

North Carolina 2018 - R402.1.5 Total UA

**Property**

450 River Bluff Drive
Dunn, NC 28334
Model: Custom

Organization

Southern Energy Management
Justin Smith

Inspection Status

Results are projected

Builder

Outpost Design Build - 450 River Bluff Drive
450 River Bluff Drive - Guest Wing

This report is based on a proposed design and does not confirm field enforcement of design elements.

Building UA

Elements	NC Reference	As Designed
Ceilings	20.6	27.6
Above-Grade Walls	60.9	44.7
Windows, Doors and Skylights	63.2	51.2
Slab Floor:	49.9	64.2
Framed Floors	0.0	0.0
Foundation Walls	0.0	0.0
Rim Joists	0.0	0.0
Overall UA (Design must be equal or lower):	194.6	187.7

Requirements

✓	R402.1.5	Total UA alternative compliance passes by 3.5%.	The proposed home meets the UA requirement by 3.5%
✓	R402.3.2	Average SHGC: 0.25 Max SHGC: 0.30	Average SHGC of 0.25 is greater than the maximum of 0.30.
✓	R402.4.2.2	Air Leakage Testing	Air sealing is 0.10 CFM50 / ft ² Shell Area. It must not exceed 0.30 CFM50 / ft ² Shell Area.
✓	R402.5	Area-weighted average fenestration SHGC	Area-weighted average fenestration SHGC is 0.255. The maximum allowed value is [No Limit].
✓	R402.5	Area-weighted average fenestration U-Factor	
✓	R404.1	Lighting Equipment	
✓	Mandatory Checklist	Mandatory code requirements that are not checked by Ekotrope must be met.	2015 IECC Mandatory Checklist must be checked as complete.
✓	R403.3.1	Duct Insulation	Duct insulation meets the requirements specified in North Carolina 2018 Code Section 403.3.1.
✓	403.3.3	Duct Testing	

Design exceeds requirements for North Carolina 2018 Prescriptive compliance by 3.5%.

Name:	Justin Smith	Signature:	<i>Justin Smith</i>
Organization:	Southern Energy Management	Digitally signed:	7/9/25 at 3:19 PM

Ekotrope RATER - Version 4.1.2.3664

North Carolina 2018 Prescriptive compliance results calculated using Ekotrope RATER's energy and code compliance algorithm, including appropriate amendments.
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.

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Builder
Outpost Design Build

General Building Information

Number Of Bedrooms: 1	Number Of Floors: 1
Conditioned Floor Area [sq. ft.]: 608	Has Electric Vehicle Ready Space: No
Unconditioned, attached garage? No	Conditioned Volume [cu. ft.]: 5,472
Total Units in Building: 1	Residence Type: Single family detached
Number of Floors in Building: N/A	Floor Number: N/A
Model: Custom	Community:
RESNET/IECC 2006-2018 Climate Zone: 4A	IECC 2021 Climate Zone: 3A

Envelope Components

Slab

Name	Library Type	Perimeter	Floor Grade	Carpet R	Exposed Masonry Area	Surface Area	Location	Enclosing
slab	Uninsulated	108	On Grade	1	0	608.0 ft²	Exposed Exterior	Conditioned Space

Slab Library List

Name	Wall Construction Type	Slab Completely Insulated?	Underslab Insulation Width [ft]	Perimeter Insulation Depth [ft]	Perimeter Insulation R Value	Perimeter Insulation Is Exterior	Thermal Break	Effective R-value
Uninsulated	Wood Frame / Other	No	0	0	0	No	No	0.00

Wall

Name	Library Type	Surface Color	Solar Absorptance	Surface Area	Location	Effective R-value
1st floor ambient	R 21 FG G1 16" O.C	Medium	0.75	972.0 ft²	Exposed Exterior	17.696

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 unshaded	28/24	1st floor ambient		Yes	0	0	0	Northwest	112.7 ft²
front unshaded	32/29	1st floor ambient		Yes	0	0	0	Northwest	21.0 ft²
left unshaded	33/29	1st floor ambient		Yes	0	0	0	Northeast	9.0 ft²
rear unshaded	33/29	1st floor ambient		Yes	0	0	0	Southeast	9.0 ft²
right unshaded	33/29	1st floor ambient		Yes	0	0	0	Southwest	9.0 ft²

