

# North Carolina 2018 - R402.1.5 Total UA

## Property

TBD Grove Township Way  
Angler, NC 27501  
Model: Telfair v4.0 9ft  
Community: Langford Preserve

## Organization

Arcxis - East  
Angela Macek

## Inspection Status

Results are projected



Langford Preserve Lot 11  
Telfair v4.0 9ft Template 3-23-23-Gas\_R38

**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	49.7	36.7
Above-Grade Walls	195.3	195.3
Windows, Doors and Skylights	107.4	94.4
Slab Floor:	80.0	105.0
Framed Floors	19.8	12.3
Foundation Walls	0.0	0.0
Rim Joists	11.5	10.6
<b>Overall UA (Design must be equal or lower):</b>	<b>463.7</b>	<b>454.3</b>

## Requirements

✓	R402.1.5	Total UA alternative compliance passes by 2.0%.	The proposed home meets the UA requirement by 2.0%
✓	R402.3.2	Average SHGC: 0.23 Max SHGC: 0.30	Average SHGC of 0.23 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 0.23. 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%.**

Name: Angela Macek

Signature:

Organization: Arcxis - East

Digitally signed: 11/13/24 at 10:48 AM

### Ekotrope RATER - Version 4.2.2.3519

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)	2,891
Conditioned Volume (cubic ft)	26,758
Insulated Shell Area (sq ft)	6,475.7

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(1,348.8 s.f., 162 ft. exterior perimeter)  
R-0 perimeter insulation, R-0 under slab insulation.

### Framed Floor



Name: Floor over garage (421.2 s.f.)  
R-0 continuous insulation, R-38 cavity insulation  
Insulation Grade: I

### Foundation Wall

None Present

### Above Grade Wall



Name: Ambient Wall (2,490 s.f.)  
R-0 continuous insulation, R-15 cavity insulation  
Insulation Grade: I



Name: Garage Wall (353.2 s.f.)  
R-0 continuous insulation, R-15 cavity insulation  
Insulation Grade: I

### Rim Joist

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## Builder


Mungo Homes NC

 Name: Ambient Rim (206.5 s.f.)  
R: 14.50


## Ceiling / Roof


 Name: Flat Ceiling (1,536 s.f.)  
R-36 continuous insulation, R-13 cavity insulation  
Insulation Grade: I

 Name: HVAC Platform (110 s.f.)  
R-0 continuous insulation, R-38 cavity insulation  
Insulation Grade: I


 Name: Attic Access (10 s.f.)  
R-3 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: 1 Front 3050 (30 s.f.), U: 0.330, SHGC: 0.23, Orientation: WEST

 Name: 2 Front 3050 (75 s.f.), U: 0.330, SHGC: 0.23, Orientation: WEST

 Name: 1 left 3050 (30 s.f.), U: 0.330, SHGC: 0.23, Orientation: NORTH

 Name: 1 back 3050 (30 s.f.), U: 0.330, SHGC: 0.23, Orientation: EAST

 Name: 1 back 6068 (Opt: 10, 2.3, 9) (40 s.f.), U: 0.330, SHGC: 0.23, Orientation: EAST

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- Name: 2 back 3050 (45 s.f.), U: 0.330, SHGC: 0.23, Orientation: EAST
- Name: 2 back 4010 (4 s.f.), U: 0.330, SHGC: 0.23, Orientation: EAST
- Name: 1 right 3050 (15 s.f.), U: 0.330, SHGC: 0.23, Orientation: SOUTH

## Skylight

None Present

## Mechanical Ventilation

None Present

## Mechanical Equipment

- Water Heating (1) • Natural Gas • 100% Hot Water Load @ 0.8 Energy Factor
- AC • Electric • 100% Cooling Load @ 16 SEER
- Fuel-fired air distribution (4) • Natural Gas • 100% Heating Load @ 80 AFUE

## Air Leakage Control

- Test Status: Blower-door tested  
House is air-sealed as to achieve 2,230 CFM50 (5.00 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.

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

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## 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

\*\*\*9FT OPTION\*\*\*

2 Floors    4 Bedrooms  
2,891 CFA    26,758 VOL

6/18/23 - Updated window from Garage to Ambient wall ~ARM