

# North Carolina 2018 - R402.1.5 Total UA



**Property**  
, NC 27546  
Model: CC 2574

**Organization**  
Southern Energy Manager  
Justin Smith

**Inspection Status**  
Results are projected

Template - Caviness & Cates - CC  
2574 plan - CZ 4 slab - HERS  
2574 slab

**Builder**  
Caviness and Cates

**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	49.0	43.8
Above-Grade Walls	201.9	164.2
Windows, Doors and Skylights	105.5	86.6
Slab Floor:	81.1	105.0
Framed Floors	23.5	22.9
Foundation Walls	0.0	0.0
Rim Joists	9.6	8.4
<b>Overall UA (Design must be equal or lower):</b>	<b>470.6</b>	<b>430.9</b>

## Requirements

✓	402.1.5	Total UA alternative compliance passes by 8.4%.
✓	402.3.2	Average SHGC: 0.23 Max SHGC: 0.30
✓	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.
✓	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 8.4%.**

Name: Justin Smith  
Organization: Southern Energy Management

Signature: Justin Smith  
Digitally signed: 1/24/22 at 4:09 PM

### Ekotrope RATER - Version 3.2.4.2818

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.

# Energy Code Inspection Checklist



SOUTHERN ENERGY  
MANAGEMENT  
ENERGY EFFICIENCY & SOLAR POWER

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## General Building Information


Conditioned Area (sq ft)	2,574
Conditioned Volume (cubic ft)	23,240
Insulated Shell Area (sq ft)	6,360

The building energy model in Ekotrope reflects the building assemblies and energy features listed below. Sometimes energy features will change in the field from what has been modeled. The inspection process should identify any changes and ensure that the home continues to meet the applicable energy code.

## Slab

 Name: slab(1,132 s.f., 172 ft. exterior perimeter)  
R-0 perimeter insulation, R-0 under slab insulation.


## Framed Floor


 Name: over garage (500 s.f.)  
R-0 continuous insulation, R-19 cavity insulation  
Insulation Grade: I


## Foundation Wall

None Present

## Above Grade Wall

 Name: 1st floor ambient (1,092 s.f.)  
R-0 continuous insulation, R-19 cavity insulation  
Insulation Grade: II

 Name: 1st floor garage (456 s.f.)  
R-0 continuous insulation, R-19 cavity insulation  
Insulation Grade: II

 Name: 2nd floor ambient (1,224 s.f.)  
R-0 continuous insulation, R-19 cavity insulation  
Insulation Grade: II

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Name: 2nd floor attic (152 s.f.)  
R-0 continuous insulation, R-19 cavity insulation  
Insulation Grade: II

**Rim Joist**

Name: 1st floor ambient (121 s.f.)  
R: 15.40

Name: 1st floor garage (51 s.f.)  
R: 15.40

**Ceiling / Roof**

Name: attic (1,632 s.f.)  
R-13 continuous insulation, R-25 cavity insulation  
Insulation Grade: I

**Opaque Door**

Name: front entry (20 s.f.)  
U: 0.200

Name: garage entry (18 s.f.)  
U: 0.200

**Glazing**

Name: front shaded (37 s.f.), U: 0.300, SHGC: 0.23, Orientation: EAST

Name: front 2nd unshaded (56.8 s.f.), U: 0.300, SHGC: 0.23, Orientation: EAST

Name: left 2nd unshaded (30 s.f.), U: 0.300, SHGC: 0.23, Orientation: SOUTH

Name: right unshaded (36 s.f.), U: 0.300, SHGC: 0.23, Orientation: NORTH

Name: rear unshaded (30 s.f.), U: 0.300, SHGC: 0.23, Orientation: WEST

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Name: rear shaded (35.5 s.f.), U: 0.300, SHGC: 0.23, Orientation: WEST

Name: rear 2nd unshaded (38 s.f.), U: 0.300, SHGC: 0.23, Orientation: WEST

## Skylight

None Present

## Mechanical Ventilation

None Present

## Mechanical Equipment

whole house heat pump • Electric • 100% Heating Load @ 8 HSPF, 100% Cooling Load @ 14 SEER

Water Heating • Electric • 100% Hot Water Load @ 0.91 Energy Factor

## Air Leakage Control

Test Status: Blower-door tested  
House is air-sealed as to achieve 1,859 CFM50 (4.80 ACH50) or less at final blower-door test.

Infiltration Requirements for IECC in Climate Zone 4

2009 IECC Infiltration limit for the design home is 7 ACH50.

2012 IECC Infiltration limit for the design home is 3 ACH50.

2015 IECC Infiltration limit for the design home is 3 ACH50.

2018 IECC Infiltration limit for the design home is 3 ACH50.

2021 IECC Infiltration limit for the design home is 5 ACH50.

## Duct Leakage

Duct System 1

NOT entirely within conditioned space, testing required

Leakage to Outside specified as: 102 CFM @ 25Pa (3.96 / 100 ft<sup>2</sup>)

Total Leakage specified as: 102 CFM @ 25Pa (Post-Construction)

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## Duct Leakage Code Requirements for IECC

**2009 IECC:**

Postconstruction Leakage Test: Duct Leakage to Outdoors  $\leq 8$  CFM25 / 100 sq ft CFA.

Rough in Test with AHU: Total Duct Leakage  $\leq 6$  CFM25 / 100 sq ft CFA.

Rough in Test without AHU: Total Duct Leakage  $\leq 4$  CFM25 / 100 sq ft CFA.

**2012 IECC Mandatory, 2015 and 2018 IECC Prescriptive Paths:**

Postconstruction Leakage Test: Total Duct Leakage  $\leq 4$  CFM25 / 100 sq ft CFA.

Rough in Test with AHU: Total Duct Leakage  $\leq 4$  CFM25 / 100 sq ft CFA.

Rough in Test without AHU: Total Duct Leakage  $\leq 3$  CFM25 / 100 sq ft CFA.

**2015 and 2018 IECC Performance Paths (Cost Compliance):**

Leakage testing is required UNLESS all ducts and air handlers are located entirely within the thermal envelope.

There is no pass/fail threshold for duct leakage on the performance path.

## Project Notes

Initial Inputs \_\_\_\_\_ JS 01/24/2022 \_\_\_\_\_

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