

Model # S46026-DOE
 Single side
 70' L, 98' 5" MIN. BEAM No Chord/Dormer
 No Skylights
 No Porches
 42 sq ft 2nd Lgth 6M3"

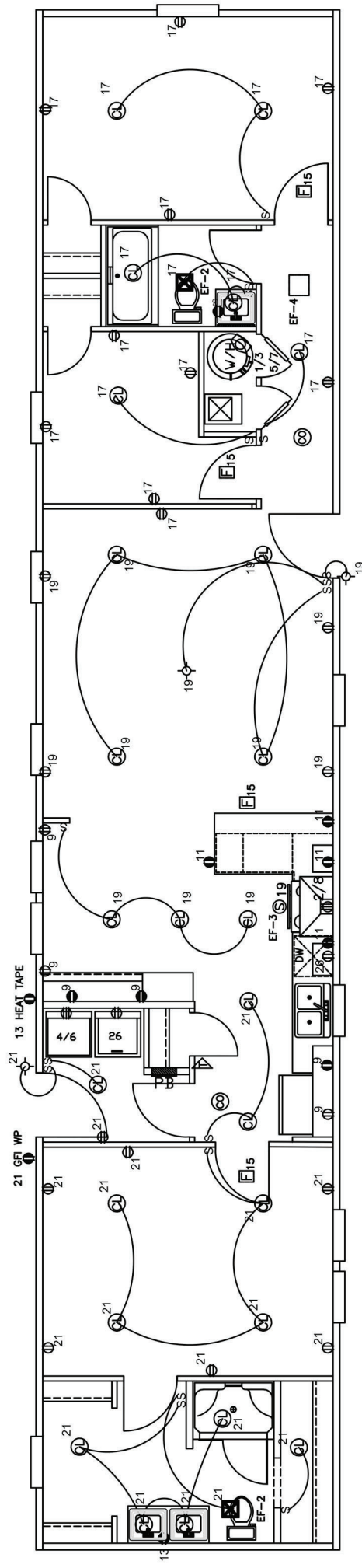
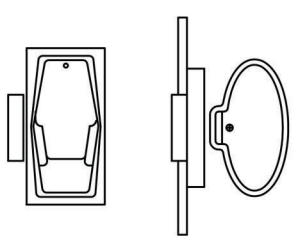
Version R13.20

Wind Zone 1 Standard Roof	(17' R) Chords, 2x4 SFR w/ Top Plate, spaced w/ 12" glb blocks & 1x6 SFR Rafters w/ 2x4	96 inch sidewall
Diaphragm Construction	MDP	
Shearwall (Lx) HxL	Length	Notes
A	0' - 155.5' - 425	2 - 44 SFR Shearwall*
D	75' - Full	2 - 272
Wind Zone 2 Standard Roof	(17' R) Chords, 2x4 SFR w/ Top Plate, spaced w/ 12" glb blocks & 1x6 SFR Rafters w/ 2x4	96 inch sidewall
Diaphragm Construction	MDP	
Shearwall (Lx) HxL	Length	Notes
A	0' - 155.5' - 425	2 - 44 SFR Shearwall*
B	24.5' - 294	425
C	55' - 145.375' - 425	414 SFR Shearwall
D	75' - Full	2 - 271

IDENTIFIES SHEARWALL LOCATION

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 Home Construction
 And Safety Standards

S46026-DOE-FP



NOTES:

1. ALL CIRCUITS SHOWN ARE FOR REFERENCE AND MAY BE CHANGED BASED ON OPTIONAL COMPONENTS INSTALLED IN THE HOME.
2. REFER TO DAPIA MANUAL FOR SYMBOL CHART.
3. EITHER LIGHT OR RECEPTACLE MUST CONNECT TO SWITCH.
4. EF-1= 50 CFM EXHAUST FAN REQUIRED FOR THERMAL ZONE III THERMAL ZONES I & II MAY USE FAN OR WINDOW W/15 SQ. FT. OPENABLE GLASS.
5. EF-2= 50 CFM EXHAUST FAN REQUIRED THERMAL ZONE I, II, AND III.
6. EF-3= 100 CFM RANGE EXHAUST FAN, SWITCH AT HOOD.
7. EF-4= WHOLE HOUSE VENTILATION REQUIREMENTS PER DAPIA MANUAL.
8. REFER TO DAPIA MANUAL OR THE MFG. INSTALLATION INSTRUCTIONS FOR PROPER WIRE SIZE AND BREAKER SIZE FOR SPECIFIC APPLIANCE AND MODEL BEING INSTALLED.
9. ALL SMOKE ALARMS TO BE LOCATED ON THE CEILING.
10. CARBON MONOXIDE ALARMS ARE ONLY REQUIRED WHEN HOME HAS EITHER FUEL BURNING APPLIANCES, IS GARAGE READY OR IS BASEMENT READY. REFERENCE DAPIA MANUAL FOR ADDITIONAL INFORMATION.
11. DIMENSIONS SHOWN ON PRINT ARE APPROXIMATE AND TO BE USED ONLY AS A GUIDELINE.

