

# North Carolina 2018 - R402.1.5 Total UA

**Property**

116 Barn Door Drive  
Lillington, NC 27546  
Model: 6260

**Organization**

Southern Energy Management  
Justin Smith

**Inspection Status**

Results are projected

**Builder**

Chesapeake - 6260 base plan slab - ecoSe  
6260 base plan slab

**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                                           | 47.1         | 42.4         |
| Above-Grade Walls                                  | 186.1        | 175.5        |
| Windows, Doors and Skylights                       | 118.2        | 97.5         |
| Slab Floor:                                        | 77.4         | 100.5        |
| Framed Floors                                      | 18.2         | 19.8         |
| Foundation Walls                                   | 0.0          | 0.0          |
| Rim Joists                                         | 9.0          | 8.8          |
| <b>Overall UA (Design must be equal or lower):</b> | <b>456.0</b> | <b>444.5</b> |

## Requirements

|   |                     |                                                                           |                                                                                               |
|---|---------------------|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| ✓ | R402.1.5            | Total UA alternative compliance passes by 2.5%.                           | The proposed home meets the UA requirement by 2.5%                                            |
| ✓ | R402.3.2            | Average SHGC: 0.28 Max SHGC: 0.30                                         | Average SHGC of 0.28 is greater than the maximum of 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                                   | Area-weighted average fenestration SHGC is 0.28. 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 2.5%.**

|               |                            |                   |                     |
|---------------|----------------------------|-------------------|---------------------|
| Name:         | Justin Smith               | Signature:        | <i>Justin Smith</i> |
| Organization: | Southern Energy Management | Digitally signed: | 6/12/25 at 9:54 AM  |

### Ekotrope RATER - Version 4.1.2.3649

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.]: 2,618 | Has Electric Vehicle Ready Space: No   |
| Unconditioned, attached garage? Yes     | Conditioned Volume [cu. ft.]: 24,220   |
| Total Units in Building: 1              | Residence Type: Single family detached |
| Number of Floors in Building: N/A       | Floor Number: N/A                      |
| Model: 6260                             | Community:                             |
| RESNET/IECC 2006-2018 Climate Zone: 4A  | IECC 2021 Climate Zone: 3A             |

## Envelope Components

### Slab

| Name | Library Type | Perimeter | Floor Grade | Carpet R | Exposed Masonry Area | Surface Area | Location         | Enclosing         |
|------|--------------|-----------|-------------|----------|----------------------|--------------|------------------|-------------------|
| slab | Uninsulated  | 162       | On Grade    | 1        | 0                    | 1,184.0 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 | Perimeter Insulation Is Exterior | Thermal Break | Effective R-value |
|-------------|------------------------|----------------------------|---------------------------------|---------------------------------|------------------------------|----------------------------------|---------------|-------------------|
| Uninsulated | Wood Frame / Other     | No                         | 0                               | 0                               | 0                            | No                               | No            | 0.00              |

### Framed Floor

| Name        | Library Type          | Carpet R | Floor Grade | Surface Area | Location                       | Effective R-value |
|-------------|-----------------------|----------|-------------|--------------|--------------------------------|-------------------|
| over garage | R 19, 16"OC G1 Carpet | 0        | Above Grade | 387.0 ft²    | Unconditioned, attached garage | 19.567            |

### Rim Joist

| Name              | Library Type   | Surface Area | Location                       | Effective Insulation R-value |
|-------------------|----------------|--------------|--------------------------------|------------------------------|
| 1st floor ambient | R 15 G1, 16"OC | 127.0 ft²    | Exposed Exterior               | 13.30                        |
| 1st floor garage  | R 15 G1, 16"OC | 35.0 ft²     | Unconditioned, attached garage | 13.30                        |

### Wall

| Name              | Library Type                 | Surface Color | Solar Absorptance | Surface Area | Location                       | Effective R-value |
|-------------------|------------------------------|---------------|-------------------|--------------|--------------------------------|-------------------|
| 1st floor ambient | R 15 Adv. Framing G1 16" O.C | Medium        | 0.75              | 1,140.0 ft²  | Exposed Exterior               | 13.771            |
| 1st floor garage  | R 15 Adv. Framing G1 16" O.C | Medium        | 0.75              | 318.0 ft²    | Unconditioned, attached garage | 13.771            |
| 2nd floor ambient | R 15 Adv. Framing G1 16" O.C | Medium        | 0.75              | 1,296.0 ft²  | Exposed Exterior               | 13.771            |

