17 Employees  
2 Principals

10 employees  
3 Principals

Design Staff

Construction Staff
Madison Haus, PHIUS Certified Olympia, Washington

Design Ethos

Urban in fill, respectful of the neighborhood
Mid century inspired with a warm, wood’ish northwest feel
Lots of glass
A large covered front porch
A Parí of long flat lines and strategic views and gains
Madison House Specs

(Nerd Stuff)

• R- 35 EPS under slab insulation

• R-41 Total wall insulation (7.5” dense pack fiberglass, 4” EPS)

• R-80 (2’ dense pack fiberglass in trusses, 6” EPS warm cap)

• Zender Novus 300 HRV

• Intellihot Combi unit: domestic hot water and in floor hydronic heating

• Zola Thermo Plus Clad windows

• Approx. 5100 heating degree days
“This project suffered from the usual small project challenges of hitting the heat demand, but the PHIUS 'climate optimized' heat demand and higher (likely more realistic) PHIUS internal gains made Passive House pretty manageable. While some may question a project with a 5.45 kbtu/ft/yr heat demand and not the 4.75 target, the peak heat load is barely above 3 btu/hr/sf and could have likely been certifiable under the PHI peak heat load criteria also.”

Skylar Swinford

*Note the project is “over” the PHI PE value due to PHPP assuming higher PHIUS plug loads and lighting. If we used PHPP/PHI default project would be under PHI PE criteria.
Slab and Footing Detail

We have started wrapping our footings with a heavy butyl membrane, and taping our wall sealing layer down to this foundation wrapping. This also keeps bulk water from migrating under the mudsill during the course of construction.
1. Larsen Truss

2. Double 2x4 w/ Zip Sheathing

3. Homemade Prefab Walls
   2x6 w/ Horiz. 2x4 & 2x6

4. 2x6 w/ 6” of Exterior Insul.

5. 2x4 staggered on 2x8 plates w/ 4” of cork or foam

6. Prefab wall,
   2x4 with Larsen Truss
Detailed Thermal Bridge Analysis

Wall Assembly Analysis
Massing & Shading

Depending on surroundings articulating shape to catch more southern exposure can be worth the extra surface area, and sometimes the only way to get to compliance.
Massing & Shading

Depending on surroundings articulating shape to catch more southern exposure can be worth the extra surface area, and sometimes the only way to get to compliance.
<table>
<thead>
<tr>
<th>Window U-Value</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Solar Irradiation reduction factor</td>
<td>Window area</td>
<td>Window U-Value</td>
<td>Glazing area</td>
<td>Average global radiation</td>
</tr>
<tr>
<td>Annual heating demand</td>
<td>5.98</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DIAGRAM: A building facade with multiple windows labeled with numbers 18 to 21 and the abbreviation 'FX'.
Detailed Thermal Bridge Analysis
Window Head and Sill Analysis 2D w/ HTflux
Navien Combi Unit

Space Heating

Domestic Hot Water

Showering at your favorite temperature

Showering at one degree colder than your favorite temperature.

Promise me you'll never let go, Rose.
Fuel type: electricity

Sep 2017 – Aug 2018
My neighbor comparison

Find tips to reduce your use:
- Free steps to take
- Smart purchases
- Great investments

Who are my neighbors?
Cost of Passive House ROI Model

**Cost of Home Options**

<table>
<thead>
<tr>
<th>Cost of Baseline Home</th>
<th>Upgrade to Passive House</th>
<th>Cost of Passive House</th>
</tr>
</thead>
<tbody>
<tr>
<td>509,500</td>
<td>4%</td>
<td>530,000</td>
</tr>
</tbody>
</table>

**Energy Cost, Baseline Home ($ per month)**

- Annual Rate of increase in Energy Costs Projected: 3%
- Energy Reduction from Passive House Approach (%): 68%

**Future Value of Energy Savings Applied to Extra Down Payment**

**Costs to Upgrade to Passive House**

<table>
<thead>
<tr>
<th>Item</th>
<th>$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase in cost of framing labor</td>
<td>6,000</td>
</tr>
<tr>
<td>Increase in cost of framing materials</td>
<td>4,000</td>
</tr>
<tr>
<td>Zola upvc vs Domestic vinyl and sliding wall glazing</td>
<td>8,000</td>
</tr>
<tr>
<td>Increase in cost of insulation, labor and materials</td>
<td>5,000</td>
</tr>
<tr>
<td>Cost of upgrading to whole house Heat Recovery Ventilator vs code required ventilation systems</td>
<td>7,500</td>
</tr>
<tr>
<td>Sanden vs central heating and cooling and heat pump wh</td>
<td>-10,000</td>
</tr>
</tbody>
</table>

*Total Costs to Upgrade to Passive House: 20,500*

**Per actual utility bills first year of operation**

<table>
<thead>
<tr>
<th>Time Period</th>
<th>kWh per mo.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep-Oct</td>
<td>2,400</td>
</tr>
<tr>
<td>Nov-Dec</td>
<td>4,553</td>
</tr>
<tr>
<td>Jan-Feb</td>
<td>4,400</td>
</tr>
<tr>
<td>Mar-Apr</td>
<td>3,415</td>
</tr>
<tr>
<td>May-Jun</td>
<td>2,000</td>
</tr>
<tr>
<td>Jul-Aug</td>
<td>2,100</td>
</tr>
<tr>
<td>Total kWh for 1 year</td>
<td>18,868</td>
</tr>
<tr>
<td>Ave kWh per mo.</td>
<td>1,572</td>
</tr>
<tr>
<td>Ave. $ per mo., @ $0.10/kWh</td>
<td>5157</td>
</tr>
</tbody>
</table>

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Madison Haus and Heron Haus featured in Sheri Koones' new book *Downsize* coming this spring.
Coming Soon- Prefab Passive House outside of Seattle

Coming Soon- Bainbridge Island, Rolling Bay Passive House
Coming Soon-Tiny Prefab Passive House Village, Wisconsin
Coming Soon - Passive House Student Housing, Green Bay Wisconsin

Coming Soon - Multifamily Passive House Austin, Texas
We are HIRING!

Looking for an experienced Architect with strong technical and software skills. Passive House passionate of course.