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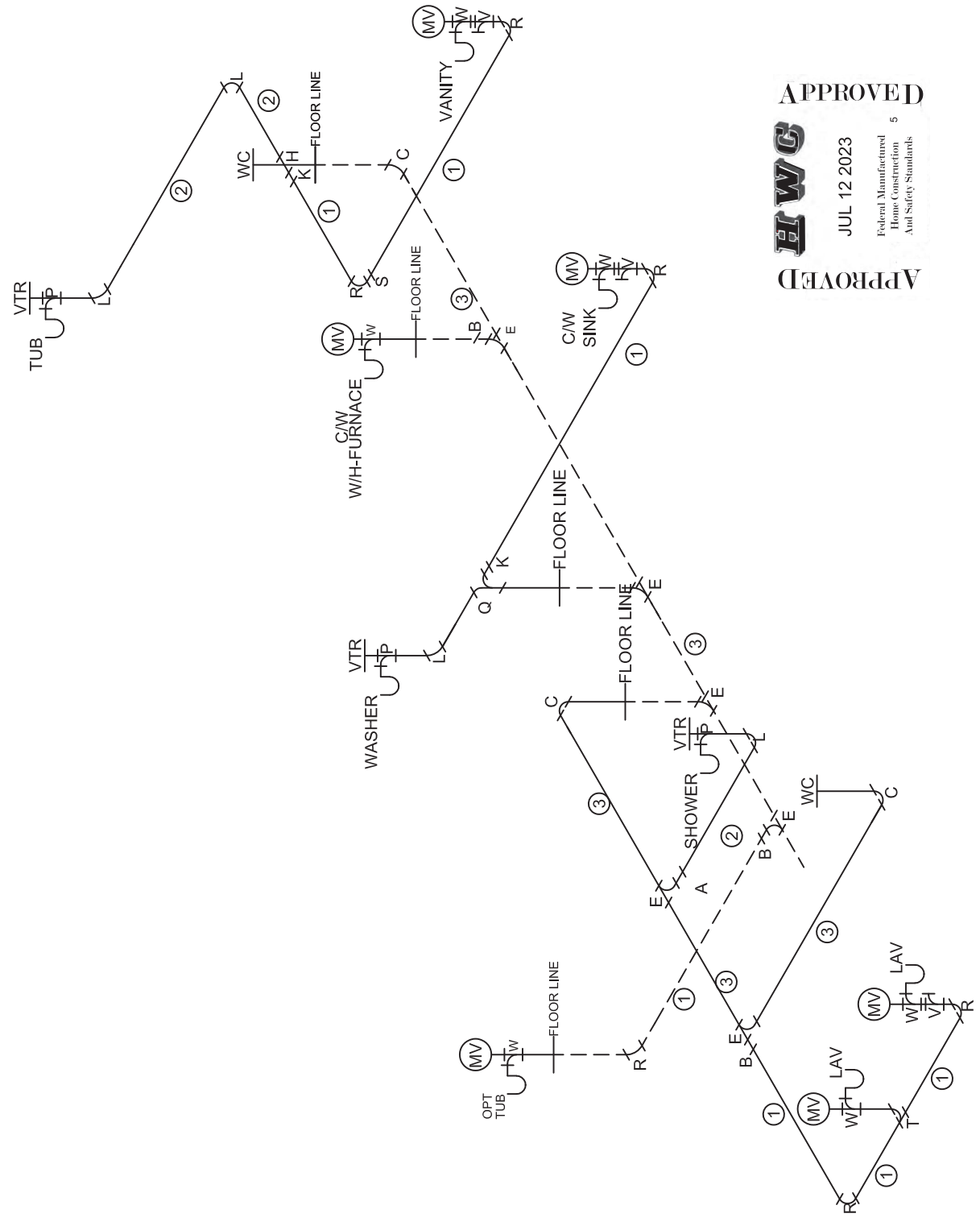
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S46026-DOE-EL

GILES HOMES 405 S. BROADWAY, SUITE 100 MEMPHIS, TN 38205	Model #: S46026 Date: 7-3-23 Scale: N/A	Drawing #: S46026-60-2X4NEW-NEW CAE Product Designer: HARVILLED
ELECT		

LEGEND AND SET UP KIT.

VTR	- VENT THRU ROOF
(MV)	- MECHANICAL VENT
60	③ -3" PIPE
0	② -2" PIPE
20	① -1 1/2" PIPE
0	A -3"X2" REDUCER
2	B -3"X1 1/2" REDUCER
1	C -3" ELL 90°
0	D -3" ELL 45°
4	E -3" LTTY
3	F -3" COUPLING
0	G -3" X 3" X 3" X 2" X 2" ST
0	H -3" X 3" X 2" X 2" ST
0	I -3" X 3" X 2" ST
0	J -3" 3 WAY ELL
0	K -2"X1 1/2" REDUCER
0	L -2" ELL 90°
0	M -2" ELL 45°
0	N -2" LTTY
0	O -2" COUPLING
0	P -2" X 1 1/2" X 1 1/2" ST
0	Q -2" 3 WAY ELL
1	R -1 1/2" ELL 90°
0	S -1 1/2" ELL 45°
0	T -1 1/2" LTTY
1	U -1 1/2" COUPLING
0	V -1 1/2" CLEAN OUT
0	W -1 1/2" SAN TEE



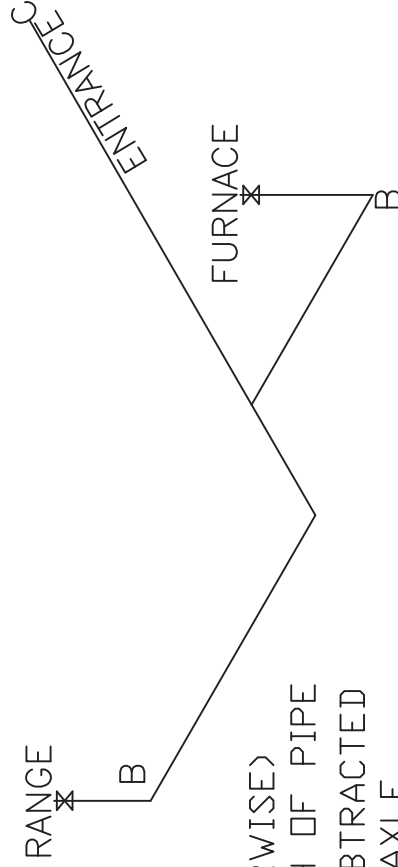
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 And Safety Standards 5

S46026-DOE-DWV

GILES HOMES 405 S. BROADWAY, SUITE 200, FAYETTEVILLE, TN 37825	Model #: S46026	Drawing #:
	Date: 7-3-23	Scale: N/A
Product Designer: HARVILLED		DWV

LEGEND		APPLIANCE BTU'S RATINGS		MAX. INPUT	
SYM	FITTINGS	FURNACE	77,000	BTU'S	BTU'S
A	TEE	RANGE	56,000		
B	90 ELL				
X	VALVE				
C	CAP				

MDL = 40'

