

# North Carolina 2018 - R402.1.5 Total UA

## Property

TBD Alice Trace Place  
Angler, NC 27501  
Model: Russell v2.0 9ft  
Community: Langford Preserve

## Organization

Arcxis - East  
Angela Macek

## Inspection Status

Results are projected



Langford Preserve Lot 24  
Russell v2.0 9ft Template 2-14-23\_R38/R4

## Builder

Mungo Homes NC

**This report is based on a proposed design and does not confirm field enforcement of design elements.**

## Building UA

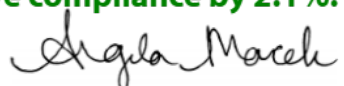
Elements	NC Reference	As Designed
Ceilings	44.5	32.4
Above-Grade Walls	184.5	184.7
Windows, Doors and Skylights	91.3	79.2
Slab Floor:	74.9	97.8
Framed Floors	18.5	11.5
Foundation Walls	0.0	0.0
Rim Joists	10.5	9.5
<b>Overall UA (Design must be equal or lower):</b>	<b>424.2</b>	<b>415.1</b>

## Requirements

✓	R402.1.5	Total UA alternative compliance passes by 2.1%.	The proposed home meets the UA requirement by 2.1%
✓	R402.3.2	Average SHGC: 0.22 Max SHGC: 0.30	Average SHGC of 0.22 is greater than the maximum of 0.30.
✓	R402.4.2.2	Air Leakage Testing	Air sealing is 5.00 ACH at 50 Pa. It must not exceed 5.00 ACH at 50 Pa.
✓	R402.5	Area-weighted average fenestration SHGC	Area-weighted average fenestration SHGC is 0.22. The maximum allowed value is [No Limit].
✓	R402.5	Area-weighted average fenestration U-Factor	
✓	R404.1	Lighting Equipment	
✓	Mandatory Checklist	Mandatory code requirements that are not checked by Ekotrope must be met.	2015 IECC Mandatory Checklist must be checked as complete.
✓	R403.3.1	Duct Insulation	Duct insulation meets the requirements specified in North Carolina 2018 Code Section 403.3.1.
✓	403.3.3	Duct Testing	

**Design exceeds requirements for North Carolina 2018 Prescriptive compliance by 2.1%.**

Name: Angela Macek  
Organization: Arcxis - East

Signature:   
Digitally signed: 12/6/24 at 1:12 PM

## Ekotrope RATER - Version 4.2.2.3532

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

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## General Building Information


Conditioned Area (sq ft)	2,571
Conditioned Volume (cubic ft)	23,801
Insulated Shell Area (sq ft)	5,809.8

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(1,089.1 s.f., 154 ft. exterior perimeter)  
R-0 perimeter insulation, R-0 under slab insulation.


## Framed Floor


-  Name: Garage (392.9 s.f.)  
R-0 continuous insulation, R-38 cavity insulation  
Insulation Grade: I

## Foundation Wall

None Present

## Above Grade Wall

-  Name: Ambient (2,294.2 s.f.)  
R-0 continuous insulation, R-15 cavity insulation  
Insulation Grade: I

-  Name: Garage (362.3 s.f.)  
R-0 continuous insulation, R-15 cavity insulation  
Insulation Grade: I

## Rim Joist

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Name: Ambient (189.3 s.f.)  
R: 15.00

## Ceiling / Roof



Name: ceiling 1 (1,372 s.f.)  
R-36 continuous insulation, R-13 cavity insulation  
Insulation Grade: I



Name: HVAC (100 s.f.)  
R-0 continuous insulation, R-38 cavity insulation  
Insulation Grade: I



Name: Attic Access (10 s.f.)  
R-5 continuous insulation, R-0 cavity insulation  
Insulation Grade: I

## Opaque Door



Name: front (20 s.f.)  
R: 6.70



Name: garage (17.8 s.f.)  
R: 6.70

## Glazing



Name: 1st Front 3050 (30 s.f.), U: 0.330, SHGC: 0.22, Orientation: EAST



Name: 1st Left 2020 (4 s.f.), U: 0.330, SHGC: 0.22, Orientation: SOUTH



Name: 1st Back 3050 (30 s.f.), U: 0.330, SHGC: 0.22, Orientation: WEST



Name: 1st Back 3030 (9 s.f.), U: 0.330, SHGC: 0.22, Orientation: WEST



Name: 1st Back Slider 6068 (40 s.f.), U: 0.330, SHGC: 0.22, Orientation: WEST

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Name: 1st Right 2020 (8 s.f.), U: 0.330, SHGC: 0.22, Orientation: NORTH



Name: 2nd Front 3050 (60 s.f.), U: 0.330, SHGC: 0.22, Orientation: EAST



Name: 2nd Front 2040 (8 s.f.), U: 0.330, SHGC: 0.22, Orientation: EAST



Name: 2nd Back 3050 (30 s.f.), U: 0.330, SHGC: 0.22, Orientation: WEST



Name: 2nd Right 4010 (4 s.f.), U: 0.330, SHGC: 0.22, Orientation: NORTH

## Skylight

None Present

## Mechanical Ventilation

None Present

## Mechanical Equipment



Water Heating (1) • Natural Gas • 100% Hot Water Load @ 0.82 Energy Factor



Air conditioner • Electric • 100% Cooling Load @ 13.8 SEER2



Fuel-fired air distribution (3) • Natural Gas • 100% Heating Load @ 80 AFUE

## Air Leakage Control



Test Status: Blower-door tested

House is air-sealed as to achieve 1,983 CFM50 (5.00 ACH50) or less at final blower-door test.

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### 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.

Note: Under IECC 2021, this home is considered to be in Climate Zone 3

## Duct Leakage

### Duct System 1

NOT entirely within conditioned space, testing required  
Leakage to Outside specified as: 4 CFM25 / 100 ft<sup>2</sup>  
Total Leakage specified as: 5 CFM25 / 100 ft<sup>2</sup> (Post-Construction)

## 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, 2018, & 2021 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.  
\* Note: IECC 2021 requires Total Duct Leakage  $\leq$  8 CFM25 / 100 sq ft CFA when all ducts and air handlers are within the building thermal envelope.

### 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

\*\*\*9 FT OPTION\*\*\*  
2 FLOOR 3 BR  
2,571 CFA 23,801 VOL