

North Carolina 2018 - R402.1.5 Total UA



Property
 , NC 27546
 Model: CC 1884
 Community: NA

Organization
 Southern Energy Manager
 Justin Smith

Inspection Status
 Results are projected

CC1884 slab
 Template - Caviness & Cates - CC 1884

Builder
 Caviness and Cates

Building UA

Elements	NC Reference	As Designed
Ceilings	34.3	30.7
Above-Grade Walls	151.5	123.2
Windows, Doors and Skylights	91.7	74.8
Slab Floor:	55.4	71.5
Framed Floors	18.8	18.8
Foundation Walls	0.0	0.0
Rim Joists	6.6	5.8
Overall UA (Design must be equal or lower):	358.3	324.8

Requirements

✓	402.1.5	Total UA alternative for insulation and fenestration
✓	402.3.2 Glazed Fenestration SHGC	Average SHGC: 0.23 Max SHGC: 0.30
✓	R402.4.2.2	Air Leakage Testing <small>Air sealing is 0.29 CFM50 / ft² Shell Area. It must not exceed 0.30 CFM50 / ft² Shell Area.</small>
✓	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	Duct Insulation
✓	403.3.3	Duct Testing

Design exceeds requirements for North Carolina 2018 Prescriptive compliance by 9.3%.

Name: Justin Smith

Organization: Southern Energy Management

Signature: *Justin Smith*

Digitally signed: 1/16/20 at 11:34 AM

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



SOUTHERN ENERGY
MANAGEMENT
ENERGY EFFICIENCY & SOLAR POWER

Property
NC 27546
Model: CC 1884
Community: NA

Organization
Southern Energy Management
Justin Smith

Inspection Status
Results are projected

CC1884 slab
Template - Caviness & Cates - CC 1884 Springfield-

Builder
Caviness and Cates

General Building Information

Number Of Bedrooms	4
Number Of Floors	2
Conditioned Floor Area [sq. ft.]	1,884
Unconditioned, attached garage?	Yes
Conditioned Volume [cu. ft.]	16,560
Total Units in Building	1
Residence Type	Single family detached
Floor Number	-
Model	CC 1884
Community	NA
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
slab	Uninsulated	118	On Grade	1	0	744.0 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	401.0 ft²	Unconditioned, attached garage

Building Summary



Property
 , NC 27546
 Model: CC 1884
 Community: NA

Organization
 Southern Energy Management
 Justin Smith

Inspection Status
 Results are projected

CC1884 slab
 Template - Caviness & Cates - CC 1884 Springfield-

Builder
 Caviness and Cates

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	91.0 ft ²	Exposed Exterior
1st floor garage	R 19 G2, 16"OC	27.0 ft ²	Unconditioned, attached garage

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 floor ambient	R 19 FG G2 16" O.C	Medium	821.0 ft ²	Exposed Exterior
1st floor garage	R 19 FG G2 16" O.C	Medium	241.0 ft ²	Unconditioned, attached garage
2nd floor ambient	R 19 FG G2 16" O.C	Medium	1,168.0 ft ²	Exposed Exterior

Wall Library List

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

Building Summary



SOUTHERN ENERGY
MANAGEMENT
ENERGY EFFICIENCY & SOLAR POWER

Property
NC 27546
Model: CC 1884
Community: NA

Organization
Southern Energy Management
Justin Smith

Inspection Status
Results are projected

CC1884 slab
Template - Caviness & Cates - CC 1884 Springfield-

Builder
Caviness and Cates

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 floor ambient		0	0	0	Southeast	67.2 ft²
left 2nd unshaded	30/23	2nd floor ambient		0	0	0	Southwest	33.7 ft²
rear 2nd unshaded	30/23	2nd floor ambient		0	0	0	Northwest	20.0 ft²
rear unshaded	30/23	1st floor ambient		0	0	0	Northwest	59.3 ft²
right 2nd unshaded	30/23	2nd floor ambient		0	0	0	Northeast	30.0 ft²
right unshaded	30/23	1st floor ambient		0	0	0	Northeast	13.8 ft²

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 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	18.0 ft²	Exposed Exterior

Building Summary



SOUTHERN ENERGY
MANAGEMENT
ENERGY EFFICIENCY & SOLAR POWER

Property
NC 27546
Model: CC 1884
Community: NA

Organization
Southern Energy Management
Justin Smith

Inspection Status
Results are projected

CC1884 slab
Template - Caviness & Cates - CC 1884 Springfield-

Builder
Caviness and Cates

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	1,683.15	No	Dark	1,145.0 ft ²	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
1324 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	0	0	0

Building Summary



SOUTHERN ENERGY
MANAGEMENT
ENERGY EFFICIENCY & SOLAR POWER

Property
NC 27546
Model: CC 1884
Community: NA

Organization
Southern Energy Management
Justin Smith

Inspection Status
Results are projected

CC1884 slab
Template - Caviness & Cates - CC 1884 Springfield-

Builder
Caviness and Cates

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
Water Heating	Z 50 gal. 0.91EF elec	0%	0%	100%	Unspecified
whole house heat pump	z 36k 14 seer 8.0hspf	100%	100%	0%	Unspecified

Equipment Type: Z 50 gal. 0.91EF elec

Fuel Type	Electric
Distribution Type	Hydronic Delivery
Hot Water Efficiency	0.91 Energy Factor
Tank Capacity (gal.)	50
Hot Water Capacity [kBtu/h]	40
Recovery Efficiency	0.98

Building Summary



SOUTHERN ENERGY
MANAGEMENT
ENERGY EFFICIENCY & SOLAR POWER

Property
. NC 27546
Model: CC 1884
Community: NA

Organization
Southern Energy Management
Justin Smith

Inspection Status
Results are projected

CC1884 slab
Template - Caviness & Cates - CC 1884 Springfield-

Builder
Caviness and Cates

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	whole house heat pump
Cooling Equipment	whole house heat pump
Sq. Feet Served	1884
# Return Grilles	4
Supply Duct R Value	8
Return Duct R Value	8
Supply Duct Area [ft ²]	508.68
Return Duct Area [ft ²]	376.8
Leakage to Outdoors	75 CFM @ 25Pa (3.98 / 100 s.f.)
Total Leakage	75 CFM25
Total Leakage Duct Test Conditions	Post-Construction
Use Default Flow Rate	Yes
Duct 1	
Duct Location	Attic (well vented, radiant barrier)
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

Ceiling Fan

Has Ceiling Fan	Yes
Cfm Per Watt	100

Building Summary



SOUTHERN ENERGY
MANAGEMENT
ENERGY EFFICIENCY & SOLAR POWER

Property
NC 27546
Model: CC 1884
Community: NA

Organization
Southern Energy Management
Justin Smith

Inspection Status
Results are projected

CC1884 slab
Template - Caviness & Cates - CC 1884 Springfield-

Builder
Caviness and Cates

Water Distribution

Water Fixture Type	Low-flow
Use Default Hot Water Pipe Length	No
Hot Water Pipe Length [ft]	59
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

Fuel Type	Electric
Cef	2.62
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	2.155

Appliances and Controls

Programmable thermostat?	Yes
Dishwasher Size	Standard
Dishwasher Efficiency	0.65 EF
Range/Oven Fuel	Electric
Convection Oven?	No
Induction Range?	No
Refrigerator Consumption	691 kWh/Year

Notes

Initial Inputs ___JS 01/08/18___

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