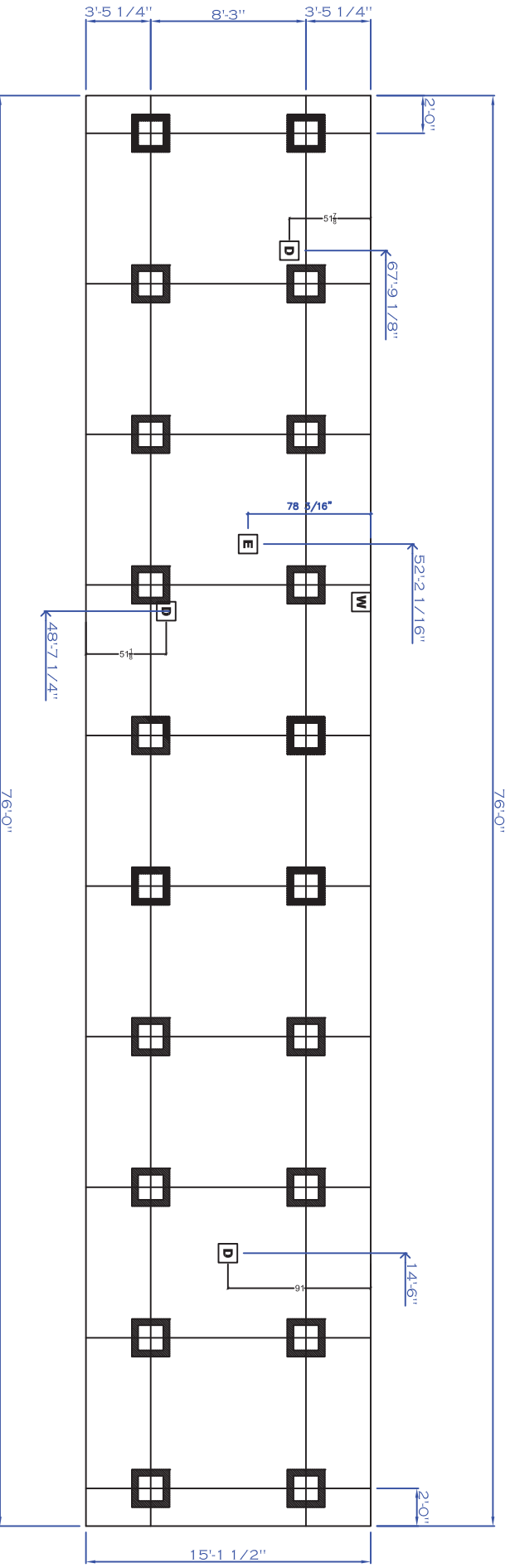


NOTES:







- 1) ALL PIPE IS 3/4" I.D.CAST
(EXCEPT WHERE NOTED OTHERWISE)
- 2) MDL=MAX. DETERMINED LENGTH OF PIPE
- 3) FITTING MAY BE ADDED OR SUBTRACTED
TO TRAVERSE VARIATIONS IN AXLE
QUANTITY, PLACEMENT, AND FRAME TYPE.
- 4) INLET LOCATION MAY VARY TO STAY WITHIN
MAX. DETERMINED LENGTH



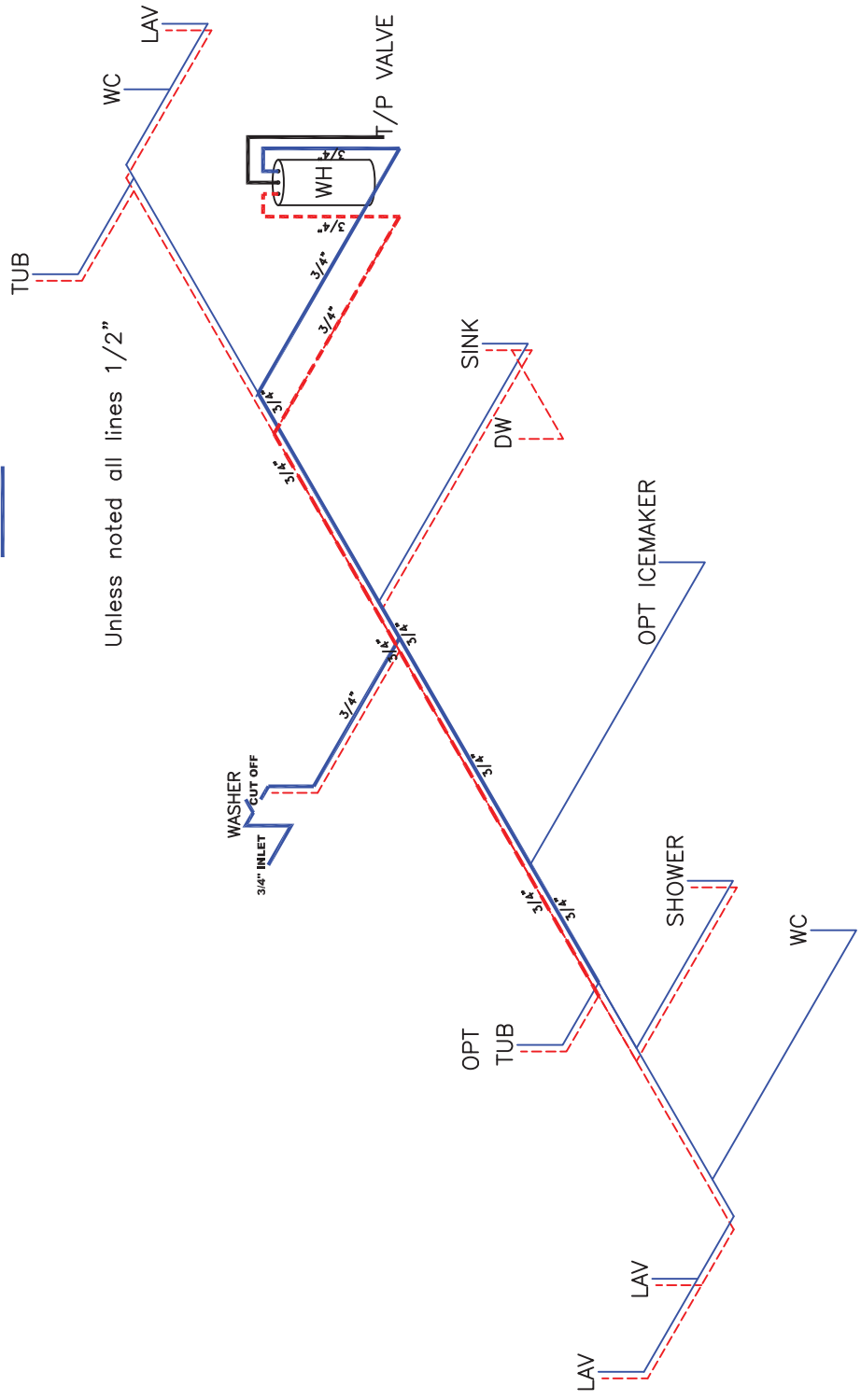
S46026-DOE-GL



*THIS FOOTER DIAGRAM IS FOR STANDARD PRODUCT ONLY
 *FOR PIER SPACING REFER TO SET UP MANUAL

-  **MARRIAGE WALL PIER**
-  **WATER INLET**
-  **DRAIN**
-  **ELECTRICAL DROP**
-  **DOOR PIER**
-  **REGULAR PIER**

Hot
Cold



HWG
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S46026-DOE-PL

GILES HOMES 405 S. BRADY ST., P.O. BOX 1000 LEWISBURG, TN 37825	Model #: S46026	Drawing #:
	Date: 7-3-23	Scale: N/A
Product Designer: HARVILLED		S46026-2X4-DOE
PRESSURE LINES		

