

STRUCTURAL NOTES

PROJECT NOTES

Structural

STRUCTURAL NOTES

General Notes:
These structural notes supplement the drawings. Any discrepancy found among the drawings, these notes, and the site conditions shall be reported to the Engineer, who shall correct such discrepancy in writing. Any work done by the Contractor after discovery of such discrepancy shall be done at the Contractor's risk. **The Contractor shall verify and coordinate the dimensions among all drawings prior to proceeding with any work or fabrication.** The Contractor is responsible for all bracing and shoring during construction.

All construction shall conform to the applicable portions of the latest edition of the International Building Code except where noted.

Design Criteria:

1. Live Load	=	25 PSF (Snow)
	=	40 PSF (Floor)
2. Dead Load	=	15 PSF (Roof)
	=	12 PSF (Loft)
	=	12 PSF (Carport)
	=	12 PSF (Wall)
	=	150 PCF (Concrete)
3. Wind	=	2021 IBC Exposure B @ 100 mph (LRFD), 80 MPH (ASD), 3 second gust
4. Earthquake	=	2021 IBC, Site Class D
		Ss = 1.404
		SL = 0.521
		IE = 1.0
		Seismic Design Category D
		SDS = 1.123
		Light Frame Wood Shearwalls
		R = 6.5
		r = 1.3 Non-Redundant Structure
		Cs = SDS I/R
		V = r Cs W
		V = 0.225W for Load Factor Design
		Cs = SDS I/ (1.4R)
		V = r Cs W
		V = 0.157W for Allowable Stress Design
		1500 PSF, Assumed Bearing Capacity
		45 PCF, Active Pressure
		250 PCF, Passive Pressure
		0.35 Coefficient of Friction
5. Soil	=	

Concrete & Reinforcing Steel:

- All concrete work shall be per the 2021 IBC Chapter 19 and ACI 318-19. Concrete quality, mixing and placement shall be per ACI 318-19. Mixing and placement shall be per ACI 318-19 and inspections shall be per 2021 IBC, Chapter 19, sections 03 and 04.
- All reinforcing shall be ASTM A615 Grade 60 except as shown on the plans.
- Concrete shall be in accordance with ASTM 150. f_c = 2500 PSI @ 28 day slump = 4" maximum, 6% Air entrained, except @ slabs.

Steel:

- All steel shall be ASTM A36 except as noted.
- Structural pipe shall be ASTM A53 type S.
- Anchor bolts shall be ASTM F1554 Gr. 36.
- Welding shall be by AWS certified welders with E70 electrodes in accordance with AWS D1.1.75.
- All steel members and parts exposed to weather or in contact with the ground shall be galvanized per ASTM A-123 with 1.25 oz. of zinc spelter per square foot of contact area. All other steel surfaces shall be shop painted with two coats of red oxide primer after fabrication.

Carpentry:

- Structural framing shall be #2 Douglas Fir.
- 2X joists/rifters shall be kiln dried and stored in a dry area prior to installation.
- Glue laminated beams shall be 24I-V4 unless noted otherwise. (F_b = 2,400 PSI) (F_v = 265 PSI) (E = 1,800,000 PSI) (F_{cL} = 650 PSI)
- Plywood shall be nailed 6" o.c. edges and 12" field with 8d's unless otherwise noted on the drawings.

Hardware:

All connection hardware shall be Simpson "Strong Tie", unless noted otherwise.

Connection hardware exposed to weather or in contact with the ground or pressure treated wood shall be galvanized per ASTM A-123 with 1.25 oz. of zinc spelter per square foot of contact area.

CAUTION

CONTRACTOR TO FIELD VERIFY ALL CONDITIONS AND ALL ELEVATIONS.



Shearwall

Use 1/2" dia. by 10" Anchor Bolts (AB's) with single plates or 1/2" dia. by 12" AB's with 3X or double plates spaced as shown on the drawings. AB's shall have 7" of embedment into footing, shall be centered in the stud wall, and shall project through the bottom plate of the wall. All anchor bolts shall be placed within 12" from corners, and 12" from the ends of both plates at splices. All anchor bolts shall have a 3" square, 1/4" thick plate washers between the top of the sill plate and the nut. (If using Simpson Titen HD as substitutes for anchor bolts, embed a minimum of 3-1/2" into concrete.)

All wall sheathing shall be 1/2" CDX plywood, 5/8" T-1-11 siding, or 7/16" OSB with exterior exposure glue and span rated "SR 24/16" or better. All free sheathing edges shall be blocked with 2x4 or 2x6 flat blocking except where noted on the drawings or below.

All nails shall be 8d or 10d common (8d common nails must be 0.131 inch diameter, Senco KC27 Nails are equivalent. If 10d common nails are called for the diameter must be 0.148 inches, Senco MD23 Nails are equivalent when used with 1/2" plywood). Nail size and spacing at all sheathing edges shall be as required below or as in the drawings. Nail spacings shall be 12" o.c. for all field nailing except as noted.

Hold downs are Simpson "Strong Tie" and shall be installed per the manufacture's recommendation. Equivalent holdowns by United Steel Products Company "Kant-Sag" that have ICC approval can be substituted in place of Simpson holdowns.

The nailing of the sole plate to the floor shall be 16d common nails to match the spacing of the shear wall edge nailing.

Wall framing shall be #2 Doug-Fir or better. 3X, 4X, or 6X studs can be made from multiple 2X studs glued and nailed together with (2) rows of 10d's at 8" on center each row.

3x sill plates can be a combination of (1) pressure treated 2X sill directly in contact with concrete and another non-treated 2X sill plate nailed to the lower plate with (2) rows of 10d common nails at 6" on center each row.

All fasteners in pressure treated wood shall be hot dipped galvanized or stainless steel. Anchor bolts are required to be galvanized.

ROOF DIAPHRAGM

1/2" plywood or 7/16" OSB, span rated 24/16 or better, nail with 8d common nails at 6" on center edges and 12" on center field. Sheathing shall lay perpendicular to framing.

SHEAR WALL SCHEDULE

- sheathing nailed with 8d's at 6" on center all edges. (Capacity= 260 plf)
- sheathing nailed with 8d's at 4" on center all edges with 3X or 4X studs at adjoining panel edges. (Capacity= 380 plf)

HOLDOWN SCHEDULE

HDU2 HDU2 attaches to foundation with a 5/8" diameter anchor bolt with 14" minimum embedment for cast in place construction. Use 5/8" diameter threaded rod in cleaned 3/4" diameter hole 7" deep and epoxy with Simpson SET-3G if installed after concrete has been cast. HDU2 attaches to double studs with (6) Simpson SDS1/4X3 screws. (Cap = 3075)

Project Description

This project is a demolition and rebuild of a detached one car garage in the South Capitol neighborhood of Olympia. The new garage will contain a bathroom and a covered patio. This project also includes the construction of a carport attached to the main house.

