

# North Carolina 2018 - R402.1.5 Total UA

**Property**

, NC 27546  
Model: CC 1536  
Community: NA

**Organization**

Southern Energy Management  
Justin Smith

**Inspection Status**

Results are projected

**Builder**

Template - Caviness & Cates - CC 1536 - C  
CC 1536 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                                           | 46.1         | 40.5         |
| Above-Grade Walls                                  | 107.7        | 83.2         |
| Windows, Doors and Skylights                       | 58.6         | 52.9         |
| Slab Floor:                                        | 84.8         | 110.8        |
| Framed Floors                                      | 0.0          | 0.0          |
| Foundation Walls                                   | 0.0          | 0.0          |
| Rim Joists                                         | 0.0          | 0.0          |
| <b>Overall UA (Design must be equal or lower):</b> | <b>297.2</b> | <b>287.4</b> |

## Requirements

|   |                     |                                                                           |                                                                                                                     |
|---|---------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| ✓ | R402.1.5            | Total UA alternative compliance passes by 3.3%.                           | The proposed home meets the UA requirement by 3.3%                                                                  |
| ✓ | R402.3.2            | Average SHGC: 0.30 Max SHGC: 0.30                                         | Average SHGC of 0.30 is greater than the maximum of 0.30.                                                           |
| ✓ | R402.4.2.2          | Air Leakage Testing                                                       | Air sealing is 0.24 CFM50 / ft <sup>2</sup> Shell Area. It must not exceed 0.30 CFM50 / ft <sup>2</sup> Shell Area. |
| ✓ | R402.5              | Area-weighted average fenestration SHGC                                   | Area-weighted average fenestration SHGC is 0.3. 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 3.3%.**

|               |                            |                   |                     |
|---------------|----------------------------|-------------------|---------------------|
| Name:         | Justin Smith               | Signature:        | <i>Justin Smith</i> |
| Organization: | Southern Energy Management | Digitally signed: | 9/5/25 at 3:14 PM   |

### Ekotrope RATER - Version 4.1.2.3703

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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 CC 1536 slab

**Builder**  
 Caviness and Cates

## General Building Information

|                                         |                                        |
|-----------------------------------------|----------------------------------------|
| Number Of Bedrooms: 3                   | Number Of Floors: 1                    |
| Conditioned Floor Area [sq. ft.]: 1,536 | Has Electric Vehicle Ready Space: No   |
| Unconditioned, attached garage? Yes     | Conditioned Volume [cu. ft.]: 13,824   |
| Total Units in Building: 1              | Residence Type: Single family detached |
| Number of Floors in Building: N/A       | Floor Number: N/A                      |
| Model: CC 1536                          | Community: NA                          |
| 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  | 174       | On Grade    | 1        | 0                    | 1,536.0 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              |

### Wall

| Name              | Library Type       | Surface Color | Solar Absorptance | Surface Area | Location                       | Effective R-value |
|-------------------|--------------------|---------------|-------------------|--------------|--------------------------------|-------------------|
| 1st floor ambient | R 19 FG G1 16" O.C | Medium        | 0.75              | 1,431.0 ft²  | Exposed Exterior               | 16.805            |
| 1st floor garage  | R 19 FG G1 16" O.C | Medium        | 0.75              | 135.0 ft²    | Unconditioned, attached garage | 16.805            |

### 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 unshaded | 35/30        | 1st floor ambient |                            | Yes         | 0              | 0                  | 0                     | Southwest   | 15.0 ft²     |
| left unshaded  | 35/30        | 1st floor ambient |                            | Yes         | 0              | 0                  | 0                     | Northwest   | 45.0 ft²     |
| rear unshaded  | 35/30        | 1st floor ambient |                            | Yes         | 0              | 0                  | 0                     | Northeast   | 63.5 ft²     |
| right unshaded | 35/30        | 1st floor ambient |                            | Yes         | 0              | 0                  | 0                     | Southeast   | 6.0 ft²      |

### Glazing Library List

| Name  | Shgc | U-factor |
|-------|------|----------|
| 35/30 | 0.3  | 0.350    |