Giles Homes Light and Vent Chart

Model # S46026-DOE

Room	Floor Area SQFT	Window(s)	Glass Area	% of Floor	Artificial Light	Vent Area	% of Floor	Artificial Vent	Min. Door
Living Room	225	3060 X3	29.7	13.20%		15.6	6.93%		Vent
Kitchen / DR	168	3060 X2 3040	26.1	15.54%	X	13.7	8.15%	X	32
Kitchen / DR Opt.	168	SLD 3040	39.9	23.75%	X	20.1	11.95%	X	32
Primary Bedroom	162	3060 x2	19.8	12.22%		10.4	6.42%		28
Bedroom 2	144	3660	12.2	8.47%		6.2	4.31%		24
Bedroom 3	75	3060	9.9	13.20%		5.2	6.93%		24
Primary Bath	90	3040	6.3	7.00%	X	3.3	3.67%	X	24
Bath 2	37				X			X	24
Utility	41	3060	9.9	24.15%		5.2	12.68%		24

* (X) Artificial Light and Vent has been provided for this room

** Note: All window sizes are minimum requirements for rooms. And windows may be added as long as heat loss allows and/or is documented on the floor plan



Data on this submitted
By: Andy Cupp
MFG: Giles Industries

CMH Inc.
SHEARWALL DESIGN - HUD

Model # S46026-DOE

Box Width =	180 "	Single wide	Minimum Joist Spacing 16 "
Box Length =	76 ft.	99.5" 10" MIN.IBEAM	No Offset Box
No Skylights			No Clerestory
No Porches			No Origami Dormer
Joist Size =	#2 spf 2x6	Lags 9Mx3"	No Sunken Floor
			No Parapet Roof

Wind Zone 1 Standard Roof							(3/8" sheathing only with 15 gax 1.5" at 5'/10" oc. (197 plf) Chords: 2x4 SPF #3 Top Plate spliced w/ 12" glue block & 1x6 SPF Rail spliced w/ 2x4 MCP.	96 inch sidewall
Diaphragm Construction:								
Shearwall	Dist./ Hitch	Length	PLF	# of Joists	Lags	Notes	SW1/SW2	
A	0'	135.5"	425	2	4/4	Split Shearwall *	67.75/67.75	
D	76'	Full	162	2	2/2			
Wind Zone 2 Standard Roof							(3/8" sheathing only with 15 gax 1.5" at 5'/10" oc. (197 plf) Chords: 2x4 SPF #3 Top Plate spliced w/ 12" glue block & 1x6 SPF Rail spliced w/ 2x4 MCP.	96 inch sidewall
Diaphragm Construction:								
Shearwall	Dist./ Hitch	Length	PLF	# of Joists	Lags	Notes	SW1/SW2	
A	0'	135.5"	425	2	4/4	Split Shearwall *	67.75/67.75	
B	24.5'	124"	425	3	4/1			
C	56'	140.375"	425	5	4/4	Split Shearwall	38/102.375	
D	76'	116"	162	2	2/1			
Diaphragm Construction:							Chords: 2x4 SPF #3 Top Plate spliced w/ 12" glue block & 1x6 SPF Rail spliced w/ 2x4 MCP. #N/A	
Shearwall	Dist./ Hitch	Length	PLF	# of Joists	Lags	Notes		
Diaphragm Construction:							(3/8" sheathing 8d@ 6/12 oc (308) unblocked & (347) blocked Chords: 2x4 SPF #3 Top Plate spliced w/ 12" glue block & 1x6 SPF Rail spliced w/ 2x4 MCP. Block Dist. X=0'	
Shearwall	Dist./ Hitch	Length	PLF	# of Joists	Lags	Notes		

* Denotes that indicated shearwall is over full depth/width front steel chassis header. Designed by AMC



Description of Materials

U.S. Department of Housing
and Urban Development
Department of Veterans Affairs
Farmers Home Administration

OMB Control No. 2502-0313
(exp. 3/31/2024)

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. This agency may not collect this information, and you are not required to complete this form, unless it displays a currently valid OMB control number.

The National Housing Act (12 USC 1703) authorizes insuring financial institutions against default losses on single family mortgages. HUD must evaluate the acceptability and value of properties to be insured. The information collected here will be used to determine if proposed construction meets regulatory requirements and if the property is suitable for mortgage insurance. Response to this information collection is mandatory. No assurance of confidentiality is provided.

Proposed Construction Under Construction No. _____ (To be inserted by HUD, VA or FmHA)
Property address (Include City and State)

Name and address of Mortgagor or Sponsor	Name and address of Contractor or Builder Giles Homes 405 South Broad Street New Tazewell TN 37825
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Instructions

- For additional information on how this form is to be submitted, number of copies, etc., see the instructions applicable to the HUD Application for Mortgage Insurance, VA Request for Determination of Reasonable Value, or FmHA Property Information and Appraisal Report, as the case may be.
- Describe all materials and equipment to be used, whether or not shown on the drawings, by marking an X in each appropriate check-box and entering the information called for each space. If space is inadequate, enter "See misc." and describe under item 27 or on an attached sheet. **The use of paint containing more than the percentage of lead by weight permitted by law is prohibited.**
- Work not specifically described or shown will not be considered unless required, then the minimum acceptable will be assumed. Work exceeding minimum requirements cannot be considered unless specifically described.
- Include no alternates, "or equal" phrases, or contradictory items. (Consideration of a request for acceptance of substitute materials or equipment is not thereby precluded.)
- Include signatures required at the end of this form.
- The construction shall be completed in compliance with the related drawings and specifications, as amended during processing. The specifications include this Description of Materials and the applicable Minimum Property Standards.

