

North Carolina 2018 - Simulated Performance Alternative (N1105)

Property

19 Osgood Street

Angier, NC 27501

Model: Telfair

Community: Cambridge Reserve

Mungo Homes Cambridge Reserve 22

19 Osgood Street

Organization

Builder i Group, LLC

Mark Osborne

Builder

Mungo Homes

Inspection Status

Results are projected

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

Annual Energy Cost

Design	North Carolina 2018 Performance	As Designed
Heating	\$829	\$805
Cooling	\$272	\$211
Water Heating	\$302	\$303
Mechanical Ventilation	\$0	\$0
SubTotal - Used to determine compliance	\$1,404	\$1,318
Lights & Appliances w/out Ventilation	\$629	\$629
Onsite generation	\$0	\$0
Total	\$2,032	\$1,947

Source Energy Exception: The proposed home uses 8.26 MBtu LESS source energy than the reference home.

Requirements

✓	R405.3	Performance-based compliance passes by 7.7%	The proposed house meets the North Carolina 2018 Performance reference energy bill requirement by \$85.27 (8.26 MBtu).
✓	R402.4.2.2	Air Leakage Testing	
✓	R402.5	Area-weighted average fenestration SHGC	Area-weighted average fenestration SHGC is 0.19. 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.

Design exceeds requirements for North Carolina 2018 Performance compliance by 7.7%.

As a 3rd party extension of the code jurisdiction utilizing these reports, I certify that this energy code compliance document has been created in accordance with the requirements of Chapter 4 of the adopted International Energy Conservation Code based on HARNETT County. If rating is Projected, I certify that the building design described herein is consistent with the building plans, specifications, and other calculations submitted with the permit application. If rating is Confirmed, I certify that the address referenced above has been inspected/tested and that the mandatory provisions of the IECC have been installed to meet or exceed the intent of the IECC or will be verified as such by another party.

Name: Mark Osborne
Organization: Builder i Group, LLC

Signature: Mark Osborne
Digitally signed: 11/10/25 at 7:38 AM

Ekotrope RATER - Version 5.2.1.3746

North Carolina 2018 Performance 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

Property	Organization	Inspection Status
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General Building Information

Conditioned Area (sq ft)	2,817
Conditioned Volume (cubic ft)	24,160
Insulated Shell Area (sq ft)	5,912

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(1,221 s.f., 121 ft. exterior perimeter) R-0 perimeter insulation, R-0 under slab insulation.
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Framed Floor

	Name: Floor Over Garage (375 s.f.) R-0 continuous insulation, R-38 cavity insulation Insulation Grade: II
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Foundation Wall

None Present

Above Grade Wall

	Name: Exterior Wall (2,248 s.f.) R-0 continuous insulation, R-15 cavity insulation Insulation Grade: II
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	Name: Garage Wall (312 s.f.) R-0 continuous insulation, R-15 cavity insulation Insulation Grade: II
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Rim Joist

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 Name: Rim (160 s.f.) R: 15.00		

Ceiling / Roof

 Name: Roof (1,490 s.f.) R-40 continuous insulation, R-10 cavity insulation Insulation Grade: I	
 Name: Mechanical Platform (96 s.f.) R-0 continuous insulation, R-38 cavity insulation Insulation Grade: II	
 Name: Attic PDS (10 s.f.) R-5 continuous insulation, R-0.5 cavity insulation Insulation Grade: I	

Opaque Door

 Name: Opaque Door - Entry (20 s.f.) R: 3.50	
 Name: Opaque Door - Garage entry (17.8 s.f.) R: 3.50	

Glazing

 Name: Front Windows (105 s.f.), U: 0.330, SHGC: 0.19, Orientation: SOUTH_WEST	
 Name: Right Window (15 s.f.), U: 0.330, SHGC: 0.19, Orientation: NORTH_WEST	
 Name: Rear Window (119 s.f.), U: 0.330, SHGC: 0.19, Orientation: NORTH_EAST	
 Name: Left Window (30 s.f.), U: 0.330, SHGC: 0.19, Orientation: SOUTH_EAST	

Skylight

None Present

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Mechanical Ventilation

None Present

Mechanical Equipment

-  Heating Equipment • Natural Gas • 100% Heating Load @ 80 AFUE
-  Cooling Equipment • Electric • 100% Cooling Load @ 14 SEER
-  Water Heater • Natural Gas • 100% Hot Water Load @ 0.81 Energy Factor

Air Leakage Control

-  Test Status: Blower-door tested
House is air-sealed as to achieve 2,013 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.
- 2024 IECC Infiltration limit for the design home is 4 ACH50.

Note: Under IECC 2021 and later, 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 ft²
 - Total Leakage specified as: 6 CFM25 / 100 ft² (Post-Construction)

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Duct Leakage Code Requirements for IECC

- 2009 IECC:
- Postconstruction Leakage Test: Duct Leakage to Outdoors $\leq 8 \text{ CFM}_{25} / 100 \text{ sq ft CFA}$.
 - Rough in Test with AHU: Total Duct Leakage $\leq 6 \text{ CFM}_{25} / 100 \text{ sq ft CFA}$.
 - Rough in Test without AHU: Total Duct Leakage $\leq 4 \text{ CFM}_{25} / 100 \text{ sq ft CFA}$.
- 2012 IECC Mandatory, 2015, 2018, & 2021 IECC Prescriptive Paths:
- Postconstruction Leakage Test: Total Duct Leakage $\leq 4 \text{ CFM}_{25} / 100 \text{ sq ft CFA}$.
 - Rough in Test with AHU: Total Duct Leakage $\leq 4 \text{ CFM}_{25} / 100 \text{ sq ft CFA}$.
 - Rough in Test without AHU: Total Duct Leakage $\leq 3 \text{ CFM}_{25} / 100 \text{ sq ft CFA}$.
- 2015 and 2018 IECC Performance Path (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.
- 2024 IECC Prescriptive Path:
- >1,000 Sqft. Conditioned Floor Area
 - Space conditioning equipment is not installed: Less than 3 return grills $\leq 3 \text{ CFM}$, 3 or more return grills $\leq 4 \text{ CFM}$
 - All components of the duct system are installed: Less than 3 return grills $\leq 4 \text{ CFM}$, 3 or more return grills $\leq 6 \text{ CFM}$
 - Space conditioning equipment is not installed, but the ductwork is located entirely in conditioned space:
 - Less than 3 return grills $\leq 6 \text{ CFM}$, 3 or more return grills $\leq 8 \text{ CFM}$
 - All components of the duct system are installed entirely located in conditioned space:
 - Less than 3 return grills $\leq 8 \text{ CFM}$, 3 or more return grills $\leq 12 \text{ CFM}$
 - $\leq 1,000 \text{ Sqft}$. Conditioned Floor Area
 - Space conditioning equipment is not installed: $\leq 30 \text{ CFM}$
 - All components of the duct system are installed: $\leq 40 \text{ CFM}$
 - Space conditioning equipment is not installed, but the ductwork is located entirely in conditioned space: $\leq 60 \text{ CFM}$
 - All components of the duct system are installed entirely located in conditioned space: $\leq 80 \text{ CFM}$

Project Notes

Added guest room converts from flex space. No change in takeoff. Change to 5 bedrooms