

North Carolina 2018 - R402.1.5 Total UA



Property
 , NC 27546
 Model: Forget Me Not

Organization
 Southern Energy Manager
 Justin Smith

Inspection Status
 Results are projected

Garman Homes - Forget Me Not
 1644 plan - CZ 4 slab - ecoSelect
 Forget Me Not plan

Builder
 Garman 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 | 35.9 | 34.1 |
| Above-Grade Walls | 163.0 | 153.7 |
| Windows, Doors and Skylights | 103.4 | 84.8 |
| Slab Floor: | 69.0 | 89.0 |
| Framed Floors | 14.2 | 16.5 |
| Foundation Walls | 0.0 | 0.0 |
| Rim Joists | 6.7 | 6.6 |
| Overall UA (Design must be equal or lower): | 392.2 | 384.7 |

Requirements

| | | |
|---|---------------------|--|
| ✓ | R402.1.5 | Total UA alternative compliance passes by 1.9%. The proposed home meets the UA requirement by 1.9% |
| ✓ | 402.3.2 | 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 0.25 CFM50 / ft ² Shell Area. It must not exceed 0.30 CFM50 / ft ² 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 At least 75.0% of fixtures shall be high-efficacy lamps, currently 100.0% are high-efficacy. |
| ✓ | 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 1.9%.

Name: Justin Smith
 Organization: Southern Energy Management

Signature: *Justin Smith*
 Digitally signed: 9/26/22 at 10:01 AM

Ekotrope RATER - Version 4.0.1.2996

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.

Building Summary



SOUTHERN ENERGY
MANAGEMENT
ENERGY EFFICIENCY & SOLAR POWER

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General Building Information

| | |
|----------------------------------|------------------------|
| Number Of Bedrooms | 3 |
| Number Of Floors | 2 |
| Conditioned Floor Area [sq. ft.] | 1,644 |
| Has Electric Vehicle Ready Space | No |
| Unconditioned, attached garage? | Yes |
| Conditioned Volume [cu. ft.] | 15,521 |
| Total Units in Building | 1 |
| Residence Type | Single family detached |
| Number of Floors in Building | - |
| Floor Number | - |
| Model | Forget Me Not |
| Community | |
| RESNET/IECC 2006 Climate Zone | 4A |
| IECC 2021 Climate Zone | 3A |

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 | 148 | On Grade | 1 | 0 | 894.0 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 |

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Framed Floor

| Name | Library Type | Carpet R | Floor Grade | Surface Area | Location |
|--------------|-------------------------|----------|-------------|-----------------------|--------------------------------|
| over ambient | R 19, 16"OC G1 Hardwood | 0 | Above Grade | 24.0 ft ² | Exposed Exterior |
| over garage | R 19, 16"OC G1 Hardwood | 0 | Above Grade | 279.0 ft ² | Unconditioned, attached garage |

Framed Floor Library List

| Name | Effective R-value |
|-------------------------|-------------------|
| R 19, 16"OC G1 Hardwood | 18.371 |

Rim Joist

| Name | Library Type | Surface Area | Location |
|-------------------|----------------|----------------------|--------------------------------|
| 1st floor ambient | R 15 G1, 16"OC | 88.0 ft ² | Exposed Exterior |
| 1st floor garage | R 15 G1, 16"OC | 32.0 ft ² | Unconditioned, attached garage |

Rim Joist Library List

| Name | Effective Insulation R-value |
|----------------|------------------------------|
| R 15 G1, 16"OC | 13.30 |

Wall

| Name | Library Type | Surface Color | Surface Area | Location |
|-------------------|------------------------------|---------------|-------------------------|--------------------------------|
| 1st floor ambient | R 15 Adv. Framing G1 16" O.C | Medium | 1,044.0 ft ² | Exposed Exterior |
| 1st floor garage | R 15 Adv. Framing G1 16" O.C | Medium | 288.0 ft ² | Unconditioned, attached garage |
| 2nd floor ambient | R 15 Adv. Framing G1 16" O.C | Medium | 1,080.0 ft ² | Exposed Exterior |