1. Excavation

Bearing soil, type _____

2. Foundations

Footings concrete mix _____ strength psi _____ Reinforcing _____

Foundation wall material _____ Reinforcing _____

Interior foundation wall material _____ Party foundation wall _____

Columns material and sizes _____ Piers material and reinforcing _____

Girders material and sizes _____ Sills material _____

Basement entrance areaway _____ Window areaways _____

Waterproofing _____ Footing drains _____

Termite protection _____

Basementless space ground cover _____ insulation _____ foundation vents _____

Special foundations _____

Additional information

3. Chimneys

Material _____ Prefabricated (make and size) _____

Flue lining material _____ Heater flue size _____ Fireplace flue size _____

Vents (material and size) gas or oil heater _____ water heater _____

Additional information

Chimney Kit 58621

4. Fireplaces

Type solid fuel gas-burning circulator (make and size) _____ Ash dump and clean-out _____

Fireplace facing _____ lining _____ hearth 103217 _____ mantel 1032918 _____

Additional information

Fireplace front 1032921

5. Exterior Walls

Wood frame wood grade, and species #3 SPF Corner bracing Building paper or felt _____
 Sheathing OSB thickness 7/16" width 48" solid spaced _____ o.c. diagonal _____
 Siding Horizontal grade Blog type Vinyl size _____ exposure _____ fastening Stapled
 Shingles Fiberglass grade #235 type GAP size 36 exposure 5 1/2" fastening Stapled
 Stucco _____ thickness _____ Lath _____ weight _____ lb.
 Masonry veneer _____ Sills _____ Lintels _____ Base flashing _____
 Masonry solid faced stuccoed total wall thickness _____ facing thickness _____ facing material _____
 Backup material _____ thickness _____ bonding _____
 Door sills _____ Window sills _____ Lintels _____ Base flashing _____
 Interior surfaces dampproofing, _____ coats of _____ furring _____
 Additional information _____
 Exterior painting material _____ number of coats _____
 Gable wall construction same as main walls other construction _____

6. Floor Framing

Joists wood, grade, and species #2 SPF other 16" bridging _____ anchors _____
 Concrete slab basement floor first floor ground supported self-supporting mix _____ thickness _____
 reinforcing _____ insulation _____ membrane _____
 Fill under slab material _____ thickness _____
 Additional information Double 2x6 @ @shearwalls nailed and glued

7. Subflooring (Describe underflooring for special floors under item 21)

Material grade and species 7/16" OSB size _____ type _____
 Laid first floor second floor attic _____ sq. ft. diagonal right angles
 Additional information T&G OSB glued and nailed, sanded @ seams, water proofing in wet areas

8. Finish Flooring (Wood only. Describe other finish flooring under item 21)

Location	Rooms	Grade	Species	Thickness	Width	Bldg. Paper	Finish
First floor							
Second floor							
Attic floor	sq. ft.						

Additional information _____

9. Partition Framing

Studs wood, grade, and species SPF #2 and #3 size and spacing 2x3 and 2x4 Other _____
 Additional information _____

10. Ceiling Framing

Joists wood, grade, and species purchased truss Other _____ Bridging _____
 Additional information _____

11. Roof Framing

Rafters wood, grade, and species purchased truss Roof trusses (see detail) grade and species _____
 Additional information _____

12. Roofing

Sheathing wood, grade, and species OSB 7/16" solid spaced _____ o.c.
 Roofing _____ grade _____ size _____ type _____
 Underlay _____ weight or thickness _____ size _____ fastening _____
 Built-up roofing _____ number of plies _____ surfacing material _____
 Flashing material _____ gage or weight _____ gravel stops snow guards
 Additional information _____

13. Gutters and Downspouts

Gutters material _____ gage or weight 1 1/2" size _____ shape _____
Downspouts material _____ gage or weight _____ size _____ shape _____ number _____
Downspouts connected to Storm sewer sanitary sewer dry-well Splash blocks material and size _____
Additional information _____

14. Lath and Plaster

Lath walls ceilings material _____ weight or thickness _____ Plaster coats _____ finish _____
Dry-wall walls ceilings material _____ thickness _____ finish _____
Joint treatment _____

15. Decorating (Paint, wallpaper, etc.)

Rooms	Wall Finish Material and Application	Ceiling Finish Material and Application
Kitchen		
Bath		
Other		

Additional information _____

16. Interior Doors and Trim

Doors type Hollow core material Masonite board thickness 2"
Door trim type _____ material _____ Base type _____ material _____ size _____
Finish doors _____ trim _____
Other trim (item, type and location) _____
Additional information _____

17. Windows

Windows type Clayton Supply make _____ material _____ sash thickness _____
Glass grade _____ sash weights balances, type _____ head flashing _____
Trim type _____ material _____ Paint _____ number coats _____
Weatherstripping type _____ material _____ Storm sash, number _____
Screens full half type _____ number _____ screen cloth material _____
Basement windows type _____ material _____ screens, number _____ Storm sash, number _____
Special windows _____
Additional information _____

18. Entrances and Exterior Detail

Main entrance door material Elixir width _____ thickness _____ Frame material _____ thickness _____
Other entrance doors material _____ width _____ thickness _____ Frame material _____ thickness _____
Head flashing _____ Weatherstripping type _____ saddles _____
Screen doors thickness _____ number _____ screen cloth material _____ Storm doors thickness _____ number _____
Combination storm and screen doors thickness _____ number _____ screen cloth material _____
Shutters hinged fixed Railings _____ Attic louvers _____
Exterior millwork grade and species _____ Paint _____ number coats _____
Additional information _____

19. Cabinets and Interior Detail

Kitchen cabinets, wall units material 1/2" duracraft lineal feet of shelves _____ shelf width _____
Base units material _____ counter top _____ edging _____
Back and end splash _____ Finish of cabinets _____ number coats _____
Medicine cabinets make _____ model _____
Other cabinets and built-in furniture _____
Additional information _____

20. Stairs

Stair	Treads		Risers		Strings		Handrail		Balusters	
	Material	Thickness	Material	Thickness	Material	Size	Material	Size	Material	Size
Basement										
Main										
Attic										

Disappearing make and model number _____
 Additional information _____

21. Special Floors and Wainscot (Describe Carpet as listed in Certified Products Directory)

Floors	Location	Material, Color, Border, Sizes, Gage, Etc.	Threshold Material	Wall Base Material	Underfloor Material
		Kitchen	Congo Liam		
	Bath	Congo Liam			

