

North Carolina 2018 - R402.1.5 Total UA

**Property**

2810 Norrington Rd
Lillington, NC 27546
Model: Custom

Organization

Southern Energy Manager
Justin Smith

Inspection Status

Results are projected

Template - J & R Homes - 2810
Norrington Rd - HERS
2810 Norrington Rd

Builder

J & R Homes

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	103.1	117.1
Above-Grade Walls	202.7	156.7
Windows, Doors and Skylights	189.7	179.5
Slab Floor:	141.9	186.5
Framed Floors	16.9	12.2
Foundation Walls	0.0	0.0
Rim Joists	0.6	0.5
Overall UA (Design must be equal or lower):	654.9	652.5

Requirements

✓	402.1.5	Total UA alternative compliance passes by 0.4%.
✓	402.3.2 Glazed Fenestration SHGC	Average SHGC: 0.30 Max SHGC: 0.30
✓	R402.4.2.2	Air Leakage Testing Air sealing is 0.25 CFM50 / ft ² Shell Area. It must not exceed 0.30 CFM50 / ft ² Shell Area.
✓	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 0.4%.

Name: Justin Smith

Signature: *Justin Smith*

Organization: Southern Energy Management

Digitally signed: 9/29/21 at 11:34 AM

Ekotrope RATER - Version 3.2.4.hf.2752

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.

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General Building Information

Number Of Bedrooms	4
Number Of Floors	2
Conditioned Floor Area [sq. ft.]	3,437
Has Electric Vehicle Ready Space	No
Unconditioned, attached garage?	Yes
Conditioned Volume [cu. ft.]	30,933
Total Units in Building	1
Residence Type	Townhouse, inside unit
Floor Number	-
Model	Custom
Community	
Climate Zone	4A

Foundation Wall

None Present

Foundation Wall Library List

None Present

Slab

Name	Library Type	Perimeter	Floor Grade	Carpet R	Exposed Masonry Area	Surface Area	Location	Enclosing
slab	Uninsulated	286	On Grade	1	0	3,077.0 ft²	Exposed Exterior	Conditioned Space

Slab Library List

Name	Wall Construction Type	Slab Completely Insulated?	Underslab Insulation Width [ft]	Perimeter Insulation Depth [ft]	Perimeter Insulation R Value	Thermal Break	Effective R-value
Uninsulated	Wood Frame / Other	No	0	0	0	No	0.00

Framed Floor

Name	Library Type	Carpet R	Floor Grade	Surface Area	Location
over garage	R-30, 16" OC G1 Carpet	0	Above Grade	360.0 ft²	Unconditioned, attached garage

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Framed Floor Library List

Name	Effective R-value
R-30, 16" OC G1 Carpet	29.567

Rim Joist

Name	Library Type	Surface Area	Location
1st floor garage	R 19 G1, 16"OC	11.0 ft ²	Unconditioned, attached garage

Rim Joist Library List

Name	Effective Insulation R-value
R 19 G1, 16"OC	17.30

Wall

Name	Library Type	Surface Color	Surface Area	Location
1st floor ambient	R 19 FG G1 16" O.C	Medium	2,172.0 ft ²	Exposed Exterior
1st floor garage	R 19 FG G1 16" O.C	Medium	402.0 ft ²	Unconditioned, attached garage
2nd floor ambient	R 19 FG G1 16" O.C	Medium	131.0 ft ²	Exposed Exterior
2nd floor attic	R 19 FG G1 16" O.C	Medium	470.0 ft ²	Attic

Wall Library List

Name	Effective R-value
R 19 FG G1 16" O.C	16.805

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**SOUTHERN ENERGY
MANAGEMENT**
ENERGY EFFICIENCY & SOLAR POWER

Template - J & R Homes - 2810 Norrington Rd -
HERS
2810 Norrington Rd

Builder
J & R Homes

Glazing

Name	Library Type	Wall Assignment	Foundation Wall Assignment	Is Operable	Overhang Depth	Overhang Ft To Top	Overhang Ft To Bottom	Orientation	Surface Area
front shaded	35/30	1st floor ambient		Yes	8	1	9	Southwest	96.0 ft²
front unshaded	35/30	1st floor ambient		Yes	0	0	0	Southwest	28.0 ft²
left 2nd unshaded	35/30	2nd floor ambient		Yes	0	0	0	Northwest	30.0 ft²
left unshaded	35/30	1st floor ambient		Yes	0	0	0	Northwest	20.0 ft²
rear shaded	35/30	1st floor ambient		Yes	10	1	9	Northeast	156.0 ft²
rear unshaded	35/30	1st floor ambient		Yes	0	0	0	Northeast	90.0 ft²
right shaded	35/30	1st floor ambient		Yes	21	1	9	Southeast	24.0 ft²
right unshaded	35/30	1st floor ambient		Yes	0	0	0	Southeast	30.0 ft²

Glazing Library List

Name	Shgc	U-factor
35/30	0.3	0.350

Skylight

None Present

Skylight Library List

None Present

Opaque Door

Name	Library Type	Wall Assignment	Foundation Wall Assignment	Emittance	Solar Absorptance	Surface Color	Surface Area	Location
front entry	Fiberglass R-5	1st floor ambient		0.9	0.75	Medium	48.0 ft²	Exposed Exterior
garage entry	Fiberglass R-5	1st floor garage		0.9	0.75	Medium	20.0 ft²	Exposed Exterior

