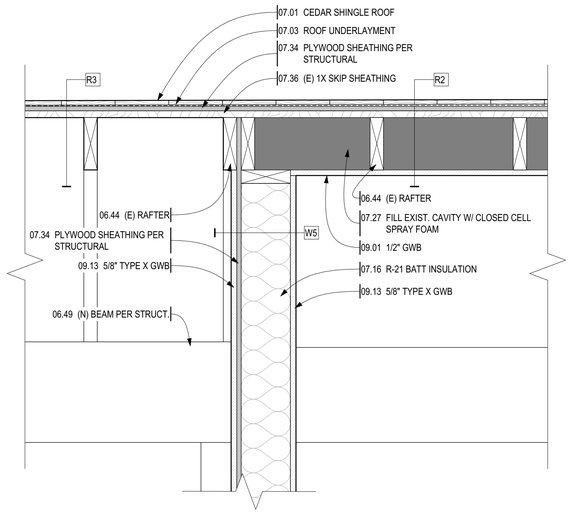
Approved by:

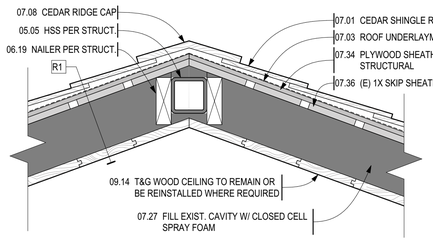
issue	issue date	description printed 1/16/2025
	10.17.23	PRELIMINARY PRICING SET
	02.19.24	VE COORDINATION SET
	03.25.24	COORDINATION SET
	07.03.24	PERMIT APPLICATION SET
	11.27.24	PERMIT CORRECTIONS 01 SET
	01.16.25	PERMIT CORRECTIONS 02 SET

SCHEDULES

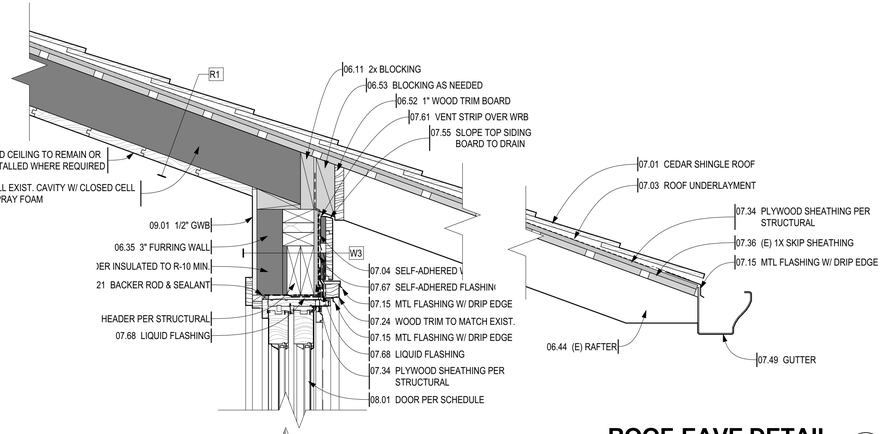
a.23

1/16/2025 2:50 PM /25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln

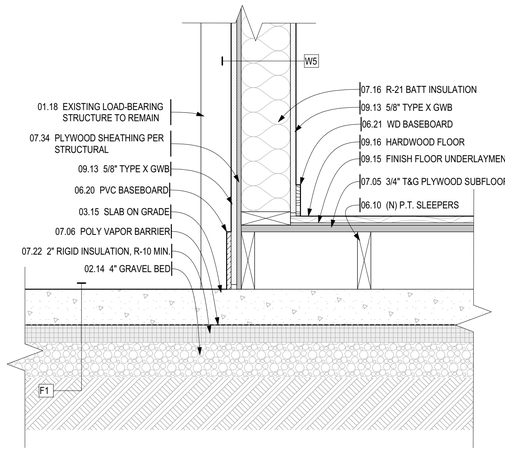




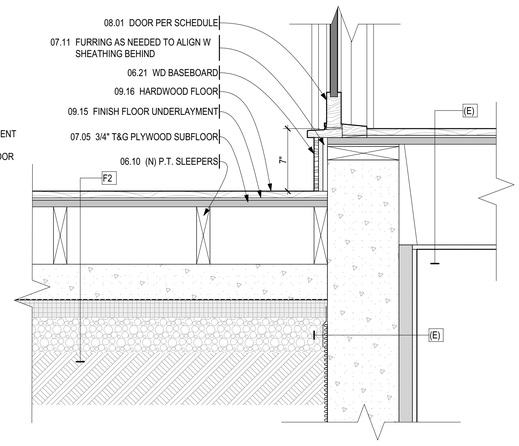
ROOF RIDGE DETAIL 4
SCALE: 1 1/2"= 1'-0"



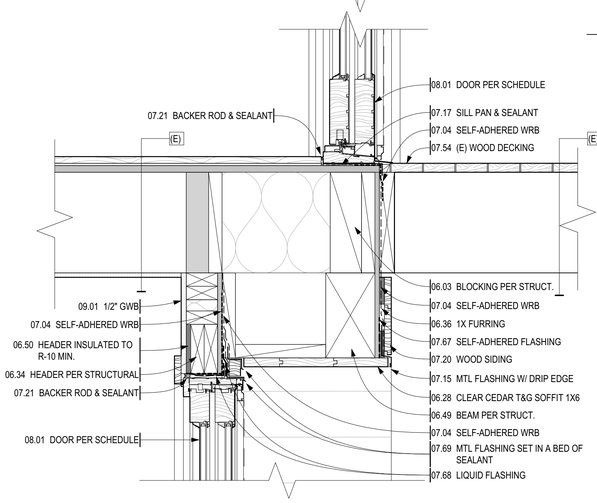
ROOF EAVE DETAIL 1
SCALE: 1 1/2"= 1'-0"

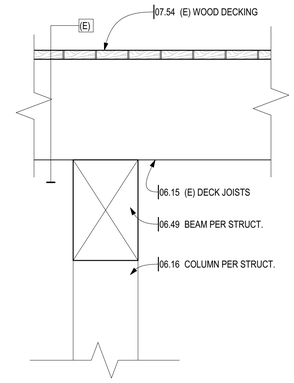


WALL AT GARAGE / UTILITY 7
SCALE: 1 1/2"= 1'-0"

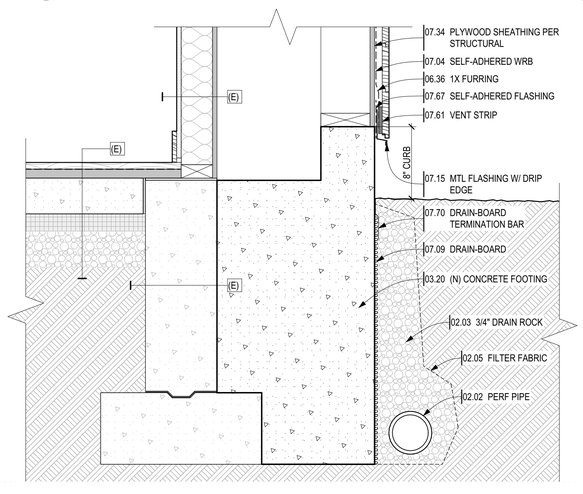


STEP AT UTILITY 5
SCALE: 1 1/2"= 1'-0"

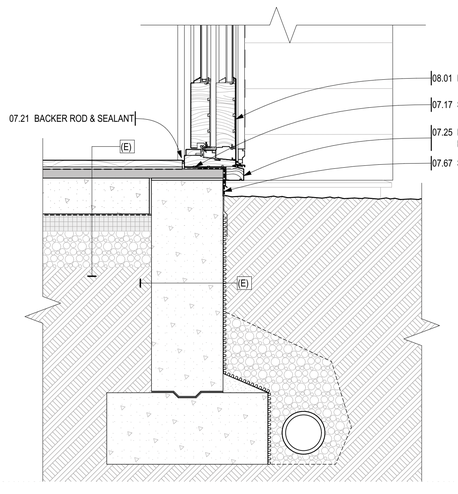




DROPPED BEAM AT DECK 2
SCALE: 1 1/2"= 1'-0"



EXT. FURRING WALL AT LOWER LEVEL 6
SCALE: 1 1/2"= 1'-0"



WALL SECTION @ SLIDING DOORS 3
SCALE: 1 1/2"= 1'-0"

KEY NOTES

01. GENERAL
- **01.18 EXISTING LOAD-BEARING STRUCTURE TO REMAIN** — PRESERVE AND RETAIN (E) LOAD-BEARING STRUCTURE TO SUPPORT LOADS ABOVE AS REQUIRED AND PER STRUCTURAL ENGINEER'S DRAWINGS

02. SITE
- **02.02 PERF PIPE** — 4" PERF PIPE
- **02.03 3/4" DRAIN ROCK**
- **02.05 FILTER FABRIC**
- **02.14 4" GRAVEL BED**

03. CONCRETE
- **03.15 SLAB ON GRADE**
- **03.20 (N) CONCRETE FOOTING** — REINFORCED CONCRETE FOOTING PER STRUCTURAL DETAIL 4/S3.2

05. METALS
- **05.05 HSS PER STRUCT.**

06. WOOD & PLASTIC
- **06.03 BLOCKING PER STRUCT.**
- **06.10 (N) P.T.SLEEPERS**
- **06.11 2x BLOCKING**
- **06.15 (E) DECK JOISTS**
- **06.16 COLUMN PER STRUCT.**
- **06.19 NAILER PER STRUCT.**
- **06.20 PVC BASEBOARD**
- **06.21 WD BASEBOARD**
- **06.28 CLEAR CEDAR T&G SOFFIT 1X6**
- **06.34 HEADER PER STRUCTURAL**
- **06.35 3" FURRING WALL**
- **06.36 1X RAINSCREEN FURRING**
- **06.44 (E) RAFTER**
- **06.49 (N) BEAM PER STRUCT.**
- **06.50 HEADER INSULATED TO R-10 MIN.**
- **06.52 1" WOOD TRIM BOARD**
- **06.53 BLOCKING AS NEEDED**

07. THERMAL & MOISTURE
- **07.01 CEDAR SHAKE ROOFING** — MATCH EXISTING
- **07.03 ROOF UNDERLAYMENT** — WATER RESISTIVE AIR BARRIER; VAPOR PERMEABLE
- **07.04 SELF-ADHERED WRB** — VAPROSHIELD WRAPSHIELD SA; WATER RESISTIVE AIR BARRIER; VAPOR PERMEABLE
- **07.05 3/4" T&G PLYWOOD SUBFLOOR**
- **07.06 POLY VAPOR BARRIER** — UNDER SLAB SOIL BARRIER WITH SEALED SEAMS AND PENITRATIONS
- **07.08 CEDAR RIDGE CAP** — MATCH EXISTING
- **07.09 DRAIN-BOARD** — WITH INTEGRAL FILTERFABRIC ATOP BITUMEN MODIFIED URETHANE WATERPROOFING MEMBRANE
- **07.11 FURRING AS NEEDED TO ALIGN W SHEATHING BEHIND**
- **07.15 MTL FLASHING W/ DRIP EDGE**
- **07.16 R-21 BATT INSULATION**
- **07.17 SILL PAN & SEALANT** — CONTINUOUS SILL PAN, INSTALLED PER MANF SPEC
- **07.20 WOOD SIDING** — WHERE REPLACED - 1" x 6" TIGHT KNOT, CLEAR BOARD (KD) CEDAR WOOD HORIZONTAL SIDING TO MATCH EXISTING, SAMPLE TO CONFIRM, PAINTED
- **07.21 BACKER ROD & SEALANT**
- **07.22 2" RIGID INSULATION, R-10 MIN.** — OPTIONAL, CONFIRM W OWNER
- **07.24 WOOD TRIM TO MATCH EXIST.**
- **07.25 EXT. WOOD TRIM W/ DRIP EDGE, SLOPE TO DRAIN**
- **07.27 FILL EXIST. CAVITY W/ CLOSED CELL SPRAY FOAM** — WHEN FRAMING IS EXPOSED, FILL ENTIRE DEPTH OF CAVITY W/HFO CLOSED CELL SPRAY FOAM; HEATLOK HFO PRO OR SIMILAR. SEE SHEET a.23 for CODE EVALUATION REPORT
- **07.34 PLYWOOD SHEATHING PER STRUCTURAL**
- **07.36 (E) 1X SKIP SHEATHING**
- **07.49 GUTTER**
- **07.54 (E) WOOD DECKING**
- **07.55 SLOPE TOP SIDING BOARD TO DRAIN**
- **07.61 VENT STRIP** — OVER WRB WITH INSECT SCREEN
- **07.67 SELF-ADHERED FLASHING** — VAPROSHIELD WRAPFLASHING SA; LAP PER MANUFACTURER'S DETAIL/SPEC.
- **07.68 LIQUID FLASHING** — VAPROLIQUI-FLASH; LAP PER VAPROSHIELD WINDOW SEQUENCE DETAIL
- **07.69 MTL FLASHING SET IN A BED OF SEALANT**
- **07.70 DRAIN-BOARD TERMINATION BAR**

08. DOORS & WINDOWS
- **08.01 DOOR PER SCHEDULE** — SEE ARCH. SPECS FOR ADDITIONAL INFO. INSTALLED PER MANF SPEC

09. FINISHES
- **09.01 1/2" GWB** — W/ VAPOR SEMI-PERMEABLE LATEX PAINT AND PRIMER
- **09.13 5/8" TYPE X GWB**
- **09.14 T&G WOOD CEILING TO REMAIN OR BE REINSTALLED WHERE REQUIRED**
- **09.15 FINISH FLOOR UNDERLAYMENT**
- **09.16 HARDWOOD FLOOR**

A Assemblies
- **(E) TO REMAIN**
- **F1 (N) SLAB ON GRADE**
- **F2 (N) FINISHED FLOOR OVER SLAB ON GRADE**
- **R1 (N) ROOF ASSEMBLY AT CONDITIONED SPACE**
- **R2 (N) ROOF ASSEMBLY AT UTILITY/ WORKSHOP, UNCONDITIONED SPACE, INSULATED**
- **R3 (N) ROOF ASSEMBLY AT GARAGE**
- **W3 (N) FURRING WALL OVER (E) EXTERIOR WALL**
- **W5 (N) 2X6 GARAGE/DWELLING SEPARATION WALL AT UNCONDITIONED SPACE**

CAST ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT 8217 JOSEPH W. CASTRO STATE OF WASHINGTON

Approved by:

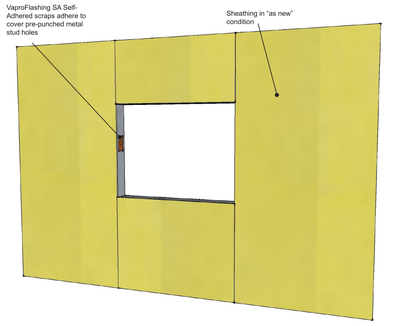
issue	issue date	description	printed 1/16/2025
	10.17.23	PRELIMINARY PRICING SET	
	02.19.24	VE COORDINATION SET	
	03.25.24	COORDINATION SET	
	07.03.24	PERMIT APPLICATION SET	
	11.27.24	PERMIT CORRECTIONS 01 SET	
	01.16.25	PERMIT CORRECTIONS 02 SET	

DETAILS

a.24

1/16/2025 2:50 PM /25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln

Step 1: Nail Flange Window RO Flashing System: Extreme Coastal Climate



VAPROLIQUI-FLASH™

Step 1: Inspect rough opening, patch pre-punched holes with VaproFlashing SA

PRODUCT DESCRIPTION

VaproLiqui-Flash is a liquid applied, vapor permeable, waterproof, air barrier flashing system component for window and door rough openings. VaproLiquiFlash is designed to work with VaproFlashing and VaproShield field membranes as a complete system.

DISCLAIMER

Detail sketch is generic, representing suggested best practices for VaproShield materials, and does not represent a specific job site condition and therefore may not be applicable to certain projects. Detail sketch is designed for use as a reference and must be approved by the designer/ consultant of record for each project prior to installation by the subcontractor. Changes and approvals of VaproShield details are the sole responsibility of the designer/consultant of record. VaproShield is **not** the designer of record for building enclosure details and takes no responsibility for the accuracy or interpretation of actual project site conditions.

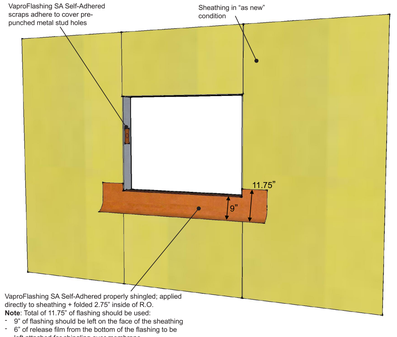
DRAWN BY: AR DATE: 06.23.16

REF: 215-1

Always check www.VaproShield.com for the latest details and installation instructions

VaproShield LLC | 915 26th Ave. N.W. Suite C5 | Gig Harbor, WA 98335 | Toll Free: 1.866.731.7663 | www.VaproShield.com | © VaproShield
VaproShield Canada | 101-1001 West Broadway Suite 545 | Vancouver, B.C. V6H 4E4, Canada | Toll Free: 1.866.871.8263 | www.VaproShield.ca

Step 2: Nail Flange Window RO Flashing System: Extreme Coastal Climate



VAPROLIQUI-FLASH™

Step 2: Install VaproFlashing SA into sill with 2.75" folded into R.O. 9" left on face, with bottom 6" of release film to remain attached.

PRODUCT DESCRIPTION

VaproLiqui-Flash is a liquid applied, vapor permeable, waterproof, air barrier flashing system component for window and door rough openings. VaproLiquiFlash is designed to work with VaproFlashing and VaproShield field membranes as a complete system.

DISCLAIMER

Detail sketch is generic, representing suggested best practices for VaproShield materials, and does not represent a specific job site condition and therefore may not be applicable to certain projects. Detail sketch is designed for use as a reference and must be approved by the designer/ consultant of record for each project prior to installation by the subcontractor. Changes and approvals of VaproShield details are the sole responsibility of the designer/consultant of record. VaproShield is **not** the designer of record for building enclosure details and takes no responsibility for the accuracy or interpretation of actual project site conditions.

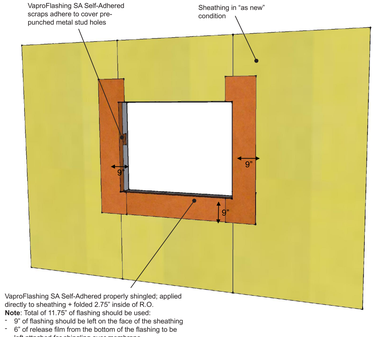
DRAWN BY: AR DATE: 06.23.16

REF: 215-2

Always check www.VaproShield.com for the latest details and installation instructions

VaproShield LLC | 915 26th Ave. N.W. Suite C5 | Gig Harbor, WA 98335 | Toll Free: 1.866.731.7663 | www.VaproShield.com | © VaproShield
VaproShield Canada | 101-1001 West Broadway Suite 545 | Vancouver, B.C. V6H 4E4, Canada | Toll Free: 1.866.871.8263 | www.VaproShield.ca

Step 3: Nail Flange Window RO Flashing System: Extreme Coastal Climate



VAPROLIQUI-FLASH™

Step 3: Install jamb pieces with 2.75" folded into R.O. 9" to be left on face.

PRODUCT DESCRIPTION

VaproLiqui-Flash is a liquid applied, vapor permeable, waterproof, air barrier flashing system component for window and door rough openings. VaproLiquiFlash is designed to work with VaproFlashing and VaproShield field membranes as a complete system.

DISCLAIMER

Detail sketch is generic, representing suggested best practices for VaproShield materials, and does not represent a specific job site condition and therefore may not be applicable to certain projects. Detail sketch is designed for use as a reference and must be approved by the designer/ consultant of record for each project prior to installation by the subcontractor. Changes and approvals of VaproShield details are the sole responsibility of the designer/consultant of record. VaproShield is **not** the designer of record for building enclosure details and takes no responsibility for the accuracy or interpretation of actual project site conditions.

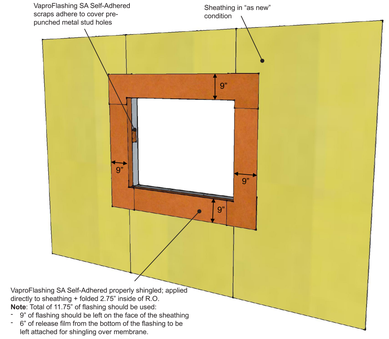
DRAWN BY: AR DATE: 06.23.16

REF: 215-3

Always check www.VaproShield.com for the latest details and installation instructions

VaproShield LLC | 915 26th Ave. N.W. Suite C5 | Gig Harbor, WA 98335 | Toll Free: 1.866.731.7663 | www.VaproShield.com | © VaproShield
VaproShield Canada | 101-1001 West Broadway Suite 545 | Vancouver, B.C. V6H 4E4, Canada | Toll Free: 1.866.871.8263 | www.VaproShield.ca

Step 4: Nail Flange Window RO Flashing System: Extreme Coastal Climate



VAPROLIQUI-FLASH™

Step 4: Install head piece with 2.75" folded into R.O. 9" to be left on face.

PRODUCT DESCRIPTION

VaproLiqui-Flash is a liquid applied, vapor permeable, waterproof, air barrier flashing system component for window and door rough openings. VaproLiquiFlash is designed to work with VaproFlashing and VaproShield field membranes as a complete system.

DISCLAIMER

Detail sketch is generic, representing suggested best practices for VaproShield materials, and does not represent a specific job site condition and therefore may not be applicable to certain projects. Detail sketch is designed for use as a reference and must be approved by the designer/ consultant of record for each project prior to installation by the subcontractor. Changes and approvals of VaproShield details are the sole responsibility of the designer/consultant of record. VaproShield is **not** the designer of record for building enclosure details and takes no responsibility for the accuracy or interpretation of actual project site conditions.

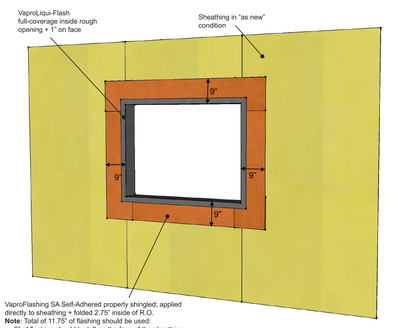
DRAWN BY: AR DATE: 06.23.16

REF: 215-4

Always check www.VaproShield.com for the latest details and installation instructions

VaproShield LLC | 915 26th Ave. N.W. Suite C5 | Gig Harbor, WA 98335 | Toll Free: 1.866.731.7663 | www.VaproShield.com | © VaproShield
VaproShield Canada | 101-1001 West Broadway Suite 545 | Vancouver, B.C. V6H 4E4, Canada | Toll Free: 1.866.871.8263 | www.VaproShield.ca

Step 5: Nail Flange Window RO Flashing System: Extreme Coastal Climate



VAPROLIQUI-FLASH™

Step 5: Apply VaproLiqui-Flash to inside of R.O. (full coverage) and 1" on face

PRODUCT DESCRIPTION

VaproLiqui-Flash is a liquid applied, vapor permeable, waterproof, air barrier flashing system component for window and door rough openings. VaproLiquiFlash is designed to work with VaproFlashing and VaproShield field membranes as a complete system.

DISCLAIMER

Detail sketch is generic, representing suggested best practices for VaproShield materials, and does not represent a specific job site condition and therefore may not be applicable to certain projects. Detail sketch is designed for use as a reference and must be approved by the designer/ consultant of record for each project prior to installation by the subcontractor. Changes and approvals of VaproShield details are the sole responsibility of the designer/consultant of record. VaproShield is **not** the designer of record for building enclosure details and takes no responsibility for the accuracy or interpretation of actual project site conditions.

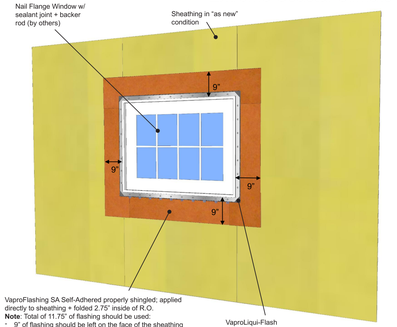
DRAWN BY: AR DATE: 06.23.16

REF: 215-5

Always check www.VaproShield.com for the latest details and installation instructions

VaproShield LLC | 915 26th Ave. N.W. Suite C5 | Gig Harbor, WA 98335 | Toll Free: 1.866.731.7663 | www.VaproShield.com | © VaproShield
VaproShield Canada | 101-1001 West Broadway Suite 545 | Vancouver, B.C. V6H 4E4, Canada | Toll Free: 1.866.871.8263 | www.VaproShield.ca

Step 6: Nail Flange Window RO Flashing System: Extreme Coastal Climate



VAPROLIQUI-FLASH™

Step 6: Install nail flange window w/ perimeter sealant joint and backer rod (by others)

PRODUCT DESCRIPTION

VaproLiqui-Flash is a liquid applied, vapor permeable, waterproof, air barrier flashing system component for window and door rough openings. VaproLiquiFlash is designed to work with VaproFlashing and VaproShield field membranes as a complete system.