Glazing Library List

Name	Shgc	U-factor
28/24	0.24	0.280
32/29	0.29	0.320
33/29	0.29	0.330

Opaque Door

Name	Library Type	Wall Assignment	Foundation Wall Assignment	Emittance	Solar Absorptance	Surface Color	Surface Area	Location	Effective R-value
entry	Fiberglass R-5	1st floor ambient		0.9	0.75	Medium	20.0 ft²	Exposed Exterior	0.200

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Roof Insulation										
Name	Library Type	Attic Exterior Area [ft²]	Clay or Concrete Roof Tiles	Does the Roof have Eaves?	Effective R-Value after eaves	Surface Color	Solar Absorptance	Surface Area	Location	
ceiling	R 26 OC Attic SEALED G1 NO Radiant Barrier 2x6 rafters 16"O.C.	687.04	No	No	-	Dark	0.9	687.0 ft²	Vaulted Roof	

Roof Insulation Library List		
Name	Has Radiant Barrier	Effective R-value
R 26 OC Attic SEALED G1 NO Radiant Barrier 2x6 rafters 16"O.C.	No	24.90

Whole House Infiltration		
Infiltration	Measurement Type	Shelter Class
219 CFM at 50 Pa	Blower-door tested	4

Mechanicals, Lights & Water

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

Conditioning Equipment						
Name	Library Type	Serial Number	Heating Percent Load	Cooling Percent Load	Hot Water Percent Load	Location
water heater	z 50 gal. 0.92 EF Elec		0%	0%	100%	Unspecified
whole house heat pump	z 18k 14.3 SEER2 7.5 HSPF2		100%	100%	0%	Unspecified

Equipment Type: z 18k 14.3 SEER2 7.5 HSPF2	
Equipment Type	Air Source Heat Pump
Fuel Type	Electric
Distribution Type	Forced Air
Motor Type	ECM (Variable Speed)
Heat Pump System Type	Ducted Split System
Heating Efficiency	7.5 HSPF2
Heating Capacity [kBtu/h]	18
Backup Fuel Type	Electric
Switchover Temperature [°F]	0
Backup Heating Efficiency	1 COP
Use default Supplemental Heat	Yes
Cooling Efficiency	14.3 SEER2
Cooling Capacity [kBtu/h]	18

Equipment Type: z 50 gal. 0.92 EF Elec	
Equipment Type	Residential Water Heater
Fuel Type	Electric
Distribution Type	Hydronic Delivery (Radiant)
Hot Water Efficiency	0.92 Energy Factor
Tank Capacity (gal.)	50
Hot Water Capacity [kBtu/h]	40
Recovery Efficiency	0.98

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Distribution System

Distribution Type	Forced Air
Heating Equipment	whole house heat pump
Cooling Equipment	whole house heat pump
Sq. Feet Served	608
# Return Grilles	2
Supply Duct R Value	8
Return Duct R Value	8
Supply Duct Area [ft²]	164.16
Return Duct Area [ft²]	60.8
Leakage to Outdoors	0 CFM @ 25Pa (0 / 100 ft²)
Total Leakage	24 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

Water Distribution

Water Fixture Type	Standard
Use Default Hot Water Pipe Length	No
Hot Water Pipe Length [ft]	59
At Least R3 Pipe Insulation?	No
Hot Water Recirculation System?	No
Drain Water Heat Recovery?	No

Appliances & Notes

Clothes Dryer

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

Clothes Washer

Label Energy Rating	153 kWh/Year
Annual Gas Cost	\$12.00
Electric Rate	\$0.11/kWh
Gas Rate	\$1.22/Therm
Capacity	3.31
Imef	2.1547
Defaults Type	Custom
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	\$22.23
Electric Rate	\$0.12/kWh
Gas Rate	\$1.09/Therm
Is Outside Conditioned Space	No
Dishwasher Available	Yes

Appliances and Controls

Thermostat Cooling Setpoint	*** 75.0
Thermostat Heating Setpoint	*** 70.0
Range/Oven Fuel	Electric
Convection Oven?	No
Induction Range?	No
Range/Oven Outside Conditioned Space?	No
Refrigerator Consumption	538 kWh/Year
Refrigerator Outside Conditioned Space?	No

Notes

-initial inputs - JSm 07/09/2025

-confirm cfl lighting %
-modeled to worst case orientation

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Components Not Found: Foundation Wall, Foundation Wall Library List, Framed Floor, Rim Joist, Skylight, Mechanical Ventilation, Onsite Generation, Solar Generation, Dehumidifier, Whole House Fan, Whole House Fan Library List, HVAC Grading (Not Conducted), Ceiling Fan