AkWarm Home Inputs

Client
Prototype Home
AK

Home Location
Arctic Region
Barrow, AK

Reference City: Barrow
Electric Utility: Barrow Utilities & Electric-elec - Residential
Gas Utility: Barrow Utilities & Electric-gas - Residential

Rating Information
Rating Type: From Plans
Date: 10/24/2014

Rater
Dustin Madden
CCHRC

Occupancy
4 Occupants
Owner Occupied

House Type/Size
House Type: Single Family
Heated Floor Area, sq.ft.: 1,233.5
Conditioned Garage Floor Area, sq.ft.: 0
# of Bedrooms: 3
Windshielding: Average

Actual Energy Costs
Annual Fuel Cost: $0.00
Annual Electric Cost: $0.00

Notes to AHFC
Note: Whole envelope is composed of SIPs panels, modeled after recent new construction in Barrow

Air
From Blower Test CFM @ 50 Pascals: 150
ACH @ 50 Pascals: 0.81
Average Ceiling Height to Ground or Exposed Floor: 8.8
Heated Volume: 11,138.5
Ventilation System Type: HRV
System has controls to operate at less than maximum flow: Yes

Heating
Thermostat Setpoint: 70
Night Setback Thermostat: All of Home

Primary System
Fuel Type: Natural Gas
Equipment Type: Condensing boiler
No chimney, no draft hood; electric ignition, induced draft fan; either conventional or pulsed combustion burner; small vent fitted to outside of hous

Standard AFUE: 90
Upgrade Devices: None
Heat Distribution: Hydronic
0% in Un-conditioned Space, Not Insulated
0% in Semi-conditioned Space, Not Insulated

Secondary System
No System Installed

Cooling
Cooling System: None Present

Hot Water Heater
Fuel Type: Natural Gas
Equipment Type: Indirect (sidearm) -efficient
Uses home's boiler as heat source; hot water is circulated through a heat exchanger in a separate insulated storage tank
Energy Factor: 0.85
Location: Conditioned Space, > 60 deg F

Other
Dryer: Electricity
Range: Electricity
Misc. Electric Use: Average

Fuel Prices
Electricity, ($/kWh): $0.14 (Approx. Utility Price)
Natural Gas, ($/ccf): $0.31 (Approx. Utility Price)

Shell Components

Floors - Total Area 1,204.6 sq. ft.

Above Grade Floor: House
Temperature: Living Space
Gross Area, Sq. Ft.: 1,204.6
Exposure: On Pilings
Framing Type: 2 x Lumber
Insulating Sheathing: None
Top Insulation Layer: XPS (Blue/Pink Foam), 10 inches
Bottom Insulation Layer: None
Insulation Quality: OK
Calculated R-Value: 44.5

Walls - Total Area 1,296.7 sq. ft.

Above Grade Wall: House
Temperature: Living Space
Gross Area, Sq. Ft.: 1,296.7
Wall Type: Stressed Skin Panel
Siding Configuration: Siding and Sheathing
Panel Insulation: XPS (Blue/Pink Foam), 8 inches
Insulation Quality: OK
Calculated R-Value: 38.3

Doors - Total Area 25.5 sq. ft.

Exterior Door: House
Temperature: Living Space
Gross Area, Sq. Ft.: 25.5
Door Type: Entrance, Metal, polyurethane core, wood edge
Storm Door: None
Calculated R-Value: 5.3

Windows - Total Area 94.1 sq. ft.

Window: SouthWindows
Temperature: Living Space
Gross Area, Sq. Ft.: 18.6
Orientation: South
External Shading: Little
Glass: Triple, 1 Low-E Coating
Certified U-Value: 0.23
Certified SHGC: 0.600
Solar Heat Gain Coefficient including Window Coverings: 0.45

Window: NonSouthWindows
Temperature: Living Space
Gross Area, Sq. Ft.: 75.4
Orientation: Not South
External Shading: Moderate
Glass: Triple, 2 Low-E Coatings
Certified U-Value: 0.23
Certified SHGC: 0.600
Solar Heat Gain Coefficient including Window Coverings: 0.45

Ceilings - Total Area 1,241.8 sq. ft.

Ceiling with Attic: House
Temperature: Living Space
Gross Area, Sq. Ft.: 1,241.8
Framing Type: Energy Truss
Framing Spacing: 24 inches
Insulated Sheathing: None
Bottom Insulation Layer: XPS (Blue/Pink Foam), 12 inches
Top Insulation Layer: None
Insulation Quality: OK
Calculated R-Value: 62.8

Design Heat Loss
Outdoor Temperature at Heating Design Conditions Option: Use Library Value
Outdoor Temperature at Heating Design Conditions Value (deg F): -41.0
Airport Wind Speed at Heating Design Conditions Option: Use Library Value
Airport Wind Speed at Heating Design Conditions Value (mph): 11.4
Mechanical Ventilation Flow Rate Option: User Override
Mechanical Ventilation Flow Rate Value (cfm): 0.0
Main Home Heating System Distribution Efficiency Option: From Primary Heating System
Main Home Heating System Distribution Efficiency Value (%): 100.0
DHW Load is Served by Primary Heating System: No
Garage Load is Served by Primary Heating System: No
Garage Temperature (deg F): 55.0
House/Garage Uninsulated Common Area (sq feet): 0.0
Mechanical Ventilation Rate for Garage (cfm): 0.0
Garage Heating System Distribution Eff (%): 100.0

AkWarm Version Info

Application: AkWarm, Version 2.4.0.0
Calculation Engine: 2.4.0.0
Energy Library: 3/24/2015

Filename: C:\Users\dustin\Dropbox\R15 HERS\03. Work\AKWarm Test Models\15.2 Gal DHW Models\95 Point Models\Barrow Prototype - 15.2 DHW 95 pointer.hm2
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