DISCLAIMER

Detail sketch is generic, representing suggested best practices for VaproShield materials, and does not represent a specific job site condition and therefore may not be applicable to certain projects. Detail sketch is designed for use as a reference and must be approved by the designer/ consultant of record for each project prior to installation by the subcontractor. Changes and approvals of VaproShield details are the sole responsibility of the designer/consultant of record. VaproShield is **not** the designer of record for building enclosure details and takes no responsibility for the accuracy or interpretation of actual project site conditions.

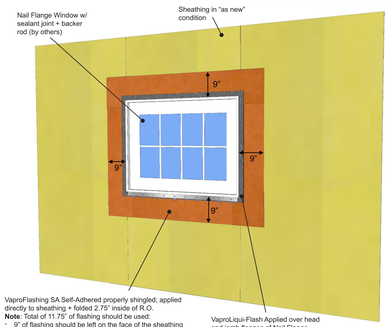
DRAWN BY: AR DATE: 06.23.16

REF: 215-6

Always check www.VaproShield.com for the latest details and installation instructions

VaproShield LLC | 915 26th Ave. N.W. Suite C5 | Gig Harbor, WA 98335 | Toll Free: 1.866.731.7663 | www.VaproShield.com | © VaproShield
VaproShield Canada | 101-1001 West Broadway Suite 545 | Vancouver, B.C. V6H 4E4, Canada | Toll Free: 1.866.871.8263 | www.VaproShield.ca

Step 7: Nail Flange Window RO Flashing System: Extreme Coastal Climate



VAPROLIQUI-FLASH™

Step 7: Apply VaproLiqui-Flash over head and jamb flanges of nail flange window, leaving bottom flange exposed for proper drainage

PRODUCT DESCRIPTION

VaproLiqui-Flash is a liquid applied, vapor permeable, waterproof, air barrier flashing system component for window and door rough openings. VaproLiquiFlash is designed to work with VaproFlashing and VaproShield field membranes as a complete system.

DISCLAIMER

Detail sketch is generic, representing suggested best practices for VaproShield materials, and does not represent a specific job site condition and therefore may not be applicable to certain projects. Detail sketch is designed for use as a reference and must be approved by the designer/ consultant of record for each project prior to installation by the subcontractor. Changes and approvals of VaproShield details are the sole responsibility of the designer/consultant of record. VaproShield is **not** the designer of record for building enclosure details and takes no responsibility for the accuracy or interpretation of actual project site conditions.

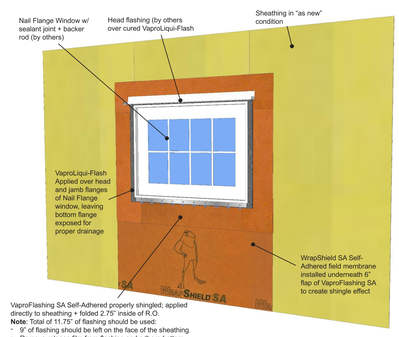
DRAWN BY: AR DATE: 06.23.16

REF: 215-7

Always check www.VaproShield.com for the latest details and installation instructions

VaproShield LLC | 915 26th Ave. N.W. Suite C5 | Gig Harbor, WA 98335 | Toll Free: 1.866.731.7663 | www.VaproShield.com | © VaproShield
VaproShield Canada | 101-1001 West Broadway Suite 545 | Vancouver, B.C. V6H 4E4, Canada | Toll Free: 1.866.871.8263 | www.VaproShield.ca

Step 8: Nail Flange Window RO Flashing System: Extreme Coastal Climate



VAPROLIQUI-FLASH™

Step 8: Install metal head flashing (by others) over cured VaproLiqui-Flash and install field membrane, shingled underneath window flashing

PRODUCT DESCRIPTION

VaproLiqui-Flash is a liquid applied, vapor permeable, waterproof, air barrier flashing system component for window and door rough openings. VaproLiquiFlash is designed to work with VaproFlashing and VaproShield field membranes as a complete system.

DISCLAIMER

Detail sketch is generic, representing suggested best practices for VaproShield materials, and does not represent a specific job site condition and therefore may not be applicable to certain projects. Detail sketch is designed for use as a reference and must be approved by the designer/ consultant of record for each project prior to installation by the subcontractor. Changes and approvals of VaproShield details are the sole responsibility of the designer/consultant of record. VaproShield is **not** the designer of record for building enclosure details and takes no responsibility for the accuracy or interpretation of actual project site conditions.

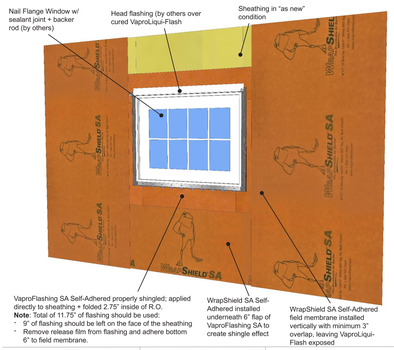
DRAWN BY: AR DATE: 06.23.16

REF: 215-8

Always check www.VaproShield.com for the latest details and installation instructions

VaproShield LLC | 915 26th Ave. N.W. Suite C5 | Gig Harbor, WA 98335 | Toll Free: 1.866.731.7663 | www.VaproShield.com | © VaproShield
VaproShield Canada | 101-1001 West Broadway Suite 545 | Vancouver, B.C. V6H 4E4, Canada | Toll Free: 1.866.871.8263 | www.VaproShield.ca

Step 9: Nail Flange Window RO Flashing System: Extreme Coastal Climate



VAPROLIQUI-FLASH™

Step 9: Install field membrane vertically to sheathing, maintaining 3" minimum overlap with R.O. flashing

PRODUCT DESCRIPTION

VaproLiqui-Flash is a liquid applied, vapor permeable, waterproof, air barrier flashing system component for window and door rough openings. VaproLiquiFlash is designed to work with VaproFlashing and VaproShield field membranes as a complete system.

DISCLAIMER

Detail sketch is generic, representing suggested best practices for VaproShield materials, and does not represent a specific job site condition and therefore may not be applicable to certain projects. Detail sketch is designed for use as a reference and must be approved by the designer/ consultant of record for each project prior to installation by the subcontractor. Changes and approvals of VaproShield details are the sole responsibility of the designer/consultant of record. VaproShield is **not** the designer of record for building enclosure details and takes no responsibility for the accuracy or interpretation of actual project site conditions.

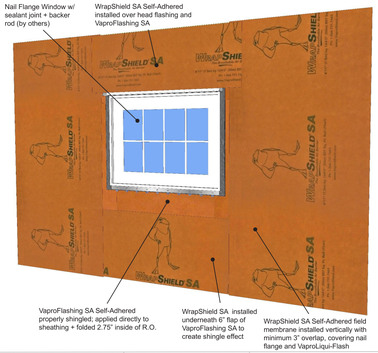
DRAWN BY: AR DATE: 06.23.16

REF: 215-9

Always check www.VaproShield.com for the latest details and installation instructions

VaproShield LLC | 915 26th Ave. N.W. Suite C5 | Gig Harbor, WA 98335 | Toll Free: 1.866.731.7663 | www.VaproShield.com | © VaproShield
VaproShield Canada | 101-1001 West Broadway Suite 545 | Vancouver, B.C. V6H 4E4, Canada | Toll Free: 1.866.871.8263 | www.VaproShield.ca

Step 10: Nail Flange Window RO Flashing System: Extreme Coastal Climate



VAPROLIQUI-FLASH™

Step 10: Install field membrane over metal head flashing, maintaining 3" minimum overlap to adjacent field membrane.

PRODUCT DESCRIPTION

VaproLiqui-Flash is a liquid applied, vapor permeable, waterproof, air barrier flashing system component for window and door rough openings. VaproLiquiFlash is designed to work with VaproFlashing and VaproShield field membranes as a complete system.

DISCLAIMER

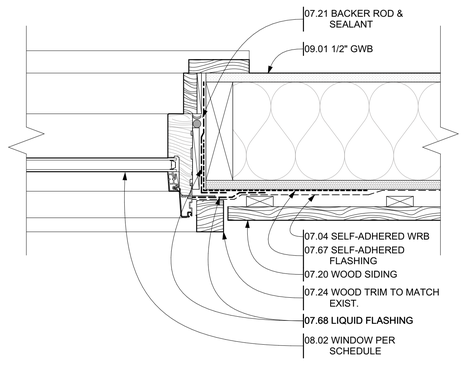
Detail sketch is generic, representing suggested best practices for VaproShield materials, and does not represent a specific job site condition and therefore may not be applicable to certain projects. Detail sketch is designed for use as a reference and must be approved by the designer/ consultant of record for each project prior to installation by the subcontractor. Changes and approvals of VaproShield details are the sole responsibility of the designer/consultant of record. VaproShield is **not** the designer of record for building enclosure details and takes no responsibility for the accuracy or interpretation of actual project site conditions.

DRAWN BY: AR DATE: 06.23.16

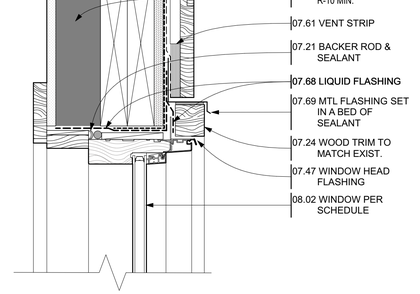
REF: 215-10

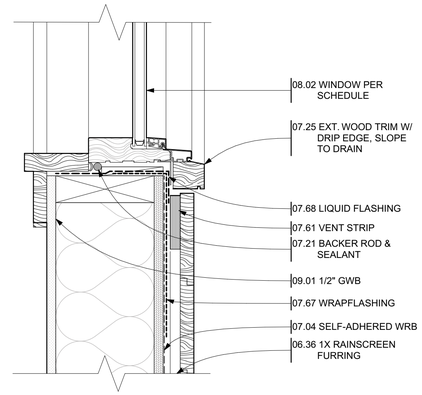
Always check www.VaproShield.com for the latest details and installation instructions

VaproShield LLC | 915 26th Ave. N.W. Suite C5 | Gig Harbor, WA 98335 | Toll Free: 1.866.731.7663 | www.VaproShield.com | © VaproShield
VaproShield Canada | 101-1001 West Broadway Suite 545 | Vancouver, B.C. V6H 4E4, Canada | Toll Free: 1.866.871.8263 | www.VaproShield.ca



WINDOW JAMB, TYP. (2)
SCALE: 3" = 1'-0"





WINDOW HEAD & SILL, TYP. (1)
SCALE: 3" = 1'-0"

KEY NOTES

06.	**WOOD & PLASTIC**
06.34	**HEADER PER STRUCTURAL**
06.36	**1X RAINSCREEN FURRING**
06.50	**HEADER INSULATED TO R-10 MIN.**
07.	**THERMAL & MOISTURE**
07.04	**SELF-ADHERED WRB** VAPROSHIELD WRAPSHIELD SA; WATER RESISTIVE AIR BARRIER; VAPOR PERMEABLE
07.20	**WOOD SIDING** WHERE REPLACED - 1" x 6" TIGHT KNOT, CLEAR BOARD (KD) CEDAR WOOD HORIZONTAL SIDING TO MATCH EXISTING, SAMPLE TO CONFIRM. PAINTED
07.21	**BACKER ROD & SEALANT**
07.24	**WOOD TRIM TO MATCH EXIST.**
07.25	**EXT. WOOD TRIM W/ DRIP EDGE, SLOPE TO DRAIN**
07.47	**WINDOW HEAD FLASHING** PER MFR.
07.61	**VENT STRIP** OVER WRB WITH INSECT SCREEN
07.67	**SELF-ADHERED FLASHING** VAPROSHIELD WRAPFLASHING SA; LAP PER MANUFACTURER'S DETAIL/SPEC.
07.68	**LIQUID FLASHING** VAPROLIQUI-FLASH; LAP PER VAPROSHIELD WINDOW SEQUENCE DETAIL
07.69	**MTL FLASHING SET IN A BED OF SEALANT**
08.	**DOORS & WINDOWS**
08.02	**WINDOW PER SCHEDULE** INSTALLED PER MANF SPEC
09.	**FINISHES**
09.01	**1/2" GWB** W/ VAPOR SEMI-PERMEABLE LATEX PAINT AND PRIMER

CAST
ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT
JOHN MCLAUGHLIN
STATE OF WASHINGTON
9217

Approved by:

issue	issue date	description	printed 1/16/2025
	10.17.23	PRELIMINARY PRICING SET	
	02.19.24	VE COORDINATION SET	
	03.25.24	COORDINATION SET	
	07.03.24	PERMIT APPLICATION SET	
	11.27.24	PERMIT CORRECTIONS 01 SET	
	01.16.25	PERMIT CORRECTIONS 02 SET	

DETAILS

a.25

1/16/2025 2:50 PM /25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln

ENERGY CODE NOTES

1. A Certificate complying with WSEC R401.3 is required to be completed by the builder or other approved party and posted on a wall in the space where the furnace is located, a utility room, or an approved location inside the building prior to final inspection.
2. WSEC R403.3.5 - Duct leakage test results shall be signed by the party conducting the test and provided to the code official.
3. WSEC R404.1 - All permanently installed lighting fixtures shall contain only high-efficacy lighting sources.
4. WSEC R301.1, King County is defined as Climate Zone 4C.

ENERGY CODE COMPLIANCE SUMMARY

New conditioned floor area: 0 sf

0 sf < 150 sf

Project is not required to achieve energy credits per Tables R406.2-3

Project will meet minimum Prescriptive Requirements of Table R402.1.2.

2021 Washington State Energy Code – Residential
Prescriptive Energy Code Compliance for All Climate Zones in Washington
Single Family – New & Additions (effective March 15, 2024)

WASHINGTON STATE UNIVERSITY
Energy Program

Permit#	PRE23-019		
Address or Lot & Block			
8541 SE 82nd St.			
City	Mercer Island	Zip	98040

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

Instructions: This single-family project uses the requirements of the Prescriptive Path below to incorporate the minimum values listed. Based on the conditioned floor area of the structure, the number of required additional credits must be selected by the permit applicant.

Provide all information from the following tables in building permit drawings: Table R402.1.2 - Insulation and Fenestration Requirements by Component, Table R406.2 - Fuel Normalization Credits and R406.3 Energy Credits.

Authorized Representative Signature		*Date*	

All Climate Zones Table 402.1.3		
	R-Value [a]	**U-Factor [a]**
Fenestration U-Factor [b, j]	n/a	0.30
Skylight U-Factor [b]	n/a	0.50
Ceiling [e]	60	n/a
Wood Frame Wall [g, j]	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.	

2021 Washington State Energy Code – Residential
Prescriptive Energy Code Compliance for All Climate Zones in Washington
Single Family – New & Additions (effective March 15, 2024)

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

1. Small Dwelling Unit: ..... **5.0 credits**
   Dwelling units less than 1500 square feet in conditioned floor area with less than 300 square feet of fenestration area. Additions to existing building greater than 500 square feet of heated floor area but less than 1500 square feet.
2. Medium Dwelling Unit: ..... **8.0 credits**
   All dwelling units that are not included in #1, #3 or #4.
3. Large Dwelling Unit: ..... **9.0 credits**
   Dwelling units exceeding 5000 square feet of conditioned floor area.
4. Dwelling units serving Group R-2 occupancies: ..... **6.5 credits**
   Section R401.1 and residential building Section R202 for Group R-2.
5. Additions 150 square feet to 500 square feet: ..... **2.0 credits**

2021 WSEC-R 2nd Edition

Remodel / Alteration Worksheet

Will you be exposing the walls?	Will the roof/ceiling framing cavities or attic be exposed?	Will the will the floor framing cavities be exposed?
☒ Yes ☐ No	☒ Yes ☐ No	☐ Yes ☒ No
If yes,	If yes,	If yes,
☒ 2 X 4 wall studs require R-15 insulation	Exposed roof or ceiling assemblies must be insulated -	☐ Exposed floor cavities must be insulated to R-30
☒ 2 X 6 wall studs require R-21 insulation	☒ Vaulted ceilings, Insulate to the full depth of the framing member	
☐ If siding is replaced C.I. equal to R-5 may need installed under the siding.	☒ Flat ceilings, install R-60 insulation or what the attic space can accommodate based on the roof pitch	

Are the windows and/or doors being replaced?	Will the heating or cooling system be replaced?	Will the hot water system be altered?	Are more than 10% of the light fixtures being changed?
☒ Yes ☐ No	☒ Yes ☐ No	☐ Yes ☒ No	☒ Yes ☐ No
If yes,	If yes,	If yes,	If yes,
☒ New windows and doors (+frames) must have an area weighted average U-factor of ≤0.30	☒ New equipment must meet current requirements and the ducts need to be tested	☐ New water heating equipment must meet current code requirements	☒ 100% of all lamps must be high efficacy

R503.2 Change in space conditioning. Any non-conditioned or low-energy space that is altered to become conditioned space shall be required to be brought into full compliance with this (WSEC-R) code.

R503.1.1 Building envelope.
Building envelope assemblies that are part of the alteration shall comply with Section R402.1.3 or R402.1.5, Sections R402.2.1 through R402.2.11, R402.3.1, R402.3.2, R402.3.5 and R402.4.2.
Exception: The following alterations need not comply with the requirements for new construction provided the energy use of the building is not increased:
1. Storm windows installed over existing fenestration.
2. Existing ceiling, wall or floor cavities exposed during construction provided that these cavities are filled with insulation. 2x4 framed walls shall be insulated to a minimum of R-15 and 2x6 framed walls shall be insulated to a minimum of R-21.
3. Construction where the existing roof, wall or floor cavity is not exposed.
4. Roof recover.
5. Roofs without insulation in the cavity and where the sheathing or insulation is exposed during reroofing shall be insulated either above or below the sheathing.
6. Surface-applied window film installed on existing single pane fenestration assemblies to reduce solar heat gain provided the code does not require the glazing fenestration to be replaced.

R503.1.1.1 Replacement fenestration.
Where some or all of an existing fenestration unit is replaced with a new fenestration product, including sash and glazing, the replacement fenestration unit shall meet the applicable requirements for U-factor and SHGC in Table R402.1.3. Where more than one replacement fenestration unit is being installed, an area-weighted average of the U-factor and SHGC of all replacement fenestration shall be permitted to be used to demonstrate compliance.

R503.1.2 Heating and cooling systems.
New heating, cooling and duct systems that are part of the alteration shall comply with Section R403.
Exceptions:
1. Where ducts from an existing heating and cooling system are extended, duct systems with less than 40 linear feet in unconditioned spaces shall not be required to be tested in accordance with Section R403.2.2
2. Existing duct systems constructed, insulated or sealed with asbestos.

R502.1.1.2 Heating and cooling systems.
New heating, cooling and duct systems that are part of the addition shall comply with Section R403.
Exception:
The following need not comply with the testing requirements of Section R403.3.3:
1. Additions of less than 750 square feet.
2. Duct systems that are documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in WSU RS-33.
3. Ducts with less than 40 linear feet in unconditioned spaces.
4. Existing duct systems constructed, insulated or sealed with asbestos.

R503.1.4 Lighting.
New lighting systems that are part of the alteration shall comply with Section R404.1.
Exception: Alterations that replace less than 10 percent of the luminaires in a space, provided that such alterations do not increase the installed interior lighting power.

R503.1.3 Service hot water systems.
New service hot water systems that are part of the alteration shall comply with Section R403.5.

CAST
ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE

8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT
8217
JAY KOS WASHINGTON
STATE OF WASHINGTON

Approved by:

issue	issue date	description printed 1/16/2025
	10.17.23	PRELIMINARY PRICING SET
	02.19.24	VE COORDINATION SET
	03.25.24	COORDINATION SET
	07.03.24	PERMIT APPLICATION SET
	11.27.24	PERMIT CORRECTIONS 01 SET
	01.16.25	PERMIT CORRECTIONS 02 SET

ENERGY CODE INFO

a.26

1/16/2025 2:50 PM /25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln

HUNTSMAN BUILDING SOLUTIONS, INC.
3315 East Division Street
Arlington, Texas 76011
Phone: (817) 640-4900
www.huntsmanbuilds.com

HEATLOK® HFO PRO SPRAY-APPLIED POLYURETHANE FOAM PLASTIC INSULATION

CSI Section:
07 21 00 Thermal Insulation

1.0 RECOGNITION

Heatlok® HFO Pro spray-applied polyurethane foam plastic insulation has been evaluated for use as spray foam insulation complying with IBC Section 2603, IRC Section R316, and 2021, 2018, 2015, and 2012 IECC Section C303, C402, R303, and R402 and 2009 IECC Sections 303, 402 and 502. The physical properties, water vapor resistance, air permeance, thermal resistance, surface burning characteristics, fire-resistance, and attic and crawl space installations, and exterior walls of Types I-IV construction were evaluated to comply with the intent of the following codes and regulations:

- 2021, 2018, 2015, 2012, and 2009 International Building Code® (IBC)
- 2021, 2018, 2015, 2012, and 2009 International Residential Code® (IRC)
- 2021, 2018, 2015, 2012, and 2009 International Energy Conservation Code® (IECC)

2.0 LIMITATIONS

Use of Heatlok® HFO Pro spray-applied polyurethane foam plastic insulation recognized in this report is subject to the following limitations:

2.1 The insulation and coating products shall be installed in accordance with the manufacturer's published installation instructions, this evaluation report and the applicable code. If there are any conflicts between the manufacturer's published installation instructions and this report, the more restrictive shall govern.

2.2 Except as permitted by the applicable building code, the insulation shall be separated from the interior of the building by a code-complying thermal barrier or shall be installed as an alternative thermal barrier assembly in accordance with Section 4.5.1 of this report

2.3 The insulation shall not exceed the nominal density and thickness for the installation conditions described in this report.

2.4 During application, the insulation shall be protected from exposure to weather.

2.5 The insulation shall be installed by professional spray polyurethane foam installers authorized by Huntsman Building Solutions, Inc.

2.6 Use of the insulation in areas of "very heavy" termite infestation probability shall be in accordance with 2021, 2018, 2015 and 2009 IBC Section 2603.8 and 2012 IBC Section 2603.9 or IRC Section R318.4, as applicable.

2.7 Heatlok® HFO PRO insulation qualifies as a vapor retarder when installed as required in Section 4.7 of this report.

2.8 Labeling and jobsite certification of the insulations and coatings shall comply with the following code sections as applicable:

- 2021, 2018, 2015 or 2012 IBC Section 2603.2
- 2021, 2018, 2015 or 2012 IRC Section R316.2
- 2021, 2018 and 2015 IRC Section N1101.10.1.1
- 2012 IRC Section N1101.12.1.1
- 2009 IRC Section N1101.4
- 2021, 2018, 2015, or 2012 IECC Section C303.1.1.1 or R303.1.1.1
- 2009 IECC Section 303.1.1.1

2.9 The insulation shall be produced by Huntsman Building Solutions, Inc. in Arlington, TX.

3.0 PRODUCT USE

Heatlok® HFO Pro spray-applied polyurethane foam plastic insulation complies with IBC Section 2603, IRC Section R316 and 2021, 2018, 2015 and 2012 IECC Sections C303, C402, R303, and R402 and 2009 IECC Sections 303, 402 and 502. When installed in accordance with Section 4.0 of this report, the foam plastic insulation is for use in wall cavities, floor assemblies or ceiling assemblies, exterior side of vertical foundations or the underside of slabs. It may be used in attics and crawl spaces when installed with Section 4.5.1. Heatlok® HFO Pro insulation is used in Types I, II, III, IV and V construction under the IBC and in one-and two-family dwellings under the IRC.

4.0 PRODUCT DESCRIPTION

4.1 Properties: Heatlok® HFO Pro is a medium density, closed cell, spray-applied polyurethane foam plastic insulation in accordance with Table 1 of AC377. The insulation has a nominal in-place density of 2.0 lb/ft^3 (32 kg/m^3). The two-component spray foam plastic is produced in the field by combining a polymeric isocyanate

The product described in this Uniform Evaluation Service (UES) Report has been evaluated as an alternative material, design or method of construction in order to satisfy and comply with the intent of the provision of the code, as noted in this report; and for at least equivalence to that prescribed in the code in quality, strength, effectiveness, fire resistance, durability and safety, as applicable, in accordance with IBC Section 104.11. This document shall only be reproduced in its entirety.

Copyright © 2023 by International Association of Plumbing and Mechanical Officials. All rights reserved. Printed in the United States. Ph: 1-877-4IESRPT • Fax: 909.472.4171 web: www.uniform-es.org • 4755 East Philadelphia Street, Ontario, California 91761-2816 – USA

(A component) and the Heatlok® HFO Pro resin (B component). The liquid components shall be stored in 55-gallon (208 L) drums at temperatures between 50°F and 100°F (10°C and 38°C) for the polymeric isocyanate and 59°F and 77°F (15°C and 25°C) for the Heatlok® HFO Pro resin. When Component A and Component B are stored in factory-sealed containers at the recommended temperatures, the maximum shelf life is twelve months for the polymeric isocyanate and six months for the Heatlok® HFO Pro resin.

4.2 Thermal Resistance (R-Values): Heatlok® HFO Pro spray-applied polyurethane foam plastic insulation has a thermal resistance (R-Value) at a mean temperature of 75°F (24°C) as shown in Table 1 of this report.

TABLE 1
Thermal Resistance (R-Values)[1]

Thickness (inch)	Heatlok® HFO Pro R-Value (ft^2·h·°F/Btu)
1	7.4
1.5	11
2	14
3	20
3.5	23
4	26
5	33
5.5	36
6	40
7	46
7.5	49
8	53
9	59
10	66
11	72
11.5	76
12	79

For **SI:** 1 inch = 25.4 mm, 1°F·ft^2·h/Btu = 0.176 110 K·m^2/W.

