

# North Carolina 2018 - R402.1.5 Total UA



**Property**  
 , NC 27501  
 Model: Calabash

**Organization**  
 Southern Energy Manager  
 Justin Smith

**Inspection Status**  
 Results are projected

Template - H & H - Fayetteville -  
 Calabash plan slab with large 2nd  
 Calabash plan slab

**Builder**  
 H&H Homes

**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	62.7	56.1
Above-Grade Walls	212.8	165.4
Windows, Doors and Skylights	123.2	114.2
Slab Floor:	111.1	145.4
Framed Floors	0.0	0.0
Foundation Walls	0.0	0.0
Rim Joists	3.4	3.0
<b>Overall UA (Design must be equal or lower):</b>	<b>513.2</b>	<b>484.1</b>

## Requirements

✓	402.1.5	Total UA alternative compliance passes by 5.7%.
✓	402.3.2 Glazed Fenestration SHGC	Average SHGC: 0.27 Max SHGC: 0.30
✓	R402.4.2.2	Air Leakage Testing Air sealing is 0.28 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	Duct Insulation
✓	403.3.3	Duct Testing

**Design exceeds requirements for North Carolina 2018 Prescriptive compliance by 5.7%.**

Name: Justin Smith

Signature: Justin Smith

Organization: Southern Energy Management

Digitally signed: 8/10/20 at 4:27 PM

### Ekotrope RATER - Version 3.2.3.2500

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)	2,969
Conditioned Volume (cubic ft)	25,841
Insulated Shell Area (sq ft)	7,354

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(2,089 s.f., 227 ft. exterior perimeter)  
R-0 perimeter insulation, R-0 under slab insulation.

**Framed Floor**

None Present

**Foundation Wall**

None Present

**Above Grade Wall**

Name: 1st floor ambient (1,760 s.f.)  
R-0 continuous insulation, R-19 cavity insulation  
Insulation Grade: II



Name: 1st floor garage (283 s.f.)  
R-0 continuous insulation, R-19 cavity insulation  
Insulation Grade: II



Name: 2nd floor ambient (295 s.f.)  
R-0 continuous insulation, R-19 cavity insulation  
Insulation Grade: II



Name: 2nd floor attic (777 s.f.)  
R-0 continuous insulation, R-19 cavity insulation  
Insulation Grade: II

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## Rim Joist

 Name: 1st floor ambient (37 s.f.)  
R: 15.40


 Name: 1st floor garage (24 s.f.)  
R: 15.40

## Ceiling / Roof

 Name: Attic (2,089 s.f.)  
R-13 continuous insulation, R-25 cavity insulation  
Insulation Grade: I


## Opaque Door


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

 Name: garage door (20 s.f.)  
U: 0.200


 Name: attic doors (20 s.f.)  
U: 0.200

## Glazing

 Name: front shaded (33 s.f.), U: 0.350, SHGC: 0.27, Orientation: WEST

 Name: left unshaded (30 s.f.), U: 0.350, SHGC: 0.27, Orientation: NORTH

 Name: left 2nd unshaded (30 s.f.), U: 0.350, SHGC: 0.27, Orientation: NORTH

 Name: right unshaded (31 s.f.), U: 0.350, SHGC: 0.27, Orientation: SOUTH

 Name: right shaded (33 s.f.), U: 0.350, SHGC: 0.27, Orientation: SOUTH

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Name: right 2nd unshaded (30 s.f.), U: 0.350, SHGC: 0.27, Orientation: SOUTH

Name: rear unshaded (60 s.f.), U: 0.350, SHGC: 0.27, Orientation: EAST

Name: rear shaded (45 s.f.), U: 0.350, SHGC: 0.27, Orientation: EAST

## 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 • Natural Gas • 100% Hot Water Load @ 0.59 Energy Factor

## Air Leakage Control

Test Status: Blower-door tested  
House is air-sealed as to achieve 2,067 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.

## Duct Leakage

Duct System 1

NOT entirely within conditioned space, testing required

Leakage to Outside specified as: 118 CFM @ 25Pa (3.97 / 100 s.f.)

Total Leakage specified as: 118 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 and 2015 IECC Prescriptive Path:**

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 Performance Path (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

-updated JS 08/10/20

-uninsulated slab modeled

-wall insulation modeled to Grade 2

-confirm attic insulation and hvac specs

-ventilation modeled as none

-confirm cfl lighting %

-modeled to worst case orientation