

# North Carolina 2018 - R402.1.5 Total UA

**Property**

Cameron, NC 28326  
Model: Hazlitt  
Community: Liberty Meadows

**Organization**

Southern Energy Manager  
Justin Smith

**Inspection Status**

Results are projected

Template - SMG Precision - Liberty  
Meadows lot 11 - CZ 3 slab -  
Liberty Meadows lot 11

**Builder**

SMG Precision Properties

**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	61.8	58.6
Above-Grade Walls	190.0	141.1
Windows, Doors and Skylights	87.7	77.5
Slab Floor:	85.0	111.1
Framed Floors	23.3	25.3
Foundation Walls	0.0	0.0
Rim Joists	9.9	8.0
<b>Overall UA (Design must be equal or lower):</b>	<b>457.7</b>	<b>421.6</b>

## Requirements

✓	402.1.5	Total UA alternative compliance passes by 7.9%.	
✓	402.3.2	Average SHGC: 0.28 Max SHGC: 0.30	
✓	R402.4.2.2	Air Leakage Testing	Air sealing is 0.25 CFM50 / ft <sup>2</sup> Shell Area. It must not exceed 0.30 CFM50 / ft <sup>2</sup> Shell Area.
✓	R402.5	Area-weighted average fenestration SHGC	
✓	R402.5	Area-weighted average fenestration U-Factor	
✓	R404.1	Lighting Equipment Efficiency	
✓	Mandatory Checklist	Mandatory code requirements that are not checked by Ekotrope must be met.	
✓	R403.3.1	Duct Insulation	
✓	403.3.3	Duct Testing	

**Design exceeds requirements for North Carolina 2018 Prescriptive compliance by 7.9%.**

Name: Justin Smith

Signature: Justin Smith

Organization: Southern Energy Management

Digitally signed: 8/9/22 at 11:13 AM

### Ekotrope RATER - Version 4.0.1.2966

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.  
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## General Building Information

Number Of Bedrooms	4
Number Of Floors	2
Conditioned Floor Area [sq. ft.]	2,430
Has Electric Vehicle Ready Space	No
Unconditioned, attached garage?	Yes
Conditioned Volume [cu. ft.]	21,870
Total Units in Building	1
Residence Type	Single family detached
Number of Floors in Building	-
Floor Number	-
Model	Hazlitt
Community	Liberty Meadows
RESNET/IECC 2006 Climate Zone	4A
IECC 2021 Climate Zone	3A

## Foundation Wall

None Present

## Foundation Wall Library List

None Present

## Slab

Name	Library Type	Perimeter	Floor Grade	Carpet R	Exposed Masonry Area	Surface Area	Location	Enclosing
slab	Uninsulated	174	On Grade	1	0	1,564.0 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	Thermal Break	Effective R-value
Uninsulated	Wood Frame / Other	No	0	0	0	No	0.00

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**SOUTHERN ENERGY**  
MANAGEMENT  
ENERGY EFFICIENCY & SOLAR POWER

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## Framed Floor

Name	Library Type	Carpet R	Floor Grade	Surface Area	Location
over garage	R 19, 16"OC G1 Carpet	0	Above Grade	495.0 ft <sup>2</sup>	Unconditioned, attached garage

## Framed Floor Library List

Name	Effective R-value
R 19, 16"OC G1 Carpet	19.566

## Rim Joist

Name	Library Type	Surface Area	Location
1st floor ambient	R 19 G1, 16"OC	144.0 ft <sup>2</sup>	Exposed Exterior
1st floor garage	R 19 G1, 16"OC	34.0 ft <sup>2</sup>	Unconditioned, attached garage

## Rim Joist Library List

Name	Effective Insulation R-value
R 19 G1, 16"OC	17.30

## Wall

Name	Library Type	Surface Color	Surface Area	Location
1st floor ambient	R 19 Adv. Framing G1 16" O.C	Medium	1,260.0 ft <sup>2</sup>	Exposed Exterior
1st floor garage	R 19 Adv. Framing G1 16" O.C	Medium	306.0 ft <sup>2</sup>	Unconditioned, attached garage
2nd floor ambient	R 19 Adv. Framing G1 16" O.C	Medium	1,152.0 ft <sup>2</sup>	Exposed Exterior

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## Wall Library List

Name	Effective R-value
R 19 Adv. Framing G1 16" O.C	17.492

## 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 2nd unshaded	33/28	2nd floor ambient		Yes	0	0	0	North	40.1 ft²
front unshaded	33/28	1st floor ambient		Yes	0	0	0	North	13.4 ft²
rear 2nd unshaded	33/28	2nd floor ambient		Yes	0	0	0	South	26.7 ft²
rear unshaded	33/28	1st floor ambient		Yes	0	0	0	South	77.1 ft²
right unshaded	33/28	1st floor ambient		Yes	0	0	0	West	53.4 ft²

## Glazing Library List

Name	Shgc	U-factor
33/28	0.28	0.330

## 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
front entry	Fiberglass R-5	1st floor ambient		0.9	0.75	Medium	20.0 ft²	Exposed Exterior
garage entry	Fiberglass R-5	1st floor garage		0.9	0.75	Medium	20.0 ft²	Unconditioned, attached garage

