

# 2021 IECC R-406 Projected Energy Rating Index Report

## Property

Builder:Eric Smith Architecture & Planning  
Address:  
2410 Ski Trail Lane, Steamboat Springs, CO  
80487

## Organization

Company:EnergyLogic  
Phone:  
Rater:Jeremy Hansen

## Energy Rating Index Information

Projected Rating  
Rating No:  
Date Rated:2024-02-07  
Rater ID (RTIN):0430334

### Estimated Annual Energy Consumption\*

	Rated Home Calculated Energy Use (MBtu)	Rated Home Cost (\$/yr)
Heating	25.2	\$1,058
Cooling	1.5	\$64
Water Heating	3.0	\$125
Lights & Appliances	22.9	\$962
Photovoltaics	0.0	\$0
Service charge	-	\$0
<b>Total</b>	<b>52.7</b>	<b>\$2,210</b>

\*Based on standard operating conditions

ERI with PV:39

ERI without PV:39

### Annual Estimates

Electric (kWh):15,430.1	CO2 Emissions (Tons):2.3
Natural Gas (Therms):0.0	

Maximum Energy Rating Index:53

This Home's Energy Rating Index:39

PASS

This home MEETS the Energy Rating Index Score requirement of 2021 IECC R-406 for Climate Zone 7. It MEETS all of the requirements verified by Ekotrope. Mandatory requirements are summarized on the 2nd page of this report, some of which are not verified by Ekotrope.

Name: Jeremy Hansen

Signature:



Organization: EnergyLogic

Digitally signed: 2/22/24 at 11:38 AM

### Rating Provider Data and Seal

Company:EnergyLogic  
Address:PO Box N, Berthoud, CO 80513  
Phone #:(970) 556-0839  
Fax #:



To determine if a provider is properly accredited go to: [www.resnet.us/professional/programs/search\\_directory](http://www.resnet.us/professional/programs/search_directory)

(Projected. Confirmation required.)

Climate Zone 7		Mandatory Requirements
Provision Number	Topic	Compliance Decision
R406.5	IECC 2021 ERI: 39 Max allowed: 95% of 53 (50.35)	Pass
R402.4.1.2	Air Leakage Testing	Pass
R403.3.1	Duct Insulation	Pass
R403.3.5	Duct Testing	Pass
R404.1	Lighting Equipment	Pass
Mandatory Checklist	Mandatory code requirements that are not checked by Ekotrope must be met.	Pass
R403.6.2	Mechanical Ventilation Efficacy	Pass
R403.6.1	Mechanical Ventilation Energy Recovery	Pass
R406.2	All other requirements from Table R406.2 not explicitly checked by Ekotrope.	Fail*

\* This is a projected rating. These items must eventually be field-verified by the Rater, Field Inspector, Code Inspector, or Builder.

Ekotrope RATER - Version 4.2.1.3343

IECC 2021 ERI compliance results calculated using Ekotrope RATER's energy and code compliance algorithm.  
Ekotrope RATER is a RESNET Accredited HERS Rating Tool. All results are based on data entered by Ekotrope users.  
Ekotrope disclaims all liability for the information shown on this report.

# Building Specification Summary

## Property

2410 Ski Trail Lane  
Steamboat Springs, CO 80487  
Community: Astrid Condos

## Organization

EnergyLogic  
Jeremy Hansen

## Inspection Status

Results are projected

Template - Eric Smith Architecture & Plan  
Report

## Builder

Eric Smith Architecture &  
Planning

## Building Information

Conditioned Area [ft <sup>2</sup> ]	3,112.00
Conditioned Volume [ft <sup>3</sup> ]	36,305.00
Thermal Boundary Area [ft <sup>2</sup> ]	10,378.00
Number Of Bedrooms	4
Housing Type	Apartment, end unit

## Rating

HERS ERI	40
HERS ERI w/o PV	40

## Building Shell

Ceiling w/ Attic	None
Vaulted Ceiling	None
Above Grade Walls	2x6 R27 16" OC (2" CCF + R13 batt); U-0.047
Found. Walls	None
Framed Floors	None
Slabs	None