General Notes

- Code Approval Path: Prescriptive (2021 IRC), engineered structural
- This project shall be constructed in accordance with the following codes as modified by Washington State Building Code:
 - A. 2021 International Building Code (IBC)
 - B. 2021 International Residential Code (IRC)
 - C. 2021 International Mechanical Code (IMC)
 - D. 2021 International Plumbing Code (IPC)
 - E. 2021 International Fire Code
 - F. 2021 Washington State Energy Code (WSEC)
- This project shall additionally be constructed in accordance with all applicable federal, state, and local ordinances.
- Contractor shall verify all existing conditions, site elevations, and dimensions prior to beginning work.
- Contractor shall verify window and door sizes prior to ordering.
- Insulation to be verified and upgraded as needed and where exposed.
- Automatic Fire Sprinklers: Not required
- Mechanical Documents: Deferred
- Plumbing Documents: Deferred
- Electrical Documents: Deferred

General Building Data

Zoning:	R 6-12
Codes:	2021 IRC
Construction Type:	VB
Fire Alarm:	No
Fire Sprinkler:	No
Occupancy:	R3
Occupancy Load:	N/A
Gross Building Area (Garage):	360sf

Sheet Index	
Sheet No.	Sheet Title
G100	Cover Page
C101	Site Plan
A101	Main Floor Plan
A102	Demolition Plan
A103	Carport
A201	Exterior Elevations
A501	Building Details
A502	Building Details
A503	Building Details

Proposed Areas

Gross Floor Area	= 360 sf
Conditioned Floor Area	= 360 sf
Fenestration Area	= 162 sf
Envelope Area (no fenestration)	= 751 sf
Conditioned Volume	= 4170 cf

Energy Code

2021 Washington State Energy Code

Proposed Efficiency Specifications:

Roof	= R-30
Wall	= R-21 + R-6ci
Floor	= R-10 Whole Slab
Fenestration	= U-.30
Ventilation	= Whole house exhaust fan
Water Heater	= Any
Heat Source	= Ductless Split (HSFP 9+)

Energy Credits:

Energy Equalization System #4	5.0 Credits Req.	= 3.0
3.7 (Heat Source)	= 2.0	
Total Credits	= 5.0	

Notes:

- Rigid foam continuous insulation on the exterior walls is optional. Project exceeds energy code with or without foam.

Air Barrier Notes

Per 2021 WSEC Section R402.4 This building shall have a continuous air barrier along the entire envelope. A variety of air sealing products and techniques are available to create the air barrier. Some examples include: air barrier membrane, airtight drywall, caulking & sealing framing, "Zip" brand sheathing, AeroBarrier technology, etc. The specific products & techniques used to achieve the required rate of air leakage are the contractors decision. See WSEC R402.4.1.1 for additional details.

Requirements:

- Building shall have a maximum air leakage rate of 4.0 ACH/50.
- Air leakage test report.
- Air barrier shall NOT be a vapor barrier unless specifically noted in these plans.

Air Sealing Strategy: _____



Michael & Alicia Young

A New Garage

Cover Page

G100

Scale 1/4" = 1'-0"

Project number	
Date	1/9/2025 11:40:55 PM
Design by	CK
Drawn by	CK

No.	Description	Date

Name: Michael & Alicia Young
 Project: Garage
 Parcel: 4800000400
 Project Address: 316 18th Ave SE
 Olympia, WA 98501

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 1866 State Ave NE Olympia, WA 98506
 360.791.7635

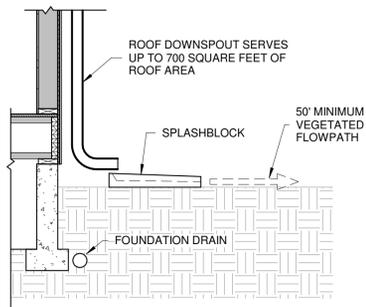
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Site Data

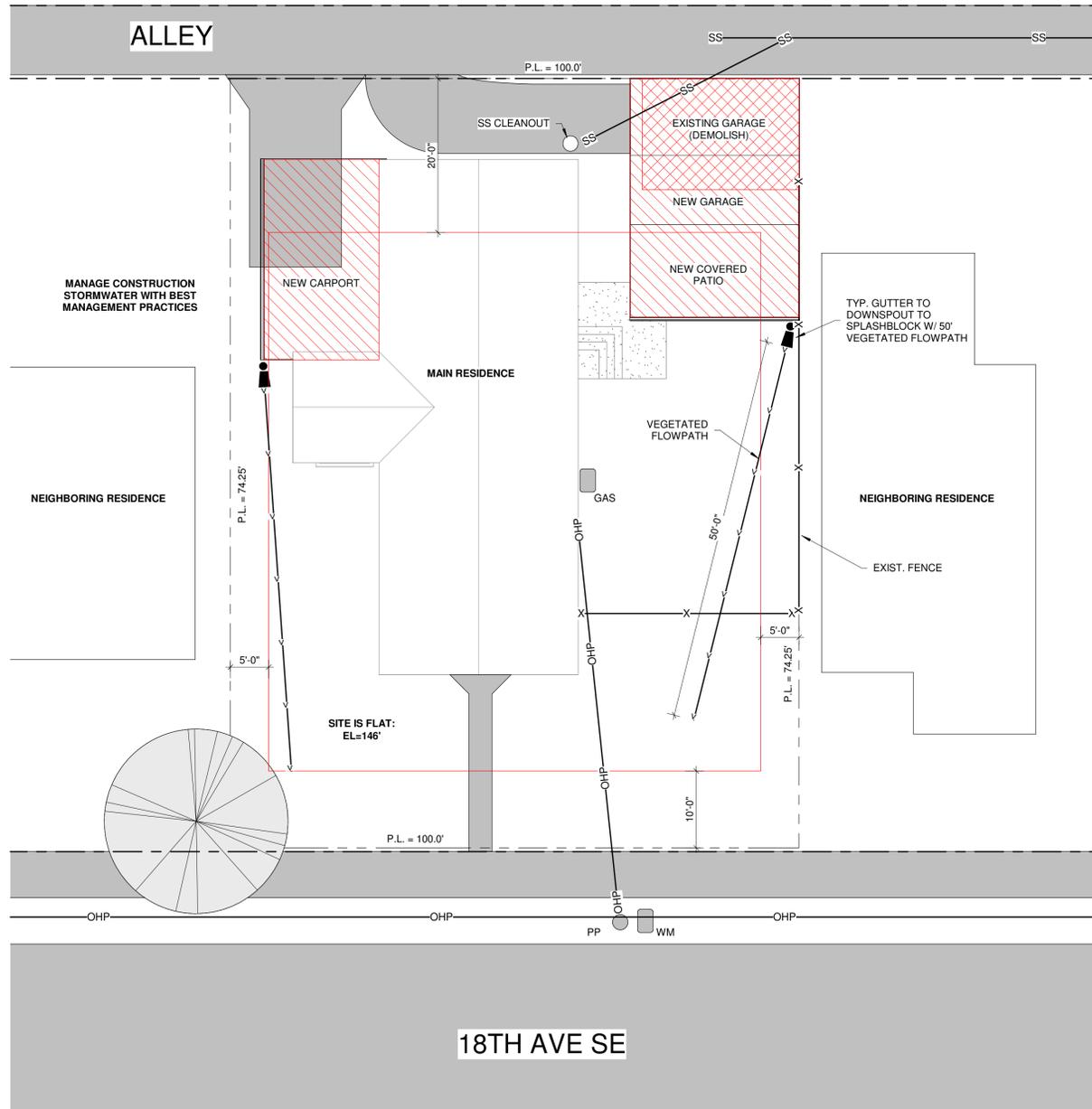
Parcel: 4800000400
 Address: 316 18th Ave SE Olympia, WA 98501
 Zoning: R 6-12
 Lot Size: 0.17 Acre (7425sf)
 Legal: RIGGS LT 3 E 1/2 & ALL LT 4 DOCUMENT 007/007
 Maximum Building Coverage: 55%
 Maximum Impervious Coverage: 55%
 Maximum Hard Surface Coverage: 65%
 Primary Soil Series: Yelm, fine sandy loam
 Soil Hydrologic Group: C