[1]R-Values are calculated based on tested K values at 1-inch and 4-inch thicknesses.

4.3 Surface Burning Characteristics: At a maximum thickness of 4 inches (102 mm) and a nominal density of 2.0 lb/ft^3 (32 kg/m^3), the Heatlok® HFO Pro insulation has a flame spread index of 25 or less and smoke-developed index of 450 or less when tested in accordance with ASTM E84. Greater thicknesses, depending on the end use, are recognized when installed in accordance with this report.

4.4 Fire-Protective Coatings and Coverings: Fire protective coatings, for use as alternative thermal barrier assemblies, shall be in accordance with Table 2 of this report, as applicable, and installed in accordance with Section 4.5 of this report.

4.5 Installations: Heatlok® HFO Pro spray-applied polyurethane foam plastic insulation shall comply with one of the following requirements:

- 2021, 2018, 2015, and 2012 2009 IECC Section C402.1
- 2021, 2018, 2015, and 2012 IECC Section R402.1
- 2009 IECC Section 402.1

The manufacturer's published installation instructions for Heatlok® HFO Pro insulation and this report shall be available on the jobsite during installation. Where conflicts occur, the most restrictive governs.

Heatlok® HFO Pro insulation shall be spray-applied on the jobsite using equipment specified in the manufacturer's published installation instructions. The maximum in-service temperature for all areas shall not exceed the maximum temperature stated in the manufacturer's published installation instructions. The insulation shall be sprayed onto a clean, dry substrate that has been prepared in accordance with the manufacturer's installation instructions. The insulation shall not be used in electrical outlets or junction boxes or where the insulation will be in direct, continuous contact with water.

4.5.1 Thermal Barrier

4.5.1.1 Application with an Approved Thermal Barrier: Except as provided for in Section 4.5.1.2 of this report, Heatlok® HFO Pro spray-applied polyurethane foam plastic insulation shall be separated from the interior by a thermal barrier in accordance with IBC Section 2603.4 or IRC Section R316 as applicable. When the insulation is separated from the interior by a prescriptive thermal barrier in accordance with IBC Section 2603.4 or IRC Section R316, the insulation thickness shall not be limited.

4.5.1.2 Alternative Thermal Barrier Assemblies: Heatlok® HFO Pro spray-applied polyurethane foam plastic insulation may be installed without a thermal barrier as defined in Section 4.5.1.1 of this report when installed in accordance with Table 2 of this report and as referenced in IAPMO UES ER-499 or additional report by an approved evaluation entity to the requirements of AC456.

4.5.2 Installation in Attics or Crawl Spaces: Heatlok® HFO Pro spray-applied polyurethane foam plastic insulation may be installed in attics or crawl spaces when installed in accordance with this section (Section 4.5).

When installed in attics or crawl spaces where entry is made only for the service of utilities, Heatlok® HFO Pro insulation may be installed in accordance with this section. Heatlok® HFO Pro insulation need not be surfaced with a thermal barrier, however, such attic and crawl space areas shall be separated from the interior of the building by a thermal barrier in accordance with Section 4.5.2 of this report.

4.5.2.1 Installation Using a Prescriptive Ignition Barrier: When installed within attics or crawl spaces where entry is made only for the service of utilities, Heatlok® HFO Pro spray-applied polyurethane foam plastic insulation at a maximum thickness of 7.5 inches (191 mm) on walls and

other vertical surfaces and 11.5 inches (292 mm) on ceilings and other overhead surfaces shall be covered with a prescriptive ignition barrier in accordance with IBC Section 2603.4.1.6 or IRC Sections R316.5.3 and R316.5.4, as applicable.

Exception: The prescriptive ignition barrier may be omitted when installed in accordance with Section 4.5.2.2 of this report.

4.5.2.2 Installation Using an Alternative Ignition Barrier Assembly: Heatlok® HFO Pro spray-applied polyurethane foam plastic insulation may be installed in attics and crawl spaces using an alternative ignition barrier assembly provided:

a. Entry is only to service utilities in the attic or crawl space and no storage is permitted.
b. Attic or crawl space areas cannot be interconnected.
c. Air from the attic or crawl space cannot be circulated to other parts of the building.
d. Attic ventilation is provided as required by 2021 and 2018 IBC Section 1202.2, 2015 and 2012 IBC Section 1203.2 or IRC Section R806 except where air-impermeable insulation is permitted in unvented attics and shall comply with the following code sections as applicable:

For Unvented Attics:
- 2021 and 2018 IBC Section 1202.3
- 2015 IBC Section 1203.3
- 2021 and 2018, 2015, 2012 and 2009 IRC Section R806.5

Crawl space ventilation is provided as required by the following code sections as applicable:
- 2021 and 2018 IBC Section 1202.4
- 2015 IBC Section 1203.4
- 2012 and 2009 IBC Section 1203.3
- 2018, 2015, 2012 and 2009 IRC Section R408.1

e. The foam plastic insulation is limited to the maximum thickness and density tested as shown in Section 4.5.2.2.1 of this report.
f. In accordance with IMC (International Mechanical Code®) Section 701, combustion air is provided.

4.5.2.2.1 Alternative Ignition Barrier Assembly: Heatlok® HFO Pro spray-applied polyurethane foam plastic insulation may be installed without a prescriptive ignition barrier on walls, floors, ceilings and other vertical and horizontal surfaces as defined in Section 4.5.2.1 of this report when limited to a maximum thickness of 7.5 inches (191 mm) on walls and other vertical surfaces and 11.5 inches (292 mm) on ceilings and other overhead surfaces.

4.6 Air Permeability: When tested in accordance with ASTM E2178 at a minimum thickness of 1 inch (25.4 mm), Heatlok® HFO Pro spray foam insulation is classified as air-impermeable insulation in accordance with Section 1202.3 of the 2021 and 2018 IBC, Section 1203.3 of the 2015 IBC, and Section R806.5 of the 2021, 2018, 2015 and 2012 IRC or Section R806.4 of the 2009 IRC, as applicable.

4.7 Vapor Permeance: Heatlok® HFO Pro spray-applied polyurethane foam plastic insulation, when tested in accordance with the ASTM E96 desiccant method (Procedure A), has a permeance of less than 1.0 perms (57.4 x 10^{-9} g/Pa·s·m), at a minimum thickness of 1 inch (25 mm) and qualifies as a Class II vapor retarder in accordance with IBC Section 202 and IRC Section R202.

4.8 One-hour Fire-resistance Rated Assembly: The following load-bearing assembly based on testing to ASTM E119 provides a one-hour fire-resistance rating.

Framing: 3$^5/_8$-inch (92 mm) 20-gauge steel studs with a maximum height of 10 feet (3 m) spaced at 16 inches (406 mm) on center inserted in a 20-gauge top and bottom steel track with lateral bracing at mid-wall height.

Exterior Surface: Two layers of $^5/_8$-inch-thick (15.9 mm) glass mat gypsum substrate complying with ASTM C1177. The base layer is installed with the long edge parallel to the studs with #6 by 1$^5/_8$-inch-long (38 mm) drywall screws spaced at 8 inches (203 mm) on center around the perimeter and 12 inches (305 mm) on center in the field. The face layer is installed with the long edge parallel to the studs with the base layer and face layer joints staggered by one stud space. The face wall is secured with #6 by 1$^7/_8$-inch-long (48 mm) drywall screws spaced at 8 inches (203 mm) on center around the perimeter and 12 inches (305 mm) on center in the field.

Insulation: 3$^5/_8$-inch-thick (92 mm) layer of Heatlok® HFO Pro spray-applied polyurethane foam plastic insulation applied in the cavities to the exterior gypsum completely filling the stud cavities.

Interior Cladding: Two layers of $^5/_8$-inch-thick (15.9 mm) Type X gypsum board complying with ASTM C1396. The base layer shall be installed with the long edge parallel to the studs with #6 by 1$^5/_8$-inch-long (38 mm) drywall screws spaced at 8 inches (203 mm) on center around the perimeter and 12 inches (305 mm) on center in the field. The face layer shall be installed with the long edge parallel to the studs with the base layer and face layer joints staggered by one stud space. The face wall is secured with #6 by 1$^7/_8$-inch-long (48 mm) drywall screws spaced at 8 inches (203 mm) on center around the perimeter and 12 inches (305 mm) on center in the field.

4.9 Exterior Walls of Buildings of Type I, II, III or IV Construction: When Heatlok® HFO Pro spray-applied polyurethane foam plastic insulation is used in exterior walls of buildings of Type I, II, III or IV construction of any height, the insulation shall comply with IBC Section 2603.5 and this section. Heatlok HFO Pro insulation shall be installed at a maximum thickness of 3$^5/_8$ inches (92 mm).

4.9.1 Complying Exterior Wall Assemblies: Wall assemblies that comply with Section 2603.5.5 of the IBC and this report that may be used in exterior walls of buildings of Type I, II, III or IV construction of any height are described in Tables 3 and 4 of this report.

5.0 IDENTIFICATION

The spray foam insulation is identified with the following:

a. Manufacturer's name (Huntsman Building Solutions), Inc.
b. manufacturer's address and telephone number,
c. the product trade name (Heatlok® HFO Pro)
d. use instructions
e. density, flame-spread and smoke-development indices
f. date of manufacture or batch/run number
g. thermal resistance values
h. the evaluation report number (ER-565)
i. the name or logo of the inspection agency

Either Mark of Conformity may also be used as shown below:

IAPMO UES ER-565

6.0 SUBSTANTIATING DATA

6.1 Data in accordance with the ICC-ES Acceptance Criteria for Spray-applied Foam Plastic Insulation, AC377, dated April 2020 (editorially revised July 2020) including Appendix X.

6.2 Flammability Testing to NFPA 286, Standard Methods of Fire Tests for Evaluation of Contribution of Wall and Ceiling Interior Finish to Room Fire Growth.

6.3 Report of air permeance testing in accordance with ASTM E2178.

6.4 Report of water vapor transmission performance in accordance with ASTM E96.

6.5 Fire-resistance testing to ASTM E119.

6.6 Report of fire-propagation characteristics tests in accordance with NFPA 285.

6.7 Third party engineering analysis for extension of NFPA 285 results.

6.8 IAPMO/ANSI ES1000-2020, Standard for Building Code Compliance of Spray-Applied Polyurethane Foam.

6.9 Data in accordance with 2019 ICC 1100 Standard for Spray-applied Polyurethane Foam Plastic Insulation.

6.10 Test reports are from laboratories in compliance with ISO/IEC 17025.

7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research completed by IAPMO Uniform Evaluation Service on Heatlok® HFO Pro to assess conformance to the codes and standards shown in Section 1.0 of this report and documents the product's certification. The product is manufactured at location noted in Section 2.9 of this report under a quality control program with periodic inspections under the supervision of IAPMO UES

For additional information about this evaluation report please visit www.uniform-es.org or email at info@uniform-es.org

TABLE 2 - ALTERNATIVE THERMAL BARRIER ASSEMBLY

FIRE-PROTECTIVE COATING/COVERING[1]			MAXIMUM SPF THICKNESS (inch)	
TYPE	MINIMUM THICKNESS	THEORETICAL APPLICATION RATE (COATINGS ONLY)	WALLS AND VERTICAL SURFACES	CEILING AND OVERHEAD SURFACES
DC315[2]	18 mils WFT (12 mils DFT)	1.1 gal/100 ft^2	7.5	11.5
Blazelok TBX[3]	18 mils WFT (12 mils DFT)	1.1 gal/100 ft^2	7.5	11.5

For **SI:** 1 inch = 25.4 mm, 1 gallon = 3.785 L, 1 ft^2 = 0.0929 m^2

[1] Fire-protective coatings and coverings shall be applied over all exposed SPF surfaces in accordance with the coating/covering manufacturer's instructions and this report.
[2] International Fireproof Technology, Inc, recognized in IAPMO UES ER-499.
[3] ICP Construction, recognized in ICC-ES ESR-3997

TABLE 3 – NFPA 285 COMPLYING EXTERIOR WALL ASSEMBLIES WITH HEATLOK® HFO PRO IN WALL CAVITY

Wall Component	Materials
Base Wall System (BWS)- Use either 1, 2, or 3	1. Concrete Wall. 2. Concrete Masonry Wall. 3. 1 layer of $^5/_8$-inch-thick Type X gypsum wallboard installed on the interior side of minimum 3$^5/_8$-inch deep, minimum 25-gauge equivalent thick steel studs spaced a maximum of 24 inches on center. Lateral bracing installed minimum every 4 foot vertically or as required.
Perimeter Fire Barrier System Use 1 and 2	1. Perimeter fire barrier system complying with Section 715.4 of the IBC shall be installed, as applicable, to fill the void between the edge of the concrete floor slab and the interior surface of the exterior wall assembly. 2. 4 pcf mineral wool in each stud cavity at each floor line, attached with Z-clips or friction fit.
Interior Insulation – Use either 1, 2, 3, 4 or 5 or combinations of 3 with 4 or 3 with 5.	1. None 2. Maximum of 3$^5/_8$-inch thickness of Heatlok® HFO Pro applied to interior surface of BWS 1 and 2[1] 3. Full wall stud cavity depth or less of Heatlok® HFO Pro applied using exterior gypsum sheathing of BWS 3 as the substrate and covering the width of the cavity and the inside of the steel wall stud framing flange. 4. Fiberglass batt insulation (faced or unfaced). 5. Mineral wool insulation (faced or unfaced).
Exterior Sheathing	$^5/_8$-inch-thick exterior type gypsum sheathing (for BWS 3 above).
Exterior wall covering [2] – use either 1, 2 or 3	1. Any non-combustible exterior wall covering material using any standard installation technique. 2. Any non-combustible exterior wall covering system with a combustible water-resistive barrier (WRB) that has successfully been tested in accordance with NFPA 285. 3. Any combustible exterior wall covering system with or without a combustible WRB that has successfully been tested in accordance with NFPA 285. 4. Table 4 below – Exterior Insulation 2 only with Claddings 6, 7 and 8 per Table 4 of this report (SPF as Exterior Insulation). Read notes carefully. 5. Table 4 below – Exterior Insulation 3 (with coating) only with Cladding 9 thru 18 per Table 4 of this report (SPF as Exterior Insulation). Read notes carefully.
Flashing of window, door and other exterior wall penetrations	As an option, flash around window, door and other exterior wall penetrations with limited amounts of maximum 12-inch-wide flashing tape (acrylic, asphalt or butyl based) or liquid applied membrane material with or without fiber mesh reinforcement.
Window Perimeter	The window header, jambs and sill are covered with 0.080-inch aluminum flashing. The edges and top of the assembly were sealed with steel flashing. Windows and Doors shall be framed as required for the base wall.

For **SI:** 1 inch = 25.4 mm; 1lb/ft^3=16 kg/m^3

[1] Fireblocking per Section 718 of the 2021, 2018, 2015 and 2012 IBC and Section 717 of the 2009 IBC and thermal barrier material requirements must be met for BWS 1 and 2, as required by specific wall construction details when combustible concealed space is created on the exterior side of the exterior wall assembly.
[2] Combustible exterior wall coverings shall be installed in accordance with manufacturer's installation requirements.

TABLE 4 – NFPA 285 COMPLYING EXTERIOR WALL ASSEMBLIES WITH HEATLOK® HFO INSTALLED ON THE EXTERIOR SIDE OF THE WALL ASSEMBLY

Wall Component	Materials
Base Wall System (BWS)- Use either 1, 2, or 3	1. Concrete Wall. 2. Concrete Masonry Wall. 3. 1 layer of $^5/_8$-inch-thick Type X gypsum wallboard installed on the interior side of minimum 3$^5/_8$-inch deep, minimum 25-gauge equivalent thick steel studs spaced a maximum of 24 inches on center. Lateral bracing installed minimum every 4 foot vertically or as required.
Perimeter Fire Barrier System Use 1 or 2.	1. Perimeter fire barrier system complying with Section 715.4 of the IBC shall be installed, as applicable, to fill the void between the edge of the concreter floor slab and the interior surface of the exterior wall assembly. 2. Wall stud cavities shall be filled at each floor line with minimum 4 lb/ft^3 mineral wool friction fit between steel wall studs, attached with Z-clips or friction fit.
Interior Insulation – Use either 1, 2, 3, 4 or 5 or combinations of 3 with 4 or 3 with 5.	1. None 2. Full wall stud cavity depth or less of Heatlok® HFO Pro applied using exterior gypsum sheathing of BWS 3 as the substrate and covering the width of the cavity and the inside of the steel wall stud framing flange.[1] 3. Fiberglass batt insulation (faced or unfaced) 4. Mineral wool insulation (faced or unfaced)
Exterior Sheathing – use either 1 or 2	1. None (for BWS 1 or 2 above) 2. $^5/_8$-inch thick Type X exterior type gypsum sheathing (for BWS 3 above)
Exterior Insulation Use 1, 2 or 3	1. Maximum 3$^1/_2$-inch thickness of Heatlok® HFO Pro (with Claddings 1-5, 2-inch maximum air gap between cladding and SPF). 2. Maximum 3-inch HeatLok HFO Pro SPF (with Claddings 6, 7 and 8. Horizontal purlin every 2 feet maximum, no vertical Z girts. Purlin depth 1-inch deeper than SPF thickness. 1-inch maximum air gap between cladding and SPF. 3. Maximum 3$^1/_2$-inch HeatLok HFO Pro (with Claddings 9-18, use coating – 18 mils WFT DC315 with nine mils WFT Sherwin Williams Sher-Cryl HPA Topcoat with horizontal Z Girts 28 inches on center. 2-inch maximum air gap between cladding and SPF.
Exterior wall covering – use any item 1-20 with specific insulation or coating – read carefully. IMPORTANT Use 1-5 only with Exterior Insulation 1 Use 6, 7 and 8 only with Exterior Insulation 2 Use 9-18 only with Exterior Insulation 3 1-inch maximum air gap between cladding and SPF for cladding 6, 7 and 8 and insulation 2. 2-inch maximum air gap with cladding 1-5 or claddings 9 through 18. (continued on next page)	For use with Exterior Insulation 1 1. Brick – Standard type brick veneer anchors, installed a maximum of 24 inches on center, vertically on each stud with maximum 1-inch air gap between exterior insulation and brick. Brick to be standard nominal 4-inch thick clay brick installed in a running bond pattern using Type S mortar. 2. Stucco – Minimum ¾-inch thick, exterior plaster and lath. A secondary water resistive barrier (WRB) can be installed between the exterior insulation and lath. The secondary WRB shall not be full coverage asphalt or butyl based self-adhered membranes. 3. Minimum 2-inch thick natural stone (granite, limestone, marble or sandstone) Any standard non-open joint installation technique shall be used. 4. Minimum 1$^1/_2$-inch thick concrete masonry unit (CMU), precast concrete or artificial cast stone. Any standard non-open jointed method shall be used. 5. Minimum 1$^1/_2$-inch thick terra cotta non-open jointed. Any standard non-open jointed installation technique shall be used. For use with Exterior Insulation 2 6. Vertical or horizontal flat 20 gauge minimum steel (or zinc galvanized steel) panels directly attached to horizontal purlin. Non-open joint. 7. STK 1000, STK 1500 Force Five, STK 2000, STK 2500 Force Five, STK 5000 or STK 5500 Force Five panels or equivalent. Non-open joint. 8. Vertical or horizontal corrugated 20 gauge minimum steel (or galvanized steel) panels (2-inch maximum corrugation depth) directly attached to horizontal purlin with no air gap (between cladding and SPF) at the shallowest depth of corrugation profile. Non-open joint. For use with Exterior Insulation 3 9. Aluminum cladding – 3 mm minimum thickness, open or non-open joint. 10. Steel cladding - 0.0149-inch minimum thickness, open or non-open joint. 11. Copper cladding – 0.0216-inch minimum thickness, open or non-open joint. 12. Zinc cladding – 4 mm minimum thickness, open or non-open joint. 13. ½-inch minimum fiber cement cladding, open or non-open joint 14. Concrete – minimum 1-inch thick, open or non-open joint.

(continued on next page)

	15. Concrete Masonry Units – minimum 1-inch thick open or non-open joint 16. Stone Veneer – minimum 1-inch thick, open or non-open joint. 17. One Coat Stucco – 3/8-inch minimum exterior cement plaster and lath, non-open joint. 18. Thin Brick adhered (with noncombustible mortar) to stucco base (minimum ¾-inch) non-open joint.
Flashing of window, door and other exterior wall penetrations	As an option, flash around window, door and other exterior wall penetrations with limited amounts of maximum 12-inch wide flashing tape (acrylic, asphalt or butyl based) or liquid applied membrane material with or without fiber mesh reinforcement.
Window Perimeter	Materials for Openings Perimeters For Exterior Insulations 1 or 2 with no coating over the foam, use 18 gauge minimum sheet steel perimeter flashing. Windows and doors shall be framed as required for the base wall. For Exterior Insulation 3 with the coating over the foam, use 26 gauge minimum aluminum perimeter flashing. Windows and doors shall be framed as required for the base wall.

For **SI:** 1 inch = 25.4 mm; 1lb/ft^3=16 kg/m^3

[1]Fireblocking per Section 718 of the 2021, 2018, 2015 and 2012 IBC and Section 717 of the 2009 IBC and thermal barrier material requirements must be met for BWS 1 and 2, as required by specific wall construction details when combustible concealed space is created on the interior side of the exterior wall assembly.

CAST
ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE
8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT 8217 STATE OF WASHINGTON

Approved by:

issue	issue date	description
	10.17.23	PRELIMINARY PRICING SET
	02.19.24	VE COORDINATION SET
	03.25.24	COORDINATION SET
	07.03.24	PERMIT APPLICATION SET
	11.27.24	PERMIT CORRECTIONS 01 SET
	01.16.25	PERMIT CORRECTIONS 02 SET

printed 1/16/2025

ENERGY CODE INFO

a.27

1/16/2025 2:50 PM /25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln

HVAC SIZING TOOL

Pathak Residence - Upper Floor Only

Site ID: **22610** | Heating: **37,000** BTU/hr
Area: **2,062** ft² | Cooling: **40,800** BTU/hr
Climate: **Seattle-Boeing Fid** | Latent: **700** BTU/hr

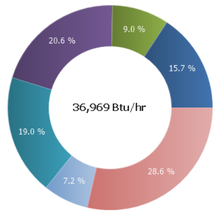
Site Information

Project Name	Pathak Residence - Upper Floor Only	Subdivision	
Address 1	8541 SE 82nd St	Lot Number	
Address 2		Plan/Model Number	
State/Province	Washington	Builder	
Zip/Postal Code	98040	Year	1965
Default Insulation Level	2x4 poorly insulated	Weather Location	Seattle-Boeing Fid

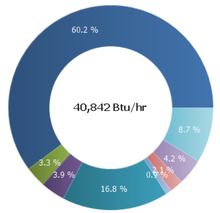
Component Loads

	Heating	Cooling	Color
Windows	5,809	24,579	
Skylights	0	0	
Doors	3,314	1,341	
Walls	7,603	1,575	
Ceiling	7,015	6,848	
Floors	0	0	
Ventilation	2,659	380	
Infiltration	10,569	863	
Ducts	0	0	
Additional Blower		1,707	
Internal Gains		3,550	
Total:	36,969	40,842	

Heating



Cooling



Room Data and Loads

Room Name	Suggested Ducts	Actual Ducts	Duct Size	CFM/Duct	Actual CFM Measured	Floor Area	Ext. Length	Height Override	Uncond Ceiling	Uncond Floor	Heating Load	Cooling Load
Stair	1		3	31		78	27.0		100 %	0 %	2,413	764
Pantry	1		3	36		142	25.0		100 %	0 %	2,860	1,278
Kitchen	1		3	37		245	18.5		100 %	0 %	3,140	1,977
Dining	1		3	37		176	21.5		100 %	0 %	3,044	1,591
Upper Living Room	3		3	102		582	73.5	11.5	100 %	0 %	12,470	25,144
Entry	1		3	17		122	8.0		100 %	0 %	1,409	1,004
Upper Bath	1		3	11		50	9.5	8.0	100 %	0 %	916	397
Main Bedroom	1		3	86		403	61.5		100 %	0 %	7,013	4,699
Main Bath	1		3	25		158	14.0	8.0	100 %	0 %	1,993	2,350
Study	1		3	21		106	11.5		100 %	0 %	1,710	1,638
Total	12	0				2,062					36,969	40,842

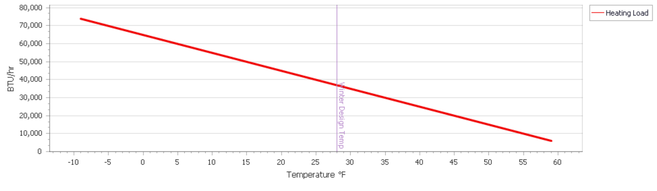
Window Orientation

Room Name	↑ N	↗ NE	→ E	↘ SE	↓ S	↙ SW	← W	↖ NW	Door	Skylight
Stair										
Pantry									35.0	
Kitchen									69.0	
Dining									69.0	
Upper Living Room	68.0		84.0		145.0		77.0		27.0	
Entry	5.0								22.0	
Upper Bath										
Main Bedroom					35.0				19.0	
Main Bath					29.0					
Study					18.0				22.0	

