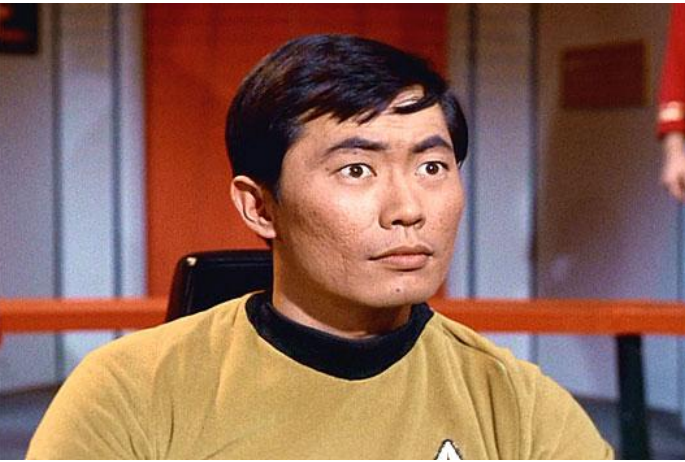


Heron Haus

Port Townsend,, Washington State





Passive House Specs

(Nerd Stuff)

- R-35 foam under concrete slab, 8"
- R-45 walls w/ dense pack fiberglass insulation in 2x6, & 6" foam on outside
- R-85 fiberglass in trusses
- Zehnder Comfo Air 350 HRV
- Navien Residential on Demand Propane Powered, DHW and Heating
- Zola UPVC windows, 0.15 U-value average (0.13 low and 0.19 high)
- Approx. 5000 heating degree days
- Blower door @ 50 pascals ACH 0.54

PHPP Modeling

Specific building demands with reference to the treated floor area					
				Requirements	Fulfilled?*
	Treated floor area	1148	ft ²		
Space heating	Heating demand	4.90	kBTU/(ft ² yr)	96% of 5.10 kBTU/(ft ² yr)	yes
	Heating load	3.27	BTU/(hr.ft ²)	96% of 3.40 BTU/(hr.ft ²)	yes
Space cooling	Overall specif. space cooling demand		kBTU/(ft ² yr)		-
	Cooling load		BTU/(hr.ft ²)		-
	Frequency of overheating (> 77 °F)	0.2	%	-	-
Primary energy	Heating, cooling, dehumidification, DHW, auxiliary electricity, lighting, electrical appliances	43.8	kBTU/(ft ² yr)	99% of 44.3 kBTU/(ft ² yr)	yes
	DHW, space heating and auxiliary electricity	16.5	kBTU/(ft ² yr)	-	-
	Specific primary energy reduction through solar electricity		kBTU/(ft ² yr)	-	-
Airtightness	Pressurization test result n ₅₀	0.5	1/h	0.6 1/h	yes