Site Areas

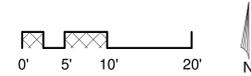
Existing Areas:	
Hard Surface Coverage	= 3077 sf
Impervious Surface Coverage:	= 3077 sf
Asphalt Driveway 1:	= 303
Asphalt Driveway 2:	= 314
Concrete Patio:	= 144
Concrete Walkway:	= 75
Building Coverage:	= 2241
Building Coverage (roof area)	= 2241 sf
Main House:	= 1905
Garage:	= 296
Shed:	= 40
New Areas:	
Hard Surface Coverage	= +1061 sf
Impervious Surface Coverage:	= +1061 sf
Building Coverage:	= +1061
Building Coverage (roof area)	= +1061 sf
Garage:	= +418
Covered Patio:	= +264
Carport:	= +379
Total Areas:	
Hard Surface Coverage	= 3640 sf
Impervious Surface Coverage:	= 3640 sf
Asphalt Driveway 1:	= 303
Asphalt Driveway 2:	= 173
Concrete Patio:	= 123
Concrete Walkway:	= 75
Building Coverage:	= 2966
Building Coverage (roof area)	= 2966 sf
Main House:	= 1905
Garage:	= 418
Covered Patio:	= 264
Carport:	= 379
Ratios:	
Hard Surface Coverage:	= 49.0%
Impervious Coverage:	= 49.0%
Building Coverage:	= 39.9%



3 Drainage - Typical Downspout to Splashblock
 1/2" = 1'-0"



1 Preliminary - Site Plan
 1" = 10'-0"



Site Plan	Project number	C101	Scale As indicated
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	Design by	CK	
	Drawn by	CK	

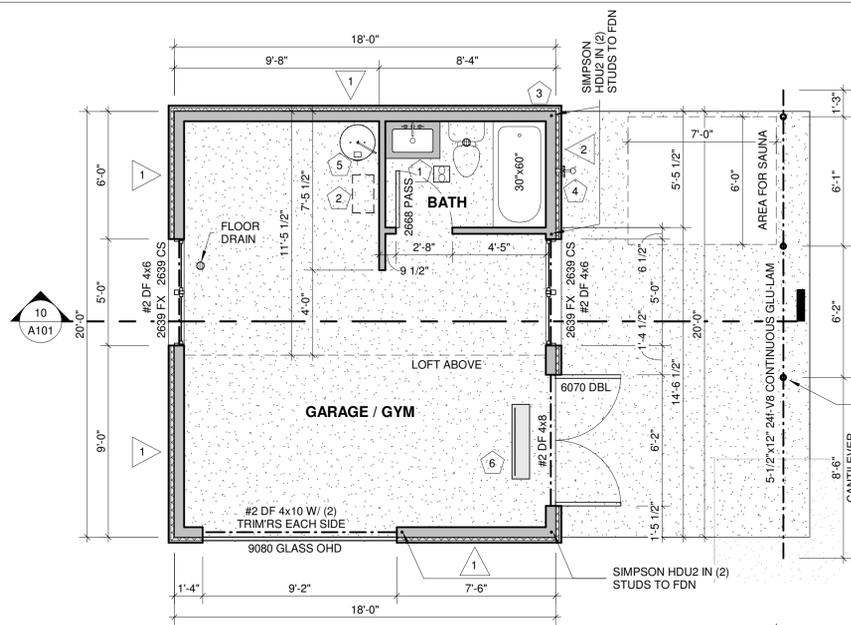
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 Project: Garage
 Parcel: 4800000400
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 Olympia, WA 98501

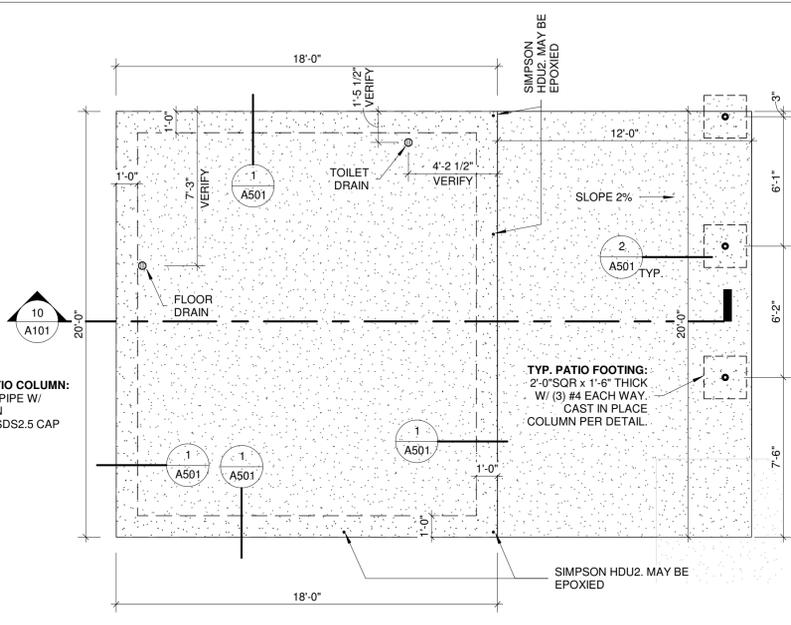
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Note: Information shown here has been gathered from a combination of public sources, site observations, and 3rd parties. All information shown here is subject to verification. Design For People assumes no responsibility for surveying the location, orientation and/or size of features shown here. Property lines, features, and structures shall be established by owner prior to construction.