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Wall Library List

| Name | Effective R-value |
|------------------------------|-------------------|
| R 15 Adv. Framing G1 16" O.C | 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 | 30/30 | 2nd floor ambient | | Yes | 0 | 0 | 0 | East | 75.0 ft ² |
| front unshaded | 30/30 | 1st floor ambient | | Yes | 0 | 0 | 0 | East | 36.0 ft ² |
| left 2nd unshaded | 30/30 | 2nd floor ambient | | Yes | 0 | 0 | 0 | South | 4.0 ft ² |
| left unshaded | 30/30 | 1st floor ambient | | Yes | 0 | 0 | 0 | South | 8.0 ft ² |
| rear 2nd unshaded | 30/30 | 2nd floor ambient | | Yes | 0 | 0 | 0 | West | 28.5 ft ² |
| rear unshaded | 30/30 | 1st floor ambient | | Yes | 0 | 0 | 0 | West | 90.0 ft ² |
| right 2nd unshaded | 30/30 | 2nd floor ambient | | Yes | 0 | 0 | 0 | North | 8.0 ft ² |
| right unshaded | 30/30 | 1st floor ambient | | Yes | 0 | 0 | 0 | North | 8.0 ft ² |

Glazing Library List

| Name | Shgc | U-factor |
|-------|------|----------|
| 30/30 | 0.3 | 0.300 |

Skylight

None Present

Skylight Library List

None Present

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Opaque Door

| Name | Library Type | Wall Assignment | Foundation Wall Assignment | Emittance | Solar Absorptance | Surface Color | Surface Area | Location |
|-------------|----------------|-------------------|----------------------------|-----------|-------------------|---------------|----------------------|--------------------------------|
| front door | Fiberglass R-5 | 1st floor ambient | | 0.9 | 0.75 | Medium | 20.0 ft ² | Exposed Exterior |
| garage door | Fiberglass R-5 | 1st floor garage | | 0.9 | 0.75 | Medium | 18.0 ft ² | Unconditioned, attached garage |

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 38 Attic BLOWN FG G1 2x10 24"OC NO Radiant Barrier | 1,855.35 | No | Dark | 1,197.0 ft ² | 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 | 35.115 |

Whole House Infiltration

| Infiltration | Measurement Type | Shelter Class |
|-------------------|--------------------|---------------|
| 1242 CFM at 50 Pa | Blower-door tested | 4 |

Mechanical Ventilation

| Ventilation Type | Ventilation Rate [ft ³ / Minute] | Operational hours per day | Fan Watts | Runs once every three hours | Energy Recovery Percent | Model Number | Manufacturer |
|------------------|---|---------------------------|-----------------------|-----------------------------|-------------------------|--------------|--------------|
| Exhaust Only | 141 CFM | 8 | 49.35 Watts (Default) | Yes | 0 | | |

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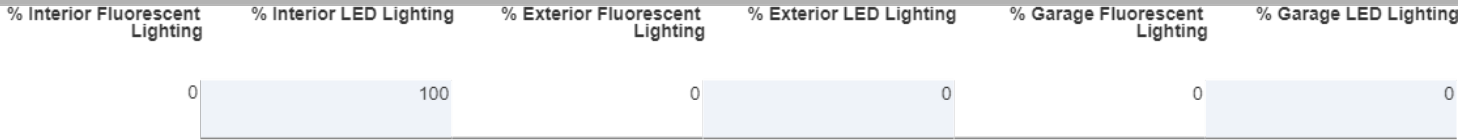
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Lighting



Onsite Generation

None Present

Onsite Generation Library List

None Present

Solar Generation

None Present

Dehumidifier

None Present

Dehumidifier Library List

None Present

Whole House Fan

None Present

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Whole House Fan Library List

