

North Carolina 2018 - R402.1.5 Total UA

**Property**

Lot 44 WFS
96 Hungry Creek Place, Erwin 28339

Organization

Southern Energy Manager
Justin Smith

Inspection Status

Results are projected

Template - JSJ Builders - Dewberry
plan slab CZ 4 - HERS
Dewberry plan

Builder

JSJ Builders

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	49.0	46.5
Above-Grade Walls	190.7	167.3
Windows, Doors and Skylights	113.3	96.9
Slab Floor:	85.1	110.5
Framed Floors	15.5	16.8
Foundation Walls	0.0	0.0
Rim Joists	5.1	4.1
Overall UA (Design must be equal or lower):	458.7	442.1

Requirements

✓	402.1.5	Total UA alternative compliance passes by 3.6%.
✓	402.3.2	Average SHGC: 0.21 Max SHGC: 0.30
✓	R402.4.2.2	Air Leakage Testing <small>Air sealing is 0.28 CFM50 / ft² Shell Area. It must not exceed 0.30 CFM50 / ft² Shell Area.</small>
✓	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.
✓	R403.3.1	Duct Insulation
✓	403.3.3	Duct Testing

Design exceeds requirements for North Carolina 2018 Prescriptive compliance by 3.6%.

Name: Justin Smith

Signature: Justin Smith

Organization: Southern Energy Management

Digitally signed: 6/30/22 at 3:57 PM

Ekotrope RATER - Version 4.0.1.hf.2940

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)	2,167
Conditioned Volume (cubic ft)	21,416
Insulated Shell Area (sq ft)	6,158

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(1,304 s.f., 178 ft. exterior perimeter)
R-0 perimeter insulation, R-0 under slab insulation.

Framed Floor



Name: over garage (329 s.f.)
R-0 continuous insulation, R-19 cavity insulation
Insulation Grade: I

Foundation Wall

None Present

Above Grade Wall



Name: 1st floor ambient (1,254 s.f.)
R-0 continuous insulation, R-19 cavity insulation
Insulation Grade: II



Name: 1st floor garage (348 s.f.)
R-0 continuous insulation, R-19 cavity insulation
Insulation Grade: II



Name: 2nd floor ambient (425 s.f.)
R-0 continuous insulation, R-19 cavity insulation
Insulation Grade: II

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Name: 2nd floor attic (773 s.f.)
R-0 continuous insulation, R-15 cavity insulation
Insulation Grade: II

Rim Joist

Name: 1st floor ambient (53 s.f.)
R: 17.30

Name: 1st floor garage (39 s.f.)
R: 17.30

Ceiling / Roof

Name: attic (1,633 s.f.)
R-6 continuous insulation, R-32 cavity insulation
Insulation Grade: I

Opaque Door

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

Name: garage entry (18 s.f.)
U: 0.200

Name: attic door (18 s.f.)
U: 0.200

Glazing

Name: front shaded (41.5 s.f.), U: 0.320, SHGC: 0.21, Orientation: NORTH_EAST

Name: front 2nd unshaded (40.8 s.f.), U: 0.320, SHGC: 0.21, Orientation: NORTH_EAST

Name: left unshaded (27.5 s.f.), U: 0.320, SHGC: 0.21, Orientation: SOUTH_EAST

Name: left 2nd unshaded (13.8 s.f.), U: 0.320, SHGC: 0.21, Orientation: SOUTH_EAST

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- Name: right unshaded (29.8 s.f.), U: 0.320, SHGC: 0.21, Orientation: NORTH_WEST
- Name: right shaded (18 s.f.), U: 0.320, SHGC: 0.21, Orientation: NORTH_WEST
- Name: right 2nd unshaded (13.8 s.f.), U: 0.320, SHGC: 0.21, Orientation: NORTH_WEST
- Name: rear unshaded (55.1 s.f.), U: 0.320, SHGC: 0.21, Orientation: SOUTH_WEST
- Name: rear shaded (27.5 s.f.), U: 0.320, SHGC: 0.21, Orientation: SOUTH_WEST

Skylight

None Present

Mechanical Ventilation

None Present

Mechanical Equipment

- Heat Pump • Electric • 100% Heating Load @ 8.2 HSPF, 100% Cooling Load @ 14 SEER
- Water Heating • Electric • 100% Hot Water Load @ 0.92 Energy Factor

Air Leakage Control

- Test Status: Blower-door tested
House is air-sealed as to achieve 1,713 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.
- 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: 86 CFM @ 25Pa (3.97 / 100 ft²)

Total Leakage specified as: 86 CFM @ 25Pa (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

updated JS 06/30/22

- confirm HVAC specs
- confirm water heater specs
- modeled to worst case orientation
- confirm cfl lighting %
- confirm utilities