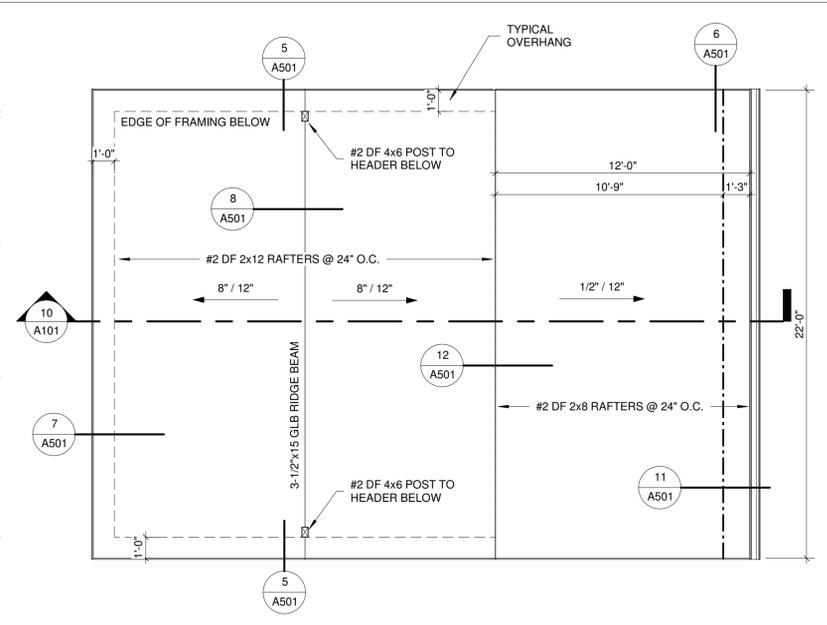
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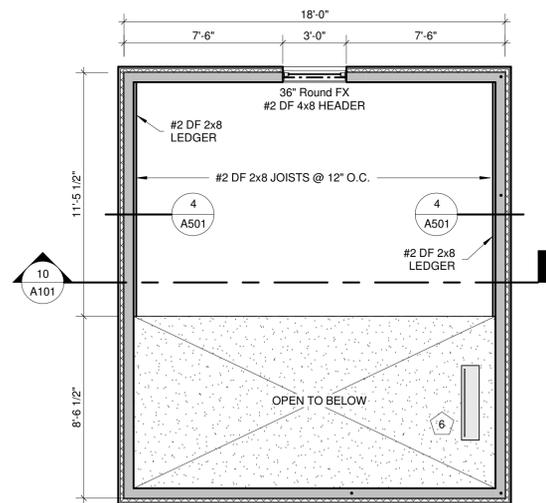
1 Main Floor Plan
A101 1/4" = 1'-0"



8 Foundation Plan
A101 1/4" = 1'-0"



9 Roof Plan
A101 1/4" = 1'-0"



4 Loft Plan
A101 1/4" = 1'-0"

Structural Notes

- ALL HEADERS TO BE (2) #2 DF 2x6 W/ (1) TRIMMER & (1) KING STUDS U.N.O.
- ALL EXTERIOR BEARING WALLS TO BE #2 D.F. 2x6's @ 16" O.C. U.N.O.
- ALL HOLDDOWNS IN (2) STUDS TO FOUNDATION UNLESS NOTED OTHERWISE.
- ANCHOR BOLTS TO BE 1/2"x10" LONG, WITH A 3" SOR x 1/4" THICK STEEL PLATE WASHER @ 48" O.C. U.N.O. (2) MINIMUM PER WALL.

- TYPICAL SHEAR WALL CALLOUT SEE SHEARWALL ELEVATION (8/A501) SEE SHEARWALL SCHEDULE FOR NAILING
- HOLD DOWN WITH SIMPSON REFERENCE NUMBER INTO 2 STUDS TO FOUNDATION U.N.O.

Wall Legend

- 2x6 Stud Wall
- 2x4 Stud Wall
- Demolished
- Sheathing & Cladding

Note: GWB not shown. All dimensions to face of framing U.N.O.

Floor Plan Notes

- Exhaust fan to operate at 30cfm continuous. Exhaust to exterior. Recommended; Panasonic WhisperComfort ERV
- Provide conduit for future solar/inverter
- Electrical hookup for future sauna. Verify volt/amp w/ sauna mfr.
- Outdoor Shower w/ frost protected plumbing. Wood slats for privacy and splashback. See rendering.
- DHW: 40 gallon electric under counter
- Wall mount minisplit head unit. Verify location w/ HVAC tech & client.

VENTILATION: VENTED RAFTER ROOF

- ROOF AREA (EXCLUDING EAVES): 360sf
- VENTING RATIO: 1/150
- NET FREE AREA: 2.5sf
- EAVE: BIRDBLOCKING OR EQUAL = 1.25sf NFA
- RIDGE: CONTINUOUS RIDGE VENT OR EQUAL = 1.25sf NFA

TYPICAL ROOF SHEATHING LAYOUT
1/2" PLY OR 7/16" OSB SHEATHING SPAN RATED 24/16 OR BETTER NAILED W/ 8d @ 6" O.C. AT EDGES & 12" O.C. AT FIELD. SHEATHING TO LAY PERPENDICULAR TO FRAMING.

TYPICAL LOFT FLOOR SHEATHING LAYOUT
3/4" PLY OR OSB SHEATHING SPAN RATED 48/24 OR BETTER NAILED W/ 10d @ 6" O.C. AT EDGES & 12" O.C. AT FIELD. SHEATHING TO LAY PERPENDICULAR TO FRAMING.

Window Schedule							
Mark	Type	Comments	Width	Height	Unit Width	Unit Height	Count
1	2639 FX		2' - 6"	3' - 9"			1
2	2639 CS		2' - 6"	3' - 9"			1
3	2639 FX		2' - 6"	3' - 9"			1
4	2639 CS		2' - 6"	3' - 9"			1
5	36" Round FX		3' - 0"	3' - 0"			1

- Note:
- Windows to be U=.30 or better.
 - Sizes shown are R.O.
 - See structural notes for minimum header sizes.

Door Schedule					
Type Mark	Type	Width	Height	Comments	Count
1	2668 PASS	2' - 8"	6' - 8"		1
2	6070 DBL	6' - 2"	7' - 1"		1
3	9080 GLASS OHD	9' - 2"	8' - 1"		1

- Note:
- Exterior doors to be U=.30 or better
 - Door width & height shown above are for Rough Opening (Nominal size width +2" & height +1"). Verify R.O. size w/ manufacturer.
 - Standard door returns are 3" U.N.O.
 - See structural notes for minimum header sizes.