None Present

Conditioning Equipment

| Name | Library Type | Serial Number | Heating Percent Load | Cooling Percent Load | Hot Water Percent Load | Location |
|---------------------|------------------------|---------------|----------------------|----------------------|------------------------|----------------------|
| Water Heater | RL94e (NG) | | 0% | 0% | 100% | Unconditioned Garage |
| whole house a/c | z 14 SEER A/C 3 ton | | 0% | 100% | 0% | Attic |
| whole house furnace | z 93 AFUE Gas Furn 48k | | 100% | 0% | 0% | Attic |

Equipment Type: RL94e (NG)

| | |
|----------------------|-----------------------------|
| Equipment Type | Residential Water Heater |
| Fuel Type | Natural Gas |
| Distribution Type | Hydronic Delivery (Radiant) |
| Hot Water Efficiency | 0.81 Energy Factor |
| Tankless? | Yes |

Equipment Type: z 14 SEER A/C 3 ton

| | |
|---------------------------|--------------------|
| Equipment Type | Air Conditioner |
| Fuel Type | Electric |
| Distribution Type | Forced Air |
| Motor Type | PSC (Single Speed) |
| Cooling Efficiency | 14 SEER |
| Cooling Capacity [kBtu/h] | 36 |

Equipment Type: z 93 AFUE Gas Furn 48k

| | |
|---------------------------|--------------------|
| Equipment Type | Furnace |
| Fuel Type | Natural Gas |
| Distribution Type | Forced Air |
| Motor Type | PSC (Single Speed) |
| Heating Efficiency | 93 AFUE |
| Heating Capacity [kBtu/h] | 48 |
| Use default EAE | No |
| EAE [kWh] | 411 |

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Distribution System

| | |
|-------------------------------------|---|
| Distribution Type | Forced Air |
| Heating Equipment | whole house furnace |
| Cooling Equipment | whole house a/c |
| Sq. Feet Served | 1,644 |
| # Return Grilles | 2 |
| Supply Duct R Value | 8 |
| Return Duct R Value | 8 |
| Supply Duct Area [ft ²] | 443.88 |
| Return Duct Area [ft ²] | 164.4 |
| Leakage to Outdoors | 65 CFM @ 25Pa (3.95 / 100 ft ²) |
| Total Leakage | 65 CFM25 |
| Total Leakage Duct Test Conditions | Post-Construction |
| Use Default Flow Rate | Yes |
| Duct 1 | |
| Duct Location | Attic (well vented) |
| Percent Supply Area | 80 |
| Percent Return Area | 80 |
| Duct 2 | |
| Duct Location | Conditioned Space |
| Percent Supply Area | 20 |
| Percent Return Area | 20 |
| 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 |

HVAC Grading

HVAC Grading Not Conducted

Ceiling Fan

| | |
|-----------------|-----|
| Has Ceiling Fan | No |
| Cfm Per Watt | 100 |

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Water Distribution

| | |
|--|----------|
| Water Fixture Type | Standard |
| Use Default Hot Water Pipe Length | No |
| Hot Water Pipe Length [ft] | 74 |
| At Least R3 Pipe Insulation? | No |
| Hot Water Recirculation System? | No |
| Recirculation System Pipe Loop Length [ft] | 170 |
| Drain Water Heat Recovery? | No |

Clothes Dryer

| | |
|------------------------------|----------------|
| Cef | 3.01 |
| 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 |
| Load Type | Front-load |
| Loads Per Week | 6 |
| Is Outside Conditioned Space | No |
| Clothes Washer Available | Yes |

Dishwasher

| | |
|------------------------------|--------------|
| Dishwasher Efficiency | 270 kWh |
| Dishwasher Size | Standard |
| Annual Gas Cost | \$22.23 |
| Electric Rate | \$0.12/kWh |
| Gas Rate | \$1.09/Therm |
| 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 |

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Notes

Initial inputs by __AT 5/4/2022__

- confirm window specs
- ventilation modeled as exhaust, confirm this is accurate
- confirm cfl lighting percentage
- modeled to worst case orientation