Total Window Square Footage (Sq Ft)	724
Total Room (Floor) Square Footage (Sq Ft)	2,062
Total Window to Floor Ratio (%)	35.1 %

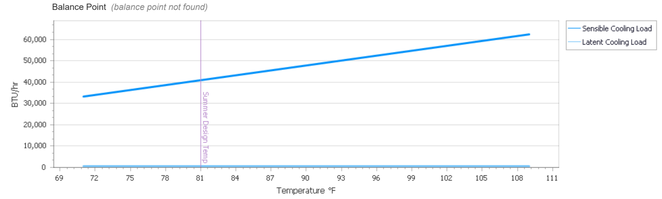
Heating

Balance Point *(the heating output did not intersect with the required heating in the temperature range specified)*

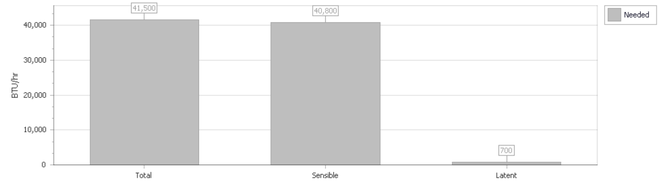


Cooling

Balance Point *(balance point not found)*



Required Cooling at Summer Design Temp (81°)



HVAC Design and Actual System Data

Heating System | Cooling System

	Manufacturer	Model	Nominal size (BTU/hr)
Furnace			
Heat Pump or AC Condenser			
Fan Coil			

	Calculated	Specified
Total Heating Load	37,000	0
Sensible Cooling Load	40,800	
Latent Cooling Load	700	
Sensible Ratio	0.98	

	Heating	Cooling
Blower Default (CFM)	370	606
Blower Override (CFM)		

Building Characteristics

Conditioned Floor Area (Sq Ft)	2,062	Slab on Grade %	0
Total Room Area	2,062	Conditioned Basement %	100
Wall Height	9.0	Unconditioned Basement or Crawl Space %	0
Bedrooms	4		

Duct Characteristics

Duct Material	Wire Helix (flex)	Blower CFM	370
Attic %	0	Max CFM/Register	125
Conditioned Area %	100	Friction Rate	
TEL Calculated	0	Unconditioned Basement or Crawl Space %	0
TEL Override	0		

Building Data

	Selected	Override		Selected	Override
Heating 99% Dry Bulb	28		Additional Blower Load	1707	
Cooling 1% Dry Bulb	81		Internal Shade Coefficient	1.0	
Winter Thermostat Setpoint (°F)	70		Ceiling U-Value	0.081	
Summer Thermostat Setpoint (°F)	75		Floor U-Value	0.368	
Daily Range	Medium		Wall U-Value	0.240	R-11
Summer Design Grains	-2		Basement Wall U-Value	0.148	
Elevation (ft)	18	313	Basement Floor U-Value	0.025	
Latitude (°N)	47		Slab U-Value	1.180	
Indoor RH	50		Door U-Value	0.500	0.300
Number of People	5		Window U-Value	1.000	0.300
Appliance/Lighting Load (BTU/hr)	2,400		Window SHGC	0.870	
Internal Gains	3,550	3,550	Duct Insulation	(R-4)	
Ventilation CFM	58		Duct Leakage	Average	
Heating Duct Multiplier	0 %		Heating ACH	0.700	
Cooling Duct Multiplier	0 %		Cooling ACH	0.400	
% Basement Below Grade	75 %	50 %			
ASHRAE 152 Duct area default	☐				
Heated slab on grade	☐				

Building Data

	Selected	Override		Selected	Override
Heating 99% Dry Bulb	28		Additional Blower Load	1707	
Cooling 1% Dry Bulb	81		Internal Shade Coefficient	1.0	
Winter Thermostat Setpoint (°F)	70		Ceiling U-Value	0.081	
Summer Thermostat Setpoint (°F)	75		Floor U-Value	0.368	
Daily Range	Medium		Wall U-Value	0.240	R-11
Summer Design Grains	-2		Basement Wall U-Value	0.148	
Elevation (ft)	18	313	Basement Floor U-Value	0.025	
Latitude (°N)	47		Slab U-Value	1.180	
Indoor RH	50		Door U-Value	0.500	0.300
Number of People	5		Window U-Value	1.000	0.300
Appliance/Lighting Load (BTU/hr)	2,400		Window SHGC	0.870	
Internal Gains	3,550	3,550	Duct Insulation	(R-4)	
Ventilation CFM	76		Duct Leakage	Average	
Heating Duct Multiplier	0 %		Heating ACH	0.700	
Cooling Duct Multiplier	0 %		Cooling ACH	0.400	
% Basement Below Grade	75 %	50 %			
ASHRAE 152 Duct area default	☐				
Heated slab on grade	☐				

MECHANICAL SYSTEMS NOTES

1. HVAC heating and sizing calculator results provided for upper floor per project scope to replace equipment serving upper floor only per notes on Sheet a.11.
2. New heat pump compressor unit and air handler to be installed per location on proposed site plan.
3. Heat pump compressor unit specification:

   Mitsubishi H2i® Hyper-Heating 42,000 BTU 5-Zone Smart Multi Heat Pump Unit
   Model: MXZ-SM42NAMHZ

   SEER: up to 22.0
   EER: up to 13.4
   HSPF: up to 12.0
   Sound Pressure Level, Cooling: 50 db(A)
   Sound Pressure Level, Heating: 54 db(A)

INDOOR AIR QUALITY NOTES

1 Comply with ventilation requirements of IRC M1505.

2 Kitchen ventilation to be 160 cfm or 60% capture efficiency if over electric range, and 250 cfm or 80% capture efficiency if over combustion range per IRC M1505.4.4.3.

3 Bathroom toilet rooms to be 50 cfm intermittent or 20 cfm continuous per IRC Table M1505.4.4.1.

4 Whole house fan per IRC M1505.4 to be continuously operating and provide a minimum flow rate per IRC Table M1505.4.3(1). An alternate intermittent system may be specified as long as it meets the requirements of IRC M1505.4.

Table M1505.4.3(1)
Whole-House Mechanical Ventilation Airflow Rate

Dwelling Unit Floor Area (square feet)	Number of Bedrooms				
	0 - 1	2	3	4	5 or more
	Airflow in cfm				
≤500	30	30	35	45	50
501 - 1,000	30	30	35	45	55
1,001 - 1,500	30	40	45	55	60
1,501 - 2,000	35	45	50	60	65
2,001 - 2,500	40	50	55	65	70
2,501 - 3,000	45	55	60	70	75
3,001 - 3,500	50	60	65	75	80
3,501 - 4,000	55	65	70	80	85
4,001 - 4,500	60	70	75	85	90
4,501 - 5,000	65	75	80	90	95

Table M1505.4.3.2
Intermittent Off Whole-House Mechanical Ventilation Rate Factors (a)(b)

Run-time % in Each 4-hour Segment	50%	66%	75%	100%
Factor(a)	2.0	1.5	1.3	1.0

a. For ventilation system run-time values between those given, the factors are permitted to be determined by interpolation.

b. Extrapolation beyond the table is prohibited.

CAST ARCHITECTURE
115-C north 36th street
seattle wa, 98103
CASTarchitecture.com
ph 206.256.9886

PATHAK RESIDENCE
8541 SE 82ND ST,
MERCER ISLAND, WA 98040

REGISTERED ARCHITECT 8217 STATE OF WASHINGTON

Approved by:

issue	issue date	description
	printed 1/16/2025	
	10.17.23	PRELIMINARY PRICING SET
	02.19.24	VE COORDINATION SET
	03.25.24	COORDINATION SET
	07.03.24	PERMIT APPLICATION SET
	11.27.24	PERMIT CORRECTIONS 01 SET
	01.16.25	PERMIT CORRECTIONS 02 SET

MECHANICAL CODE INFO

a.28

1/16/2025 2:50 PM 25-0102 RAHUL - PERMIT SET - CORRECTIONS CYCLE 02.pln

General Structural Notes

THE FOLLOWING APPLY UNLESS SHOWN OTHERWISE ON THE DRAWINGS

CRITERIA

1. ALL MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, THE INTERNATIONAL EXISTING BUILDING CODE (2021 EDITION). THIS STRUCTURE DOES NOT CONFORM TO PRESENT EARTHQUAKE CODE REQUIREMENTS. IT HAS BEEN ANALYZED AND REINFORCED FOR MINIMUM MAINTENANCE IN ACCORDANCE WITH INTERNATIONAL EXISTING BUILDING CODE AND IS WITHIN THE CURRENT PRACTICE FOR THE RENOVATION OF EXISTING BUILDINGS OF THIS AGE AND TYPE OF CONSTRUCTION.

2. DESIGN LOADING CRITERIA:
   GARAGES
   FLOOR LIVE LOAD (PASSENGER VEHICLES) . . . . . 40 PSF
   FLOOR CONCENTRATED LOAD (PASSENGER VEHICLES) . . . . . 3000 LBS
   RESIDENTIAL – ONE AND TWO-FAMILY DWELLINGS
   FLOOR LIVE LOAD . . . . . 40 PSF
   ROOF
   ROOF LIVE LOAD . . . . . 25 PSF
   MISCELLANEOUS LOADS
   DECKS . . . . . 1.5 x AREA SERVED

   LIVE LOAD DEFLECTION L/360
   TOTAL LOAD DEFLECTION L/240
   ENVIRONMENTAL LOADS
   RISK CATEGORY II
   RAIN . . . . . 1.5 IN/HR
   SNOW . . Ce=0.9, Is=1.0, Ct=1.0, Cs=0.75, Pg=25 PSF, Pf=25 PSF, Ps=25 PSF
   WIND . . . . . GCpi=0.18, 98 MPH, EXPOSURE "C"
   EARTHQUAKE:
   ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE
   LATERAL SYSTEM: LIGHT FRAMED SHEAR WALLS, SPECIAL STEEL MOMENT FRAMES
   Vs = 23 KIPS, SITE CLASS=D, Ss=1.46, Sds=0.98, S1=0.50,
   Sd1=0.86, Cs=0.15, SDC D, Ie=1.0, R=6.5

   SEE PLANS FOR ADDITIONAL LOADING CRITERIA

3. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS FOR BIDDING AND CONSTRUCTION. ARCHITECTURAL DRAWINGS ARE THE PRIME CONTRACT DRAWINGS. ANY DISCREPANCIES FOUND AMONG THE DRAWINGS, THE SPECIFICATION, THESE GENERAL NOTES AND THE SITE CONDITIONS SHALL BE REPORTED TO THE ARCHITECT, WHO SHALL CORRECT SUCH DISCREPANCY IN WRITING. ANY WORK DONE BY THE GENERAL CONTRACTOR AFTER DISCOVERY OF SUCH DISCREPANCY SHALL BE DONE AT THE GENERAL CONTRACTOR'S RISK.

4. PRIMARY STRUCTURAL ELEMENTS NOT DIMENSIONED ON THE STRUCTURAL PLANS AND DETAILS SHALL BE LOCATED BY THE ARCHITECTURAL PLANS AND DETAILS. VERTICAL DIMENSION CONTROL IS DEFINED BY THE ARCHITECTURAL WALL SECTIONS, BUILDING SECTION, AND PLANS. DETAILING AND SHOP DRAWING PRODUCTION FOR STRUCTURAL ELEMENTS WILL REQUIRE DIMENSIONAL INFORMATION CONTAINED IN BOTH ARCHITECTURAL AND STRUCTURAL DRAWINGS.

5. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE CONTRACTORS WORK. THE STRUCTURAL ENGINEER HAS NO OVERALL SUPERVISORY AUTHORITY OR ACTUAL AND/OR DIRECT RESPONSIBILITY FOR THE SPECIFIC WORKING CONDITIONS AT THE SITE AND/OR FOR ANY HAZARDS RESULTING FROM THE ACTIONS OF ANY TRADE CONTRACTOR. THE STRUCTURAL ENGINEER HAS NO DUTY TO INSPECT, SUPERVISE, NOTE, CORRECT, OR REPORT ANY HEALTH OR SAFETY DEFICIENCIES TO THE OWNER, CONTRACTORS, OR OTHER ENTITIES OR PERSONS AT THE PROJECT SITE.

6. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR THE STRUCTURE AND STRUCTURAL COMPONENTS UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. CONFORM TO ASCE 37-14 "DESIGN LOADS ON STRUCTURES DURING CONSTRUCTION".

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

8. DRAWINGS INDICATE GENERAL AND 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 AND APPROVAL BY THE ARCHITECT AND THE STRUCTURAL ENGINEER. ALL TYPICAL NOTES AND DETAILS SHOWN ON DRAWINGS SHALL APPLY, UNLESS NOTED OTHERWISE. TYPICAL DETAILS MAY NOT NECESSARILY BE INDICATED ON THE PLANS BUT SHALL STILL APPLY AS SHOWN OR DESCRIBED IN THE DETAILS. WHERE TYPICAL DETAILS ARE NOTED ON THE PLANS, THE SPECIFIED TYPICAL DETAIL SHALL BE USED. WHERE NO TYPICAL DETAIL IS NOTED, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CHOOSE THE APPROPRIATE TYPICAL DETAIL FROM THOSE PROVIDED OR REQUEST ADDITIONAL INFORMATION. THE CONTRACTOR SHALL SUBMIT ALL PROPOSED ALTERNATE TYPICAL DETAILS TO THOSE PROVIDED WITH RELATED CALCULATIONS TO THE ENGINEER FOR APPROVAL PRIOR TO SHOP DRAWING PRODUCTION AND FIELD USE.

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 AND ERECTION IN ACCORDANCE WITH INSTRUCTIONS PREPARED BY THE SUPPLIER.

10. SHOP DRAWINGS FOR THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION OF THESE ITEMS.

    GLUED LAMINATED MEMBERS
    REINFORCING STEEL (FOR CONCRETE CONSTRUCTION)
    STRUCTURAL STEEL

    CONTRACTOR SHALL SUBMIT WALL ELEVATION DRAWINGS OF AT LEAST 1/8" = 1'-0" SCALE INDICATING LOCATIONS OF CONNECTION EMBEDMENT'S AND WALL OPENINGS FOR REVIEW PRIOR TO CONSTRUCTION. CONTRACTOR SHALL COORDINATE WALL ELEVATION DRAWINGS WITH REINFORCEMENT SHOP DRAWINGS.

    APPROVED SETS OF ALL SHOP DRAWINGS SHALL ALSO BE SUBMITTED TO THE BUILDING DEPARTMENT WHERE REQUIRED.

11. SHOP DRAWING REVIEW: DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER OF RECORD, THEREFORE MUST BE VERIFIED BY THE CONTRACTOR. CONTRACTOR SHALL REVIEW AND STAMP DRAWINGS PRIOR TO REVIEW BY ENGINEER OF RECORD. CONTRACTOR SHALL REVIEW DRAWINGS FOR CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND OPERATIONS OF CONSTRUCTION, AND ALL SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO. SUBMITTALS SHALL INCLUDE A REPRODUCIBLE AND ONE COPY; REPRODUCIBLE WILL BE MARKED AND RETURNED WITHIN TWO WEEKS OF RECEIPT WITH A NOTATION INDICATING THAT THE SUBMITTAL HAS BEEN FOUND TO BE IN GENERAL CONFORMANCE WITH THE DESIGN OF THE BUILDING. THE SUBMITTED ITEMS SHALL NOT BE INSTALLED UNTIL THEY HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

    SHOP DRAWING 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, BY INDICATING WHICH MATERIAL IS INTENDED TO BE FURNISHED AND INSTALLED AND BY DETAILING THE INTENDED FABRICATION AND INSTALLATION METHODS. IF DEVIATIONS, DISCREPANCIES, OR CONFLICTS BETWEEN SHOP DRAWING SUBMITTALS AND THE CONTRACT DOCUMENTS ARE DISCOVERED EITHER PRIOR TO OR AFTER SHOP DRAWING SUBMITTALS ARE PROCESSED BY THE ENGINEER, THE DESIGN DRAWINGS AND SPECIFICATIONS SHALL CONTROL AND SHALL BE FOLLOWED.

12. SHOP DRAWINGS OF DESIGN BUILD COMPONENTS INCLUDING TEMPORARY SHORING SHALL BE STAMPED AND SIGNED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF WASHINGTON. SHOP DRAWINGS SHALL BE APPROVED BY THE COMPONENT DESIGNER PRIOR TO REVIEW BY THE ARCHITECT OR ENGINEER OF RECORD FOR GENERAL CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS. THE COMPONENT DESIGNER IS RESPONSIBLE FOR CODE CONFORMANCE AND ALL NECESSARY CONNECTIONS NOT SPECIFICALLY CALLED OUT ON ARCHITECTURAL OR STRUCTURAL DRAWINGS. SHOP DRAWINGS SHALL INDICATE MAGNITUDE AND DIRECTION OF ALL LOADS IMPOSED ON BASIC STRUCTURE. DESIGN CALCULATIONS SHALL BE SUBMITTED WITH THE SHOP DRAWINGS.

QUALITY ASSURANCE

13. SPECIAL INSPECTION SHALL BE PROVIDED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND SECTIONS 110 AND 1705 OF THE INTERNATIONAL BUILDING CODE BY A QUALIFIED TESTING AGENCY DESIGNATED BY THE ARCHITECT, AND RETAINED BY THE BUILDING OWNER. THE ARCHITECT, STRUCTURAL ENGINEER, AND BUILDING DEPARTMENT SHALL BE FURNISHED WITH COPIES OF ALL INSPECTION AND TEST RESULTS. SPECIAL INSPECTION OF THE FOLLOWING TYPES OF CONSTRUCTION IS REQUIRED UNLESS NOTED OTHERWISE.

STRUCTURAL STEEL FABRICATION AND ERECTION	PER AISC 360
CONCRETE CONSTRUCTION	PER TABLE 1705.3
SOIL CONDITIONS, FILL PLACEMENT, AND DENSITY	PER TABLE 1705.6
DRIVEN DEEP FOUNDATION	PER TABLE 1705.7
EXPANSION BOLTS AND THREADED EXPANSION INSERTS	PER MANUFACTURER
EPOXY GROUTED INSTALLATIONS	PER MANUFACTURER

    PERIODIC INSPECTION: INSPECTION SHALL BE PERFORMED AT INTERVALS NECESSARY TO CONFIRM THAT WORK REQUIRING SPECIAL INSPECTION IS IN COMPLIANCE WITH REQUIREMENTS.

    CONTINUOUS INSPECTION: INSPECTOR SHALL BE ONSITE AND OBSERVE THE WORK REQUIRING INSPECTION AT ALL TIMES THAT WORK IS PERFORMED.

14. UNLESS OTHERWISE NOTED, THE FOLLOWING ELEMENTS COMPRISE THE SEISMIC-FORCE-RESISTING SYSTEM AND ARE SUBJECT TO SPECIAL INSPECTION FOR SEISMIC RESISTANCE IN ACCORDANCE WITH SECTION 1705.13 OF THE INTERNATIONAL BUILDING CODE.

    A. STRUCTURAL STEEL MOMENT FRAMES REQUIRE CONTINUOUS INSPECTION FOR WELDING PER AISC 341 EXCEPT SINGLE PASS FILLET WELDS NOT EXCEEDING 5/16-INCH.

    B. STRUCTURAL WOOD SHEAR WALL SYSTEMS REQUIRE PERIODIC INSPECTION FOR FIELD GLUING, NAILING, BOLTING, ANCHORING AND OTHER FASTENING OF COMPONENTS WITHIN THE SEISMIC FORCE, RESISTING SYSTEM INCLUDING SHEAR WALLS, DIAPHRAGMS, DRAG STRUTS, BRACES AND HOLDOWNS.

15. STRUCTURAL OBSERVATION SHALL BE PERFORMED IN ACCORDANCE WITH SECTIONS 1704.6 OF THE INTERNATIONAL BUILDING CODE FOR THE FOLLOWING BUILDING ELEMENTS:

    LIGHT FRAMED SHEAR WALLS
    HOLDOWNS
    CONCRETE CONSTRUCTION
    STRUCTURAL STEEL CONSTRUCTION

    THE CONTRACTOR SHALL PROVIDE THE ENGINEER OF RECORD ADEQUATE NOTICE TO SCHEDULE APPROPRIATE SITE VISITS FOR STRUCTURAL OBSERVATION.

    STRUCTURAL OBSERVATION MEANS THE VISUAL OBSERVATION OF THE STRUCTURAL SYSTEM, FOR GENERAL CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS, AT SIGNIFICANT CONSTRUCTION STAGES AND AT COMPLETION OF THE STRUCTURAL SYSTEM. STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR THE INSPECTIONS REQUIRED BY SECTION 110, 1705, OR OTHER SECTIONS OF THE INTERNATIONAL BUILDING CODE.

    THE OWNER SHALL EMPLOY THE ENGINEER OR ARCHITECT RESPONSIBLE FOR THE STRUCTURAL DESIGN, TO PERFORM STRUCTURAL OBSERVATION. OBSERVED DEFICIENCIES SHALL BE REPORTED IN WRITING TO THE OWNER'S REPRESENTATIVE, SPECIAL INSPECTOR, CONTRACTOR, AND THE BUILDING OFFICIAL. THE STRUCTURAL OBSERVER SHALL SUBMIT TO THE BUILDING OFFICIAL A WRITTEN STATEMENT THAT THE SITE VISITS HAVE BEEN MADE AND IDENTIFYING ANY REPORTED DEFICIENCIES WHICH, TO THE BEST OF THE STRUCTURAL OBSERVER'S KNOWLEDGE, HAVE NOT BEEN RESOLVED.

GEOTECHNICAL

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

ALLOWABLE SOIL PRESSURE (NATIVE SOILS / STRUCTURAL FILL)	2500 PSF
LATERAL EARTH PRESSURE (RESTRAINED/UNRESTRAINED)	50 PCF/35 PCF
ALLOWABLE PASSIVE EARTH PRESSURE (FS OF 1.5 INCLUDED)	250 PCF
COEFFICIENT OF FRICTION (FS OF 1.5 INCLUDED)	0.4
TRAFFIC SURCHARGE PRESSURE (UNIFORM LOAD)	75 PSF
SEISMIC SURCHARGE PRESSURE (UNIFORM LOAD)	10H PSF
PIN PILE CAPACITY (COMPRESSION)	6 KIPS

    SOILS REPORT REFERENCE: Geotechnical Report (Project No. 23-223) by Siew L. Tan, PE (PanGEO, Inc) dated June 5th, 2024.

17. PIN PILES SHOWN ON THE PLAN SHALL BE 2" DIAMETER EXTRA-STRONG, GRADE A, GALVANIZED, UNLESS OTHERWISE NOTED. THE MAXIMUM CAPACITY OF 2" PILES SHALL BE 3 TONS. ALL PILES SHALL BE DRIVEN TO REFUSAL IN ACCORDANCE WITH THE GEOTECHNICAL REPORT. AS A MINIMUM, PILE REFUSAL SHALL BE DEFINED AS 1 INCH OF PENETRATION IN 60 SECONDS DURING CONTINUOUS DRIVING OF A 90 LB JACK HAMMER UNDER THE FULL WEIGHT AND EFFORT OF THE OPERATOR. PILES USED IN COMMON TO RESIST LATERAL EARTH PRESSURES SHALL HAVE THE ADDITIONAL REQUIREMENT OF BEING EMBEDDED A MINIMUM OF 10 FEET BELOW RETAINED GRADE. THE MAXIMUM PILE ECCENTRICITY SHALL BE 2 INCHES. GEOTECHNICAL SPECIAL INSPECTION SHALL BE SUBJECT TO THE DISCRETION OF THE GEOTECHNICAL ENGINEER AND THE BUILDING DEPARTMENT. SEE PLANS FOR OTHER CRITERIA.

18. PILE PLACEMENT TOLERANCES:

    A. 1" INSIDE PERPENDICULAR TO FOOTING OR GRADE BEAM
    B. 1" OUTSIDE PERPENDICULAR TO FOOTING OR GRADE BEAM
    C. 3" PARALLEL TO FOOTING OR GRADE BEAM

RENOVATION

19. DEMOLITION: CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS 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 ROOF AND FLOOR SYSTEMS TO 20 PSF.

20. CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS, MEMBER SIZES, AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS ARE INTENDED AS GUIDELINES ONLY AND MUST BE VERIFIED. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER IF EXISTING CONDITIONS DETERMINED DURING WORK VARY FROM THE EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS.

21. EXISTING REINFORCING SHALL BE SAVED WHERE AND AS NOTED ON THE PLANS. SAW CUTTING, IF AND WHERE USED, SHALL NOT CUT EXISTING REINFORCING THAT IS TO BE SAVED.

    A. ALL NEW OPENINGS THROUGH EXISTING WALLS AND SLABS SHALL BE ACCOMPLISHED BY SAW CUTTING WHEREVER POSSIBLE. CORNERS SHALL NOT BE OVERCUT.
    B. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND LOCATION OF MEMBERS PRIOR TO CUTTING ANY OPENINGS.
    C. SMALL ROUND OPENINGS SHALL BE ACCOMPLISHED BY CORE DRILLING.
    D. WHERE NEW REINFORCING TERMINATES AT EXISTING CONCRETE, DRILL AND EPOXY DOWELS MATCHING THE NEW REINFORCING INTO THE EXISTING CONCRETE WITH 6" EMBED, UNLESS OTHERWISE NOTED ON PLANS.