Windows (largest)	U-Value: 0.3, SHGC: 0.35
Window / Wall Ratio	0.16
Window / Floor Ratio	0.19
Infiltration	3 ACH50
Duct Lkg to Outside	45 CFM @ 25Pa (1.98 / 100 ft <sup>2</sup> )
Total Duct Leakage	90 CFM @ 25Pa (Post-Construction)

## Mechanical Systems

Heating	Air Source Heat Pump • Electric • 9.4 HSPF2
Cooling	Air Source Heat Pump • Electric • 15.6 SEER2
Water Heating	Residential Water Heater • Electric • 3.83 UEF
Programmable Thermostat	Yes
Ventilation System	75 CFM • 35 Watts • ERV
Whole House Fan	N/A

## Lights and Appliances

Percent Interior LED	100%	Clothes Dryer Fuel	Electric
Percent Exterior LED	100%	Clothes Dryer CEF	3.0
Refrigerator (kWh/yr)	739.0	Clothes Washer LER (kWh/yr)	284.0
Dishwasher Efficiency	270 kWh	Clothes Washer Capacity	4.2
Ceiling Fan	None	Range/Oven Fuel	Electric

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Report

**Builder**  
Eric Smith Architecture & Planning

## General Building Information

Number Of Bedrooms	4
Number Of Floors	1
Conditioned Floor Area [sq. ft.]	3,112
Has Electric Vehicle Ready Space	No
Unconditioned, attached garage?	Yes
Conditioned Volume [cu. ft.]	36,305
Total Units in Building	4
Residence Type	Apartment, end unit
Number of Floors in Building	4
Floor Number	3
Model	
Community	Astrid Condos
RESNET/IECC 2006-2018 Climate Zone	7B
IECC 2021 Climate Zone	7B

## Foundation Wall

None Present

## Foundation Wall Library List

None Present

## Slab

None Present

## Slab Library List

None Present

## Framed Floor

Name	Library Type	Carpet R	Floor Grade	Surface Area	Location
FFx	Adiabatic/uninsulated	1	Above Grade	3,112.0 ft <sup>2</sup>	Conditioned Space (Adiabatic)

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## Framed Floor Library List

Name	Effective R-value
Adiabatic/uninsulated	1.53

## Rim Joist

Name	Library Type	Surface Area	Location
Ambient Rim	R 39	346.0 ft <sup>2</sup>	Exposed Exterior
Garage Rim	R 39	120.0 ft <sup>2</sup>	Unconditioned, attached garage

## Rim Joist Library List

Name	Effective Insulation R-value
R 39	39.00

## Wall

Name	Library Type	Surface Color	Surface Area	Location
AGW	2x6 R27 16" OC (2" CCF + R13 batt)	Medium	2,107.0 ft <sup>2</sup>	Exposed Exterior
Elevator	2x4 R13+R10 16"	Medium	298.0 ft <sup>2</sup>	Conditioned Space (Adiabatic)
Garage	2x6 R15 Continuous	Medium	1,283.0 ft <sup>2</sup>	Unconditioned, attached garage

## Wall Library List

Name	Effective R-value
2x4 R13+R10 16"	28.005
2x6 R15 Continuous	16.98
2x6 R27 16" OC (2" CCF + R13 batt)	21.197

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## Glazing

Name	Library Type	Wall Assignment	Foundation Wall Assignment	Is Operable	Overhang Depth	Overhang Ft To Top	Overhang Ft To Bottom	Orientation	Surface Area
Front	3035	AGW		Yes	0	0	0	South	253.0 ft <sup>2</sup>
Front - .38	3035	AGW		Yes	0	0	0	South	55.0 ft <sup>2</sup>
Front - Slider	3035	AGW		Yes	0	0	0	South	90.0 ft <sup>2</sup>
Left	3035	AGW		Yes	0	0	0	East	26.0 ft <sup>2</sup>
Left - Slider	3035	AGW		Yes	0	0	0	East	108.0 ft <sup>2</sup>
Right	3035	AGW		Yes	0	0	0	West	18.0 ft <sup>2</sup>
Right - .29	3035	AGW		Yes	0	0	0	West	46.2 ft <sup>2</sup>