Wainscot	Location	Material, Color, Border, Cap. Sizes, Gage, Etc.	Height	Height Over Tub	Height in Showers (From Floor)
		Bath			

Additional information _____

22. Plumbing

Fixture	Number	Location	Make	MFR's Fixture Identification No.	Size	Color
Sink	1	Kitchen			33"x19"x6"	Steel
Lavatory	2	Bath			22"x14"	Plastic
Water closet	2	Bath			Single Bowl	
Bathtub	2	Bath			60"	Fiberglass
Shower over tub						
Stall shower						
Laundry trays						

Bathroom accessories Recessed material _____ number _____ Attached material _____ number _____
 Additional information _____

Curtain rod Door Shower pan material 1 pc fiberglass * (Show and describe individual system in complete detail in separate drawings and specifications according to requirements.)
 Water supply public community system individual (private) system*
 Sewage disposal public community system individual (private) system*
 House drain (inside) cast iron tile other ABS House sewer (outside) cast iron tile other _____
 Water piping galvanized steel copper tubing other PEX Sill cocks, number _____
 Domestic water heater type Heat Pump make and model Rheem heating capacity _____ gph. 100° rise.
 Storage tank material _____ capacity 40 or 50 gallons
 Gas service utility company liq. pet. gas other _____ Gas piping cooking house heating
 Footing drains connected to storm sewer sanitary sewer dry well sump pump make and model _____
 capacity _____ discharges into _____

Additional information _____

23. Heating

Hot water Steam Vapor One-pipe system Two-pipe system
 Radiators Convectors Baseboard radiation Make and model Carrier Smart Comfort
 Radiant panel floor wall ceiling Panel coil material _____
 Circulator Return pump Make and model _____ capacity _____ gpm.
Boiler make and model _____ Output _____ Btuh. net rating _____ Btuh.

Additional information Down flow

Warm air Gravity Forced Type of system _____
Duct material supply _____ return _____ Insulation _____ thickness _____ Outside air intake
Furnace: make and model _____ Input _____ Btuh. output _____ Btuh.

Additional information

Space heater floor furnace wall heater Input _____ Btuh. output _____ Btuh. number units _____
Make, model _____

Additional information

Controls make and types _____

Additional information

Fuel: Coal oil gas liq. pet. gas electric other _____ storage capacity _____

Additional information

Firing equipment furnished separately Gas burner, conversion type Stoker hopper feed bin feed
Oil burner pressure atomizing vaporizing _____

Make and model _____

Control _____

Additional information

Electric heating system type _____ Input _____ watts @ _____ volts output _____ Btuh.

Additional information

Ventilating equipment attic fan, make and model _____ capacity _____ cfm.
 kitchen exhaust fan, make and model _____

Other heating, ventilating, or cooling equipment _____

Additional information

24. Electric Wiring

Service overhead underground Panel fuse box circuit-breaker make _____ AMP's _____ No. circuits _____
Wiring conduit armored cable nonmetallic cable knob and tube other _____
Special outlets range water heater other _____
 Doorbell Chimes Push-button locations _____

Additional information

25. Lighting Fixtures

Total number of fixtures _____ Total allowance for fixtures, typical installation, \$ _____

Nontypical installation _____

Additional information

26. Insulation

Location	Thickness	Material, Type, and Method of Installation	Vapor Barrier
Roof	38	Blown	
Ceiling			
Wall	13 or 16	Batt	Kraft Back
Floor	22, 27 or 33	Rolled	

27. Miscellaneous: (Describe any main dwelling materials, equipment, or construction items not shown elsewhere; or use to provide additional information where the space provided was inadequate. Always reference by item number to correspond to numbering used on this form.)

Hardware (make, material, and finish.)

Special Equipment (State material or make, model and quantity. Include only equipment and appliances which are acceptable by local law, custom and applicable FHA standards. Do not include items which, by established custom, are supplied by occupant and removed when he vacates premises or chattles prohibited by law from becoming realty.)

Porches

Terraces

Garages

Walks and Driveways

Driveway width _____ base material _____ thickness _____ surfacing material _____ thickness _____
 Front walk width _____ material _____ thickness _____ Service walk width _____ material _____ thickness _____
 Steps material _____ treads _____ risers _____ Cheek walls _____

Other Onsite Improvements

(Specify all exterior onsite improvements not described elsewhere, including items such as unusual grading, drainage structures, retaining walls, fence, railings, and accessory structures.)

Landscaping, Planting, and Finish Grading

Topsoil _____ thick front yard side yards rear yard to _____ feet behind main building
 Lawns (seeded, sodded, or sprigged) front yard _____ side yards _____ rear yard _____
 Planting as specified and shown on drawings as follows:
 _____ Shade trees deciduous _____ caliper _____ Evergreen trees _____ to _____ B & B
 _____ Low flowering trees deciduous _____ to _____ Evergreen shrubs _____ to _____ B & B
 _____ High-growing shrubs deciduous _____ to _____ Vines, 2-year _____
 _____ Medium-growing shrubs deciduous _____ to _____ Other _____
 _____ Low-growing shrubs deciduous _____ to _____

Identification—This exhibit shall be identified by the signature of the builder, or sponsor, and/or the proposed mortgagor if the latter is known at the time of application.

Date (mm/dd/yyyy) 10/13/2023 Signature _____

Signature _____



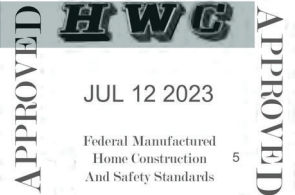
Manual S Compliance Report
Entire House
Clayton Homes

Job: S46026-FDJ-TZ-I
 Date: Jul 10, 2023
 By:

5000 Clayton Road, Maryville, TN 37804 Phone: 865-380-3000

Project Information

For: S46026-FDJ-TZ-I, GILES



Cooling Equipment

Design Conditions

Outdoor design DB:	93.3°F	Sensible gain:	15380 Btuh	Entering coil DB:	77.3°F
Outdoor design WB:	76.9°F	Latent gain:	7339 Btuh	Entering coil WB:	64.6°F
Indoor design DB:	75.0°F	Total gain:	22719 Btuh		
Indoor RH:	50%	Estimated airflow:	733 cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Smart Comfort	Model:	R4H424GKC+FXM4X2400AL
Actual airflow:	733 cfm		
Sensible capacity:	15400 Btuh	100% of load	
Latent capacity:	6600 Btuh	90% of load	
Total capacity:	22000 Btuh	97% of load	SHR: 70%