### 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 2nd unshaded | 30/28        | 2nd floor ambient |                            | Yes         | 0              | 0                  | 0                     | Northeast   | 57.0 ft²     |

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| 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       | 30/28        | 1st floor ambient |                            | Yes         | 7              | 1                  | 9                     | Northeast   | 19.5 ft²     |
| front unshaded     | 30/28        | 1st floor ambient |                            | Yes         | 7              | 1                  | 9                     | Northeast   | 18.0 ft²     |
| left 2nd unshaded  | 30/28        | 2nd floor ambient |                            | Yes         | 0              | 0                  | 0                     | Southeast   | 39.0 ft²     |
| left shaded        | 30/28        | 2nd floor ambient |                            | Yes         | 13             | 2.3                | 9                     | Southeast   | 23.1 ft²     |
| rear 2nd unshaded  | 30/28        | 2nd floor ambient |                            | Yes         | 0              | 0                  | 0                     | Southwest   | 45.0 ft²     |
| rear unshaded      | 30/28        | 1st floor ambient |                            | Yes         | 12             | 1                  | 7                     | Southwest   | 36.0 ft²     |
| right 2nd unshaded | 30/28        | 2nd floor ambient |                            | Yes         | 0              | 0                  | 0                     | Northwest   | 8.0 ft²      |
| right unshaded     | 30/28        | 1st floor ambient |                            | Yes         | 0              | 0                  | 0                     | Northwest   | 54.0 ft²     |

## Glazing Library List

| Name  | Shgc | U-factor |
|-------|------|----------|
| 30/28 | 0.28 | 0.300    |

## Opaque Door

| Name         | Library Type   | Wall Assignment   | Foundation Wall Assignment | Emittance | Solar Absorptance | Surface Color | Surface Area | Location                       | Effective R-value |
|--------------|----------------|-------------------|----------------------------|-----------|-------------------|---------------|--------------|--------------------------------|-------------------|
| front entry  | Fiberglass R-5 | 1st floor ambient |                            | 0.9       | 0.75              | Medium        | 20.0 ft²     | Exposed Exterior               | 0.200             |
| garage entry | Fiberglass R-5 | 1st floor garage  |                            | 0.9       | 0.75              | Medium        | 18.0 ft²     | Unconditioned, attached garage | 0.200             |

## Roof Insulation

| Name  | Library Type                                         | Attic Exterior Area [ft²] | Clay or Concrete Roof Tiles | Does the Roof have Eaves? | Effective R-Value after eaves | Surface Color | Solar Absorptance | Surface Area | Location |
|-------|------------------------------------------------------|---------------------------|-----------------------------|---------------------------|-------------------------------|---------------|-------------------|--------------|----------|
| attic | R 38 Attic BLOWN FG G1 2x10 24"OC NO Radiant Barrier | 2,309.37                  | No                          | No                        | -                             | Dark          | 0.9               | 1,571.0 ft²  | Attic    |

## Roof Insulation Library List

| Name                                                 | Has Radiant Barrier | Effective R-value |
|------------------------------------------------------|---------------------|-------------------|
| R 38 Attic BLOWN FG G1 2x10 24"OC NO Radiant Barrier | No                  | 37.074            |

## Whole House Infiltration

| Infiltration      | Measurement Type   | Shelter Class |
|-------------------|--------------------|---------------|
| 1937 CFM at 50 Pa | Blower-door tested | 4             |

## Mechanicals, Lights & Water

### 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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## Conditioning Equipment

| Name                | Library Type           | Serial Number | Heating Percent Load | Cooling Percent Load | Hot Water Percent Load | Location    |
|---------------------|------------------------|---------------|----------------------|----------------------|------------------------|-------------|
| Water Heating       | z 50 gal. 0.59 EF Gas  |               | 0%                   | 0%                   | 100%                   | Unspecified |
| whole house a/c     | 5TTR4042/5TXCB006      |               | 0%                   | 100%                 | 0%                     | Unspecified |
| whole house furnace | z 92 AFUE Gas Furn 64k |               | 100%                 | 0%                   | 0%                     | Unspecified |

## Equipment Type: 5TTR4042/5TXCB006

|                           |                      |
|---------------------------|----------------------|
| Equipment Type            | Air Conditioner      |
| Fuel Type                 | Electric             |
| Distribution Type         | Forced Air           |
| Motor Type                | ECM (Variable Speed) |
| Heat Pump System Type     | Unspecified          |
| Cooling Efficiency        | 14.3 SEER2           |
| Cooling Capacity [kBtu/h] | 40.5                 |