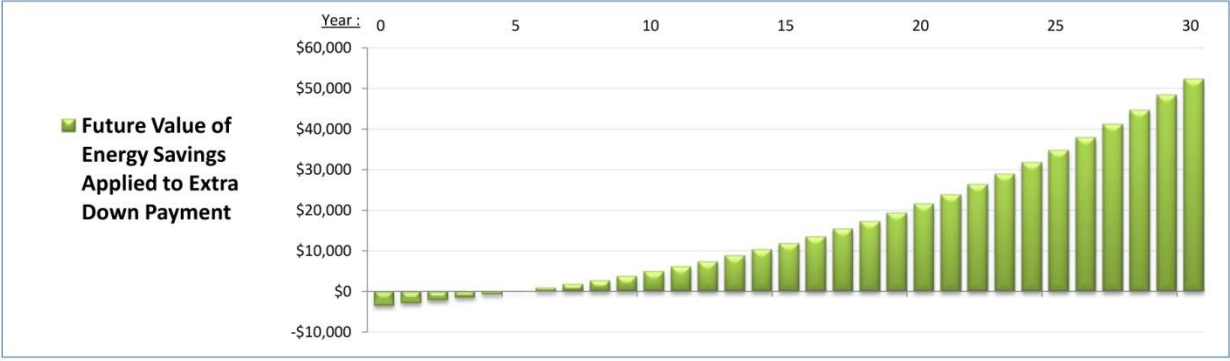
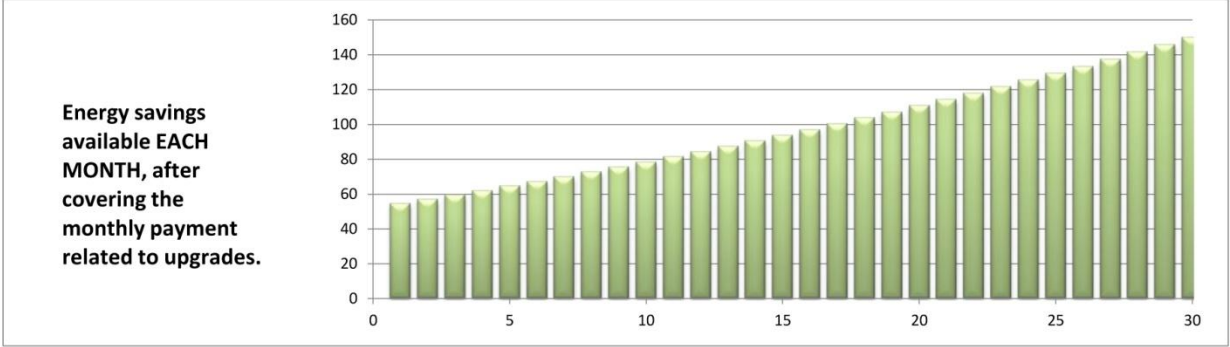
* empty field: data missing; '-': no requirement



Payback Analysis

Cost of Home Options	Cost of Baseline Home	Upgrade to Passive House *	Cost of Passive House
	362,385	5%	379,885

Energy Cost, Baseline Home (\$ per month)	176
Annual Rate of increase in Energy Costs Projected	2%
Energy Reduction from Passive House Approach (%)	70%



Costs to Upgrade to Passive House	
Added Costs of Improving Thermal Performance of Home	
Item:	\$
Increase in cost of framing labor	2,500
Increase in cost of framing materials	3,000
Increase in cost of window units is zero. Homeowners specified aluminum clad windows and entry doors, and Zola is price competitive with domestic pricing for non-passive doors and windows in this	0
Increase in cost of insulation, labor and materials	8,500
Cost of upgrading to whole house Heat Recovery Ventilator vs code required ventilation systems.	7,500
Incremental cost of heating system, compared to a typical ducted central air system, is 9k. The ducted air system would cost 12k, while the single minisplit used cost 3k. Incremental cost of minisplits in a typical home is 6k. In a typical home three delivery appliances would have been used at a cost of 9k, while the single minisplit used cost 3k. For comparison, the least incremental cost saved is 6k.	-6,000
Incremental cost of water heater is 2k. Electric tank water heater 1k, The Navien Residential on demand water heater 3k.	2,000
* Total Costs to Upgrade to Passive House	17,500

