

# North Carolina 2018 - R402.1.5 Total UA



**Property**  
, NC 27501  
Model: Topsail

**Organization**  
Southern Energy Manager  
Justin Smith

**Inspection Status**  
Results are projected

Template - H & H - Fayetteville -  
Topsail plan slab - CZ 4 - ecoSelect  
Topsail 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	41.3	36.9
Above-Grade Walls	169.2	131.5
Windows, Doors and Skylights	110.2	104.5
Slab Floor:	67.9	87.9
Framed Floors	20.1	21.4
Foundation Walls	0.0	0.0
Rim Joists	8.0	7.1
<b>Overall UA (Design must be equal or lower):</b>	<b>416.7</b>	<b>389.3</b>

## Requirements

✓	402.1.5	Total UA alternative compliance passes by 6.6%.
✓	402.3.2 Glazed Fenestration SHGC	Average SHGC: 0.27 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	Duct Insulation
✓	403.3.3	Duct Testing

**Design exceeds requirements for North Carolina 2018 Prescriptive compliance by 6.6%.**

Name: Justin Smith  
Organization: Southern Energy Management

Signature: Justin Smith  
Digitally signed: 8/10/20 at 4:40 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)	2,300
Conditioned Volume (cubic ft)	20,298
Insulated Shell Area (sq ft)	5,408

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(949 s.f., 144 ft. exterior perimeter)  
R-0 perimeter insulation, R-0 under slab insulation.

## Framed Floor



Name: over garage (416 s.f.)  
R-0 continuous insulation, R-19 cavity insulation  
Insulation Grade: II



Name: over ambient (11 s.f.)  
R-0 continuous insulation, R-19 cavity insulation  
Insulation Grade: II

## Foundation Wall

None Present

## Above Grade Wall



Name: 1st floor ambient (975 s.f.)  
R-0 continuous insulation, R-19 cavity insulation  
Insulation Grade: II



Name: 1st floor garage (321 s.f.)  
R-0 continuous insulation, R-19 cavity insulation  
Insulation Grade: II

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Name: 2nd floor ambient (1,216 s.f.)  
R-0 continuous insulation, R-19 cavity insulation  
Insulation Grade: II

## Rim Joist

Name: 1st floor ambient (108 s.f.)  
R: 15.40

Name: 1st floor garage (36 s.f.)  
R: 15.40

## Ceiling / Roof

Name: Attic (1,376 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 (18 s.f.)  
U: 0.200

## Glazing

Name: front shaded (39.9 s.f.), U: 0.350, SHGC: 0.27, Orientation: WEST

Name: front 2nd unshaded (55.1 s.f.), U: 0.350, SHGC: 0.27, Orientation: WEST

Name: left unshaded (13.8 s.f.), U: 0.350, SHGC: 0.27, Orientation: NORTH

Name: left 2nd unshaded (16 s.f.), U: 0.350, SHGC: 0.27, Orientation: NORTH

Name: right unshaded (27.5 s.f.), U: 0.350, SHGC: 0.27, Orientation: SOUTH

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Name: rear unshaded (35.9 s.f.), U: 0.350, SHGC: 0.27, Orientation: EAST

Name: rear shaded (33.5 s.f.), U: 0.350, SHGC: 0.27, Orientation: EAST

Name: rear 2nd unshaded (55.1 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 • Electric • 100% Hot Water Load @ 0.91 Energy Factor

## Air Leakage Control

Test Status: Blower-door tested  
House is air-sealed as to achieve 1,623 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: 92 CFM @ 25Pa (4 / 100 s.f.)

Total Leakage specified as: 92 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