22. CONTRACTOR SHALL CHECK FOR DRY ROT AT ALL AREAS OF NEW WORK. ALL ROT SHALL BE REMOVED AND DAMAGED MEMBERS SHALL BE REPLACED OR REPAIRED AS DIRECTED BY THE STRUCTURAL ENGINEER OR ARCHITECT.

CONCRETE

23. CONCRETE SHALL BE MIXED, PROPORTIONED, CONVEYED AND PLACED IN ACCORDANCE WITH ACI 301, INCLUDING TESTING PROCEDURES. CONCRETE SHALL ATTAIN A 28-DAY STRENGTH OF f'c = 3,000 PSI AND MIX SHALL CONTAIN NOT LESS THAN 5-1/2 SACKS OF CEMENT PER CUBIC YARD AND SHALL BE PROPORTIONED TO PRODUCE A SLUMP OF 5" OR LESS. REQUIRED CONCRETE STRENGTH IS BASED ON THE DURABILITY REQUIREMENTS OF SECTION 1904 OF THE IBC. DESIGN STRENGTH IS f'c = 2,500 PSI.

24. A CONCRETE PERFORMANCE MIX SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER AND THE BUILDING DEPARTMENT FOR APPROVAL TWO WEEKS PRIOR TO PLACING ANY CONCRETE. THE PERFORMANCE MIX SHALL INCLUDE THE AMOUNTS OF CEMENT, FINE AND COARSE AGGREGATE, WATER AND ADMIXTURES AS WELL AS THE WATER CEMENT RATIO, SLUMP, CONCRETE YIELD AND SUBSTANTIATING STRENGTH DATA IN ACCORDANCE WITH ACI 318-19, SECTIONS 26.4.3 AND 26.4.4. THE USE OF A PERFORMANCE MIX REQUIRES BATCH PLANT INSPECTION, THE COST OF WHICH SHALL BE PAID BY THE GENERAL CONTRACTOR. REVIEW OF MIX SUBMITTALS BY THE ENGINEER OF RECORD INDICATES ONLY THAT INFORMATION PRESENTED CONFORMS GENERALLY WITH CONTRACT DOCUMENTS. CONTRACTOR OR SUPPLIER MAINTAINS FULL RESPONSIBILITY FOR SPECIFIED PERFORMANCE.

25. ALL CONCRETE WITH SURFACES EXPOSED TO WEATHER OR STANDING WATER SHALL BE AIR-ENTRAINED WITH AN AIR-ENTRAINING AGENT CONFORMING TO ASTM C260, C494, AND C618. TOTAL AIR CONTENT FOR FROST-RESISTANT CONCRETE SHALL BE IN ACCORDANCE WITH ACI 318-19, TABLE 19.3.2.1 MODERATE EXPOSURE, F1.

26. REINFORCING STEEL SHALL CONFORM TO ASTM A615 (INCLUDING SUPPLEMENT S1), GRADE 60, FY = 60,000 PSI. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185. SPIRAL REINFORCEMENT SHALL BE DEFORMED WIRE CONFORMING TO ASTM A615, GRADE 60, FY = 60,000 PSI.

27. DETAILING OF REINFORCING STEEL (INCLUDING HOOKS AND BENDS) SHALL BE IN ACCORDANCE WITH ACI 315R-18 AND 318-19. LAP ALL CONTINUOUS REINFORCEMENT #5 AND SMALLER 40 BAR DIAMETERS OR 2'-0" MINIMUM. PROVIDE CORNER BARS AT ALL WALL AND FOOTING INTERSECTIONS. LAP CORNER BARS #5 AND SMALLER 40 BAR DIAMETERS OR 2'-0" MINIMUM. LAPS OF LARGER BARS SHALL BE MADE IN ACCORDANCE WITH ACI 318-19, CLASS B. LAP ADJACENT MATS OF WELDED WIRE FABRIC A MINIMUM OF 8" AT SIDES AND ENDS.

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

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

    FOOTINGS AND OTHER UNFORMED SURFACES CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH . . . . . 3"
    FORMED SURFACES EXPOSED TO EARTH OR WEATHER (#5 BARS OR SMALLER). . 1-1/2"
    SLABS AND WALLS (INT. FACE). . . GREATER OF BAR DIAMETER PLUS 1/8" OR 3/4"

29. CONCRETE WALL REINFORCING—PROVIDE THE FOLLOWING UNLESS DETAILED OTHERWISE:

6" WALLS	#4 @ 16 HORIZ.	#4 @ 18 VERTICAL	1 CURTAIN
8" WALLS	#4 @ 12 HORIZ.	#4 @ 18 VERTICAL	1 CURTAIN

30. NON-SHRINK GROUT SHALL BE FURNISHED BY AN APPROVED MANUFACTURER AND SHALL BE MIXED AND PLACED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED RECOMMENDATIONS. GROUT STRENGTH SHALL BE AT LEAST EQUAL TO THE MATERIAL ON WHICH IT IS PLACED (3000 PSI MINIMUM).

ANCHORAGE

31. EPOXY-GROUTED ITEMS (THREADED RODS OR REINFORCING BAR) SPECIFIED ON THE DRAWINGS SHALL BE INSTALLED USING "HIT-RE 500 V3" AS MANUFACTURED BY HILTI CORP. INSTALL IN STRICT ACCORDANCE WITH ICC-ES REPORT NO. ESR-3814. CONCRETE BASE TEMPERATURE MUST BE BETWEEN 23 DEGREES, AND 104 DEGREES, F AT THE TIME OF INSTALLATION. RODS SHALL BE ASTM A-36 UNLESS OTHERWISE NOTED. PERIODIC SPECIAL INSPECTION OF INSTALLATION IS REQUIRED TO VERIFY ANCHOR OR EMBEDDED BAR TYPE AND DIMENSIONS, LOCATION, ADHESIVE IDENTIFICATION AND EXPIRATION, HOLE DIMENSIONS, HOLE CLEANING PROCEDURE, ANCHOR EMBEDMENT, AND ADHERENCE TO THE INSTALLATION INSTRUCTIONS. OVERHEAD INSTALLATIONS REQUIRE THE USE OF PISTON PLUGS (HIT-SZ,-IP) DURING INJECTION. OVERHEAD ANCHORS OR BARS MUST BE SUPPORTED WITH HIT-OWH, OR EQUIVALENT, UNTIL FULLY CURED. CONTINUOUS SPECIAL INSPECTION IS REQUIRED FOR HORIZONTAL AND OVERHEAD INSTALLATIONS.

32. EXPANSION BOLTS INTO CONCRETE SHALL BE "STRONG-BOLT 2" WEDGE ANCHORS AS MANUFACTURED BY THE SIMPSON STRONG TIE COMPANY AND INSTALLED IN STRICT CONFORMANCE TO ICC-ES REPORT NUMBER ESR-3037 FOR CONCRETE AND IAPMO ER-240 FO MASONRY, INCLUDING MINIMUM EMBEDMENT REQUIREMENTS. BOLTS INTO CONCRETE MASONRY OR BRICK MASONRY UNITS SHALL BE INTO FULLY GROUTED CELLS. PERIODIC SPECIAL INSPECTION IS REQUIRED TO VERIFY ANCHOR TYPE, ANCHOR DIMENSIONS, ANCHOR LOCATION, TIGHTENING TORQUE, HOLE DIMENSIONS, ANCHOR EMBEDMENT, AND ADHERENCE TO THE INSTALLATION INSTRUCTIONS.

33. CONCRETE SCREW ANCHORS INTO CONCRETE AND CONCRETE MASONRY UNITS SHALL BE "TITEN HD" SCREW ANCHOR AS MANUFACTURED BY THE SIMPSON STRONG-TIE COMPANY, INSTALLED IN STRICT ACCORDANCE WITH ICC-ES REPORT NO. ESR-2713 (CONCRETE), NO. ESR-1056 (CMU), INCLUDING MINIMUM EMBEDMENT REQUIREMENTS. SCREW ANCHORS INTO CONCRETE MASONRY UNITS SHALL BE INTO FULLY GROUTED CELLS. SPECIAL INSPECTION IS REQUIRED.

STEEL

34. STRUCTURAL STEEL DESIGN, FABRICATION, AND ERECTION SHALL BE BASED ON:

    A. AISC 360-16 AND SECTION 2205 OF THE INTERNATIONAL BUILDING CODE.
    B. JUNE 15, 2016 AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES (AISC 303-16) AMENDED AS FOLLOWS: AS NOTED IN THE CONTRACT DOCUMENTS, BY THE DELETION OF PARAGRAPH 4.4.1, AND REVISE REFERENCE FROM "STRUCTURAL DESIGN DRAWINGS" TO "CONTRACT DOCUMENTS" IN PARAGRAPH 3.1.
    C. SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS.

35. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

TYPE OF MEMBER	ASTM SPECIFICATION	FY
A. WIDE FLANGE SHAPES	A992	50 KSI
B. OTHER SHAPES, PLATES, AND RODS	A36	36 KSI
C. OTHER SHAPES AND PLATES (NOTED GRADE 50 ON PLANS)	A572 (GRADE 50)	50 KSI
D. STRUCTURAL TUBING		
-SQUARE OR RECTANGULAR	A500 (GR.C)	50 KSI
-ROUND	A500 (GR.C)	46 KSI
-ANY SHAPE	ASTM A1085	50 KSI
E. CONNECTION BOLTS (3/4" ROUND, UNLESS SHOWN OTHERWISE)	A325-N	

General Structural Notes
Continued on S1.2

SSF STRUCTURAL ENGINEERING
SEATTLE
2124 Third Avenue, Suite 100
Seattle, WA 98121
TACOMA
934 Broadway, Suite 100
Tacoma, WA 98402
CENTRAL WASHINGTON
414 N Pearl Street, Suite 8
Ellensburg, WA 98926
206.443.6212
sswengineers.com

Copyright 2023 Swenson Say Fagét - All Rights Reserved

R. GREGORY COON — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

DRAWN: CFG
DESIGN: LTN
CHECKED: RGC
APPROVED: RGC

REVISIONS:
1 Cycle 1 Revisions — Oct. 1, 2024

JURISDICTIONAL APPROVAL STAMP:

PROJECT TITLE:
Pathak Residence
8541 SE 82nd St
Mercer Island, WA 98040

ARCHITECT:
CAST Architecture
115-C North 36th St
Seattle, WA 98103
PH 206.256.9886

ISSUE: Permit

SHEET TITLE: General Structural Notes

SCALE:

DATE: May 31, 2024

PROJECT NO: 00640-2023-02

SHEET NO: S1.1

General Structural Notes, Continued

THE FOLLOWING APPLY UNLESS SHOWN OTHERWISE ON THE DRAWINGS

37. ARCHITECTURALLY EXPOSED STRUCTURAL STEEL SHALL CONFORM TO SECTION 10 OF THE AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES, AISC 303-16.

38. ALL STEEL EXPOSED TO THE WEATHER OR IN CONTACT WITH GROUND SHALL BE CORROSION PROTECTED BY GALVANIZATION OR PROVIDED WITH AN EXTERIOR PAINT SYSTEM, UNLESS OTHERWISE NOTED.

39. SHOP PRIME ALL STEEL EXCEPT:

    A. STEEL ENCASED IN CONCRETE.
    B. SURFACES TO BE WELDED.
    C. CONTACT SURFACES AT HIGH-STRENGTH BOLTS.
    D. MEMBERS TO BE GALVANIZED.
    E. MEMBERS WHICH WILL BE CONCEALED BY INTERIOR FINISHES.
    F. SURFACES TO RECEIVE SPRAYED FIREPROOFING.
    G. SURFACES TO RECEIVE OTHER SPECIAL SHOP PRIMERS.

40. ALL A-325N CONNECTION BOLTS NEED ONLY BE TIGHTENED TO A SNUG TIGHT CONDITION, DEFINED AS THE TIGHTNESS THAT EXISTS WHEN ALL PLIES IN A JOINT ARE IN FIRM CONTACT. THIS MAY BE ATTAINED BY A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER USING AN ORDINARY SPUD WRENCH.

41. ALL ANCHORS EMBEDDED IN CONCRETE SHALL BE A307 HEADED BOLTS OR F1554 GRADE 36 THREADED ROD WITH AN ASTM 563 HEAVY HEX NUT TACK WELDED ON THE EMBEDDED END.

42. ALL WELDING SHALL BE IN CONFORMANCE WITH AISC AND AWS STANDARDS AND SHALL BE PERFORMED BY WABO CERTIFIED WELDERS USING E70XX ELECTRODES. ONLY PREQUALIFIED WELDS (AS DEFINED BY AWS) SHALL BE USED. ALL COMPLETE JOINT PENETRATION GROOVE WELDS SHALL BE MADE WITH A FILLER MATERIAL THAT HAS A MINIMUM CVN TOUGHNESS OF 20 FT-LBS AT -20 DEGREES F AND 40 FT - LBS AT 70 DEGREES F, AS DETERMINED BY AWS CLASSIFICATION OR MANUFACTURER CERTIFICATION.

WOOD

43. FRAMING LUMBER SHALL BE S-DRY, KD, OR MC-19, AND GRADED AND MARKED IN CONFORMANCE WITH WCLIB STANDARD No. 17, GRADING RULES FOR WEST COAST LUMBER, 2018, OR WWPA STANDARD, WESTERN LUMBER GRADING RULES 2021. FURNISH TO THE FOLLOWING MINIMUM STANDARDS:

JOISTS AND BEAMS	(2X, 3X, & 4X MEMBERS)	DOUGLAS FIR-LARCH NO. 1 MINIMUM BASE VALUE, Fb = 1000 PSI
BEAMS	(INCL. 6X AND LARGER)	DOUGLAS FIR-LARCH NO. 1 MINIMUM BASE VALUE, Fb = 1350 PSI
POSTS	(4X MEMBERS)	DOUGLAS FIR-LARCH NO. 2 MINIMUM BASE VALUE, Fc = 1350 PSI
	(6X AND LARGER)	DOUGLAS FIR-LARCH NO. 1 MINIMUM BASE VALUE, Fc = 1000 PSI
STUDS, PLATES & MISC. FRAMING:		DOUGLAS FIR-LARCH NO. 2

44. GLUED LAMINATED MEMBERS SHALL BE FABRICATED IN CONFORMANCE WITH ASTM AND ANSI/AITC STANDARDS. EACH MEMBER SHALL BEAR AN AITC OR APA IDENTIFICATION MARK AND SHALL BE ACCOMPANIED BY AN AITC OR APA CERTIFICATE OF CONFORMANCE. ALL SIMPLE SPAN BEAMS SHALL BE DOUGLAS FIR COMBINATION 24F-V4, Fb = 2,400 PSI, Fv = 265 PSI. ALL CANTILEVERED BEAMS SHALL BE DOUGLAS FIR COMBINATION 24F-V8, Fb = 2400 PSI, Fv = 265 PSI.CEDAR GLULAM BEAM SPECIFIED ON PLAN SHALL BE ALASKAN CEDAR COMBINATION 20F-V13, Fb=2000 PSI, FV=265 PSI. CAMBER ALL SIMPLE SPAN GLULAM BEAMS, WITH SPANS OVER 30', TO 3,500' RADIUS, UNLESS SHOWN OTHERWISE ON THE PLANS.

    MANUFACTURED LUMBER PRODUCTS SHALL BE INSTALLED WITH A MOISTURE CONTENT OF 12% OR LESS. THE CONTRACTOR SHALL MAKE PROVISIONS DURING CONSTRUCTION TO PREVENT THE MOISTURE CONTENT OF INSTALLED BEAMS FROM EXCEEDING 12%. EXCESSIVE DEFLECTIONS MAY OCCUR IF MOISTURE CONTENT EXCEEDS THIS VALUE.

45. PLYWOOD SHEATHING SHALL BE GRADE C-D, EXTERIOR GLUE OR STRUCTURAL II, EXTERIOR GLUE IN CONFORMANCE WITH DOC PS 1 OR PS 2. ORIENTED STRAND BOARD OF EQUIVALENT THICKNESS, EXPOSURE RATING AND PANEL INDEX MAY BE USED IN LIEU OF PLYWOOD.

    ROOF SHEATHING SHALL BE 1/2" (NOMINAL) WITH SPAN RATING 32/16.

    FLOOR SHEATHING SHALL BE 3/4" (NOMINAL) WITH SPAN RATING 48/24.

    WALL SHEATHING SHALL BE 1/2" (NOMINAL) WITH SPAN RATING 24/0.

    PROVIDE APPROVED PLYWOOD EDGE CLIPS CENTERED BETWEEN JOISTS/TRUSSES AT UNBLOCKED ROOF SHEATHING EDGES. ALL FLOOR SHEATHING EDGES SHALL HAVE APPROVED T&G JOINTS OR SHALL BE SUPPORTED WITH SOLID BLOCKING. ALLOW 1/8" SPACING AT ALL PANEL EDGES AND ENDS OF FLOOR AND ROOF SHEATHING.

    REFER TO WOOD FRAMING NOTES BELOW FOR TYPICAL NAILING REQUIREMENTS.

46. ALL WOOD IN DIRECT CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE-TREATED WITH AN APPROVED PRESERVATIVE OR (2) LAYERS OF ASPHALT IMPREGNATED BUILDING PAPER SHALL BE PROVIDED BETWEEN UNTREATED WOOD AND CONCRETE OR MASONRY.

47. PRESERVATIVE TREATED WOOD SHALL BE TREATED PER AWPA STANDARD U1-20 TO THE USE CATEGORY EQUAL TO OR HIGHER THAN THE INTENDED APPLICATION. TREATED WOOD FOR ABOVE GROUND USE SHALL BE TREATED TO AWPA UC3B. WOOD IN CONTINUOUS CONTACT WITH FRESH WATER OR SOIL SHALL BE TREATED TO AWPA UC4A. WOOD FOR USE IN PERMANENT FOUNDATIONS SHALL BE TREATED TO AWPA UC4B.

48. FASTENERS AND TIMBER CONNECTORS USED WITH TREATED WOOD SHALL HAVE CORROSION RESISTANCE AS INDICATED IN THE FOLLOWING TABLE, UNLESS OTHERWISE NOTED.

WOOD TREATMENT	CONDITION	PROTECTION
HAS NO AMMONIA CARRIER	INTERIOR DRY	G90 GALVANIZED
CONTAINS AMMONIA CARRIER	INTERIOR DRY	G185 OR A185 HOT DIPPED OR CONTINUOUS HOT-GALVANIZED PER ASTM A653
CONTAINS AMMONIA CARRIER	INTERIOR WET	TYPE 304 OR 316 STAINLESS
CONTAINS AMMONIA CARRIER	EXTERIOR	TYPE 304 OR 316 STAINLESS
AZCA	ANY	TYPE 304 OR 316 STAINLESS

    INTERIOR DRY CONDITIONS SHALL HAVE WOOD MOISTURE CONTENT LESS THAN 19%. WOOD MOISTURE CONTENT IN OTHER CONDITIONS (INTERIOR WET, EXTERIOR WET, AND EXTERIOR DRY) IS EXPECTED TO EXCEED 19%. CONNECTORS AND THEIR FASTENERS SHALL BE THE SAME MATERIAL. COMPLY WITH THE TREATMENT MANUFACTURERS RECOMMENDATIONS FOR PROTECTION OF METAL.

49. TIMBER CONNECTORS CALLED OUT BY LETTERS AND NUMBERS SHALL BE "STRONG-TIE" BY SIMPSON COMPANY, AS SPECIFIED IN THEIR CATALOG NUMBER C-C-2021. EQUIVALENT DEVICES BY OTHER MANUFACTURERS MAY BE SUBSTITUTED, PROVIDED THEY HAVE ICC-ES APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. PROVIDE NUMBER AND SIZE OF FASTENERS AS SPECIFIED BY MANUFACTURER FOR MAXIMUM LOAD CARRYING CAPACITY. CONNECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

    ALL 2X JOISTS SHALL BE CONNECTED TO FLUSH BEAMS WITH "LUS" SERIES JOIST HANGERS. ALL TJI JOISTS SHALL BE CONNECTED TO FLUSH BEAMS WITH "ITS" SERIES JOIST HANGERS. ALL DOUBLE-JOIST BEAMS SHALL BE CONNECTED TO FLUSH BEAMS WITH "MIT" SERIES JOIST HANGERS.

    WHERE CONNECTOR STRAPS CONNECT TWO MEMBERS, PLACE ONE-HALF OF THE NAILS OR BOLTS IN EACH MEMBER.

    ALL SHIMS SHALL BE SEASONED AND DRIED AND THE SAME GRADE (MINIMUM) AS MEMBERS CONNECTED.

50. WOOD FASTENERS

    A. NAIL SIZES SPECIFIED ON DRAWINGS ARE BASED ON THE FOLLOWING SPECIFICATIONS:

SIZE	LENGTH	DIAMETER
8d	2-1/2"	0.131"
12d	3-1/4"	0.148"
10d	3"	0.148"
16d BOX	3-1/2"	0.135"

    IF CONTRACTOR PROPOSES THE USE OF ALTERNATE NAILS, THEY SHALL SUBMIT NAIL SPECIFICATIONS TO THE STRUCTURAL ENGINEER (PRIOR TO CONSTRUCTION) FOR REVIEW AND APPROVAL.

    NAILS - PLYWOOD (APA RATED SHEATHING) FASTENERS TO FRAMING SHALL BE DRIVEN FLUSH TO FACE OF SHEATHING WITH NO COUNTERSINKING PERMITTED. TOE-NAILS SHALL BE DRIVEN AT AN ANGLE OF 30 DEGREES WITH THE MEMBER AND STARTED 1/3 THE LENGTH OF THE NAIL FROM THE MEMBER END.

    B. ALL BOLTS IN WOOD MEMBERS SHALL CONFORM TO ASTM A307. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG BOLTS BEARING ON WOOD. INSTALLATION OF LAG BOLTS SHALL CONFORM TO THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION WITH A LEAD BORE HOLE OF 60 TO 70 PERCENT OF THE SHANK DIAMETER. LEAD HOLES ARE NOT REQUIRED FOR 3/8" AND SMALLER LAG SCREWS.

51. NOTCHES AND HOLES IN WOOD FRAMING:

    A. NOTCHES ON THE ENDS OF SOLID SAWN JOISTS AND RAFTERS SHALL NOT EXCEED ONE-FOURTH THE JOIST DEPTH. NOTCHES IN THE TOP OR BOTTOM OF SOLID SAWN JOISTS SHALL NOT EXCEED ONE-SIXTH THE DEPTH AND SHALL NOT BE LOCATED IN THE MIDDLE THIRD OF THE SPAN. HOLES BORED IN SOLID SAWN JOISTS AND RAFTERS SHALL NOT BE WITHIN 2 INCHES OF THE TOP OR BOTTOM OF THE JOIST, AND THE DIAMETER OF ANY SUCH HOLE SHALL NOT EXCEED ONE-THIRD THE DEPTH OF THE JOIST.

    B. IN EXTERIOR WALLS AND BEARING PARTITIONS, ANY WOOD STUD IS PERMITTED TO BE CUT OR NOTCHED TO A DEPTH NOT EXCEEDING 25 PERCENT OF ITS WIDTH. A HOLE NOT GREATER IN DIAMETER THAN 40 PERCENT OF THE STUD WIDTH IS PERMITTED TO BE BORED IN ANY WOOD STUD. IN NO CASE SHALL THE EDGE OF THE BORED HOLE BE NEARER THAN 5/8 INCH TO THE EDGE OF THE STUD. BORED HOLES SHALL NOT BE LOCATED AT THE SAME SECTION OF STUD AS A CUT OR NOTCH.

    C. NOTCHES AND HOLES IN MANUFACTURED LUMBER AND PREFABRICATED PLYWOOD WEB JOISTS SHALL BE PER THE MANUFACTURERS RECOMMENDATIONS UNLESS OTHERWISE NOTED.

52. WOOD FRAMING NOTES--THE FOLLOWING APPLY UNLESS OTHERWISE SHOWN ON THE PLANS:

    A. ALL WOOD FRAMING DETAILS NOT SHOWN OTHERWISE SHALL BE CONSTRUCTED TO THE MINIMUM STANDARDS OF THE INTERNATIONAL BUILDING CODE, THE AITC "TIMBER CONSTRUCTION MANUAL" AND THE AWC "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION". MINIMUM NAILING, UNLESS OTHERWISE NOTED, SHALL CONFORM TO IBC TABLE 2304.10.2. COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS WITH MECHANICAL AND ARCHITECTURAL DRAWINGS.

    B. WALL FRAMING: REFER ARCHITECTURAL DRAWINGS FOR THE SIZE OF ALL WALLS. ALL STUDS SHALL BE SPACED AT 16" O.C. UNO. TWO STUDS MINIMUM SHALL BE PROVIDED AT THE END OF ALL WALLS AND AT EACH SIDE OF ALL OPENINGS, AND AT BEAM OR HEADER BEARING LOCATIONS. TWO 2x8 HEADERS SHALL BE PROVIDED OVER ALL OPENINGS NOT OTHERWISE NOTED. SOLID BLOCKING FOR WOOD COLUMNS SHALL BE PROVIDED THROUGH FLOORS TO SUPPORTS BELOW. PROVIDE CONTINUOUS SOLID BLOCKING AT MID-HEIGHT OF ALL STUD WALLS OVER 10'-0" IN HEIGHT.

