

North Carolina 2018 - R402.1.5 Total UA



Property

Fayetteville, NC 28301
 Model: Dogwood
 Community: NA

Organization

Southern Energy Manager
 Sara Caliendo

Inspection Status

Results are projected

Builder

H&H Homes

H&H Homes-Dogwood base plan sla
 Template - H & H - Fayetteville - Dog

Building UA

Elements	NC Reference	As Designed
Ceilings	52.9	47.4
Above-Grade Walls	203.6	177.7
Windows, Doors and Skylights	141.2	135.5
Slab Floor:	84.4	109.8
Framed Floors	20.3	21.6
Foundation Walls	0.0	0.0
Rim Joists	9.8	9.7
Overall UA (Design must be equal or lower):	512.2	501.7

Requirements

✔	402.1.5	Total UA alternative for insulation and fenestration
✔	402.3.2 Glazed Fenestration SHGC	Average SHGC: 0.27; Max SHGC: 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
✔	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	Duct Insulation
✔	403.3.3	Duct Testing

Design exceeds requirements for North Carolina 2018 Prescriptive compliance by 2%.

Name: Sara Caliendo

Signature: *Sara Caliendo*

Organization: Southern Energy Management

Digitally signed: 8/22/19 at 3:34 PM

Ekotrope RATER - Version 3.1.1.2237

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

Property
Fayetteville, NC 28301
Model: Dogwood
Community: NA

Organization
Southern Energy Management
Sara Caliendo

Inspection Status
Results are projected

H&H Homes-Dogwood base plan slab-ecoSelect
Template - H & H - Fayetteville - Dogwood base plan

Builder
H&H Homes

General Building Information

Number Of Bedrooms	4
Number Of Floors	2
Conditioned Floor Area [sq. ft.]	3,067
Unconditioned, attached garage?	Yes
Conditioned Volume [cu. ft.]	27,200
Total Units in Building	1
Residence Type	Single family detached
Floor Number	-
Model	Dogwood
Community	NA
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	176	On Grade	1	0	1,332.0 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

Building Summary



Property
 Fayetteville, NC 28301
 Model: Dogwood
 Community: NA

Organization
 Southern Energy Management
 Sara Caliendo

Inspection Status
 Results are projected

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

H&H Homes-Dogwood base plan slab-ecoSelect
 Template - H & H - Fayetteville - Dogwood base plan

Builder
 H&H Homes

Framed Floor

Name	Library Type	Carpet R	Floor Grade	Surface Area	Location
over ambient	R-19, 16"oc G1 unfinished floor	0	Above Grade	29.0 ft ²	Exposed Exterior
over garage	R-19, 16"oc G1 unfinished floor	0	Above Grade	403.0 ft ²	Unconditioned, attached garage

Framed Floor Library List

Name	Effective R-value
R-19, 16"oc G1 unfinished floor	20.044

Rim Joist

Name	Library Type	Surface Area	Location
1st floor ambient	R-19 G3, 16"OC	133.0 ft ²	Exposed Exterior
1st floor garage	R-19 G3, 16"OC	43.0 ft ²	Unconditioned, attached garage

Rim Joist Library List

Name	Effective Insulation R-value
R-19 G3, 16"OC	13.20

Wall

Name	Library Type	Surface Color	Surface Area	Location
1st floor ambient	R 19 FG G3 16" O.C	Medium	1,198.0 ft ²	Exposed Exterior
1st floor garage	R 19 FG G3 16" O.C	Medium	386.0 ft ²	Unconditioned, attached garage
2nd floor ambient	R 19 FG G3 16" O.C	Medium	1,464.0 ft ²	Exposed Exterior

Building Summary



Property
 Fayetteville, NC 28301
 Model: Dogwood
 Community: NA

Organization
 Southern Energy Management
 Sara Caliendo

Inspection Status
 Results are projected

SOUTHERN ENERGY MANAGEMENT
 ENERGY EFFICIENCY & SOLAR POWER

H&H Homes-Dogwood base plan slab-ecoSelect
 Template - H & H - Fayetteville - Dogwood base plan

Builder
 H&H Homes

Wall Library List

Name	Effective R-value
R 19 FG G3 16" O.C	14.878

Glazing

Name	Library Type	Wall Assignment	Foundation Wall Assignment	Overhang Depth	Overhang Ft To Top	Overhang Ft To Bottom	Orientation	Surface Area
front 2nd unshaded	35/27	2nd floor ambient		0	0	0	East	68.0 ft ²
front shaded	35/27	1st floor ambient		5.5	1	7	East	39.0 ft ²
front unshaded	35/27	1st floor ambient		0	0	0	East	36.0 ft ²
left 2nd unshaded	35/27	2nd floor ambient		0	0	0	South	30.0 ft ²
left unshaded	35/27	1st floor ambient		0	0	0	South	33.5 ft ²
rear 2nd unshaded	35/27	2nd floor ambient		0	0	0	West	53.0 ft ²
rear unshaded	35/27	1st floor ambient		0	0	0	West	68.0 ft ²
right 2nd unshaded	35/27	2nd floor ambient		0	0	0	North	15.0 ft ²
right unshaded	35/27	1st floor ambient		0	0	0	North	23.0 ft ²

Glazing Library List

Name	Shgc	U-factor
35/27	0.27	0.350

Skylight

None Present

Building Summary



Property
 Fayetteville, NC 28301
 Model: Dogwood
 Community: NA

Organization
 Southern Energy Management
 Sara Caliendo

Inspection Status
 Results are projected

SOUTHERN ENERGY MANAGEMENT
 ENERGY EFFICIENCY & SOLAR POWER

H&H Homes-Dogwood base plan slab-ecoSelect
 Template - H & H - Fayetteville - Dogwood base plan