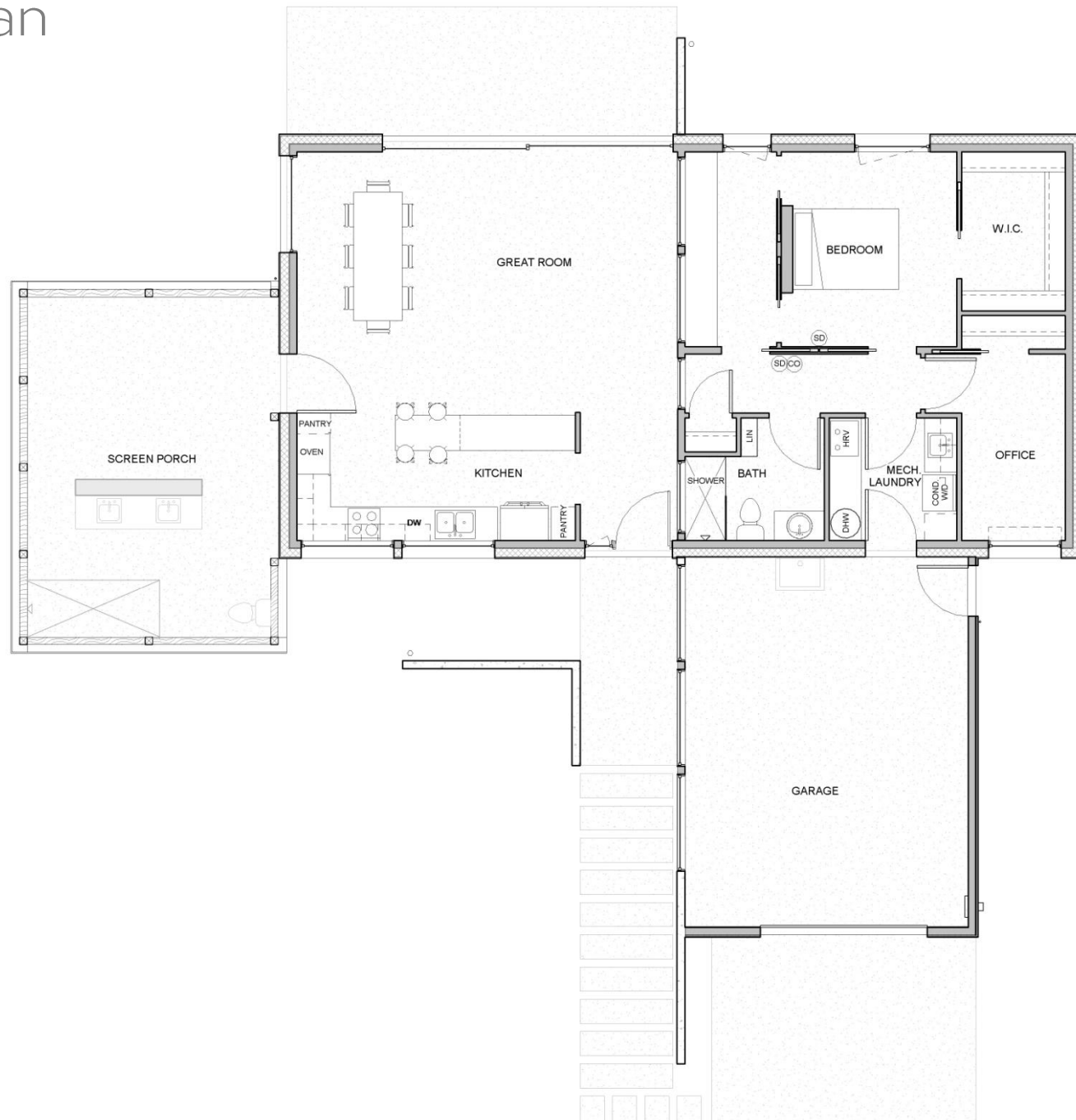
INFORMATION PRESENTED BY: **Randy Foster 360-870-2526**

