

# North Carolina 2018 - R402.1.5 Total UA



SOUTHERN ENERGY  
MANAGEMENT  
ENERGY EFFICIENCY & SOLAR POWER

<b>Property</b> NC 27596 Model: 1997 Meadowbrook Slab	<b>Organization</b> Southern Energy Manager Justin Smith	<b>Inspection Status</b> Results are projected
CC 1997 slab Template - Caviness & Cates - CC 1!	<b>Builder</b> Caviness and Cates	

## Building UA

Elements	NC Reference	As Designed
Ceilings	33.2	29.7
Above-Grade Walls	158.5	128.8
Windows, Doors and Skylights	77.0	62.2
Slab Floor:	63.3	82.0
Framed Floors	10.0	10.0
Foundation Walls	0.0	0.0
Rim Joists	7.4	6.6
<b>Overall UA (Design must be equal or lower):</b>	<b>349.4</b>	<b>319.3</b>

## Requirements

<input checked="" type="checkbox"/>	402.1.5	Total UA alternative for insulation and fenestration
<input checked="" type="checkbox"/>	402.3.2 Glazed Fenestration SHGC	Average SHGC: 0.23 Max SHGC: 0.30
<input checked="" type="checkbox"/>	R402.4.2.2	Air Leakage Testing Air sealing is 4.80 ACH at 50 Pa. It must not exceed 5.00 ACH at 50 Pa.
<input checked="" type="checkbox"/>	R402.5	Area-weighted average fenestration SHGC
<input checked="" type="checkbox"/>	R402.5	Area-weighted average fenestration U-Factor
<input checked="" type="checkbox"/>	R404.1	Lighting Equipment Efficiency
<input checked="" type="checkbox"/>	Mandatory Checklist	Mandatory code requirements that are not checked by Ekotrope must be met.
<input checked="" type="checkbox"/>	R403.3	Duct Insulation
<input checked="" type="checkbox"/>	403.3.3	Duct Testing

**Design exceeds requirements for North Carolina 2018 Prescriptive compliance by 8.6%.**

Name:	<u>Justin Smith</u>	Signature:	<u>Justin Smith</u>
Organization:	<u>Southern Energy Management</u>	Digitally signed:	<u>1/16/20 at 11:24 AM</u>

Ekotrope RATER - Version 3.2.3.2336

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.

# Building Summary



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## General Building Information

Number Of Bedrooms	3
Number Of Floors	2
Conditioned Floor Area [sq. ft.]	1,997
Unconditioned, attached garage?	Yes
Conditioned Volume [cu. ft.]	17,766
Total Units in Building	1
Residence Type	Single family detached
Floor Number	-
Model	1997 Meadowbrook Slab
Community	
Climate Zone	4A

## 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
uninsulated slab	Uninsulated	134	On Grade	1	0	895.0 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

## Framed Floor

Name	Library Type	Carpet R	Floor Grade	Surface Area	Location
over garage	R-19, 16"OC G1 Carpet	0	Above Grade	213.0 ft²	Unconditioned, attached garage

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## Framed Floor Library List

Name	Effective R-value
R-19, 16"OC G1 Carpet	21.284

## Rim Joist

Name	Library Type	Surface Area	Location
1st floor ambient	R 19 G2, 16"OC	103.0 ft <sup>2</sup>	Exposed Exterior
1st floor garage	R 19 G2, 16"OC	31.0 ft <sup>2</sup>	Exposed Exterior

## Rim Joist Library List

Name	Effective Insulation R-value
R 19 G2, 16"OC	15.40

## Wall

Name	Library Type	Surface Color	Surface Area	Location
1st ambient	R 19 FG G2 16" O.C	Medium	930.0 ft <sup>2</sup>	Exposed Exterior
2nd ambient	R 19 FG G2 16" O.C	Medium	904.0 ft <sup>2</sup>	Exposed Exterior
2nd attic	R 19 FG G2 16" O.C	Medium	168.0 ft <sup>2</sup>	Attic
garage wall	R.19 FG G2 16" O.C	Medium	276.0 ft <sup>2</sup>	Unconditioned, attached garage

## Wall Library List

Name	Effective R-value
R 19 FG G2 16" O.C	15.977



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## Glazing

Name	Library Type	Wall Assignment	Foundation Wall Assignment	Overhang Depth	Overhang Ft To Top	Overhang Ft To Bottom	Orientation	Surface Area
front 2nd unshaded	30/23	2nd ambient		0	0	0	Southeast	45.0 ft <sup>2</sup>
front shaded	30/23	1st ambient		5	1	6	Southeast	30.0 ft <sup>2</sup>
left unshaded	30/23	1st ambient		0	0	0	Southwest	15.0 ft <sup>2</sup>
rear 2nd unshaded	30/23	2nd ambient		0	0	0	Northwest	53.0 ft <sup>2</sup>
rear unshaded	30/23	1st ambient		0	0	0	Northwest	39.0 ft <sup>2</sup>