## Equipment Type: z 50 gal. 0.59 EF Gas

|                             |                             |
|-----------------------------|-----------------------------|
| Equipment Type              | Residential Water Heater    |
| Fuel Type                   | Natural Gas                 |
| Distribution Type           | Hydronic Delivery (Radiant) |
| Hot Water Efficiency        | 0.59 Energy Factor          |
| Tank Capacity (gal.)        | 50                          |
| Hot Water Capacity [kBtu/h] | 40                          |
| Recovery Efficiency         | 0.76                        |

## Equipment Type: z 92 AFUE Gas Furn 64k

|                           |                    |
|---------------------------|--------------------|
| Equipment Type            | Furnace            |
| Fuel Type                 | Natural Gas        |
| Distribution Type         | Forced Air         |
| Motor Type                | PSC (Single Speed) |
| Heating Efficiency        | 92 AFUE            |
| Heating Capacity [kBtu/h] | 64                 |
| Use default EAE           | No                 |
| EAE [kWh]                 | 591                |

## Distribution System

|                                    |                                 |
|------------------------------------|---------------------------------|
| Distribution Type                  | Forced Air                      |
| Heating Equipment                  | whole house furnace             |
| Cooling Equipment                  | whole house a/c                 |
| Sq. Feet Served                    | 2,618                           |
| # Return Grilles                   | 4                               |
| Supply Duct R Value                | 8                               |
| Return Duct R Value                | 8                               |
| Supply Duct Area [ft²]             | 706.86                          |
| Return Duct Area [ft²]             | 523.6                           |
| Leakage to Outdoors                | 104 CFM @ 25Pa (3.97 / 100 ft²) |
| Total Leakage                      | 104 CFM25                       |
| Total Leakage Duct Test Conditions | Post-Construction               |
| Use Default Flow Rate              | Yes                             |
| Duct 1                             |                                 |
| Duct Location                      | Attic (well vented)             |
| Percent Supply Area                | 70                              |
| Percent Return Area                | 70                              |
| Duct 2                             |                                 |
| Duct Location                      | Conditioned Space               |
| Percent Supply Area                | 30                              |
| Percent Return Area                | 30                              |

## Water Distribution

|                                   |          |
|-----------------------------------|----------|
| Water Fixture Type                | Standard |
| Use Default Hot Water Pipe Length | Yes      |
| At Least R3 Pipe Insulation?      | No       |
| Hot Water Recirculation System?   | No       |
| Drain Water Heat Recovery?        | No       |

## Appliances & Notes

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### Clothes Dryer

|                              |                |
|------------------------------|----------------|
| Cef                          | 3.01           |
| Fuel Type                    | Electric       |
| Field Utilization            | Timer Controls |
| Is Outside Conditioned Space | No             |
| Defaults Type                | HERS Reference |
| Is Ventless                  | No             |
| Is Heat Pump                 | No             |
| Clothes Dryer Available      | Yes            |

### 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       |
| Load Type                    | Front-load   |
| Loads Per Week               | 6            |
| Is Outside Conditioned Space | No           |
| Clothes Washer Available     | Yes          |

### Dishwasher

|                              |              |
|------------------------------|--------------|
| Dishwasher Defaults Type     | Custom       |
| Dishwasher Size              | Standard     |
| Dishwasher Efficiency        | 270 kWh      |
| Annual Gas Cost              | \$22.23      |
| Electric Rate                | \$0.12/kWh   |
| Gas Rate                     | \$1.09/Therm |
| Is Outside Conditioned Space | No           |
| Dishwasher Available         | Yes          |

### Appliances and Controls

|                                         |              |
|-----------------------------------------|--------------|
| Thermostat Cooling Setpoint             | **** 75.0    |
| Thermostat Heating Setpoint             | **** 70.0    |
| 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 1/4/18  
updated JS 05/12/23

- \*\*no slab insulation modeled\*\*
- confirm window specs
- confirm if radiant barrier installed, modeled as yes
- confirm HVAC specs
- confirm ventilation entry, modeled as none
- confirm cfl lighting %
- modeled to worst case orientation

**Components Not Found:** Foundation Wall, Foundation Wall Library List, Skylight, Mechanical Ventilation, Onsite Generation, Solar Generation, Dehumidifier, Whole House Fan, Whole House Fan Library List, HVAC Grading (Not Conducted), Ceiling Fan