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DESIGN + BUILD

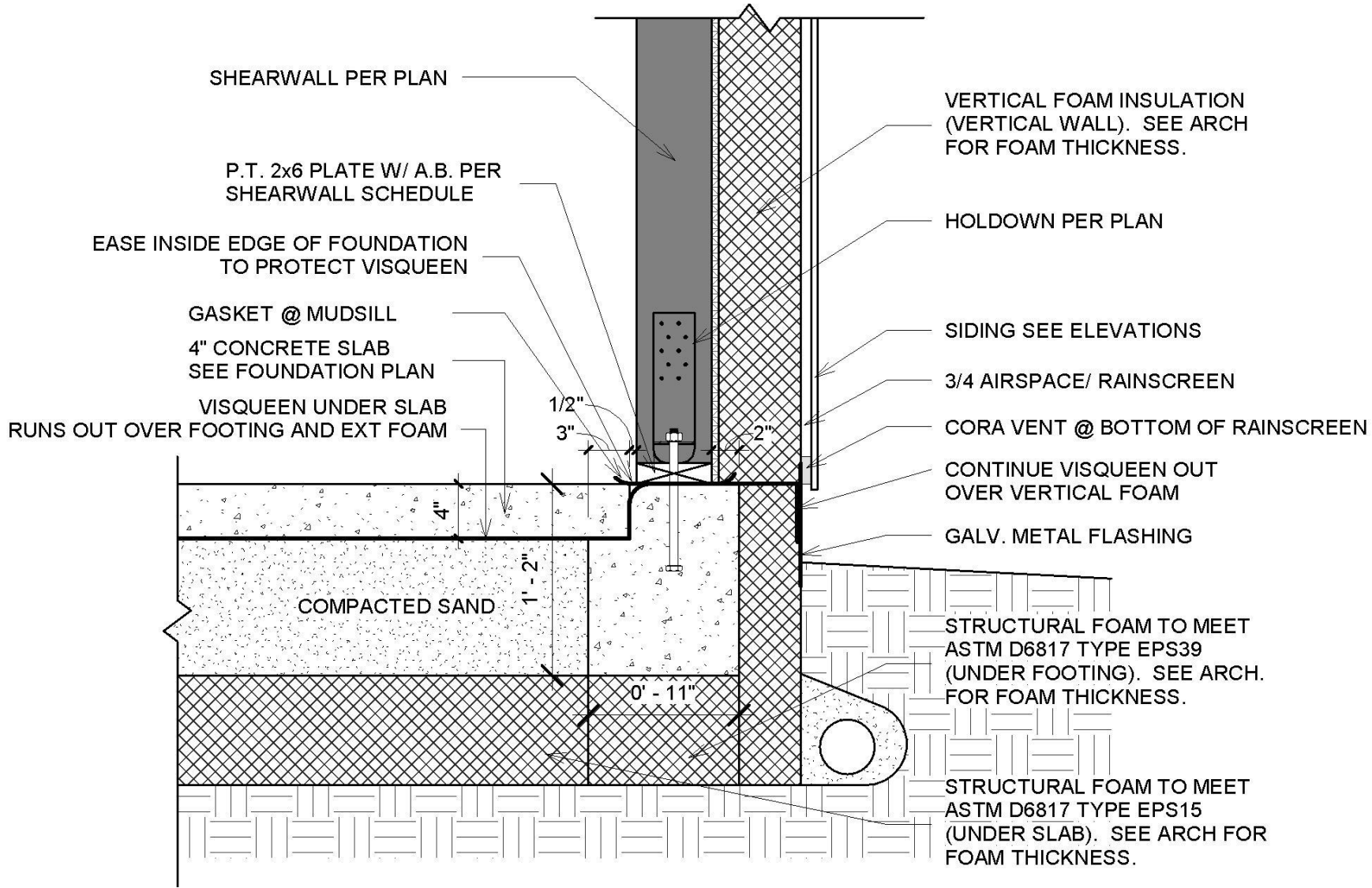
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Floor Plan

