

University of Pittsburgh – Panther Innovations

Strategic Approach:

- Type of Project:
One Story Ranch
- Location/Climate: **Pittsburgh, PA, CZ 5**
- Design Strategy:
We used Pulte's Vernon Hill floor plan, showing that one of the most popular production home designs can be designed to be a zero net energy home.
- Technical Strategy
 - Enclosure: **Staggered Stud Wall system, spray foam insulation, XPS sheathing, ceiling insulated vented attic, 4' continuous insulated foundation wall, triple paned windows**
 - HVAC: **Air source heat pump, small-diameter ducts in conditioned space**
 - IAQ: **ERV, exhaust fans, passive radon system, air/water sealing, no VOCs, MERV 13 filter, plants**
- Construction Cost Strategy: **Used money saved on correct sizing for high-performance features, minimized duct system, eliminated basement**

Technical Specifications:

Wall R-Value: **R-40**

Ceiling R-Value: **R-60**

Foundation R-Value: **R-20**

Window U-Value: **.19**

Window SHGC: **.27**

Heat Pump HSPF: **10**

Heat Pump SEER: **22**

Water Heater EF: **.95**

Key Statistics:

Location: **Pittsburgh, Pennsylvania**

2009 IECC Climate Zone: **5**

Square Feet: **2200**

Number of Stories: **1**

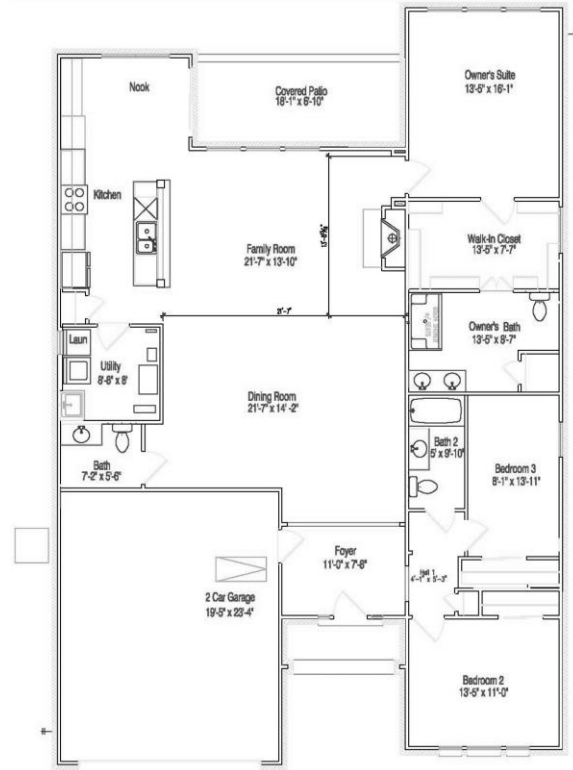
Number of Bedrooms: **3**

Number of Bathrooms: **2.5**

Estimated Construction Cost: **\$193,716 (\$237,852)**

HERS Index Score: **45 (9 w/ PV)**

Estimated Monthly Energy Cost: **\$140 (\$-16.75 w/ PV)**



ELEVATION "A"