01/10/25

VENTED RAFTER ROOF:

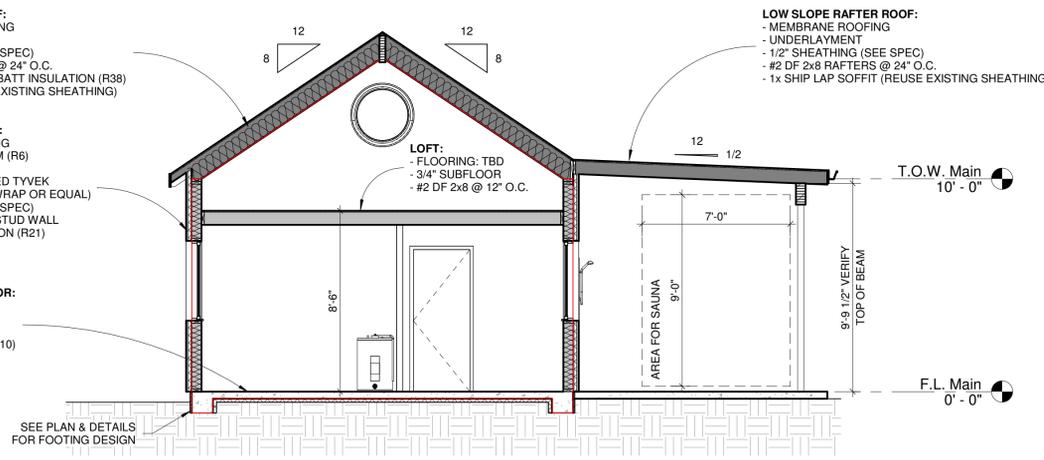
- COMPOSITION ROOFING
- UNDERLAYMENT
- 1/2" SHEATHING (SEE SPEC)
- #2 DF 2x12 RAFTERS @ 24" O.C.
- KRAFT FACED FIBER BATT INSULATION (R38)
- 1x SHIP LAP (REUSE EXISTING SHEATHING)

EXTERIOR STUD WALL:

- WOOD SHINGLE SIDING
- 1-1/2" EPS RIGID FOAM (R6)
- AIR BARRIER WRB (RECOMMENDED TYVEK)
- DRAIN WRAP OR EQUAL
- 1/2" SHEATHING (SEE SPEC)
- #2 DF 2x6 @ 16" O.C. STUD WALL
- FIBER BATT INSULATION (R21)
- 1/2" GWB

CONCRETE SLAB FLOOR:

- TROWEL FINISH
- 4" SLAB ON GRADE
- VAPOR BARRIER
- 2" EPS RIGID FOAM (R10)
- 6" CRUSHED ROCK



10 Section 2
A101 1/4" = 1'-0"

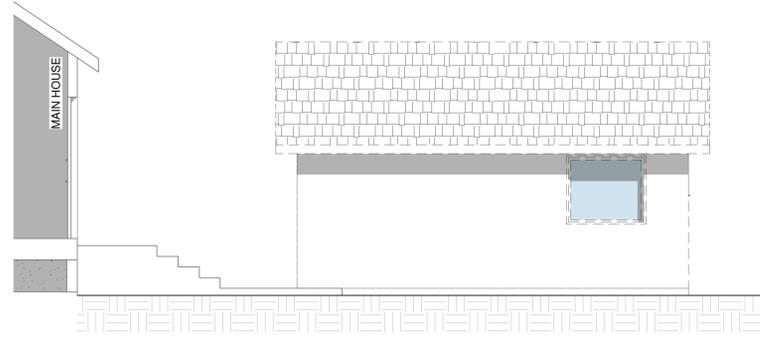
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Design by	CK		
Drawn by	CK		

No.	Description	Date

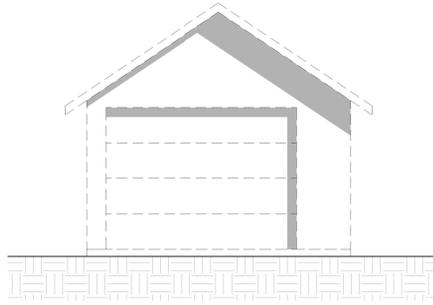
Name: Michael & Alicia Young
Project: Garage
Parcel: 4800000400
Project Address: 316 18th Ave SE
Olympia, WA 98501

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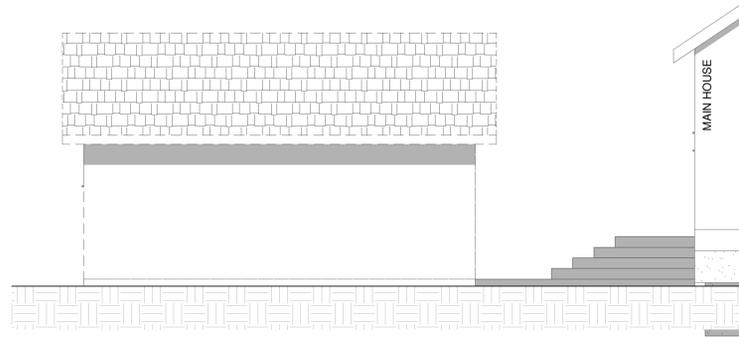
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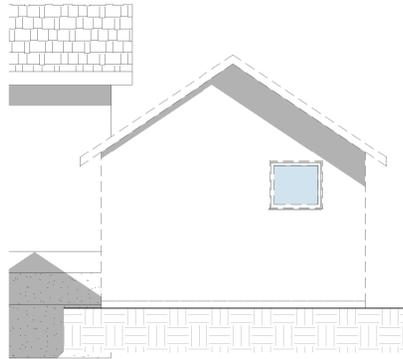
2 Demolition - Elevation 1
A102 1/4" = 1'-0"



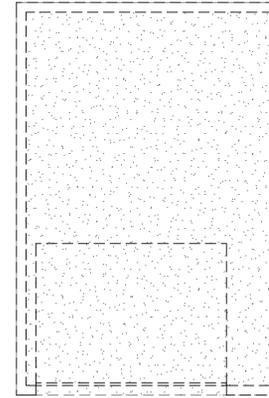
3 Demolition - Elevation 2
A102 1/4" = 1'-0"



4 Demolition - Elevation 3
A102 1/4" = 1'-0"



5 Demolition - Elevation 4
A102 1/4" = 1'-0"



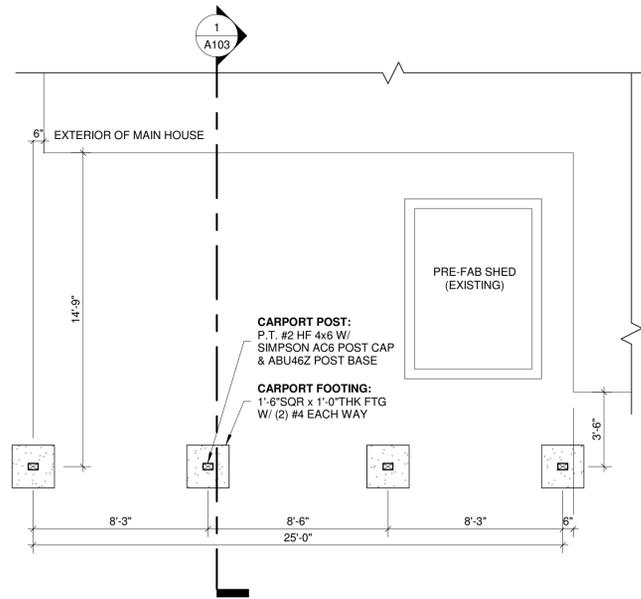
1 Demolition Plan
A102 1/4" = 1'-0"

