

AkWarm Home Inputs

Client

Prototype Home
AK

Home Location

Interior, YK Delta, Bristol Bay Region
Fairbanks, AK

Reference City: Fairbanks

Electric Utility: Golden Valley Electric - Residential

Gas Utility: Fairbanks Natural 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.: 1,906
Conditioned Garage Floor Area, sq.ft.: 670.9
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: 500
ACH @ 50 Pascals: 1.23
Average Ceiling Height to Ground or Exposed Floor: 15.2
Heated Volume: 24,483.4
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: #1 Fuel Oil
Equipment Type: Improved efficiency boiler
Flame retention burner; improved heat exchanger, vent dampers, modulating aquastat
Certified AFUE: 86
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: #1 Fuel Oil

Equipment Type: Indirect (sidearm) -efficient

Uses home's high efficiency boiler as heat source; hot water is circulated through a heat exchanger in a separate insulated storage tank

Energy Factor: 0.81

Location: Conditioned Space, > 60 deg F

Other

Dryer: Electricity

Range: Electricity

Misc. Electric Use: Average

Fuel Prices

Electricity, (\$/kWh): \$0.24 (Approx. Utility Price)

#1 Oil, (\$/gallons): \$3.05 (Library Price)

Shell Components

Floors - Total Area 1,601.7 sq. ft.

Below Grade Floor Perimeter: Garage

Temperature: Garage

Gross Area, Sq. Ft.: 208.3

Distance to Grade: On Grade

Insulation Covers Slab Perimeter: Yes

Insulation for 0' to 2' Perimeter: XPS (Blue/Pink Foam), 2 inches

Insulation for 2' to 4' Perimeter: XPS (Blue/Pink Foam), 2 inches

Insulation Quality: OK

Calculated R-Value: 18.7

Below Grade Floor Center: Garage

Temperature: Garage

Gross Area, Sq. Ft.: 253.5

Distance to Grade: On Grade

Center Insulation: None

Insulation Quality: OK

Calculated R-Value: 35.5

Below Grade Floor Center: House

Temperature: Living Space

Gross Area, Sq. Ft.: 679.3

Distance to Grade: 4.16 feet below

Center Insulation: XPS (Blue/Pink Foam), 2 inches

Insulation Quality: OK

Calculated R-Value: 55.3

Below Grade Floor Perimeter: House

Temperature: Living Space

Gross Area, Sq. Ft.: 460.6
460.60

Distance to Grade: 4.16 feet below

Insulation for 0' to 2' Perimeter: XPS (Blue/Pink Foam), 4 inches

Insulation for 2' to 4' Perimeter: XPS (Blue/Pink Foam), 4 inches

Insulation Quality: OK

Calculated R-Value: 38.1

Walls - Total Area 2,587 sq. ft.

Above Grade Wall: Garage

Temperature: Garage

Gross Area, Sq. Ft.: 433.8

Wall Type: Single Stud

Siding Configuration: Siding and Sheathing

Insul. Sheathing: XPS (Blue/Pink Foam), 6 inches

Structural Wall: 2 x 6, 24 inches on center

R-21 Batt:FG or RW, 5.5 inches

Window and door headers are insulated: Yes

Insulation Quality: OK

Calculated R-Value: 51.4

Below Grade Wall: House

Temperature: Living Space

Wall Length, Ft.: 123.9

Average Wall Height: 4.16

Top of wall section: -0.93 Ft. Below Grade

Is a Crawlspace Wall: No

Wall Type: Masonry

Insul. Sheathing: XPS (Blue/Pink Foam), 4 inches

Masonry Wall: 8" Poured Concrete

Insulation Quality: OK

Calculated Area, Sq. Ft.: 515.4

Calculated R-Value: 27.7

Above Grade Wall: House

Temperature: Living Space

Gross Area, Sq. Ft.: 1,637.7

Wall Type: Single Stud

Siding Configuration: Siding and Sheathing

Insul. Sheathing: XPS (Blue/Pink Foam), 6 inches

Structural Wall: 2 x 6, 16 inches on center

R-21 Batt:FG or RW, 5.5 inches

Window and door headers are insulated: Yes

Insulation Quality: OK

Calculated R-Value: 50.6

Doors - Total Area 139.1 sq. ft.

Garage Door: Garage

Temperature: Garage

Gross Area, Sq. Ft.: 93

Door Type: Sectional, polyurethane core, 2" w/ thermal break

Certified U-Value: 0.16

Insulating Blanket: None

Calculated R-Value: 6.3

Exterior Door: House

Temperature: Living Space
Gross Area, Sq. Ft.: 46.1
Door Type: Entrance, Metal, polyurethane core, wood edge
Storm Door: None
Calculated R-Value: 5.3

Windows - Total Area 181.7 sq. ft.

Window: SouthWindows

Temperature: Living Space
Gross Area, Sq. Ft.: 63.6
Orientation: South
External Shading: Little
Glass: Triple, Glass
Certified U-Value: 0.22
Certified SHGC: 0.600
Solar Heat Gain Coefficient including Window Coverings: 0.45

Window: House

Temperature: Living Space
Gross Area, Sq. Ft.: 118.1
Orientation: Not South
External Shading: Moderate
Glass: Triple, Glass
Certified U-Value: 0.22
Certified SHGC: 0.600
Solar Heat Gain Coefficient including Window Coverings: 0.45

Ceilings - Total Area 1,717 sq. ft.

Ceiling with Attic: House

Temperature: Living Space
Gross Area, Sq. Ft.: 1,717
Framing Type: Energy Truss
Framing Spacing: 24 inches
Insulated Sheathing: None
Bottom Insulation Layer: Cellulose/blown, 14 inches
Top Insulation Layer: None
Insulation Quality: OK
Calculated R-Value: 53.4

Design Heat Loss

Outdoor Temperature at Heating Design Conditions Option: Use Library Value
Outdoor Temperature at Heating Design Conditions Value (deg F): -47.0
Airport Wind Speed at Heating Design Conditions Option: Use Library Value
Airport Wind Speed at Heating Design Conditions Value (mph): 3.1
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\Fairbanks Prototype - 15.2 DHW 95 pointer.hm2

Report Date: 3/30/2015