

North Carolina 2018 - R402.1.5 Total UA



Property	Organization	Inspection Status
Lot 46 WFS	Southern Energy Manager	Results are projected
29 Wild Stream Court, Erwin 28339	Justin Smith	
JSJ Builders - Gavin II plan - HERS	Builder	
Gavin II plan	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	41.3	36.9
Above-Grade Walls	172.2	140.0
Windows, Doors and Skylights	120.1	102.8
Slab Floor:	69.3	89.8
Framed Floors	17.2	20.0
Foundation Walls	0.0	0.0
Rim Joists	8.1	8.0
Overall UA (Design must be equal or lower):	428.2	397.5

Requirements

- ☑ 402.1.5 Total UA alternative compliance passes by 7.2%.
- ☑ 402.3.2 Average SHGC: 0.21 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.
- ☑ R403.3.1 Duct Insulation
- ☑ 403.3.3 Duct Testing

Design exceeds requirements for North Carolina 2018 Prescriptive compliance by 7.2%.

Name:	<u>Justin Smith</u>	Signature:	<u>Justin Smith</u>
Organization:	<u>Southern Energy Management</u>	Digitally signed:	<u>2/17/22 at 2:11 PM</u>

Energy Code Inspection Checklist



Property

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General Building Information

Conditioned Area (sq ft)	2,386
Conditioned Volume (cubic ft)	21,104
Insulated Shell Area (sq ft)	5,475

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(1,008 s.f., 146 ft. exterior perimeter)
R-0 perimeter insulation, R-0 under slab insulation.

Framed Floor

Name: over garage (356 s.f.)
R-0 continuous insulation, R-19 cavity insulation
Insulation Grade: I

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

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 (342 s.f.)
R-0 continuous insulation, R-19 cavity insulation
Insulation Grade: II

Name: 2nd Floor Ambient (1,262 s.f.)
R-0 continuous insulation, R-19 cavity insulation
Insulation Grade: II

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Rim Joist

Name: 1st Floor Ambient (108 s.f.)
R: 13.30

Name: 1st floor garage (38 s.f.)
R: 13.30

Ceiling / Roof

Name: attic (1,375 s.f.)
R-13 continuous insulation, R-25 cavity insulation
Insulation Grade: I

Opaque Door

Name: front entry (40 s.f.)
U: 0.200

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

Glazing

Name: front shaded (28 s.f.), U: 0.320, SHGC: 0.21, Orientation: SOUTH_EAST

Name: front 2nd unshaded (62.3 s.f.), U: 0.320, SHGC: 0.21, Orientation: SOUTH_EAST

Name: right 2nd unshaded (7.4 s.f.), U: 0.320, SHGC: 0.21, Orientation: NORTH_EAST

Name: rear unshaded (94.7 s.f.), U: 0.320, SHGC: 0.21, Orientation: NORTH_WEST

Name: rear 2nd unshaded (92.6 s.f.), U: 0.320, SHGC: 0.21, Orientation: NORTH_WEST

Skylight

None Present

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Mechanical Ventilation

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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 1,688 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.

Duct Leakage

Duct System 1

- NOT entirely within conditioned space, testing required
- Leakage to Outside specified as: 95 CFM @ 25Pa (3.98 / 100 ft²)
- Total Leakage specified as: 95 CFM @ 25Pa (Post-Construction)

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Duct Leakage Code Requirements for IECC

2009 IECC:

Postconstruction Leakage Test: Duct Leakage to Outdoors ≤ 8 CFM25 / 100 sq ft CFA.

Rough in Test with AHU: Total Duct Leakage ≤ 6 CFM25 / 100 sq ft CFA.

Rough in Test without AHU: Total Duct Leakage ≤ 4 CFM25 / 100 sq ft CFA.

2012 IECC Mandatory, 2015 and 2018 IECC Prescriptive Paths:

Postconstruction Leakage Test: Total Duct Leakage ≤ 4 CFM25 / 100 sq ft CFA.

Rough in Test with AHU: Total Duct Leakage ≤ 4 CFM25 / 100 sq ft CFA.

Rough in Test without AHU: Total Duct Leakage ≤ 3 CFM25 / 100 sq ft CFA.

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

Initial Inputs ____ AT 10/13/2021 _____
updated JS 02/17/22

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