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Opaque Door Library List

Name	Effective U-factor
Fiberglass R-5	0.200

Roof Insulation

Name	Library Type	Attic Exterior Area [ft ²]	Clay or Concrete	Roof Tiles	Surface Color	Surface Area	Location
Attic	R-30 Attic BLOWN FG G1 2x8 16"OC NO Radiant Barrier	5,052.39		No	Dark	3,437.0 ft ²	Attic

Roof Insulation Library List

Name	Has Radiant Barrier	Effective R-value
R-30 Attic BLOWN FG G1 2x8 16"OC NO Radiant Barrier	No	29.34

Whole House Infiltration

Infiltration	Measurement Type	Shelter Class
2474 CFM at 50 Pa	Blower-door tested	4

Mechanical Ventilation

None Present

Lighting

% Interior Fluorescent Lighting	% Interior LED Lighting	% Exterior Fluorescent Lighting	% Exterior LED Lighting	% Garage Fluorescent Lighting	% Garage LED Lighting
0	100	0	0	0	0

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Onsite Generation

None Present

Onsite Generation Library List

None Present

Solar Generation

None Present

Dehumidifier

None Present

Dehumidifier Library List

None Present

Conditioning Equipment

Name	Library Type	Serial Number	Heating Percent Load	Cooling Percent Load	Hot Water Percent Load	Location
Water Heating	Z 50 gal. 0.93EF Elec		0%	0%	100%	Unspecified
whole house heat pump	z 36k 14 seer 8.2hspf		100%	100%	0%	Unspecified

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Equipment Type: Z 50 gal. 0.93EF Elec

Equipment Type	Residential Water Heater
Fuel Type	Electric
Distribution Type	Hydronic Delivery (Radiant)
Hot Water Efficiency	0.93 Energy Factor
Tank Capacity (gal.)	50
Hot Water Capacity [kBtu/h]	40
Recovery Efficiency	0.98

Equipment Type: z 36k 14 seer 8.2hspf

Equipment Type	Air Source Heat Pump
Fuel Type	Electric
Distribution Type	Forced Air
Motor Type	PSC (Single Speed)
Heating Efficiency	8.2 HSPF
Heating Capacity [kBtu/h]	36
Backup Fuel Type	Electric
Switchover Temperature [°F]	0
Backup Heating Efficiency	1 COP
Use default Supplemental Heat	Yes
Cooling Efficiency	14 SEER
Cooling Capacity [kBtu/h]	36

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Distribution System

Distribution Type	Forced Air
Heating Equipment	whole house heat pump
Cooling Equipment	whole house heat pump
Sq. Feet Served	3,437
# Return Grilles	4
Supply Duct R Value	8
Return Duct R Value	8
Supply Duct Area [ft ²]	927.99
Return Duct Area [ft ²]	687.4
Leakage to Outdoors	137 CFM @ 25Pa (3.99 / 100 ft ²)
Total Leakage	137 CFM25
Total Leakage Duct Test Conditions	Post-Construction
Use Default Flow Rate	Yes
Duct 1	
Duct Location	Attic (well vented)
Percent Supply Area	100
Percent Return Area	100
Duct 2	
Duct Location	Conditioned Space
Percent Supply Area	0
Percent Return Area	0
Duct 3	
Duct Location	Conditioned Space
Percent Supply Area	0
Percent Return Area	0
Duct 4	
Duct Location	Conditioned Space
Percent Supply Area	0
Percent Return Area	0
Duct 5	
Duct Location	Conditioned Space
Percent Supply Area	0
Percent Return Area	0
Duct 6	
Duct Location	Conditioned Space
Percent Supply Area	0
Percent Return Area	0

Ceiling Fan

Has Ceiling Fan	Yes
Cfm Per Watt	100

Water Distribution

Water Fixture Type	Standard
Use Default Hot Water Pipe Length	No
Hot Water Pipe Length [ft]	134
At Least R3 Pipe Insulation?	No
Hot Water Recirculation System?	No
Recirculation System Pipe Loop Length [ft]	20
Drain Water Heat Recovery?	No

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Clothes Dryer

Cef	2.6173913
Fuel Type	Electric
Field Utilization	Timer Controls
Is Outside Conditioned Space	No
Clothes Dryer Available	Yes
Defaults Type	HERS Reference

Clothes Washer

Label Energy Rating	153 kWh/Year
Annual Gas Cost	\$12.00
Electric Rate	\$0.11/kWh
Gas Rate	\$1.22/Therm
Capacity	3.31
Imef	2.1547
Defaults Type	Custom
Is Outside Conditioned Space	No
Clothes Washer Available	Yes

Dishwasher

Dishwasher Efficiency	270 kWh
Dishwasher Size	Standard
Is Outside Conditioned Space	No

Appliances and Controls

Programmable thermostat?	Yes
Range/Oven Fuel	Electric
Convection Oven?	No
Induction Range?	No
Range/Oven Outside Conditioned Space?	No
Refrigerator Consumption	538 kWh/Year
Refrigerator Outside Conditioned Space?	No

Notes

Initial Inputs by __JS 09/29/21

- confirm wall insulation values
- confirm window specs
- confirm HVAC specs
- modeled to worst case orientation
- ventilation modeled as none, confirm accuracy