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		Drawn by	CK
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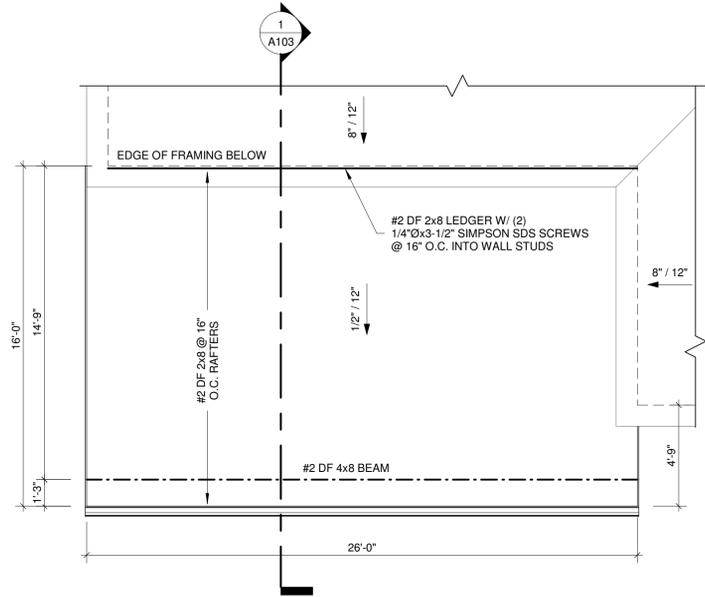
No.	Description	Date

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 Project: Garage
 Parcel: 48000000400
 Project Address: 316 18th Ave SE
 Olympia, WA 98501

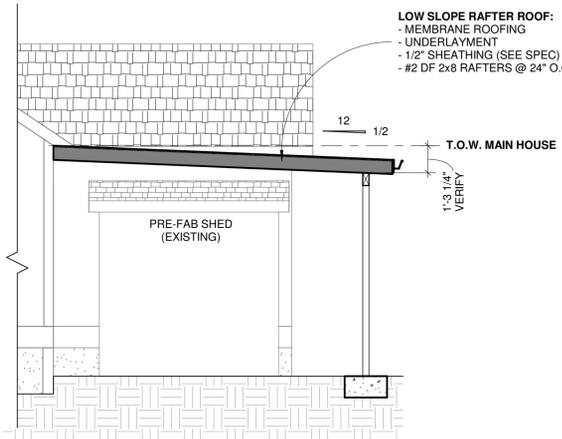
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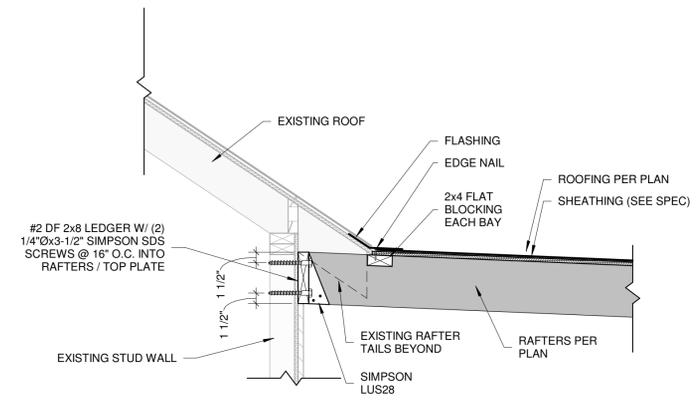
2 **Carpport - Foundation Plan**
A103 1/4" = 1'-0"



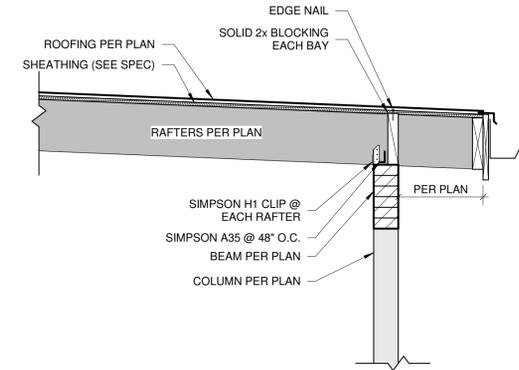
3 **Carpport - Roof Plan**
A103 1/4" = 1'-0"



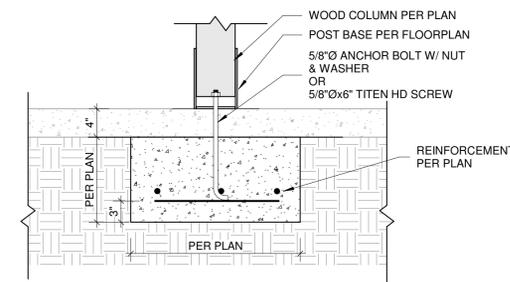
1 **Section 3**
A103 1/4" = 1'-0"



5 **Roof - Ledger to Wall**
A103 1" = 1'-0"



4 **Roof - Roof to Beam**
A103 1" = 1'-0"



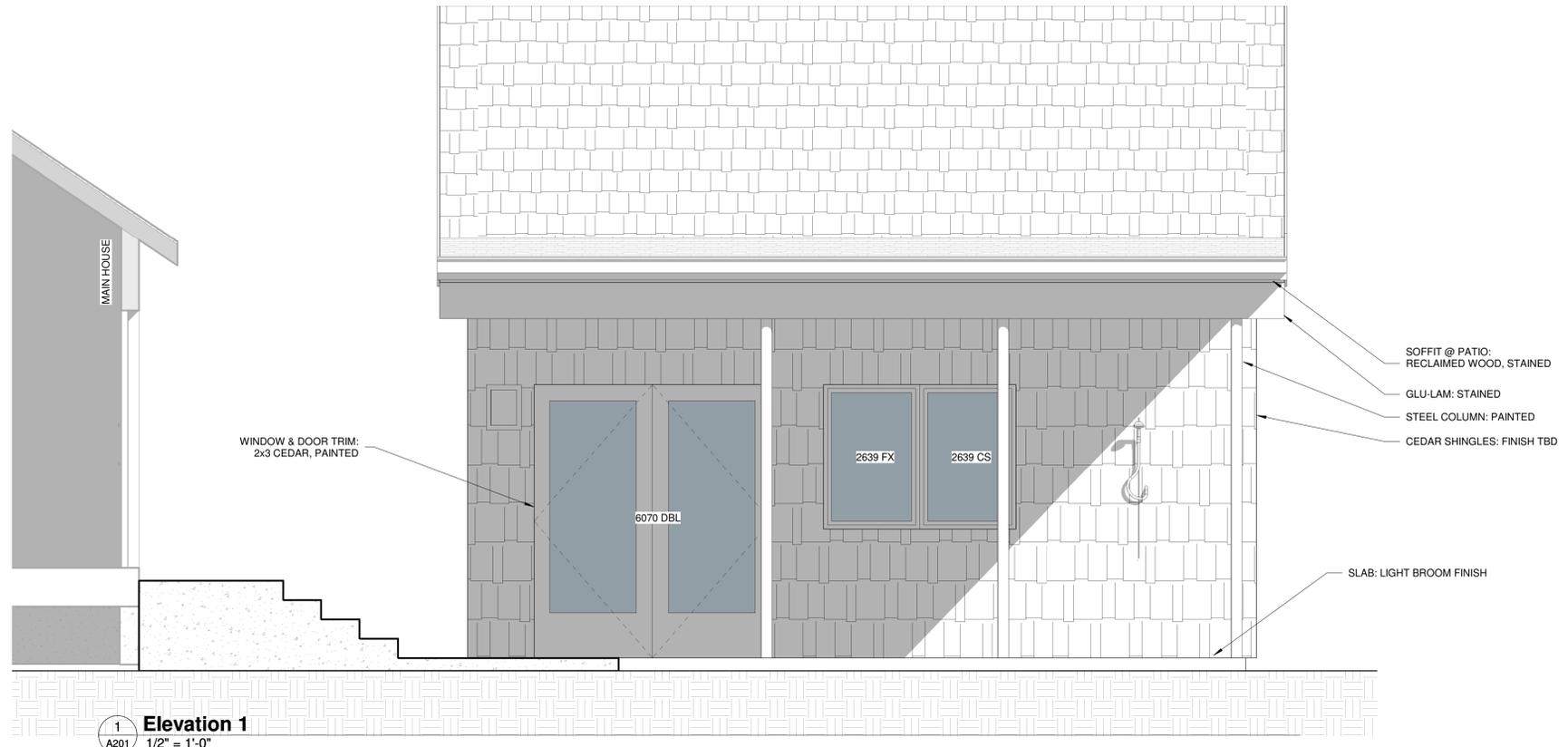
6 **Foundation - Post to Footing**
A103 1" = 1'-0"