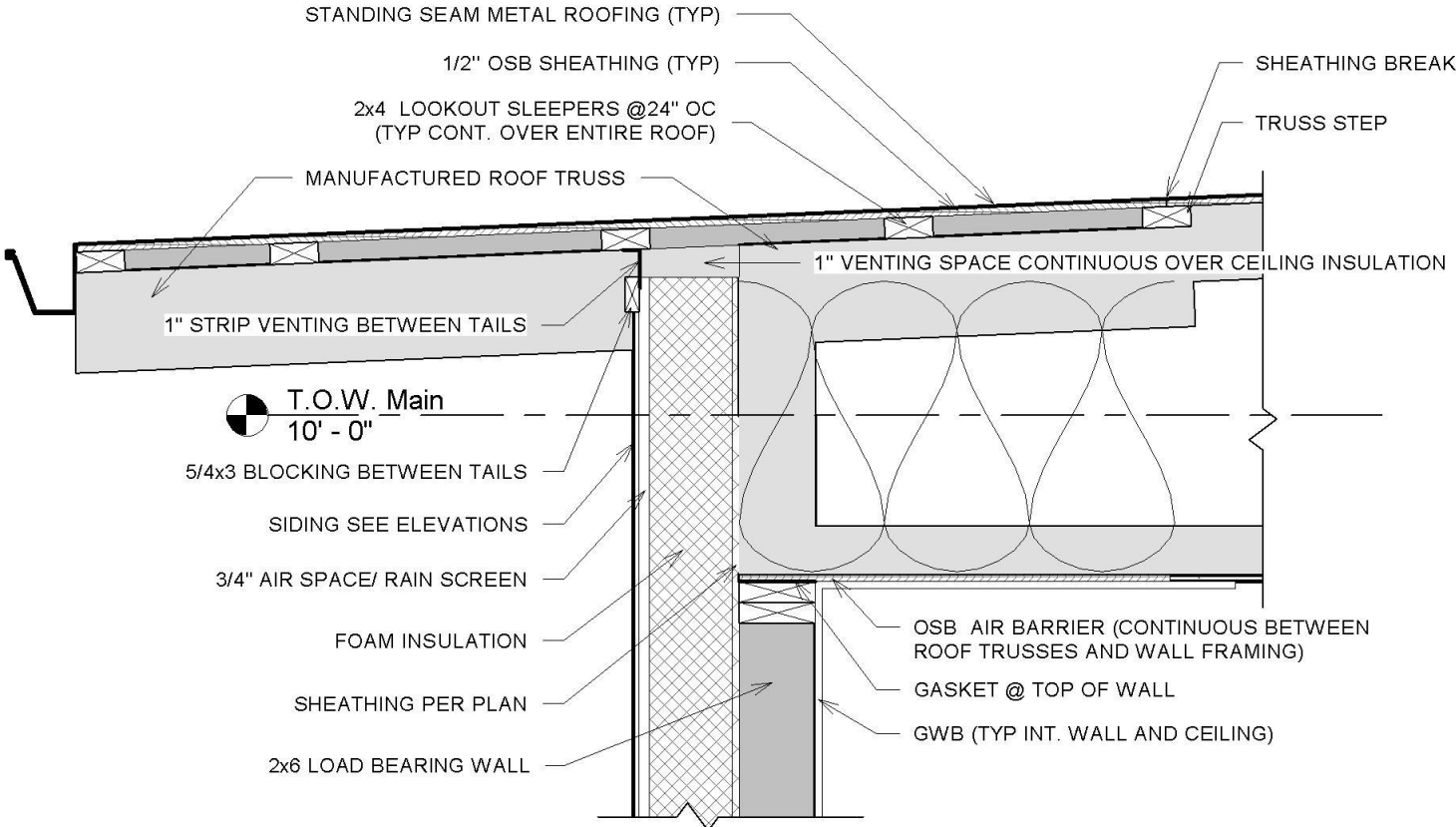
1148 TFA



Foundation Detail



Eave Detail



Solar Pathfinder & Grading



Footings for Spine and Structural Slab



Trenching and Perforations Sealing



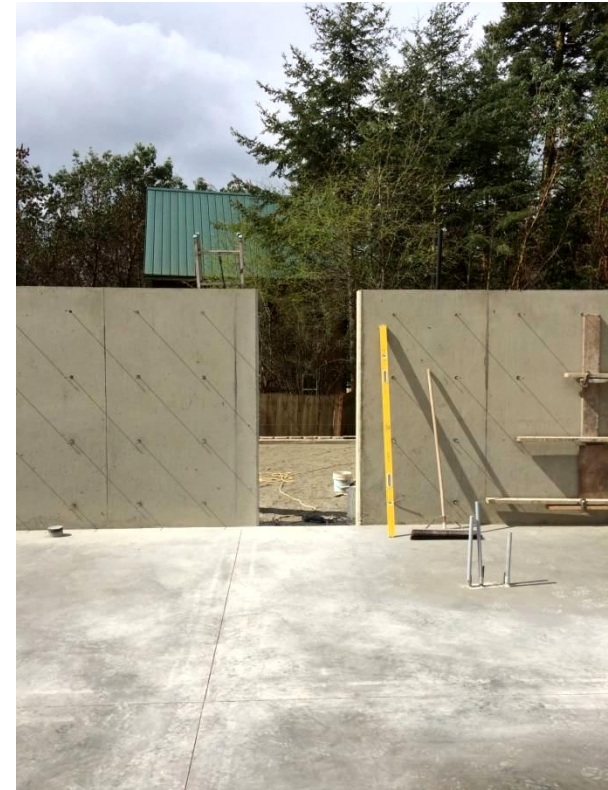
Spine and Slab



Slab and Galvanized Flashing



Framing



Framing & HRV



Roof



Interior Sealing



Post Blower Door & Pre Foam



I am going to add more slides with construction progress...