## Glazing Library List

Name	Shgc	U-factor
30/23	0.23	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
front	Fiberglass R-5	1st ambient		0.9	0.75	Medium	20.0 ft <sup>2</sup>	Exposed Exterior
garage door	Fiberglass R-5	garage wall		0.9	0.75	Medium	18.0 ft <sup>2</sup>	Exposed Exterior

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## Opaque Door Library List

Name	Effective U-factor
Fiberglass R-5	0.200

## Roof Insulation

Name	Library Type	Attic Exterior Area [s.f.]	Clay or Concrete	Roof Tiles	Surface Color	Surface Area	Location
attic	R-38 Attic BLOWN FG G1 2x10 24"OC w/ Radiant Barrier	1,329.6		No	Dark	1,108.0 ft <sup>2</sup>	Attic

## Roof Insulation Library List

Name	Has Radiant Barrier	Effective R-value
R-38 Attic BLOWN FG G1 2x10 24"OC w/ Radiant Barrier	Yes	37.246

## Whole House Infiltration

Infiltration	Measurement Type	Shelter Class
1421 CFM at 50 Pa	Blower-door tested	4

## Mechanical Ventilation

None Present

## Lighting

% Interior Fluorescent Lighting	% Interior LED Lighting	% Exterior Fluorescent Lighting	% Exterior LED Lighting	% Garage Fluorescent Lighting	% Garage LED Lighting
0	75	0	75	0	75

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## Onsite Generation

None Present

## Onsite Generation Library List

None Present

## Solar Generation

None Present

## Solar Generation Library List

None Present

## Conditioning Equipment

Name	Library Type	Heating Percent Load	Cooling Percent Load	Hot Water Percent Load	Location
HP 1	z 36k 14 seer 8.0hspf	100%	100%	0%	Unspecified
Water Heater	Z 50 gal. 0.70EF Gas	0%	0%	100%	Unspecified

## Equipment Type: Z 50 gal. 0.70EF Gas

Fuel Type	Natural Gas
Distribution Type	Hydronic Delivery
Hot Water Efficiency	0.7 Energy Factor
Tank Capacity (gal.)	50
Hot Water Capacity [kBtu/h]	40
Recovery Efficiency	0.80



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## Equipment Type: z 36k 14 seer 8.0hspf

Fuel Type	Electric
Distribution Type	Forced Air
Motor Type	PSC (Single Speed)
Heating Efficiency	8 HSPF
Heating Capacity [kBtu/h]	36
Cooling Efficiency	14 SEER
Cooling Capacity [kBtu/h]	36

## Distribution System

Distribution Type	Forced Air
Heating Equipment	HP 1
Cooling Equipment	HP 1
Sq. Feet Served	1997
# Return Grilles	3
Supply Duct R Value	8
Return Duct R Value	8
Supply Duct Area [ft <sup>2</sup> ]	539.19
Return Duct Area [ft <sup>2</sup> ]	299.55
Leakage to Outdoors	79 CFM @ 25Pa (3.96 / 100 s.f.)
Total Leakage	79 CFM25
Total Leakage Duct Test Conditions	Post-Construction
Use Default Flow Rate	Yes
Duct 1	
Duct Location	Attic (well vented)
Percent Supply Area	60
Percent Return Area	60
Duct 2	
Duct Location	Conditioned Space
Percent Supply Area	40
Percent Return Area	40
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

## Ceiling Fan

Has Ceiling Fan	Yes
Cfm Per Watt	100

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## Water Distribution

Water Fixture Type	Standard
Use Default Hot Water Pipe Length	No
Hot Water Pipe Length [ft]	70
At Least R3 Pipe Insulation?	No
Hot Water Recirculation System?	No
Recirculation System Pipe Loop Length [ft]	170
Drain Water Heat Recovery?	No

## Clothes Dryer

Fuel Type	Electric
Cef	2.617
Field Utilization	Timer Controls

## Clothes Washer

Label Energy Rating	151 kWh/Year
Electric Rate	\$0.11/kWh
Annual Gas Cost	\$12.00
Gas Rate	\$1.22/Therm
Capacity	3.31
Imef	2.15474

## Appliances and Controls

Programmable thermostat?	Yes
Dishwasher Size	Standard
Dishwasher Efficiency	307 kWh
Range/Oven Fuel	Electric
Convection Oven?	No
Induction Range?	No
Refrigerator Consumption	538 kWh/Year

## Notes

Initial Inputs \_\_\_\_\_ JS 08/08/18 \_\_\_\_\_

- confirm HVAC specs
- confirm if programmable thermostats installed
- modeled to worst case orientation
- confirm insulation
- confirm window values
- confirm cfl lighting %