        ALL WALLS SHALL HAVE A SINGLE BOTTOM PLATE AND A DOUBLE TOP PLATE. END NAIL TOP PLATE TO EACH STUD WITH TWO 16d NAILS, AND TOENAIL OR END NAIL EACH STUD TO BOTTOM PLATE WITH TWO 16d NAILS. FACE NAIL DOUBLE TOP PLATE WITH 16d @ 12" O.C.. LAP TOP PLATES AT JOINTS A MINIMUM 4'-0" AND NAIL WITH TWELVE 16d NAILS @ 4" O.C. EACH SIDE JOINT.

        ALL STUD WALLS SHALL HAVE THEIR LOWER WOOD PLATES ATTACHED TO WOOD FRAMING BELOW WITH TWO ROWS OF 16d NAILS @ 12" ON-CENTER, OR ATTACHED TO CONCRETE BELOW WITH 5/8" DIAMETER ANCHOR BOLTS @ 4'-0" ON-CENTER EMBEDDED 7" MINIMUM, UNLESS INDICATED OTHERWISE. INDIVIDUAL MEMBERS OF BUILT-UP POSTS SHALL BE NAILED TO EACH OTHER WITH TWO ROWS OF 16d @12" ON-CENTER. UNLESS OTHERWISE NOTED, GYPSUM WALLBOARD SHALL BE FASTENED TO THE INTERIOR SURFACE OF ALL STUDS AND PLATES WITH NO. 6 X 1-1/4" TYPE S OR W SCREWS @ 8" ON-CENTER. UNLESS INDICATED OTHERWISE, 1/2" (NOMINAL) APA RATED SHEATHING (SPAN RATING 24/0) SHALL BE NAILED TO ALL EXTERIOR SURFACES WITH 8d NAILS @ 6" ON-CENTER AT PANEL EDGES AND TOP AND BOTTOM PLATES (BLOCK UN-SUPPORTED EDGES) AND TO ALL INTERMEDIATE STUDS AND BLOCKING WITH 8d NAILS @ 12" ON-CENTER ALLOW 1/8" SPACING AT ALL PANEL EDGES AND PANEL ENDS.

    C. FLOOR AND ROOF FRAMING: PROVIDE DOUBLE JOISTS UNDER ALL PARALLEL PARTITIONS THAT EXTEND OVER MORE THAN HALF THE JOIST LENGTH AND AROUND ALL OPENINGS IN FLOORS OR ROOFS UNLESS OTHERWISE NOTED. PROVIDE SOLID BLOCKING BETWEEN RAFTERS AND JOISTS AT ALL BEARING POINTS WITH A MINIMUM OF (3) 16d TOE NAILS EACH END. TOE-NAIL JOISTS TO SUPPORTS WITH TWO 16d NAILS. ATTACH TIMBER JOISTS TO FLUSH HEADERS OR BEAMS WITH SIMPSON METAL JOIST HANGERS IN ACCORDANCE WITH NOTES ABOVE. NAIL ALL MULTI JOIST BEAMS TOGETHER WITH TWO ROWS 16d @ 12" ON-CENTER.

        UNLESS OTHERWISE NOTED ON THE PLANS, PLYWOOD ROOF AND FLOOR SHEATHING SHALL BE LAID UP WITH GRAIN PERPENDICULAR TO SUPPORTS AND NAILED AT 6" ON-CENTER WITH 8d NAILS TO FRAMED PANEL EDGES, STRUTS AND OVER STUD WALLS AS SHOWN ON PLANS AND @ 12" ON-CENTER TO INTERMEDIATE SUPPORTS. PROVIDE APPROVED PLYWOOD EDGE CLIPS CENTERED BETWEEN JOISTS/TRUSSES AT UNBLOCKED ROOF SHEATHING EDGES. ALL FLOOR SHEATHING EDGES SHALL HAVE APPROVED T&G JOINTS OR SHALL BE SUPPORTED WITH SOLID BLOCKING. ALLOW 1/8" SPACING AT ALL PANEL EDGES AND ENDS OF FLOOR AND ROOF SHEATHING. TOENAIL BLOCKING TO SUPPORTS WITH 16d @ 12" ON-CENTER, MINIMUM TWO NAILS PER BLOCK, UNLESS OTHERWISE NOTED.

    D. WOOD SHRINKAGE: MECHANICAL, ELECTRICAL, PLUMBING FIRE PROTECTION, CLADDING, AND OTHER SYSTEMS INSTALLED WITHIN THE BUILDING SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE 3/8" OF VERTICAL MOVEMENT PER FLOOR LEVEL

SSF STRUCTURAL ENGINEERING

SEATTLE
2124 Third Avenue, Suite 100
Seattle, WA 98121

TACOMA
934 Broadway, Suite 100
Tacoma, WA 98402

CENTRAL WASHINGTON
414 N Pearl Street, Suite 8
Ellensburg, WA 98926

206.443.6212
ssfengineers.com

Copyright 2023 Swenson Say Fagét - All Rights Reserved

R. GREGORY COON — STATE OF WASHINGTON — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

DRAWN: CFG
DESIGN: LTN
CHECKED: RGC
APPROVED: RGC

REVISIONS:

1	Cycle 1 Revisions	Oct. 1, 2024

JURISDICTIONAL APPROVAL STAMP:

PROJECT TITLE:

Pathak Residence
8541 SE 82nd St
Mercer Island, WA 98040

ARCHITECT:
CAST Architecture
115-C North 36th St
Seattle, WA 98103
PH 206.256.9886

ISSUE: Permit

SHEET TITLE: General Structural Notes, Cont.

SCALE:

DATE: May 31, 2024

PROJECT NO: 00640-2023-02

SHEET NO: S1.2

Foundation Plan Notes

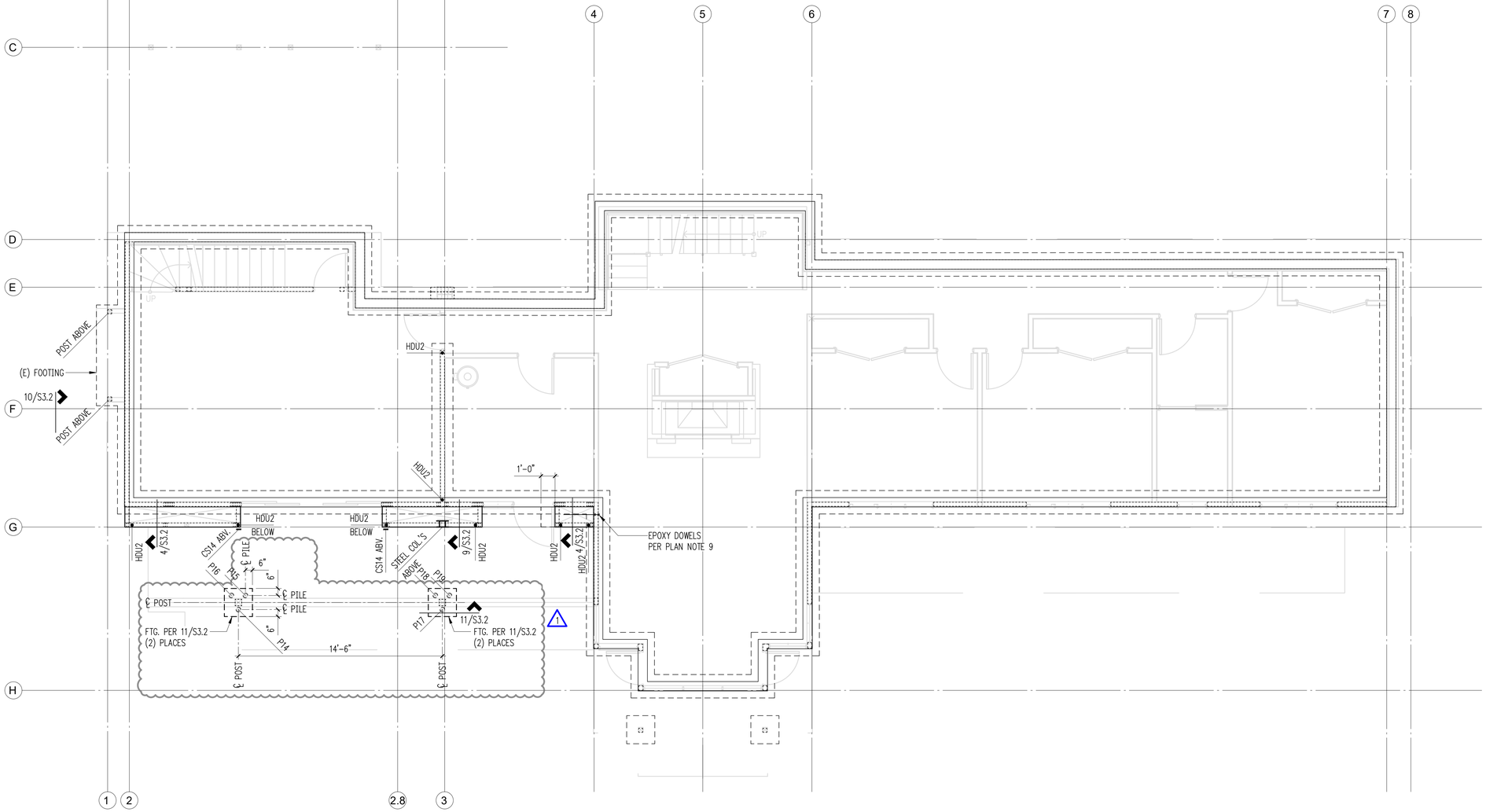
1. DO NOT SCALE DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS.
2. THE BOTTOM OF ALL EXTERIOR FOOTINGS SHALL BE 18"MINIMUM BELOW GRADE.
3. NEW 4" CONCRETE SLAB OVER 10 MIL VAPOR BARRIER ON 4" OF GRAVEL OR CRUSHED ROCK OVER FIRM UNDISTURBED SOIL OR ENGINEERED COMPACTED BACK-FILL. REINFORCE WITH #3 BARS @16'OC E.W. PROVIDE CONSTRUCTION/CONTROL JOINTS PER DETAIL 4/S3.1.
4. PROVIDE CORNER BARS PER DETAIL 6/S3.1 AT ALL FOOTING INTERSECTIONS.
5. ALL POSTS ABOVE SHALL BEAR FULLY ON BEAMS OR POSTS BELOW AND SHALL HAVE CONTINUOUS FULL BEARING THROUGH FLOORS TO THE FOUNDATION.
6. REFER TO DETAIL 2/S3.1 FOR TYPICAL SAWCUT OPENING IN EXISTING CONCRETE,
7. PROVIDE CC, CCQ POST CAP AND ABA POST BASE AT ALL NEW POSTS, U.N.O.
8. ALL CONNECTORS AND FASTENERS EXPOSED TO WEATHER SHALL BE CORROSION PROTECTED BY GALVANIZATION, OR PROVIDE A PROTECTIVE PAINTING/ COATING SYSTEM.
9. WHERE NEW REINFORCING TERMINATES AT EXISTING CONCRETE, DRILL & EPOXY DOWELS MATCHING THE NEW REINFORCING INTO THE EXISTING CONCRETE WITH 6" EMBED.
10. REFER TO GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.

Legend

- EXISTING STEM WALL & FOOTING
- STRUCTURAL WALL OR POST ABOVE
- (E) STRUCTURAL WALL OR POST ABOVE
- NON-STRUCTURAL WALL BELOW
- STRUCTURAL WALL & FOOTING
- PIN PILES (P1)

Foundation Plan

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



STRUCTURAL ENGINEERING

SEATTLE
2124 Third Avenue, Suite 100
Seattle, WA 98121

TACOMA
934 Broadway, Suite 100
Tacoma, WA 98402

CENTRAL WASHINGTON
414 N Pearl Street, Suite 8
Ellensburg, WA 98926

206.443.6212
ssfengineers.com

Copyright 2023 Swenson Say Fagét - All Rights Reserved

R. GREGORY COON — STATE OF WASHINGTON — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

DRAWN: CFG
DESIGN: LTN
CHECKED: RGC
APPROVED: RGC

REVISIONS:

1	Cycle 1 Revisions	Oct. 1, 2024

JURISDICTIONAL APPROVAL STAMP:

PROJECT TITLE:

Pathak Residence
8541 SE 82nd St
Mercer Island, WA 98040

ARCHITECT:
CAST Architecture
115-C North 36th St
Seattle, WA 98103
PH 206.256.9886

ISSUE: Permit

SHEET TITLE: Foundation Plan

SCALE: 1/4" = 1'-0"
DATE: May 31, 2024
PROJECT NO: 00640-2023-02
SHEET NO: S2.1

Upper Floor Framing Plan

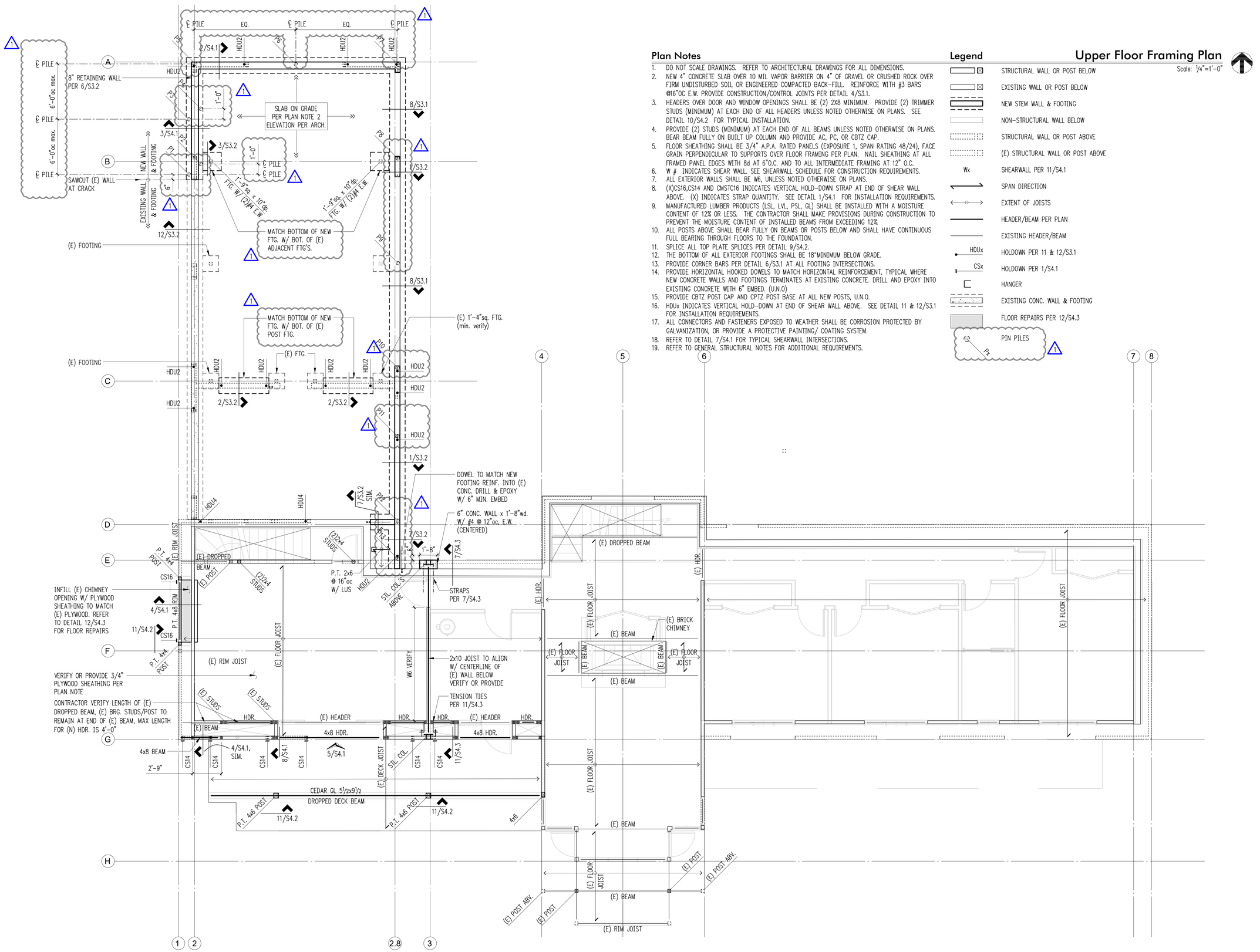
Scale: 1/4"=1'-0"

Plan Notes

1. DO NOT SCALE DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS.
2. NEW 4" CONCRETE SLAB OVER 10 MIL VAPOR BARRIER ON 4" OF GRAVEL OR CRUSHED ROCK OVER FIRM UNDISTURBED SOIL OR ENGINEERED COMPACTED BACK-FILL. REINFORCE WITH #3 BARS @16"OC E.W. PROVIDE CONSTRUCTION/CONTROL JOINTS PER DETAIL 4/S3.1.
3. HEADERS OVER DOOR AND WINDOW OPENINGS SHALL BE (2) 2X8 MINIMUM. PROVIDE (2) TRIMMER STUDS (MINIMUM) AT EACH END OF ALL HEADERS UNLESS NOTED OTHERWISE ON PLANS. SEE DETAIL 10/S4.2 FOR TYPICAL INSTALLATION.
4. PROVIDE (2) STUDS (MINIMUM) AT EACH END OF ALL BEAMS UNLESS NOTED OTHERWISE ON PLANS. BEAR BEAM FULLY ON BUILT UP COLUMN AND PROVIDE AC, PC, OR CBTZ CAP.
5. FLOOR SHEATHING SHALL BE 3/4" A.P.A. RATED PANELS (EXPOSURE 1, SPAN RATING 48/24), FACE GRAIN PERPENDICULAR TO SUPPORTS OVER FLOOR FRAMING PER PLAN. NAIL SHEATHING AT ALL FRAMED PANEL EDGES WITH 8d AT 6"O.C. AND TO ALL INTERMEDIATE FRAMING AT 12" O.C.
6. W # INDICATES SHEAR WALL. SEE SHEARWALL SCHEDULE FOR CONSTRUCTION REQUIREMENTS.
7. ALL EXTERIOR WALLS SHALL BE W6, UNLESS NOTED OTHERWISE ON PLANS.
8. (X)CS16,CS14 AND CMSTC16 INDICATES VERTICAL HOLD-DOWN STRAP AT END OF SHEAR WALL ABOVE. (X) INDICATES STRAP QUANTITY. SEE DETAIL 1/S4.1 FOR INSTALLATION REQUIREMENTS.
9. MANUFACTURED LUMBER PRODUCTS (LSL, LVL, PSL, GL) SHALL BE INSTALLED WITH A MOISTURE CONTENT OF 12% OR LESS. THE CONTRACTOR SHALL MAKE PROVISIONS DURING CONSTRUCTION TO PREVENT THE MOISTURE CONTENT OF INSTALLED BEAMS FROM EXCEEDING 12%.
10. ALL POSTS ABOVE SHALL BEAR FULLY ON BEAMS OR POSTS BELOW AND SHALL HAVE CONTINUOUS FULL BEARING THROUGH FLOORS TO THE FOUNDATION.
11. SPLICE ALL TOP PLATE SPLICES PER DETAIL 9/S4.2.
12. THE BOTTOM OF ALL EXTERIOR FOOTINGS SHALL BE 18"MINIMUM BELOW GRADE.
13. PROVIDE CORNER BARS PER DETAIL 6/S3.1 AT ALL FOOTING INTERSECTIONS.
14. PROVIDE HORIZONTAL HOOKED DOWELS TO MATCH HORIZONTAL REINFORCEMENT, TYPICAL WHERE NEW CONCRETE WALLS AND FOOTINGS TERMINATES AT EXISTING CONCRETE. DRILL AND EPOXY INTO EXISTING CONCRETE WITH 6" EMBED. (U.N.O)
15. PROVIDE CBTZ POST CAP AND CPTZ POST BASE AT ALL NEW POSTS, U.N.O.
16. HDUx INDICATES VERTICAL HOLD-DOWN AT END OF SHEAR WALL ABOVE. SEE DETAIL 11 & 12/S3.1 FOR INSTALLATION REQUIREMENTS.
17. ALL CONNECTORS AND FASTENERS EXPOSED TO WEATHER SHALL BE CORROSION PROTECTED BY GALVANIZATION, OR PROVIDE A PROTECTIVE PAINTING/ COATING SYSTEM.
18. REFER TO DETAIL 7/S4.1 FOR TYPICAL SHEARWALL INTERSECTIONS.
19. REFER TO GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.

Legend

- STRUCTURAL WALL OR POST BELOW
- EXISTING WALL OR POST BELOW
- NEW STEM WALL & FOOTING
- NON-STRUCTURAL WALL BELOW
- STRUCTURAL WALL OR POST ABOVE
- (E) STRUCTURAL WALL OR POST ABOVE
- Wx — SHEARWALL PER 11/S4.1
- SPAN DIRECTION
- EXTENT OF JOISTS
- HEADER/BEAM PER PLAN
- EXISTING HEADER/BEAM
- HDUx — HOLDOWN PER 11 & 12/S3.1
- CSx — HOLDOWN PER 1/S4.1
- HANGER
- EXISTING CONC. WALL & FOOTING
- FLOOR REPAIRS PER 12/S4.3
- PIN PILES (Px)



SSF STRUCTURAL ENGINEERING

SEATTLE
2124 Third Avenue, Suite 100
Seattle, WA 98121

TACOMA
934 Broadway, Suite 100
Tacoma, WA 98402

CENTRAL WASHINGTON
414 N Pearl Street, Suite 8
Ellensburg, WA 98926

206.443.6212
ssfengineers.com

Copyright 2023 Swenson Say Fagét - All Rights Reserved

R. GREGORY COON — STRUCTURAL ENGINEER — PROVISIONAL ENGINEER

DRAWN: CFG
DESIGN: LTN
CHECKED: RGC
APPROVED: RGC

REVISIONS:

1	Cycle 1 Revisions	Oct. 1, 2024

JURISDICTIONAL APPROVAL STAMP:

PROJECT TITLE:

Pathak Residence
8541 SE 82nd St
Mercer Island, WA 98040

ARCHITECT:
CAST Architecture
115-C North 36th St
Seattle, WA 98103
PH 206.256.9886

ISSUE:

Permit

SHEET TITLE:

Upper Floor Framing Plan

SCALE: 1/4" = 1'-0"
DATE: May 31, 2024
PROJECT NO: 00640-2023-02
SHEET NO:

S2.2

Roof Framing Plan

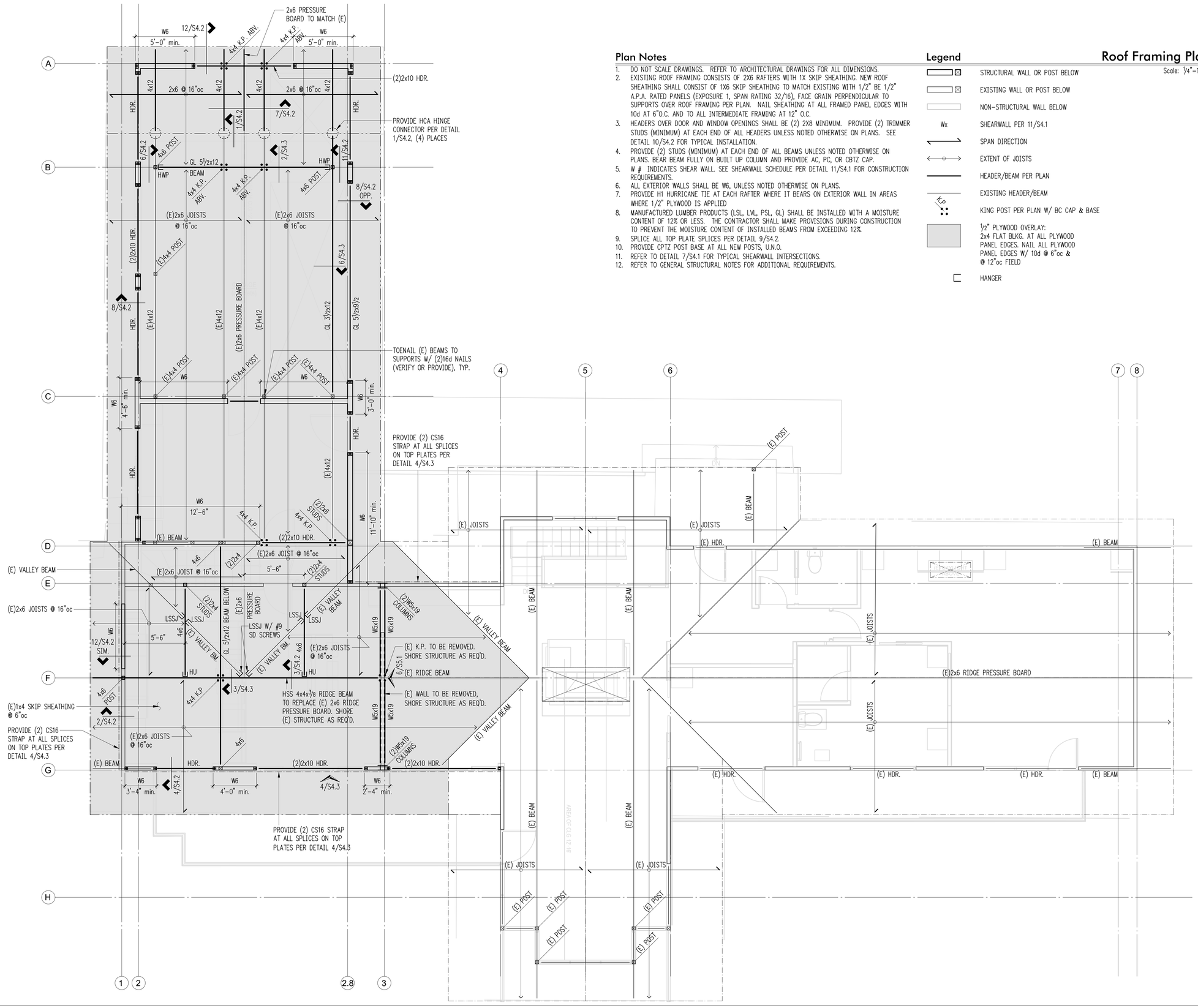
Scale: 1/4"=1'-0"

Plan Notes

1. DO NOT SCALE DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS.
2. EXISTING ROOF FRAMING CONSISTS OF 2X6 RAFTERS WITH 1X SKIP SHEATHING. NEW ROOF SHEATHING SHALL CONSIST OF 1X6 SKIP SHEATHING TO MATCH EXISTING WITH 1/2" BE 1/2" A.P.A. RATED PANELS (EXPOSURE 1, SPAN RATING 32/16), FACE GRAIN PERPENDICULAR TO SUPPORTS OVER ROOF FRAMING PER PLAN. NAIL SHEATHING AT ALL FRAMED PANEL EDGES WITH 10d AT 6"O.C. AND TO ALL INTERMEDIATE FRAMING AT 12" O.C.
3. HEADERS OVER DOOR AND WINDOW OPENINGS SHALL BE (2) 2X8 MINIMUM. PROVIDE (2) TRIMMER STUDS (MINIMUM) AT EACH END OF ALL HEADERS UNLESS NOTED OTHERWISE ON PLANS. SEE DETAIL 10/S4.2 FOR TYPICAL INSTALLATION.
4. PROVIDE (2) STUDS (MINIMUM) AT EACH END OF ALL BEAMS UNLESS NOTED OTHERWISE ON PLANS. BEAR BEAM FULLY ON BUILT UP COLUMN AND PROVIDE AC, PC, OR CBTZ CAP.
5. W # INDICATES SHEAR WALL. SEE SHEARWALL SCHEDULE PER DETAIL 11/S4.1 FOR CONSTRUCTION REQUIREMENTS.
6. ALL EXTERIOR WALLS SHALL BE W6, UNLESS NOTED OTHERWISE ON PLANS.
7. PROVIDE H1 HURRICANE TIE AT EACH RAFTER WHERE IT BEARS ON EXTERIOR WALL IN AREAS WHERE 1/2" PLYWOOD IS APPLIED
8. MANUFACTURED LUMBER PRODUCTS (LSL, LVL, PSL, GL) SHALL BE INSTALLED WITH A MOISTURE CONTENT OF 12% OR LESS. THE CONTRACTOR SHALL MAKE PROVISIONS DURING CONSTRUCTION TO PREVENT THE MOISTURE CONTENT OF INSTALLED BEAMS FROM EXCEEDING 12%.
9. SPLICE ALL TOP PLATE SPLICES PER DETAIL 9/S4.2.
10. PROVIDE CPTZ POST BASE AT ALL NEW POSTS, U.N.O.
11. REFER TO DETAIL 7/S4.1 FOR TYPICAL SHEARWALL INTERSECTIONS.
12. REFER TO GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.