## Glazing Library List

Name	Shgc	U-factor
3035	0.35	0.300

## Skylight

None Present

## Skylight Library List

None Present

## Opaque Door

Name	Library Type	Wall Assignment	Foundation Wall Assignment	Emittance	Solar Absorptance	Surface Color	Surface Area	Location
Patio	U .37	AGW		0.9	0.75	Medium	21.0 ft <sup>2</sup>	Exposed Exterior

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## Opaque Door Library List

Name	Effective U-factor
U .37	0.370

## Roof Insulation

Name	Library Type	Attic Exterior Area [ft <sup>2</sup> ]	Clay or Concrete Roof Tiles	Surface Color	Surface Area	Location
Ceiling	Adiabatic	3,112	No	Medium	3,112.0 ft <sup>2</sup>	Conditioned Space (Adiabatic)

## Roof Insulation Library List

Name	Has Radiant Barrier	Effective R-value
Adiabatic	No	1.431

## Whole House Infiltration

Infiltration	Measurement Type	Shelter Class
3 ACH at 50 Pa	Blower-door tested	4

## Mechanical Ventilation

Ventilation Type	Ventilation Rate [ft <sup>3</sup> / Minute]	Operational hours per day	Fan Watts	Runs once every three hours	Energy Recovery Percent	Model Number	Manufacturer
ERV	75 CFM	24	35 Watts	Yes	70		

## Lighting

% Interior Fluorescent Lighting	% Interior LED Lighting	% Exterior Fluorescent Lighting	% Exterior LED Lighting	% Garage Fluorescent Lighting	% Garage LED Lighting
0	100	0	100	0	100

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## Onsite Generation

None Present

## Onsite Generation Library List

None Present

## Solar Generation

None Present

## Dehumidifier

None Present

## Dehumidifier Library List

None Present

## Whole House Fan

None Present

## Whole House Fan Library List

None Present

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## Conditioning Equipment

Name	Library Type	Serial Number	Heating Percent Load	Cooling Percent Load	Hot Water Percent Load	Location
ASHP	Carrier 38MURAQ48AB3 outdoor +		73%	73%	0%	Conditioned Space
ASHP 2	Carrier 38MURAQ18AB3 outdoor +		27%	27%	0%	Conditioned Space
Water Heater 1	Rheem PROPH40 T2 RH375-SO 40 Gal Hybrid		0%	0%	50%	Conditioned Space
Water Heater 2	Rheem PROPH40 T2 RH375-SO 40 Gal Hybrid		0%	0%	50%	Conditioned Space

### Equipment Type: Carrier 38MURAQ18AB3 outdoor + 40MUAQAQ24XA3 indoor

Equipment Type	Air Source Heat Pump
Fuel Type	Electric
Distribution Type	Forced Air
Motor Type	ECM (Variable Speed)
Heat Pump System Type	Unspecified
Heating Efficiency	9.3 HSPF2
Heating Capacity [kBtu/h]	19
Backup Fuel Type	Electric
Switchover Temperature [°F]	-22
Backup Heating Efficiency	1 Adjusted Efficiency
Use default Supplemental Heat	Yes
Cooling Efficiency	18 SEER2
Cooling Capacity [kBtu/h]	18

### Equipment Type: Carrier 38MURAQ48AB3 outdoor + 40MUAQAQ48XA3 indoor

Equipment Type	Air Source Heat Pump
Fuel Type	Electric
Distribution Type	Forced Air
Motor Type	ECM (Variable Speed)
Heat Pump System Type	Split System
Heating Efficiency	9.4 HSPF2
Heating Capacity [kBtu/h]	50
Backup Fuel Type	Electric
Switchover Temperature [°F]	-22
Backup Heating Efficiency	1 Adjusted Efficiency
Use default Supplemental Heat	Yes
Cooling Efficiency	15.6 SEER2
Cooling Capacity [kBtu/h]	47

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## Equipment Type: Rheem PROPH40 T2 RH375-SO 40 Gal Hybrid Electric UEF 3.45

Equipment Type	Residential Water Heater
Fuel Type	Electric
Distribution Type	Hydronic Delivery (Radiant)
Hot Water Efficiency	3.83 UEF
Tank Capacity (gal.)	36

