

North Carolina 2018 - R402.1.5 Total UA

Property

TBD Alice Trace Place
Angler, NC 27501
Model: McDowell v5.0 9ft
Community: Langdon Preserve

Organization

Arcxis - East
Angela Macek

Inspection Status

Results are projected



Langdon Preserve Lot 23
McDowell v5.0 9ft Template 3/23/23-Gas_

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	40.5	29.8
Above-Grade Walls	171.3	171.7
Windows, Doors and Skylights	112.6	99.4
Slab Floor:	70.3	91.5
Framed Floors	20.1	12.5
Foundation Walls	0.0	0.0
Rim Joists	10.2	9.2
Overall UA (Design must be equal or lower):	425.0	414.1

Requirements

✓	R402.1.5	Total UA alternative compliance passes by 2.6%.	The proposed home meets the UA requirement by 2.6%
✓	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 2.6%.

Name: Angela Macek
Organization: Arcxis - East

Signature:
Digitally signed: 12/6/24 at 1:02 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)	2,300
Conditioned Volume (cubic ft)	21,287
Insulated Shell Area (sq ft)	5,445.2

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(935.5 s.f., 146 ft. exterior perimeter)
R-0 perimeter insulation, R-0 under slab insulation.

Framed Floor



Name: Over Garage (428.5 s.f.)
R-0 continuous insulation, R-38 cavity insulation
Insulation Grade: I

Foundation Wall

None Present

Above Grade Wall



Name: Ambient (2,180.9 s.f.)
R-0 continuous insulation, R-15 cavity insulation
Insulation Grade: I



Name: Garage (361.2 s.f.)
R-0 continuous insulation, R-15 cavity insulation
Insulation Grade: I



Name: Attic (3.8 s.f.)
R-0 continuous insulation, R-15 cavity insulation
Insulation Grade: I

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Rim Joist



Name: ambient band (184.4 s.f.)
R: 15.00

Ceiling / Roof



Name: Flat Ceiling (1,230.9 s.f.)
R-36 continuous insulation, R-13 cavity insulation
Insulation Grade: I



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



Name: Attic (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: WEST



Name: 2nd Front 3050 (90 s.f.), U: 0.330, SHGC: 0.22, Orientation: WEST



Name: 1st Left 3050 (15 s.f.), U: 0.330, SHGC: 0.22, Orientation: NORTH



Name: 1st Back 3050 (45 s.f.), U: 0.330, SHGC: 0.22, Orientation: EAST

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Name: 1st Back 6068 (Opt: 10, 2.3, 9) (40 s.f.), U: 0.330, SHGC: 0.22, Orientation: EAST

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

Name: 2nd Right 4010 (4 s.f.), U: 0.330, SHGC: 0.22, 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 1,774 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 ft²
Total Leakage specified as: 5 CFM25 / 100 ft² (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 Floors 4 BR
2,300 CFA 21,287 VOL