Builder
 H&H Homes

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	20.0 ft ²	Exposed Exterior
garage entry	Fiberglass R-5	1st floor garage		0.9	0.75	Medium	18.0 ft ²	Exposed Exterior

Opaque Door Library List

Name	Effective U-factor
Fiberglass R-5	0.200

Roof Insulation

Name	Library Type	Attic Exterior Area [s.f.]	Clay or Concrete Roof Tiles	Surface Color	Surface Area	Location
Attic	R-38 Attic BLOWN FG G1 2x10 24"OC NO Radiant Barrier	1,764	No	Dark	1,764.0 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	37.246

Whole House Infiltration

Infiltration	Measurement Type	Shelter Class
2176 CFM at 50 Pa	Blower-door tested	4

Building Summary



Property
 Fayetteville, NC 28301
 Model: Dogwood
 Community: NA

Organization
 Southern Energy Management
 Sara Caliendo

Inspection Status
 Results are projected

SOUTHERN ENERGY
MANAGEMENT
 ENERGY EFFICIENCY & SOLAR POWER

H&H Homes-Dogwood base plan slab-ecoSelect
 Template - H & H - Fayetteville - Dogwood base plan

Builder
 H&H Homes

Mechanical Ventilation

None Present

Lighting

% Interior Fluorescent Lighting	% Interior LED Lighting	% Exterior Fluorescent Lighting	% Exterior LED Lighting	% Garage Fluorescent Lighting	% Garage LED Lighting
75	0	0	0	0	0

Onsite Generation

None Present

Onsite Generation Library List

None Present

Solar Generation

None Present

Solar Generation Library List

None Present

Conditioning Equipment

Name	Library Type	Heating Percent Load	Cooling Percent Load	Hot Water Percent Load	Location
Air-source heat pump (1)	z 36k 14 seer 8.2hspf	100%	100%	0%	Unspecified
Water Heating (2)	Z 50 gal. 0.59EF Gas	0%	0%	100%	Unspecified

Building Summary



Property
Fayetteville, NC 28301
Model: Dogwood
Community: NA

Organization
Southern Energy Management
Sara Caliendo

Inspection Status
Results are projected

H&H Homes-Dogwood base plan slab-ecoSelect
Template - H & H - Fayetteville - Dogwood base plan

Builder
H&H Homes

Equipment Type: Z 50 gal. 0.59EF Gas

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

Equipment Type: z 36k 14 seer 8.2hspf

Fuel Type	Electric
Distribution Type	Forced Air
Motor Type	PSC (Single Speed)
Heating Efficiency	8.2 HSPF
Heating Capacity [kBtu/h]	36
Cooling Efficiency	14 SEER
Cooling Capacity [kBtu/h]	36

Building Summary



SOUTHERN ENERGY
MANAGEMENT
ENERGY EFFICIENCY & SOLAR POWER

Property
Fayetteville, NC 28301
Model: Dogwood
Community: NA

Organization
Southern Energy Management
Sara Caliendo

Inspection Status
Results are projected

H&H Homes-Dogwood base plan slab-ecoSelect
Template - H & H - Fayetteville - Dogwood base plan

Builder
H&H Homes

Distribution System

Distribution Type	Forced Air
Heating Equipment	Air-source heat pump (1)
Cooling Equipment	Air-source heat pump (1)
Sq. Feet Served	3067
# Return Grilles	4
Supply Duct R Value	8
Return Duct R Value	8
Supply Duct Area [ft ²]	621.1
Return Duct Area [ft ²]	460
Leakage to Outdoors	122 CFM25 (3.98 / 100 s.f.)
Total Leakage	122 CFM25
Total Leakage Duct Test Conditions	Post-Construction
Use Default Flow Rate	Yes
Duct 1	
Duct Location	Conditioned Space
Percent Supply Area	25
Percent Return Area	25
Duct 2	
Duct Location	Attic (well vented, radiant barrier)
Percent Supply Area	75
Percent Return Area	75
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]	98
At Least R3 Pipe Insulation?	No
Hot Water Recirculation System?	No
Recirculation System Pipe Loop Length [ft]	20
Drain Water Heat Recovery?	No

Building Summary



Property
Fayetteville, NC 28301
Model: Dogwood
Community: NA

Organization
Southern Energy Management
Sara Caliendo

Inspection Status
Results are projected

H&H Homes-Dogwood base plan slab-ecoSelect
Template - H & H - Fayetteville - Dogwood base plan

Builder
H&H Homes

Clothes Dryer

Fuel Type	Electric
Cef	2.617
Field Utilization	Timer Controls

Clothes Washer

Label Energy Rating	151 kWh/Year
Electric Rate	\$0.11/kWh
Annual Gas Cost	\$12.00
Gas Rate	\$1.22/Therm
Capacity	3.31
Imef	2.15474

Appliances and Controls

Programmable thermostat?	Yes
Dishwasher Size	Standard
Dishwasher Efficiency	0.65 EF
Range/Oven Fuel	Electric
Convection Oven?	No
Induction Range?	No
Refrigerator Consumption	700 kWh/Year

Notes

- updated JS 7/20/16
- confirm attic insulation and hvac specs
- ventilation modeled as none
- confirm cfl lighting %
- modeled to worst case orientation