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	Design by	CK	CK	
	Drawn by	CK	CK	

No.	Description	Date

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Project: Garage
Parcel: 48000000400
Project Address: 316 18th Ave SE
Olympia, WA 98501

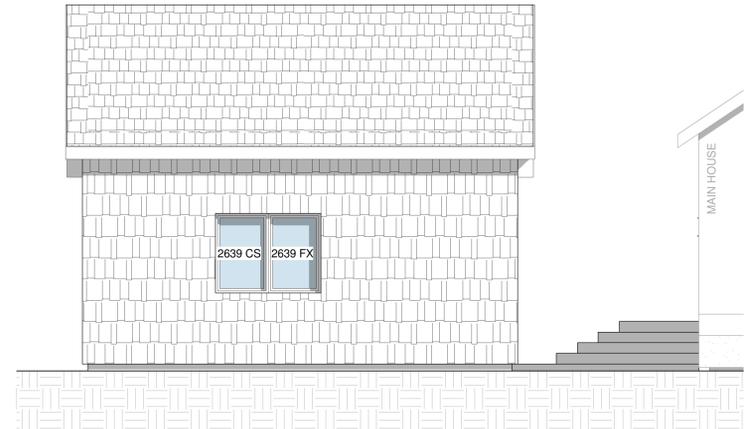
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1
A201
Elevation 1
1/2" = 1'-0"



2
A201
Elevation 2
1/4" = 1'-0"



3
A201
Elevation 3
1/4" = 1'-0"



4
A201
Elevation 4
1/4" = 1'-0"

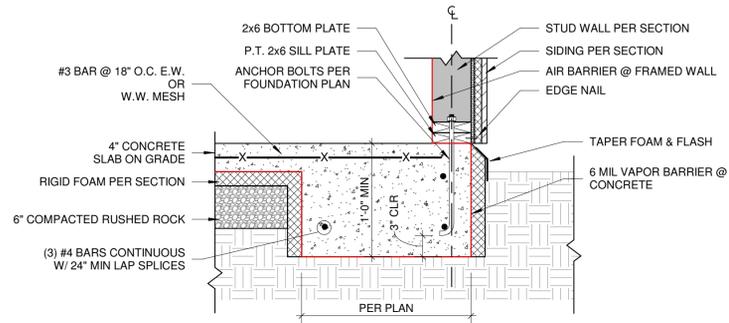
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RECLAIMED WOOD, STAINED
- GLU-LAM: STAINED
- STEEL COLUMN: PAINTED
- CEDAR SHINGLES: FINISH TBD
- SLAB: LIGHT BROOM FINISH

Exterior Elevations		Project number	A201
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		Scale As indicated	

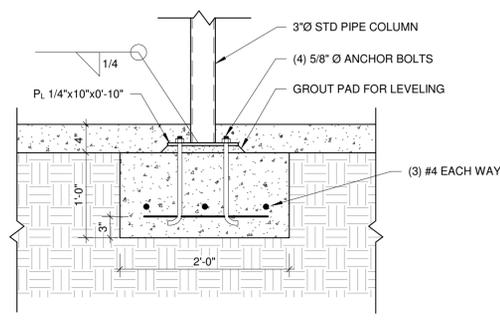
No.	Description	Date

Name: Michael & Alicia Young
 Project: Garage
 Parcel: 48000000400
 Project Address: 316 18th Ave SE
 Olympia, WA 98501

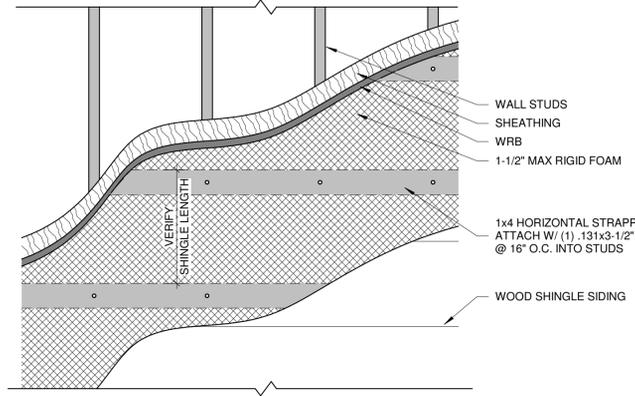
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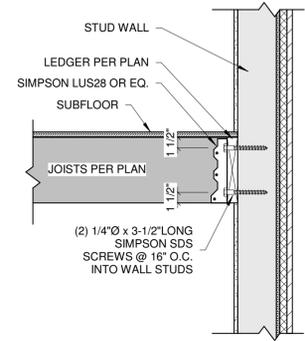
1 Foundation - Slab Edge Footing
A501 1" = 1'-0"



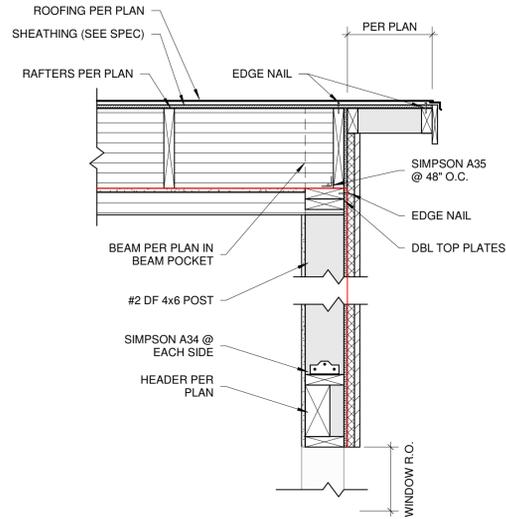
2 Foundation - Column to Footing
A501 1" = 1'-0"