# Building Summary

|                                                                |                                                                                                     |                                                                   |                                                                                           |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
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|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------|

| Opaque Door  |                |                   |                            |           |                   |               |              |                                |                    |
|--------------|----------------|-------------------|----------------------------|-----------|-------------------|---------------|--------------|--------------------------------|--------------------|
| Name         | Library Type   | Wall Assignment   | Foundation Wall Assignment | Emittance | Solar Absorptance | Surface Color | Surface Area | Location                       | Effective U-factor |
| 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 2x6 16"OC NO Radiant Barrier | 2,257.92                  | No                          | No                        | -                             | Dark          | 0.9               | 1,536.0 ft²  | Vented Attic |

| Roof Insulation Library List                        |                     |                   | Whole House Infiltration |                    |               |
|-----------------------------------------------------|---------------------|-------------------|--------------------------|--------------------|---------------|
| Name                                                | Has Radiant Barrier | Effective R-value | Infiltration             | Measurement Type   | Shelter Class |
| R 38 Attic BLOWN FG G1 2x6 16"OC NO Radiant Barrier | No                  | 37.887            | 1105 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                               | 100                     | 0                             | 100                   |

| Conditioning Equipment |                            |               |                      |                      |                        |             |
|------------------------|----------------------------|---------------|----------------------|----------------------|------------------------|-------------|
| Name                   | Library Type               | Serial Number | Heating Percent Load | Cooling Percent Load | Hot Water Percent Load | Location    |
| Water Heating          | z 50 gal. 0.92 EF Elec     |               | 0%                   | 0%                   | 100%                   | Unspecified |
| whole house heat pump  | z 24k 14.3 SEER2 7.5 HSPF2 |               | 100%                 | 100%                 | 0%                     | Unspecified |

| Equipment Type: z 24k 14.3 SEER2 7.5 HSPF2 |                      | Equipment Type: z 50 gal. 0.92 EF Elec |                             |
|--------------------------------------------|----------------------|----------------------------------------|-----------------------------|
| Equipment Type                             | Air Source Heat Pump | Equipment Type                         | Residential Water Heater    |
| Fuel Type                                  | Electric             | Fuel Type                              | Electric                    |
| Distribution Type                          | Forced Air           | Distribution Type                      | Hydronic Delivery (Radiant) |
| Motor Type                                 | ECM (Variable Speed) | Hot Water Efficiency                   | 0.92 Energy Factor          |
| Heat Pump System Type                      | Ducted Split System  | Tank Capacity (gal.)                   | 50                          |
| Heating Efficiency                         | 7.5 HSPF2            | Hot Water Capacity [kBtu/h]            | 40                          |
| Heating Capacity [kBtu/h]                  | 24                   | Recovery Efficiency                    | 0.98                        |
| Backup Fuel Type                           | Electric             |                                        |                             |
| Switchover Temperature [°F]                | 0                    |                                        |                             |
| Backup Heating Efficiency                  | 1 COP                |                                        |                             |
| Use default Supplemental Heat              | Yes                  |                                        |                             |
| Cooling Efficiency                         | 14.3 SEER2           |                                        |                             |
| Cooling Capacity [kBtu/h]                  | 24                   |                                        |                             |

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**Builder**  
Caviness and Cates

### Distribution System

|                                    |                                |
|------------------------------------|--------------------------------|
| Distribution Type                  | Forced Air                     |
| Heating Equipment                  | whole house heat pump          |
| Cooling Equipment                  | whole house heat pump          |
| Sq. Feet Served                    | 1,536                          |
| # Return Grilles                   | 2                              |
| Supply Duct R Value                | 8                              |
| Return Duct R Value                | 8                              |
| Supply Duct Area [ft²]             | 414.72                         |
| Return Duct Area [ft²]             | 153.6                          |
| Leakage to Outdoors                | 61 CFM @ 25Pa (3.97 / 100 ft²) |
| Total Leakage                      | 61 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                            |

### Water Distribution

|                                   |          |
|-----------------------------------|----------|
| Water Fixture Type                | Standard |
| Use Default Hot Water Pipe Length | No       |
| Hot Water Pipe Length [ft]        | 88       |
| At Least R3 Pipe Insulation?      | No       |
| Hot Water Recirculation System?   | No       |
| Drain Water Heat Recovery?        | No       |

## Appliances & Notes

### 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 JSm 09/05/25

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

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