Legend

- STRUCTURAL WALL OR POST BELOW
- EXISTING WALL OR POST BELOW
- NON-STRUCTURAL WALL BELOW
- Wx — SHEARWALL PER 11/S4.1
- SPAN DIRECTION
- EXTENT OF JOISTS
- HEADER/BEAM PER PLAN
- EXISTING HEADER/BEAM
- K.P. — KING POST PER PLAN W/ BC CAP & BASE
- 1/2" PLYWOOD OVERLAY: 2x4 FLAT BLKG. AT ALL PLYWOOD PANEL EDGES. NAIL ALL PLYWOOD PANEL EDGES W/ 10d @ 6"oc & @ 12"oc FIELD
- HANGER



STRUCTURAL ENGINEERING

SEATTLE
2124 Third Avenue, Suite 100
Seattle, WA 98121

TACOMA
934 Broadway, Suite 100
Tacoma, WA 98402

CENTRAL WASHINGTON
414 N Pearl Street, Suite 8
Ellensburg, WA 98926

206.443.6212
ssfengineers.com

Copyright 2023 Swenson Say Fagét - All Rights Reserved

R. GREGORY COON — STATE OF WASHINGTON — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

DRAWN: CFG
DESIGN: LTN
CHECKED: RGC
APPROVED: RGC

REVISIONS:

1	Cycle 1 Revisions	Oct. 1, 2024

JURISDICTIONAL APPROVAL STAMP:

PROJECT TITLE:

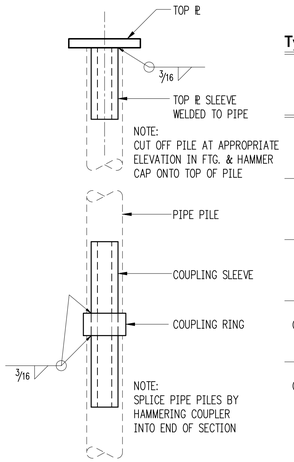
Pathak Residence
8541 SE 82nd St
Mercer Island, WA 98040

ARCHITECT:
CAST Architecture
115-C North 36th St
Seattle, WA 98103
PH 206.256.9886

ISSUE: Permit

SHEET TITLE: Roof Framing Plan

SCALE: 1/4" = 1'-0"
DATE: May 31, 2024
PROJECT NO: 00640-2023-02
SHEET NO: S2.3

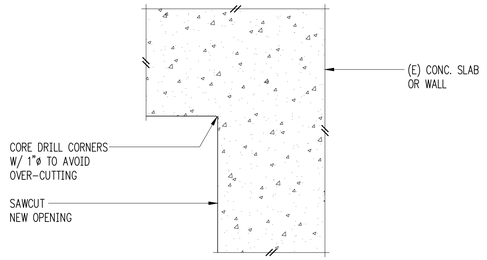


Typical Pipe Pile Assembly

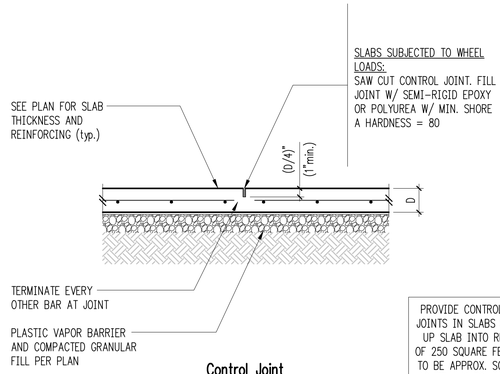
PART	PIPE
	2" Sch 80 Pipe
	2.375" O.D.
TOP PLATE	.375"x4"x4" (COMPRESSION FIT TOP PLATE)
TOP ℄ SLEEVE	1.5" SCH 40 x 5" ASTM A53 GRADE A PIPE (TOP ℄ SLEEVE)
PIPE	2" SCH 80 (.218") ASTM A53 GRADE A PIPE (TYP. 10.5' LENGTHS)
COUPLING SLEEVE	1.5" SCH 80 (.200") x 10" ASTM A53 GRADE A PIPE (COUPLING SLEEVE)
COUPLING RING	2" SCH 80 (.218") x1.25" ASTM A53 GRADE A PIPE (COUPLING RING)

3" = 1'-0"

Typical Pipe Pile Assembly Schedule 1



Typical Sawcut Opening in Existing Concrete 2



Typical Slab Joints (rebar) 4

5

Single Curtain

Typical Corner Bars at Concrete Walls and Footings 6

7

Typical Turned-Down Slab Edge 8

9

HDU Into Footing Option

HDU Into Stem Wall Option

Holdown Schedule

Plan Mark	Screws	Anchor Bolt	Min. A.B. Embed (D)		Holdown Post ①	
			Stem Wall	Footing	if 2x4	if 2x6
HDU2	(6)SDS 1/4"x2 1/2"	5/8"ø	12"	4"	(2) 2x4	(2) 2x6
HDU4	(10)SDS 1/4"x2 1/2"	5/8"ø	18"	6"	4x4	4x6

① MINIMUM SIZE OF POST AT END OF WALL UNLESS OTHERWISE NOTED ON FRAMING PLANS.

Typical HDU Holdown into New Concrete 11

Holdown Schedule

Plan Mark	Screws	Anchor Bolt	A.B. Embed	Holdown Post ①	
				if 2x4	if 2x6
HDU2	(6)SDS 1/4"x2 1/2"	5/8"ø	12"	(2) 2x4	(2) 2x6
HDU4	(10)SDS 1/4"x2 1/2"	5/8"ø	16"	4x4	4x6

① MINIMUM SIZE OF POST AT END OF WALL UNLESS OTHERWISE NOTED ON FRAMING PLANS.

Typical HDU Holdown into Existing Concrete 12

STRUCTURAL ENGINEERING
SEATTLE
2124 Third Avenue, Suite 100
Seattle, WA 98121
TACOMA
934 Broadway, Suite 100
Tacoma, WA 98402
CENTRAL WASHINGTON
414 N Pearl Street, Suite 8
Ellensburg, WA 98926
206.443.6212
ssfengineers.com

Copyright 2023 Swenson Say Fagét - All Rights Reserved

R. GREGORY COON — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

DRAWN: CFG
DESIGN: LTN
CHECKED: RGC
APPROVED: RGC

REVISIONS:

1	Cycle 1 Revisions	Oct. 1, 2024

JURISDICTIONAL APPROVAL STAMP:

PROJECT TITLE:

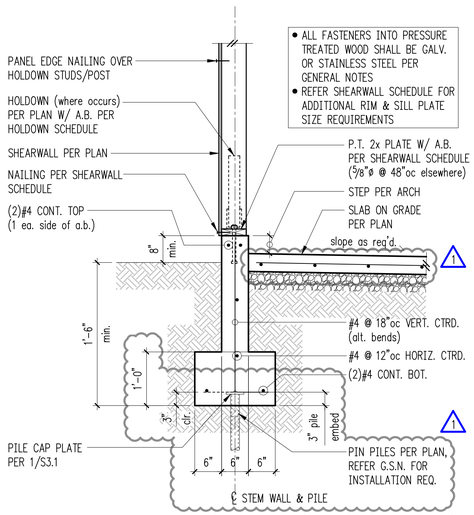
Pathak Residence
8541 SE 82nd St
Mercer Island, WA 98040

ARCHITECT:
CAST Architecture
115-C North 36th St
Seattle, WA 98103
PH 206.256.9886

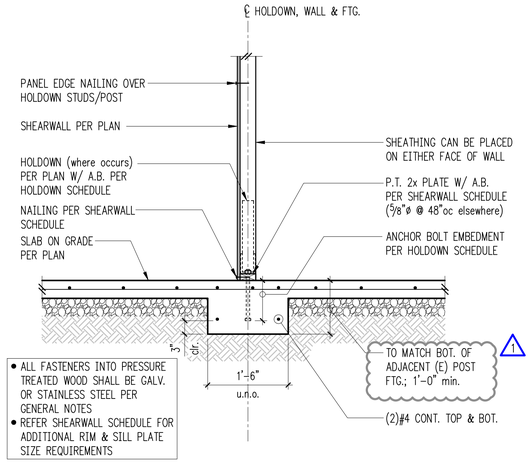
ISSUE: Permit

SHEET TITLE: Concrete Details

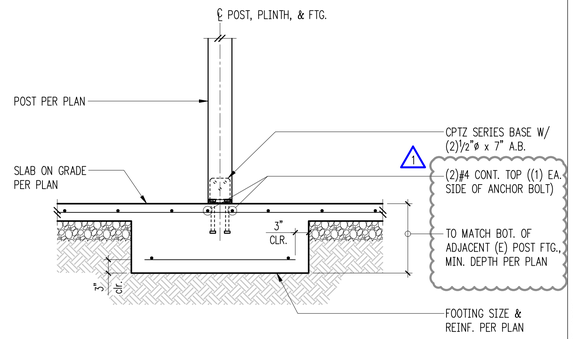
SCALE: = 1'-0" U.N.O.
DATE: May 31, 2024
PROJECT NO: 00640-2023-02
SHEET NO: S3.1



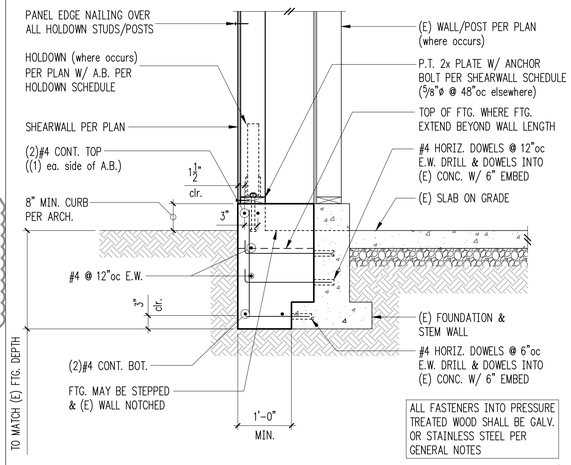
6" Garage Wall w/ Slab on Grade 1



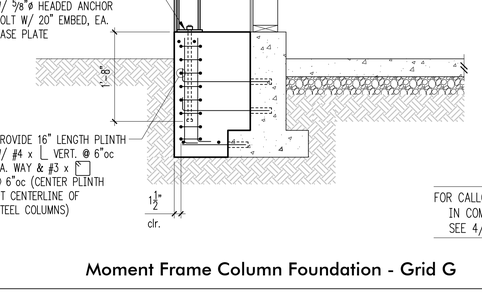
Interior Wall w/ Thickened Slab 2



Post Footing w/ Slab on Grade 3



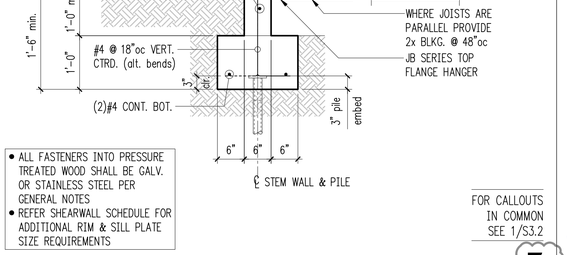
New Exterior Shearwall Foundation Along Grid G 4



Retaining Wall Schedule W/ Slab

Max. H (ft.)	B1	ts	B2	tf	Stem Reinforcing		Footing Reinforcing	
					Vert.	Horiz.	Top	Longit.
2'-9"	10"	8"	9"	12"	#4 @ 12"oc CENTERED	#4 @ 12"oc CENTERED	–	(3)#4

Retaining Wall Schedule w/ Slab 6

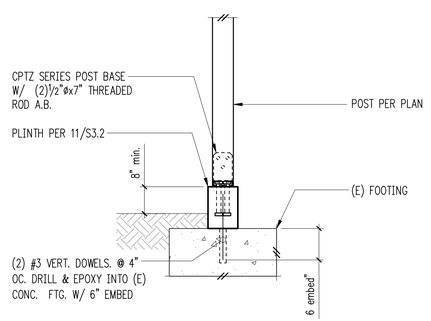


FOR CALLOUTS IN COMMON SEE 1/S3.2

Exterior Framing at Crawl Space 7

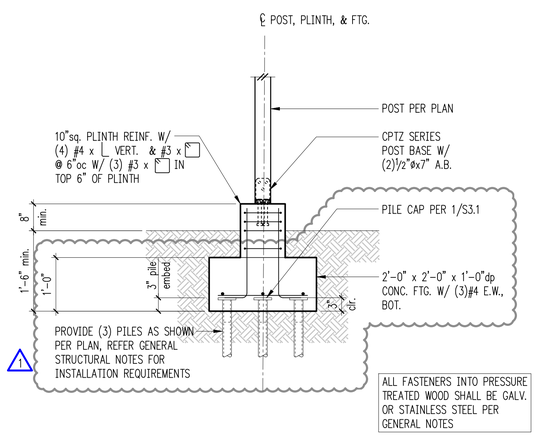
FOR CALLOUTS IN COMMON SEE 4/S3.2

Moment Frame Column Foundation - Grid G 9

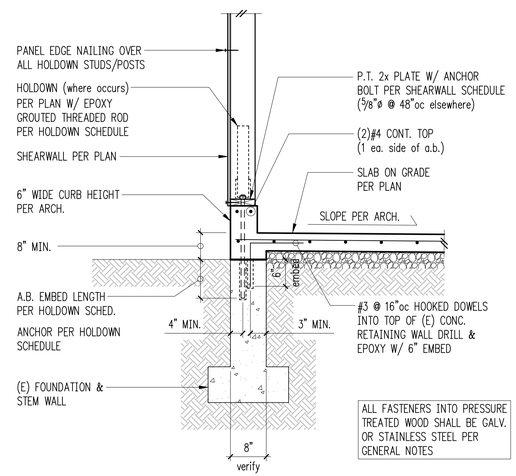


1" = 1'-0"

New Plinth at Existing Footing 10



Deck or Canopy Post Footing 11



New Exterior Wall W/ Existing Foundation 12

SSF STRUCTURAL ENGINEERING
SEATTLE
2124 Third Avenue, Suite 100
Seattle, WA 98121
TACOMA
934 Broadway, Suite 100
Tacoma, WA 98402
CENTRAL WASHINGTON
414 N Pearl Street, Suite 8
Ellensburg, WA 98926
206.443.6212
ssfengineers.com
Copyright 2023 Swenson Say Fagét - All Rights Reserved

R. GREGORY COON — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

DRAWN: CFG
DESIGN: LTN
CHECKED: RGC
APPROVED: RGC

REVISIONS:
1 Cycle 1 Revisions Oct. 1, 2024

JURISDICTIONAL APPROVAL STAMP:

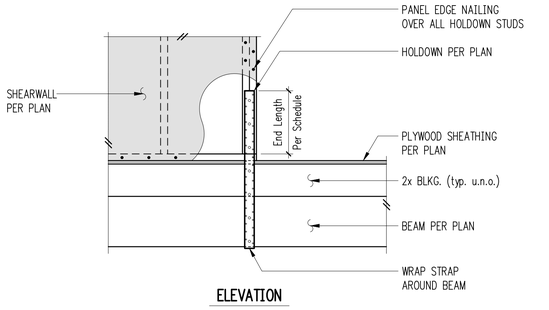
PROJECT TITLE:
Pathak Residence
8541 SE 82nd St
Mercer Island, WA 98040

ARCHITECT:
CAST Architecture
115-C North 36th St
Seattle, WA 98103
PH 206.256.9886

ISSUE: Permit

SHEET TITLE: Concrete Details

SCALE: 3/4" = 1'-0" U.N.O.
DATE: May 31, 2024
PROJECT NO: 00640-2023-02
SHEET NO: S3.2

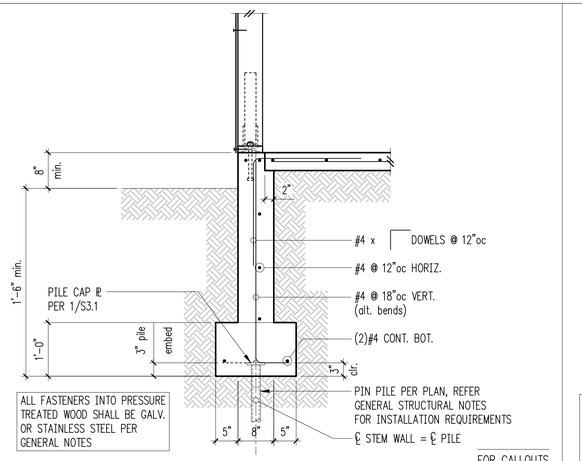


ELEVATION

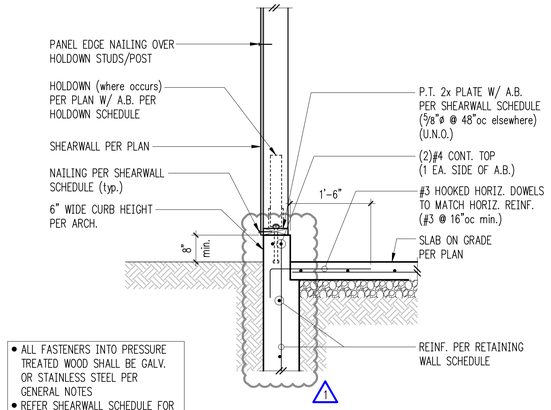
Holdown Strap Schedule

Plan Mark	End Length	#Nails Ea. End Length	Holdown Studs/Post	
			if 2x4	if 2x6
CS16	1'-2"	(13) 8d	(1) 2x4	(1) 2x6
CMSTC16	2'-1"	(29) 12d	(2) 2x4	(2) 2x6
CS14	1'-4"	(18) 8d	(1) 2x4	(1) 2x6

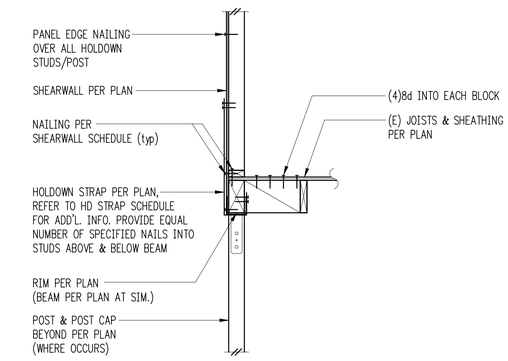
Typical Strap over Beam 1



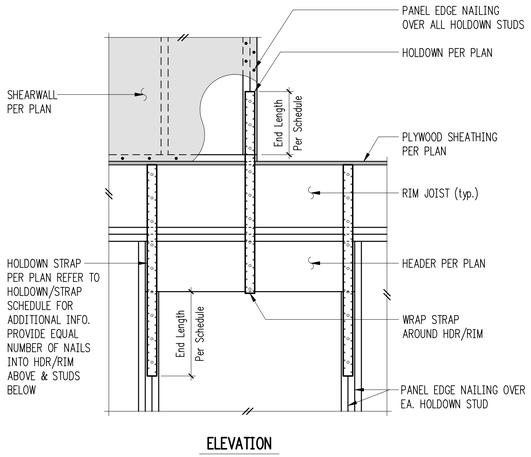
Exterior Framing w/ Slab 2



Exterior Framing - New Slab on Grade 3

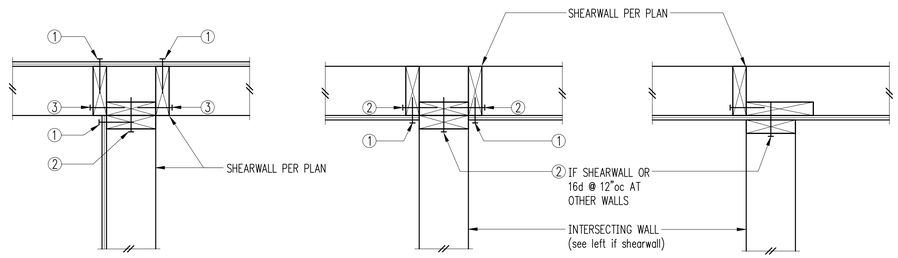


Exterior Floor Beam 4



ELEVATION

Typical Strap over Beam 5

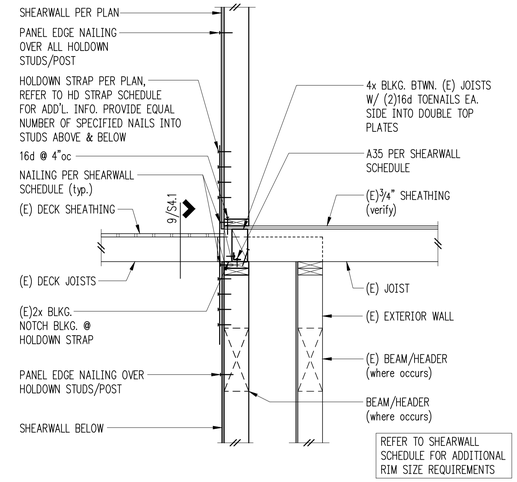


① PLYWOOD PANEL EDGE NAILING PER SHEARWALL SCHEDULE

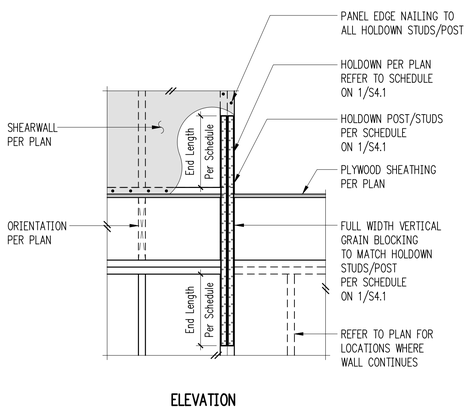
② BASE PLATE NAILING PER SHEARWALL SCHEDULE

③ 16d @ 8"oc

Typical Shearwall Intersections 7

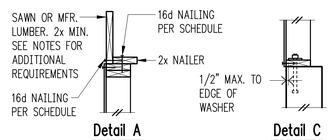


Holdown at Dropped Beam 8

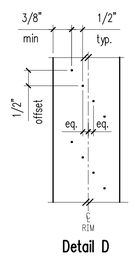


ELEVATION

Typical Holdown Schedule 9



Detail A Detail C



Detail D

Shearwall Schedule ①②③⑤⑥⑦

Mark	Sheathing	Panel Edge Nailing	Top Plate Connection		Base Plate Connection	
			if TJI	if Wood ⑧⑨	at Wood ⑩	at Concrete
W6	15/32" CDX PLYWOOD	8d @ 6"oc	16d @ 6"oc	A35 @ 24"oc	16d @ 6"oc	⅝"ø A.B. @ 48"oc
W4	15/32" CDX PLYWOOD	8d @ 4"oc	16d @ 4"oc	A35 @ 16"oc	(2)rows 16d @ 6"oc	⅝"ø A.B. @ 32"oc

① BLOCK PANEL EDGES WITH 2x MIN. LAID FLAT AND NAIL PANELS TO INTERMEDIATE SUPPORTS WITH 8d @ 12"o.c.