Heating Equipment

Design Conditions

Outdoor design DB:	30.4°F	Heat loss:	17965 Btuh	Entering coil DB:	65.0°F
Indoor design DB:	70.0°F				

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Smart Comfort	Model:	R4H424GKC+FXM4X2400AL	
Actual airflow:	733 cfm			
Output capacity:	21800 Btuh	121% of load		Capacity balance: 27 °F
Supplemental heat required:	0 Btuh			Economic balance: -99 °F

Backup equipment type:	Elec strip		
Manufacturer:	Smart Comfort	Model:	FXM4X2400AL
Actual airflow:	733 cfm		
Output capacity:	10.0 kW	190% of load	Temp. rise: 42 °F

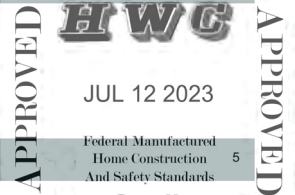
Meets all requirements of ACCA Manual S.



5000 Clayton Road, Maryville, TN 37804 Phone: 865-380-3000

Project Information

For: S46026-FDJ-TZ-I, GILES



JUL 12 2023

Design Conditions

Location:

GA-SG50
Elevation: 52 ft
Latitude: 32°N

Outdoor:

Dry bulb (°F)
Daily range (°F)
Wet bulb (°F)
Wind speed (mph)

Heating

30
-
-
15.0

Cooling

93
18 (M)
77
7.5

Indoor:

Indoor temperature (°F)
Design TD (°F)
Relative humidity (%)
Moisture difference (gr/lb)

Heating

70
40
30
13.0

Cooling

75
18
50
48.9

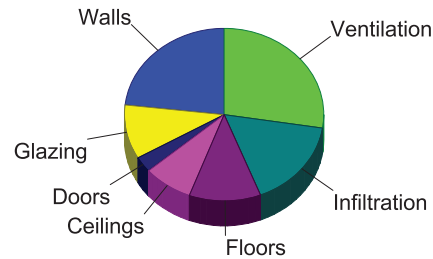
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Average
0

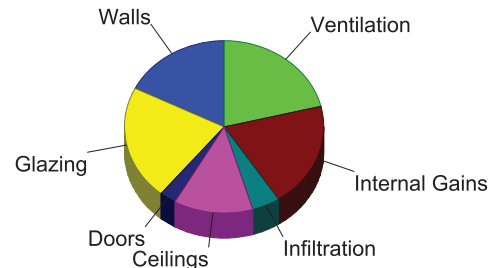
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	3.2	4164	23.2
Glazing	13.9	1825	10.2
Doors	12.7	532	3.0
Ceilings	1.3	1445	8.0
Floors	1.8	2086	11.6
Infiltration	2.0	2974	16.6
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		4939	27.5
Adjustments		0	0
Total		17965	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	2.1	2702	17.6
Glazing	25.1	3311	21.5
Doors	9.8	413	2.7
Ceilings	1.7	1977	12.9
Floors	0	0	0
Infiltration	0.5	702	4.6
Ducts		0	0
Ventilation		3255	21.2
Internal gains		3020	19.6
Blower		0	0
Adjustments		0	0
Total		15380	100.0



Latent Cooling Load = 7339 Btuh
Overall U-value = 0.068 Btuh/ft²·°F, Window / Floor Area = 11.5 %

Data entries checked.

5000 Clayton Road, Maryville, TN 37804 Phone: 865-380-3000

Project Information

For: S46026-FDJ-TZ-I, GILES



Design Conditions

Location: GA-SG50 Elevation: 52 ft Latitude: 32°N			Indoor: Indoor temperature (°F) Design TD (°F) Relative humidity (%) Moisture difference (gr/lb)	Heating 70 40 30 13.0	Cooling 75 18 50 48.9
Outdoor: Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	Heating 30 - - 15.0	Cooling 93 18 (M) 77 7.5	Infiltration: Method Construction quality Fireplaces	Simplified Average 0	

Construction descriptions

	Or	Area ft²	U-value Btuh/ft²·°F	Insul R ft²·°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
CMH - SW - R-13 Wall - THP502-DOE: Single Wide - R-13 Insulation	n	120	0.082	13.0	3.25	390	2.11	253
THP502 2x4 Wall-DOE	e	516	0.082	13.0	3.25	1676	2.11	1088
	s	105	0.082	13.0	3.25	341	2.11	221
	w	541	0.082	13.0	3.25	1757	2.11	1140
	all	1282	0.082	13.0	3.25	4164	2.11	2702
Partitions (none)								
Windows								
Clayton - Thermopane Low-E: Clayton - Thermopane Low-E; 50% blinds	e	71	0.350	0	13.9	982	26.8	1899
45°, medium; 50% outdoor insect screen; 6.67 ft head ht	s	15	0.350	0	13.9	208	12.2	183
	w	46	0.350	0	13.9	635	26.8	1229
	all	132	0.350	0	13.9	1825	25.1	3311
Doors								
CMH - Standard Door: CMH - Standard Door - Solid no storm	e	21	0.320	0	12.7	266	9.82	206
	w	21	0.320	0	12.7	266	9.82	206
	all	42	0.320	0	12.7	532	9.82	413
Ceilings								
SW -180 R-38: SW-180-R-38-THP-2002		1140	0.032	38.0	1.27	1445	1.73	1977
Floors								
CMH-SW-180- R22-THP176-DOE: CMH-SW-180-R22-THP176-DOE		1013	0.047	22.0	1.86	1884	0	0
CMH-SW-180- R33-THP472-DOE: CMH-SW-180-R33-THP472-DOE		128	0.040	33.0	1.58	202	0	0

Project Information

For: S46026-FDJ-TZ-I, GILES

Notes: DUCT CAPACITY 24,433 BTUHS



Design Information

Weather: GA-SG50

Winter Design Conditions

Outside db 30 °F
 Inside db 70 °F
 Design TD 40 °F

Summer Design Conditions

Outside db 93 °F
 Inside db 75 °F
 Design TD 18 °F
 Daily range M
 Relative humidity 50 %
 Moisture difference 49 gr/lb

Heating Summary

Structure 14052 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 3913 Btuh
 Outside air
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 17965 Btuh