## Opaque Door Library List

Name	Effective U-factor
Fiberglass R-5	0.200

## Roof Insulation

Name	Library Type	Attic Exterior Area [ft²]	Clay or Concrete Roof Tiles	Surface Color	Surface Area	Location
attic	R 38 Attic BLOWN FG G1 2x10 24"OC NO Radiant Barrier	3,026.73	No	Dark	2,059.0 ft²	Attic

## Roof Insulation Library List

Name	Has Radiant Barrier	Effective R-value
R 38 Attic BLOWN FG G1 2x10 24"OC NO Radiant Barrier	No	35.115

## Whole House Infiltration

Infiltration	Measurement Type	Shelter Class
1750 CFM at 50 Pa	Blower-door tested	4

## Mechanical Ventilation

None Present

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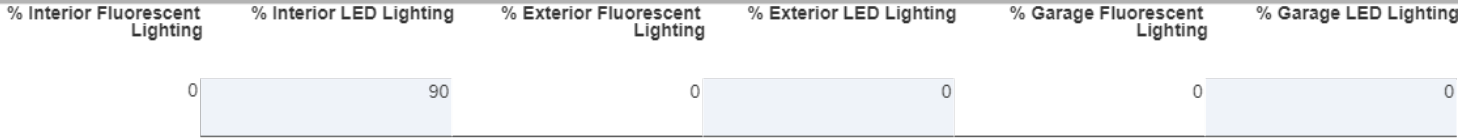
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## Lighting



## 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
1st floor heat pump	z 24k 14 SEER 8.2hspf		64%	64%	0%	Attic
2nd floor heat pump	z 24k 14 SEER 8.2hspf		36%	36%	0%	Attic
Water Heating	z 50 gal. 0.95 EF Elec		0%	0%	100%	Unconditioned Garage

### Equipment Type: z 24k 14 SEER 8.2hspf

Equipment Type	Air Source Heat Pump
Fuel Type	Electric
Distribution Type	Forced Air
Motor Type	PSC (Single Speed)
Heating Efficiency	8.2 HSPF
Heating Capacity [kBtu/h]	24
Backup Fuel Type	Electric
Switchover Temperature [°F]	0
Backup Heating Efficiency	1 COP
Use default Supplemental Heat	Yes
Cooling Efficiency	14 SEER
Cooling Capacity [kBtu/h]	24

### Equipment Type: z 50 gal. 0.95 EF Elec

Equipment Type	Residential Water Heater
Fuel Type	Electric
Distribution Type	Hydronic Delivery (Radiant)
Hot Water Efficiency	0.95 Energy Factor
Tank Capacity (gal.)	50
Hot Water Capacity [kBtu/h]	40
Recovery Efficiency	0.98

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SMG Precision Properties

## Distribution System

Distribution Type	Forced Air
Heating Equipment	1st floor heat pump
Cooling Equipment	1st floor heat pump
Sq. Feet Served	1,564
# Return Grilles	2
Supply Duct R Value	8
Return Duct R Value	8
Supply Duct Area [ft <sup>2</sup> ]	422.28
Return Duct Area [ft <sup>2</sup> ]	156.4
Leakage to Outdoors	62 CFM @ 25Pa (3.96 / 100 ft <sup>2</sup> )
Total Leakage	62 CFM25
Total Leakage Duct Test Conditions	Post-Construction
Use Default Flow Rate	Yes
Duct 1	
Duct Location	Attic (well vented)
Percent Supply Area	70
Percent Return Area	70
Duct 2	
Duct Location	Conditioned Space
Percent Supply Area	30
Percent Return Area	30
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	2nd floor heat pump
Cooling Equipment	2nd floor heat pump
Sq. Feet Served	866
# Return Grilles	2
Supply Duct R Value	8
Return Duct R Value	8
Supply Duct Area [ft <sup>2</sup> ]	233.82
Return Duct Area [ft <sup>2</sup> ]	86.6
Leakage to Outdoors	34 CFM @ 25Pa (3.93 / 100 ft <sup>2</sup> )
Total Leakage	34 CFM25
Total Leakage Duct Test Conditions	Post-Construction
Use Default Flow Rate	Yes
Duct 1	
Duct Location	Attic (well vented)
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	100

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## Water Distribution

Water Fixture Type	Low-flow
Use Default Hot Water Pipe Length	No
Hot Water Pipe Length [ft]	87
At Least R3 Pipe Insulation?	No
Hot Water Recirculation System?	No
Recirculation System Pipe Loop Length [ft]	20
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	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 Efficiency	270 kWh
Dishwasher Size	Standard
Annual Gas Cost	\$22.23
Electric Rate	\$0.12/kWh
Gas Rate	\$1.09/Therm
Is Outside Conditioned Space	No

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## 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 \_\_\_\_\_ MS 06/30/22 \_\_\_\_\_

- confirm HVAC specs
- confirm water heater specs
- confirm ventilation entry, modeled as air cycler
- modeled to worst case orientation
- confirm cfl lighting %