

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:2023-11-08
Rater ID (RTIN):0430334

Estimated Annual Energy Consumption*		
	Rated Home Calculated Energy Use (MBtu)	Rated Home Cost (\$/yr)
Heating	35.6	\$1,494
Cooling	1.8	\$74
Water Heating	3.6	\$149
Lights & Appliances	26.3	\$1,102
Photovoltaics	0.0	\$0
Service charge	-	\$0
Total	67.2	\$2,819

*Based on standard operating conditions

ERI with PV:42

ERI without PV:42

Annual Estimates	
Electric (kWh):19,687.0	CO2 Emissions (Tons):2.9
Natural Gas (Therms):0.0	

Maximum Energy Rating Index:53	This Home's Energy Rating Index:42	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 11:40 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	

(Projected. Confirmation required.)

Climate Zone 7 Mandatory Requirements		
Provision Number	Topic	Compliance Decision
R406.5	IECC 2021 ERI: 42 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

Builder

Template - Eric Smith Architecture & Planning
Report

Eric Smith Architecture & Planning

Building Information

Conditioned Area [ft²]	3,615.00
Conditioned Volume [ft³]	42,845.00
Thermal Boundary Area [ft²]	11,708.00
Number Of Bedrooms	6
Housing Type	Apartment, end unit

Rating

HERS ERI	44
HERS ERI w/o PV	44

Building Shell

Ceiling w/ Attic	R60 24" OC CCF G1; U-0.021
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	0.20
Window / Floor Ratio	0.22
Infiltration	3 ACH50
Duct Lkg to Outside	58 CFM @ 25Pa (2.39 / 100 ft²)
Total Duct Leakage	105 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	105 CFM • 41 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	3.5
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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Template - Eric Smith Architecture & Planning (ESA) - Upper
Report

Builder

Eric Smith Architecture & Planning

General Building Information

Number Of Bedrooms	6
Number Of Floors	1
Conditioned Floor Area [sq. ft.]	3,615
Has Electric Vehicle Ready Space	No
Unconditioned, attached garage?	No
Conditioned Volume [cu. ft.]	42,845
Total Units in Building	4
Residence Type	Apartment, end unit
Number of Floors in Building	4
Floor Number	4
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	3,615.0 ft²	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	375.0 ft²	Exposed Exterior

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	3,740.0 ft²	Exposed Exterior
Elevator	2x4 R13 16"OC FB	Medium	322.0 ft²	Conditioned Space (Adiabatic)

Wall Library List

Name	Effective R-value
2x4 R13 16"OC FB	12.631
2x6 R27 16" OC (2" CCF + R13 batt)	21.197

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Template - Eric Smith Architecture & Planning (ESA) - Upper Report		

Glazing

Name	Library Type	Wall Assignment	Foundation Wall Assignment	Is Operable	Overhang Depth	Overhang Ft To Top	Overhang Ft To Bottom	Orientation	Surface Area
Back	3035	AGW		Yes	0	0	0	North	144.0 ft²
Back - .29	3035	AGW		Yes	0	0	0	North	52.6 ft²
Front	3035	AGW		Yes	0	0	0	South	299.4 ft²
Front - .29	3035	AGW		Yes	0	0	0	South	32.7 ft²
Front - .38	3035	AGW		Yes	0	0	0	South	55.0 ft²
Left	3035	AGW		Yes	0	0	0	East	40.0 ft²
Left - Slider	3035	AGW		Yes	0	0	0	East	108.0 ft²
Right	3035	AGW		Yes	0	0	0	West	40.5 ft²
Right - .29	3035	AGW		Yes	0	0	0	West	23.0 ft²

Glazing Library List

Name	Shgc	U-factor
3035	0.35	0.300

Skylight

None Present

Skylight Library List

None Present

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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 ft²	Exposed Exterior

Opaque Door Library List

Name	Effective U-factor
U .37	0.370

Roof Insulation

Name	Library Type	Attic Exterior Area [ft²]	Clay or Concrete Roof Tiles	Surface Color	Surface Area	Location
Ceiling	R60 24" OC CCF G1	2,255	No	Medium	2,255.0 ft²	Attic
Vault	R60 24" OC CCF G1	1,401	No	Medium	1,401.0 ft²	Attic

Roof Insulation Library List

Name	Has Radiant Barrier	Effective R-value
R60 24" OC CCF G1	No	48.131

Whole House Infiltration

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

Mechanical Ventilation

Ventilation Type	Ventilation Rate [ft³ / Minute]	Operational hours per day	Fan Watts	Runs once every three hours	Energy Recovery Percent	Model Number	Manufacturer
ERV	105 CFM	24	41 Watts	Yes	75		

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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

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

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Whole House Fan Library List

None Present

Conditioning Equipment

Name	Library Type	Serial Number	Heating Percent Load	Cooling Percent Load	Hot Water Percent Load	Location
ASHP	Carrier 38MURAQ48AB3 outdoor +		67%	67%	0%	Conditioned Space
ASHP 2	Carrier 38MURAQ24AB3 outdoor +		33%	33%	0%	Conditioned Space
Water Heater	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 38MURAQ24AB3 outdoor + 40MUAQ24XA3 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	12 HSPF
Heating Capacity [kBtu/h]	24
Backup Fuel Type	Electric
Switchover Temperature [°F]	-22
Backup Heating Efficiency	1 Adjusted Efficiency
Use default Supplemental Heat	Yes
Cooling Efficiency	20 SEER
Cooling Capacity [kBtu/h]	24

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Equipment Type: Carrier 38MURAQ48AB3 outdoor + 40MUAAQ48XA3 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

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

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Distribution System

Distribution Type	Forced Air
Heating Equipment	ASHP
Cooling Equipment	ASHP
Sq. Feet Served	2,422
# Return Grilles	4
Supply Duct R Value	6
Return Duct R Value	6
Supply Duct Area [ft²]	653.94
Return Duct Area [ft²]	484.4
Leakage to Outdoors	58 CFM @ 25Pa (2.39 / 100 ft²)
Total Leakage	105 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	1,193
# Return Grilles	2
Supply Duct R Value	6
Return Duct R Value	6
Supply Duct Area [ft ²]	322.11
Return Duct Area [ft ²]	119.3
Leakage to Outdoors	23 CFM @ 25Pa (1.93 / 100 ft ²)
Total Leakage	45 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]	55
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	3.45
Fuel Type	Electric
Field Utilization	Moisture Sensing
Is Outside Conditioned Space	No
Clothes Dryer Available	Yes
Defaults Type	Custom

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 here (not the HERS or IECC 2021 Performance reports, just the IECC 2021 ERI reports). Need an ERI of 50 or better.