② 8d NAILS SHALL BE 0.131"ø x 2 1/2" (common) – 16d NAILS SHALL BE 0.135"ø x 3 1/2" (box)

③ EMBED ANCHOR BOLTS AT LEAST 7". DRILLED AND EPOXIED THREADED ROD MAY BE SUBSTITUTED FOR ANCHOR BOLTS WITH 6" EMBEDMENT. TITEN HD SCREW ANCHORS MAY BE SUBSTITUTED FOR ANCHOR BOLTS W/ 4" EMBEDMENT. ALL BOLTS SHALL HAVE 3" x 3" x 1/4" MIN. PLATE WASHERS. PLATE WASHERS SHALL EXTEND TO WITHIN 1/2" OF THE EDGE OF THE BOTTOM PLATE ON THE SIDE WITH SHEATHING. SEE DETAIL C.

④ NOT USED.

⑤ TWO STUDS MINIMUM ARE REQUIRED AT EACH END OF ALL SHEARWALLS AND ALL END STUDS SHALL RECEIVE PANEL EDGE NAILING. SEE PLANS AND HOLDOWN SCHEDULE FOR ALTERNATE REQUIREMENTS.

⑥ ALL EXTERIOR WALLS SHALL BE W6, UNLESS NOTED OTHERWISE.

⑦ 7/16" O.S.B. MAY BE SUBSTITUTED FOR 15/32" CDX.

⑧ LTP4's (HORIZONTAL ORIENTATION) W/ 8d COMMON MAY BE SUBSTITUTED FOR A35's AT CONTRACTORS OPTION.

⑨ A 2x NAILER ATTACHED W/ BASE PLATE NAILING PER DETAIL A MAY BE SUBSTITUTED FOR A35's AT CONTRACTORS OPTION.

⑩ AT MULTI-ROW NAILING, MINIMUM OFFSET BETWEEN ROWS AND ROW SPACING 1/2", SEE DETAIL D.

Shearwall Schedule - (Sheathed One Side) 11

12

SSF STRUCTURAL ENGINEERING

SEATTLE
2124 Third Avenue, Suite 100
Seattle, WA 98121

TACOMA
934 Broadway, Suite 100
Tacoma, WA 98402

CENTRAL WASHINGTON
414 N Pearl Street, Suite 8
Ellensburg, WA 98926

206.443.6212
ssfengineers.com

Copyright 2023 Swenson Say Fagét - All Rights Reserved

R. GREGORY COON
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER

DRAWN: CFG
DESIGN: LTN
CHECKED: RGC
APPROVED: RGC

REVISIONS:

1	Cycle 1 Revisions	Oct. 1, 2024

JURISDICTIONAL APPROVAL STAMP:

PROJECT TITLE:

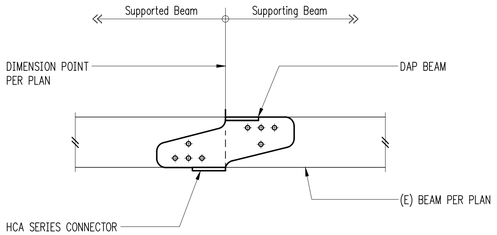
Pathak Residence
8541 SE 82nd St
Mercer Island, WA 98040

ARCHITECT:
CAST Architecture
115-C North 36th St
Seattle, WA 98103
PH 206.256.9886

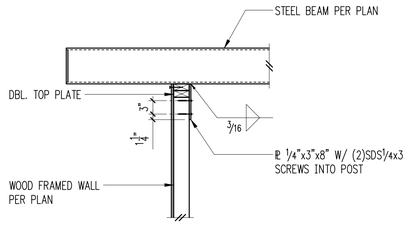
ISSUE: Permit

SHEET TITLE: Wood Details

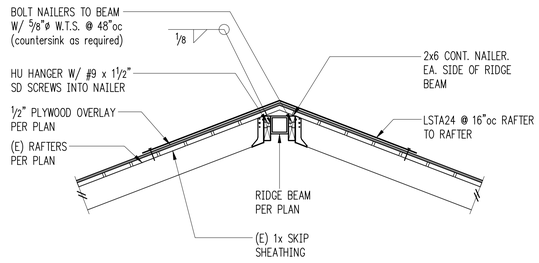
SCALE: 3/4" = 1'-0" U.N.O.
DATE: May 31, 2024
PROJECT NO: 00640-2023-02
SHEET NO: S4.1



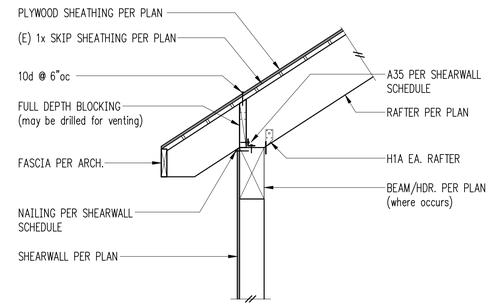
Hinge Connector 1



Steel Beam on Wood Post 2

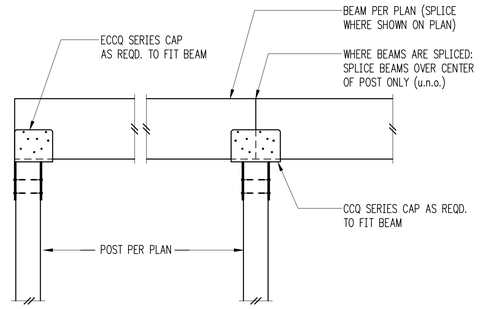


Ridge Beam w/ HU Hangers 3

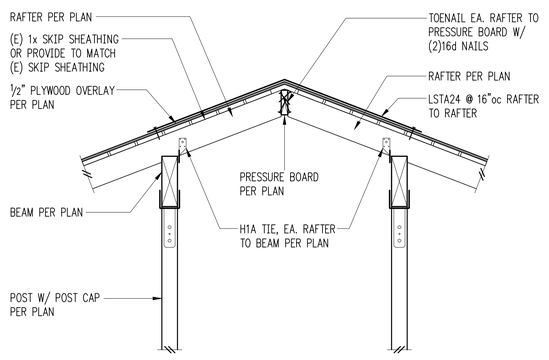


Exterior Wall - Main Residence 4

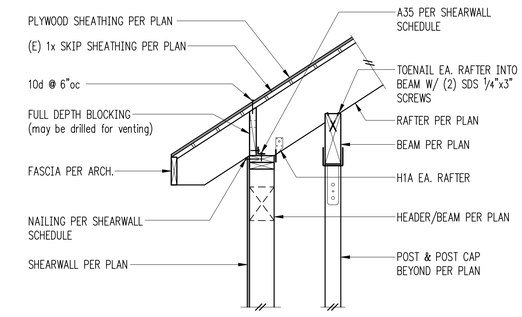
5



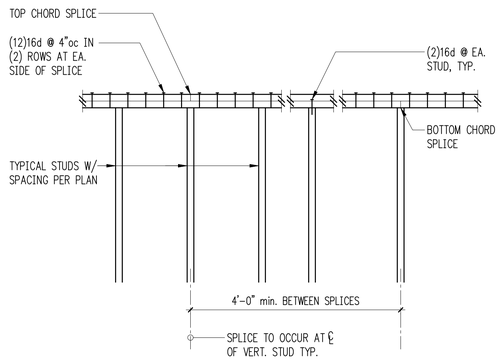
CC/CCQ Series Connection 6



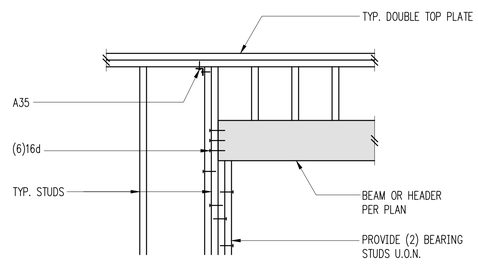
Pressure Board at Ridge 7



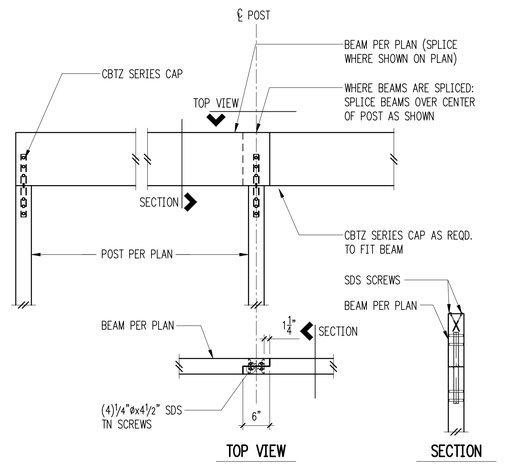
Garage Exterior Wall 8



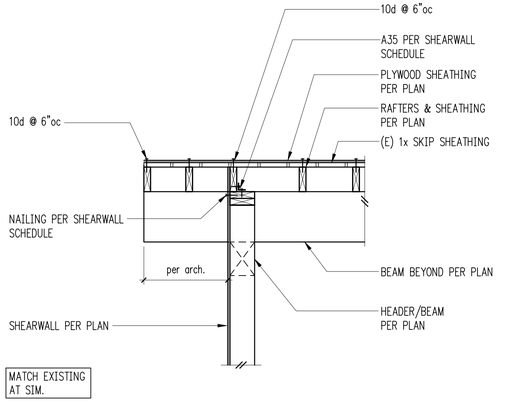
Typical Top Plate Splice 9



Typical Header Support w/2 Bearing Studs 10



CBTZ Series Connection 11



Exterior Non-Bearing Wall 12

SSF STRUCTURAL ENGINEERING
SEATTLE
2124 Third Avenue, Suite 100
Seattle, WA 98121
TACOMA
934 Broadway, Suite 100
Tacoma, WA 98402
CENTRAL WASHINGTON
414 N Pearl Street, Suite 8
Ellensburg, WA 98926
206.443.6212
ssfengineers.com
Copyright 2023 Swenson Say Fagét - All Rights Reserved

R. GREGORY CON — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

DRAWN: CFG
DESIGN: LTN
CHECKED: RGC
APPROVED: RGC

REVISIONS:

1	Cycle 1 Revisions	Oct. 1, 2024

JURISDICTIONAL APPROVAL STAMP:

PROJECT TITLE:
Pathak Residence
8541 SE 82nd St
Mercer Island, WA 98040

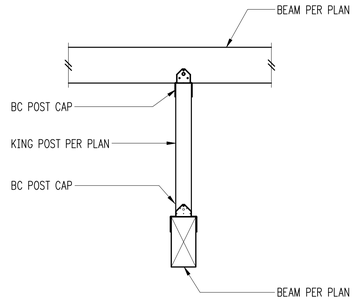
ARCHITECT:
CAST Architecture
115-C North 36th St
Seattle, WA 98103
PH 206.256.9886

ISSUE: Permit

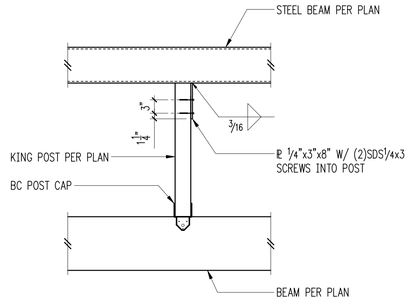
SHEET TITLE: Wood Details

SCALE: 3/4" = 1'-0" U.N.O.
DATE: May 31, 2024
PROJECT NO: 00640-2023-02
SHEET NO: S4.2

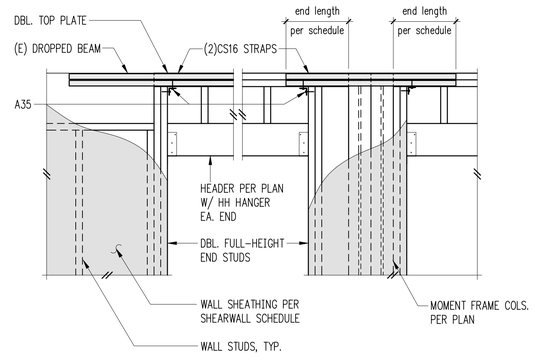
1



Typical King Post Connections 2



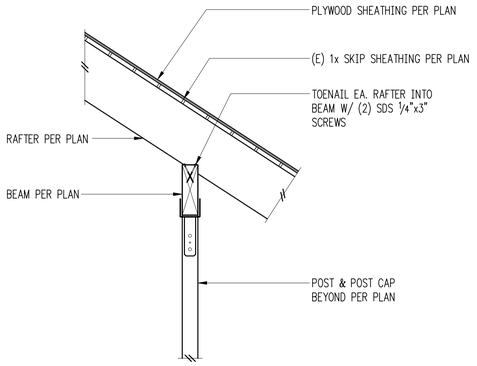
King Post Connections at HSS Beam 3



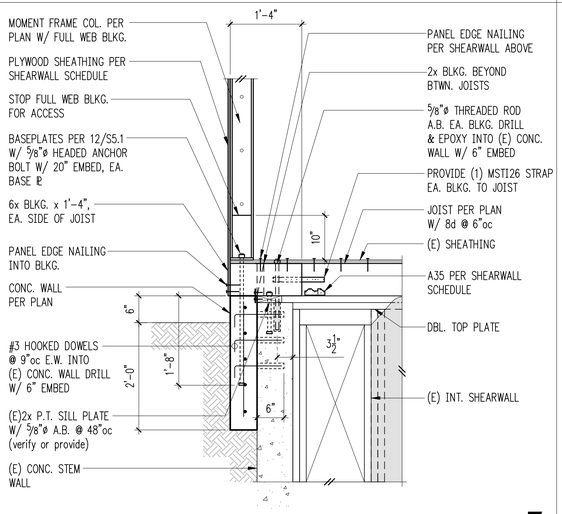
Elevation

Straps at Top Plates Splices & Header Connections 4

5



Joist to Beam Connection 6

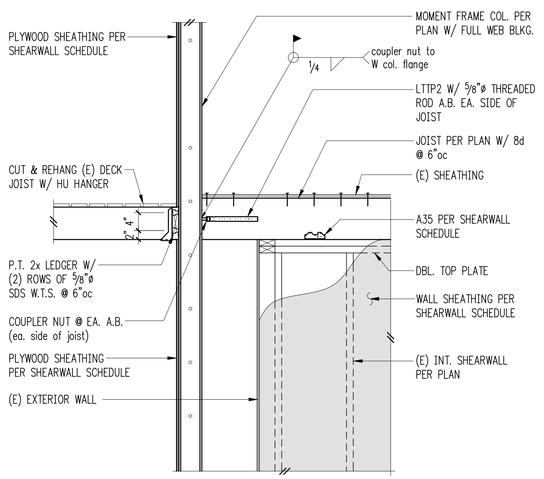


Moment Frame Column Connections Along Grid E 7

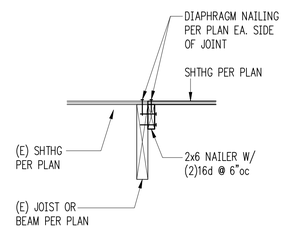
8

9

10



Moment Frame Column Connections Along Grid G 11



At New Joist/(E) Joist Transition

Typical Floor Repair 12

STRUCTURAL ENGINEERING

SEATTLE
2124 Third Avenue, Suite 100
Seattle, WA 98121

TACOMA
934 Broadway, Suite 100
Tacoma, WA 98402

CENTRAL WASHINGTON
414 N Pearl Street, Suite 8
Ellensburg, WA 98926

206.443.6212
sseengineers.com

Copyright 2023 Swenson Say Fagét - All Rights Reserved

R. GREGORY CONN — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

DRAWN: CFG
DESIGN: LTN
CHECKED: RGC
APPROVED: RGC

REVISIONS:

1	Cycle 1 Revisions	Oct. 1, 2024

JURISDICTIONAL APPROVAL STAMP:

PROJECT TITLE:

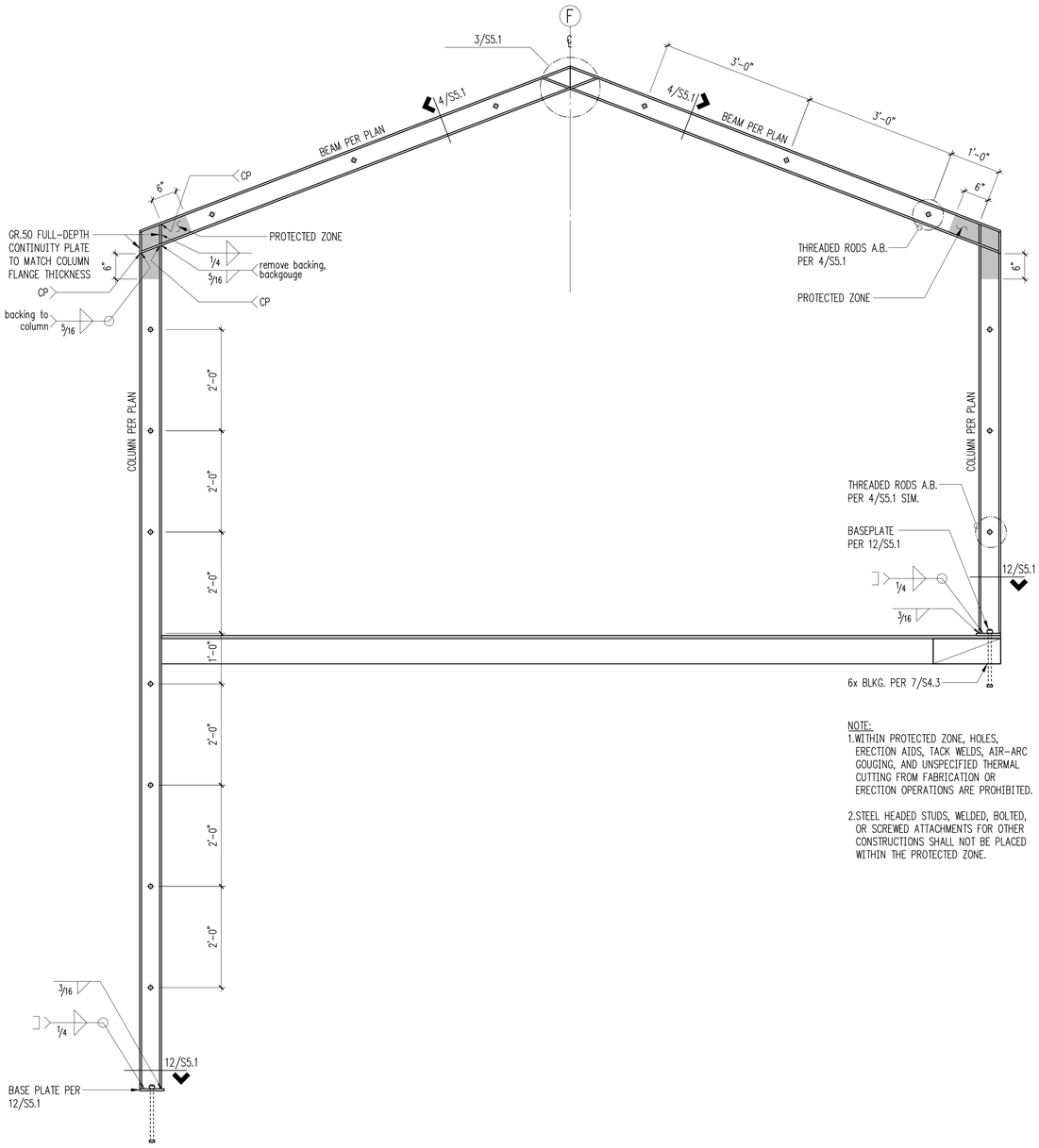
Pathak Residence
8541 SE 82nd St
Mercer Island, WA 98040

ARCHITECT:
CAST Architecture
115-C North 36th St
Seattle, WA 98103
PH 206.256.9886

ISSUE: Permit

SHEET TITLE: Wood Details

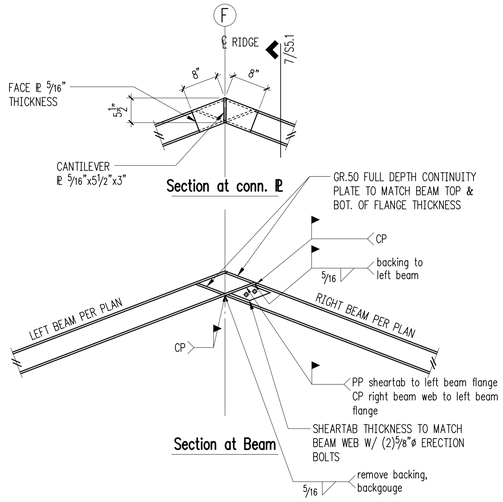
SCALE: 3/4" = 1'-0" U.N.O.
DATE: May 31, 2024
PROJECT NO: 00640-2023-02
SHEET NO: S4.3



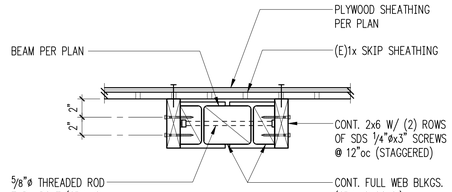
NOTE:
1. WITHIN PROTECTED ZONE, HOLES, ERECTION AIDS, TACK WELDS, AIR-ARC GOUGING, AND UNSPECIFIED THERMAL CUTTING FROM FABRICATION OR ERECTION OPERATIONS ARE PROHIBITED.

2. STEEL HEADED STUDS, WELDED, BOLTED, OR SCREWED ATTACHMENTS FOR OTHER CONSTRUCTIONS SHALL NOT BE PLACED WITHIN THE PROTECTED ZONE.

Moment Frame Elevation **6**

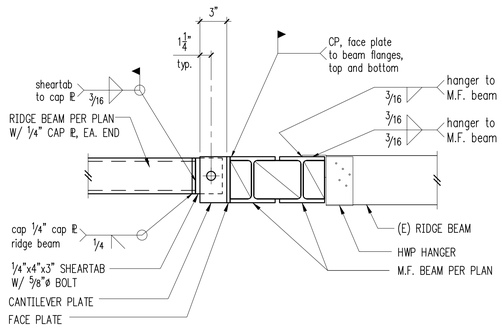


Moment Frame Beam to Beam Connection at Peak **3**



1-1/2" = 1'-0"

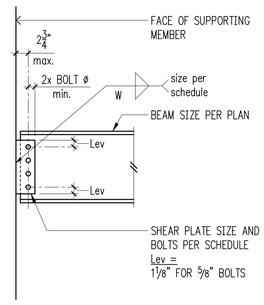
Diaphragm to Moment Frame Beam Connection **4**



1-1/2" = 1'-0"

HSS Ridge Beam to Moment Frame Beam Connections **7**

8



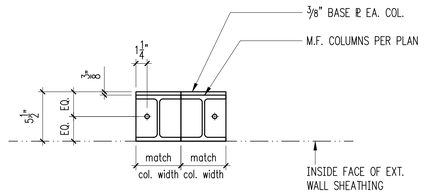
Shear Plate Schedule

Beam Size	No. of Bolts	Bolt Size	Plate Thickness	Weld Size
W5	2	5/8"ø @ 1 3/4" SPACING	1/4"	3/16"

NOTES:
1. STANDARD OR HORIZONTAL SSLT HOLES MAY BE USED.
2. BOLT TYPE A325N.
3. ℙ MATERIAL – A36
4. SEE EXTENDED ℙ DETAIL FOR COLUMN WEB CONNECTIONS.

Typical Single Shear Plate Connection and Schedule **10**

11



Plan View

1-1/2" = 1'-0"

Base Plate Detail **12**

SSF STRUCTURAL ENGINEERING
SEATTLE
2124 Third Avenue, Suite 100
Seattle, WA 98121
TACOMA
934 Broadway, Suite 100
Tacoma, WA 98402
CENTRAL WASHINGTON
414 N Pearl Street, Suite 8
Ellensburg, WA 98926
206.443.6212
ssfengineers.com
Copyright 2023 Swenson Say Fagét - All Rights Reserved

R. GREGORY CONN — STATE OF WASHINGTON — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

DRAWN: CFG
DESIGN: LTN
CHECKED: RGC
APPROVED: RGC

REVISIONS:

1	Cycle 1 Revisions	Oct. 1, 2024

JURISDICTIONAL APPROVAL STAMP:

PROJECT TITLE:
Pathak Residence
8541 SE 82nd St
Mercer Island, WA 98040

ARCHITECT:
CAST Architecture
115-C North 36th St
Seattle, WA 98103
PH 206.256.9886

ISSUE: Permit

SHEET TITLE: Steel Details

SCALE: 3/4" = 1'-0" U.N.O.
DATE: May 31, 2024
PROJECT NO: 00640-2023-02
SHEET NO: S5.1