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

Air
From Blower Test CFM @ 50 Pascals: 557
ACH @ 50 Pascals: 3.00
Average Ceiling Height to Ground or Exposed Floor: 8.8
Heated Volume: 11,138.5
Ventilation System Type: Mechancial with no Heat Recovery
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: Furnace, power vent, spark ignition
Induced draft or forced draft; electronic ignition (no standing pilot)
Certified AFUE: 80
Upgrade Devices: None
Heat Distribution: Forced Air
0% in Un-conditioned Space, Not Insulated

0% in Semi-conditioned Space, Not Insulated
Duct Quality: Tight
Meets IECC Reduced Leakage Spec: No
Improvement to Evalutate: New Furnace
Location: Primary Heating System
Excluded Levels: ...
Level: 80%
Level: 95%
DIY Costs: No

Secondary System
No System Installed

Cooling
Cooling System: None Present

Hot Water Heater
Fuel Type: Natural Gas
Equipment Type: High Efficiency Gas Tank
Gas/propane storage tank with 1-2 inches of foam insulation
Energy Factor: 0.6
Location: Conditioned Space, > 60 deg F
Improvement to Evalutate: Oil On-Demand Type
DIY Costs: No

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: R-21 Batt:FG or RW, 5.5 inches
Bottom Insulation Layer: R-22 Batt:FG or RW, 6.75 inches
Insulation Quality: OK
Calculated R-Value: 41.1

Walls - Total Area 1,296.7 sq. ft.

Above Grade Wall: House
Temperature: Living Space
Gross Area, Sq. Ft.: 1,296.7
Wall Type: Single Stud
Siding Configuration: Siding and Sheathing
Insul. Sheathing: XPS (Blue/Pink Foam), 5 inches

Structural Wall: 2 x 4, 16 inches on center
R-11 Batt:FG or RW, 3.5 inches
Window and door headers are insulated: Yes
Insulation Quality: OK
Calculated R-Value: 37.5
Improvement to Evalutate: ADD rigid foam to interior or exterior, no wall covering costs
Location: Above-Grade Wall: House
Excluded Levels: ...
Level: R-5
Level: R-10
Level: R-15
Level: R-25
Level: R-30
Level: R-40
Level: R-50
DIY Costs: No

Doors - Total Area 25.5 sq. ft.

Exterior Door: House
Temperature: Living Space
Gross Area, Sq. Ft.: 25.5
Door Type: Entrance, Fiberglass, polyurethane core, no glass
Certified U-Value: 0.20
Storm Door: None
Calculated R-Value: 5
Improvement to Evalutate: REPLACE door with better insulated door
Location: Exterior Door: House
DIY Costs: No

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, Glass
Certified U-Value: 0.20
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, Glass
Certified U-Value: 0.20
Certified SHGC: 0.600
Solar Heat Gain Coefficient including Window Coverings: 0.45
Improvement to Evalutate: REPLACE window with triple pane window
Location: Window/Skylight: NonSouthWindows
Excluded Levels: ...
Level: triple pane, low-E, argon
DIY Costs: No

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: R-30 Batt:FG or RW, 9.5 inches
Top Insulation Layer: R-22 Batt:FG or RW, 6.75 inches
Insulation Quality: OK
Calculated R-Value: 54.5
Improvement to Evalutate: ADD blown cellulose to Energy Truss
Location: Ceiling w/ Attic: House
Excluded Levels: ...
Level: R-12
Level: R-33
Level: R-42
DIY Costs: No

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 \BEES Qualifying models (89 points-ish)\Barrow Prototype - 15.2 DHW 2012 BEES (heating unchanged).hm2
Report Date: 3/30/2015