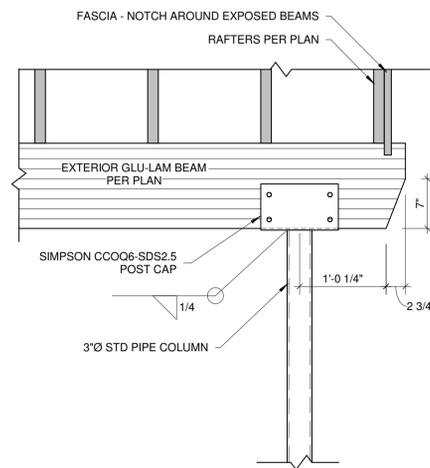
3 Wall - Wood Shingle Siding w/ Continuous Foam
A501 1" = 1'-0"



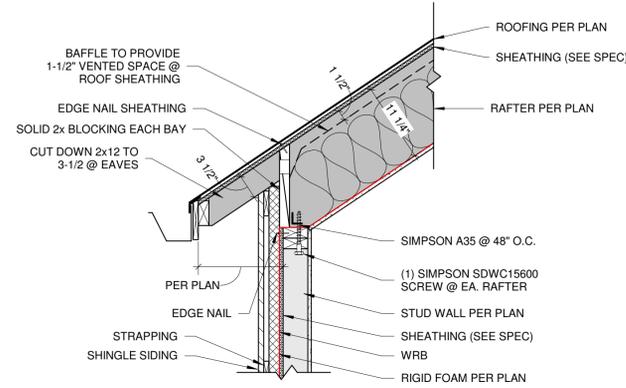
4 Floor - Loft Ledger
A501 1" = 1'-0"



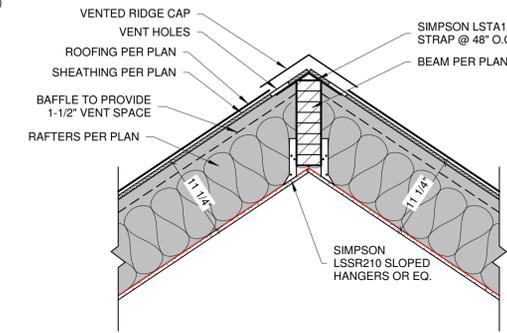
5 Roof - T.O.W. End Wall @ Ridge Beam
A501 1" = 1'-0"



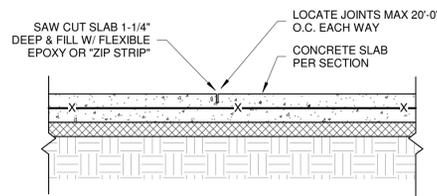
6 Beam - Column & End Detail
A501 1" = 1'-0"



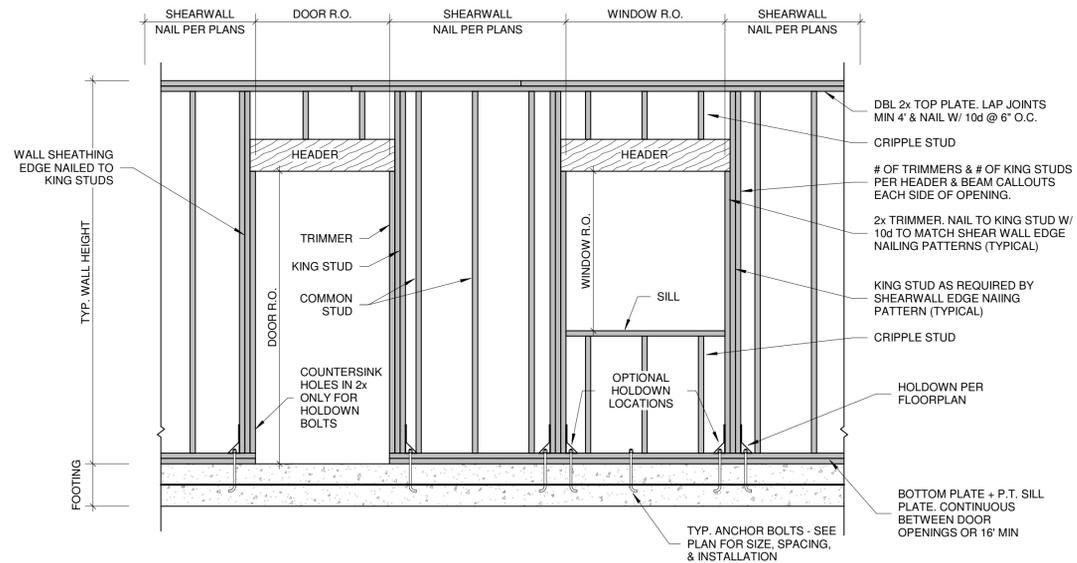
7 Roof - Rafter to T.O.W.
A501 1" = 1'-0"



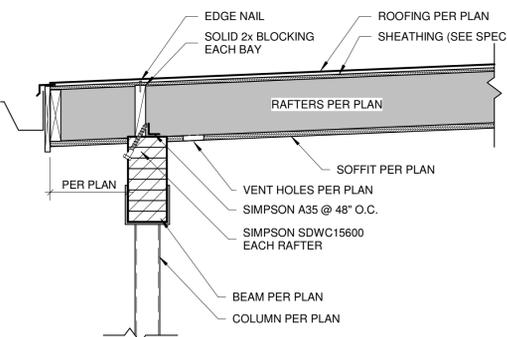
8 Roof - Rafter to Ridge Beam
A501 1" = 1'-0"



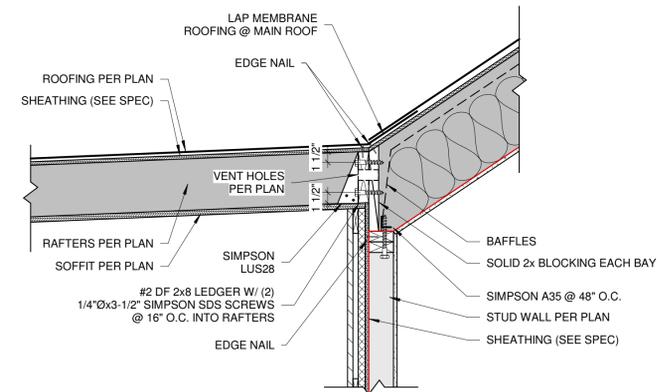
9 Foundation - Crack Control Joint
A501 1" = 1'-0"



10 Shearwall Elevation
A501 1/2" = 1'-0"



11 Roof - Patio Roof to Beam
A501 1" = 1'-0"



12 Roof - Patio Roof to Wall
A501 1" = 1'-0"



Building Details		A501		Scale As Indicated
Project number	1/9/2025 11:40:59 PM	Design by	CK	Drawn by
Date				

No.	Description	Date

Name: Michael & Alicia Young
 Project: Garage
 Parcel: 4800000400
 Project Address: 316 18th Ave SE
 Olympia, WA 98501

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