## Distribution System

Distribution Type	Forced Air
Heating Equipment	ASHP
Cooling Equipment	ASHP
Sq. Feet Served	2,272
# Return Grilles	4
Supply Duct R Value	0
Return Duct R Value	0
Supply Duct Area [ft <sup>2</sup> ]	613.44
Return Duct Area [ft <sup>2</sup> ]	454.4
Leakage to Outdoors	45 CFM @ 25Pa (1.98 / 100 ft <sup>2</sup> )
Total Leakage	90 CFM25
Total Leakage Duct Test Conditions	Post-Construction
Use Default Flow Rate	Yes
Duct 1	
Duct Location	Conditioned Space
Percent Supply Area	100
Percent Return Area	100
Duct 2	
Duct Location	Conditioned Space
Percent Supply Area	0
Percent Return Area	0
Duct 3	
Duct Location	Conditioned Space
Percent Supply Area	0
Percent Return Area	0
Duct 4	
Duct Location	Conditioned Space
Percent Supply Area	0
Percent Return Area	0
Duct 5	
Duct Location	Conditioned Space
Percent Supply Area	0
Percent Return Area	0
Duct 6	
Duct Location	Conditioned Space
Percent Supply Area	0
Percent Return Area	0

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## Distribution System

Distribution Type	Forced Air
Heating Equipment	ASHP 2
Cooling Equipment	ASHP 2
Sq. Feet Served	840
# Return Grilles	2
Supply Duct R Value	0
Return Duct R Value	0
Supply Duct Area [ft <sup>2</sup> ]	226.8
Return Duct Area [ft <sup>2</sup> ]	84
Leakage to Outdoors	17 CFM @ 25Pa (2.02 / 100 ft <sup>2</sup> )
Total Leakage	33 CFM25
Total Leakage Duct Test Conditions	Post-Construction
Use Default Flow Rate	Yes
Duct 1	
Duct Location	Conditioned Space
Percent Supply Area	100
Percent Return Area	100
Duct 2	
Duct Location	Conditioned Space
Percent Supply Area	0
Percent Return Area	0
Duct 3	
Duct Location	Conditioned Space
Percent Supply Area	0
Percent Return Area	0
Duct 4	
Duct Location	Conditioned Space
Percent Supply Area	0
Percent Return Area	0
Duct 5	
Duct Location	Conditioned Space
Percent Supply Area	0
Percent Return Area	0
Duct 6	
Duct Location	Conditioned Space
Percent Supply Area	0
Percent Return Area	0

## HVAC Grading

HVAC Grading Not Conducted

## Ceiling Fan

Has Ceiling Fan	No
Cfm Per Watt	70.42253521

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## Water Distribution

Water Fixture Type	Low-flow
Use Default Hot Water Pipe Length	No
Hot Water Pipe Length [ft]	80
At Least R3 Pipe Insulation?	Yes
Hot Water Recirculation System?	No
Recirculation System Pipe Loop Length [ft]	170
Drain Water Heat Recovery?	No

## Clothes Dryer

Cef	3.01
Fuel Type	Electric
Field Utilization	Timer Controls
Is Outside Conditioned Space	No
Clothes Dryer Available	Yes
Defaults Type	HERS Reference

## Clothes Washer

Label Energy Rating	284 kWh/Year
Annual Gas Cost	\$18.00
Electric Rate	\$0.12/kWh
Gas Rate	\$1.09/Therm
Capacity	4.2
Imef	1.57
Defaults Type	Standard 2018+
Load Type	Front-load
Loads Per Week	6
Is Outside Conditioned Space	No
Clothes Washer Available	Yes

## Dishwasher

Dishwasher Defaults Type	Custom
Dishwasher Size	Standard
Dishwasher Efficiency	270 kWh
Annual Gas Cost	\$33.12
Electric Rate	\$0.12/kWh
Gas Rate	\$1.09/Therm
Is Outside Conditioned Space	No
Dishwasher Available	Yes

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## Appliances and Controls

Programmable thermostat?	Yes
Range/Oven Fuel	Electric
Convection Oven?	Yes
Induction Range?	No
Range/Oven Outside Conditioned Space?	No
Refrigerator Consumption	739 kWh/Year
Refrigerator Outside Conditioned Space?	No

## Notes

Eko v4.2.1 used for projected reports. Need to use ERI reports (not HERS score) for this project so no HERS report or performance path reports get printed here. Need ERI of 50 or better.