Sensible Cooling Equipment Load Sizing

Structure 13572 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 1808 Btuh
 Outside air
 Blower 0 Btuh
 Use manufacturer's data n
 Rate/swing multiplier 0.98
 Equipment sensible load 15119 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 4351 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 2988 Btuh
 Outside air
 Equipment latent load 7339 Btuh

	Heating	Cooling
Area (ft ²)	1140	1140
Volume (ft ³)	9120	9120
Air changes/hour	0.45	0.23
Equiv. AVF (cfm)	68	35

Equipment Total Load (Sen+Lat) 22458 Btuh
 Req. total capacity at 0.70 SHR 1.8 ton

Heating Equipment Summary

Make Smart Comfort
 Trade SMART COMFORT
 Model R4H424GKC
 AHRI ref 10059783

Efficiency 8.2 HSPF
 Heating input
 Heating output 21800 Btuh @ 47°F
 Temperature rise 27 °F
 Actual air flow 733 cfm
 Air flow factor 0.052 cfm/Btuh
 Static pressure 0.30 in H2O
 Space thermostat
 Capacity balance point = 27 °F

Cooling Equipment Summary

Make Smart Comfort
 Trade SMART COMFORT
 Cond R4H424GKC
 Coil FXM4X2400AL
 AHRI ref 10059783

Efficiency 11.5 EER, 14 SEER
 Sensible cooling 15400 Btuh
 Latent cooling 6600 Btuh
 Total cooling 22000 Btuh
 Actual air flow 733 cfm
 Air flow factor 0.054 cfm/Btuh
 Static pressure 0.30 in H2O
 Load sensible heat ratio 0.68

Backup: Smart Comfort FXM4X2400AL
 Input = 10 kW, Output = 34121 Btuh, 100 AFUE

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

5000 Clayton Road, Maryville, TN 37804 Phone: 865-380-3000

Project Information

For: S46026-FDJ-TZ-I, GILES

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And Safety Standards

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	Heating	Cooling
External static pressure	0.30 in H2O	0.30 in H2O
Pressure losses	0 in H2O	0 in H2O
Available static pressure	0.30 in H2O	0.30 in H2O
Supply / return available pressure	0.150 / 0.150 in H2O	0.150 / 0.150 in H2O
Lowest friction rate	0.150 in/100ft	0.150 in/100ft
Actual air flow	733 cfm	733 cfm
Total effective length (TEL)	201 ft	

Supply Branch Detail Table

Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
BATH	h 724	38	19	0.714	5.0	0x0	VIFx	7.0	35.0	st1
BED 2	h 2175	113	75	0.674	5.0	0x0	VIFx	9.5	35.0	st1
BED 3	c 2551	117	138	0.789	6.0	0x0	VIFx	3.0	35.0	st2
KITCHEN	c 3151	139	170	0.522	6.0	0x0	VIFx	22.5	35.0	st2
LIVING ROOM	c 2888	137	156	0.741	6.0	0x0	VIFx	5.5	35.0	st2
P-BATH	h 1841	96	60	0.150	7.0	0x0	VIFx	50.5	150.0	st2
P-BED	c 2131	93	115	0.368	6.0	0x0	VIFx	46.5	35.0	st2

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st2	PeakAVF	582	639	0.150	1315	3.2	5 x 14	ShtMetl	
st1	PeakAVF	151	94	0.674	311	4.0	5 x 14	ShtMetl	

Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb1	0x0	733	733	0	0	0	0	0x 0		VIFx	



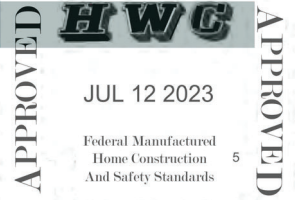
Manual S Compliance Report
Entire House
Clayton Homes

Job: S46026-FDJ-TZ-II
 Date: Jul 10, 2023
 By:

5000 Clayton Road, Maryville, TN 37804 Phone: 865-380-3000

Project Information

For: S46026-FDJ-TZ-II, GILES



Cooling Equipment

Design Conditions

Outdoor design DB:	95.0°F	Sensible gain:	15980 Btuh	Entering coil DB:	77.5°F
Outdoor design WB:	76.5°F	Latent gain:	6660 Btuh	Entering coil WB:	64.5°F
Indoor design DB:	75.0°F	Total gain:	22640 Btuh		
Indoor RH:	50%	Estimated airflow:	733 cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Smart Comfort	Model:	R4H424GKC+FXM4X2400AL
Actual airflow:	733 cfm		
Sensible capacity:	15400 Btuh	96% of load	
Latent capacity:	6600 Btuh	99% of load	
Total capacity:	22000 Btuh	97% of load	SHR: 70%

Heating Equipment

Design Conditions

Outdoor design DB:	19.6°F	Heat loss:	22767 Btuh	Entering coil DB:	63.7°F
Indoor design DB:	70.0°F				

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Smart Comfort	Model:	R4H424GKC+FXM4X2400AL	
Actual airflow:	733 cfm			
Output capacity:	21800 Btuh	96% of load		Capacity balance: 26 °F
Supplemental heat required:	967 Btuh			Economic balance: -99 °F

Backup equipment type:	Elec strip		
Manufacturer:	Smart Comfort	Model:	FXM4X2400AL
Actual airflow:	733 cfm		
Output capacity:	10.0 kW	150% of load	Temp. rise: 43 °F

Meets all requirements of ACCA Manual S.



5000 Clayton Road, Maryville, TN 37804 Phone: 865-380-3000

Project Information

For: S46026-FDJ-TZ-II, GILES



Design Conditions

Location:

Millington Muni Arp, TN, US
Elevation: 322 ft
Latitude: 35°N

Outdoor:

Dry bulb (°F)
Daily range (°F)
Wet bulb (°F)
Wind speed (mph)

Heating

20
-
-
15.0

Cooling

95
19 (M)
77
7.5

Indoor:

Indoor temperature (°F)
Design TD (°F)
Relative humidity (%)
Moisture difference (gr/lb)

Heating

70
50
30
21.1

Cooling

75
20
50
44.3

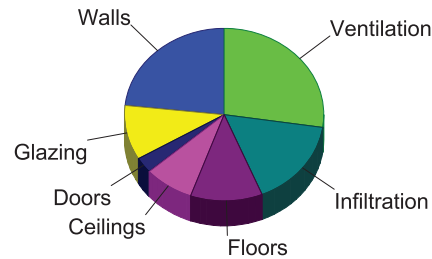
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Average
0

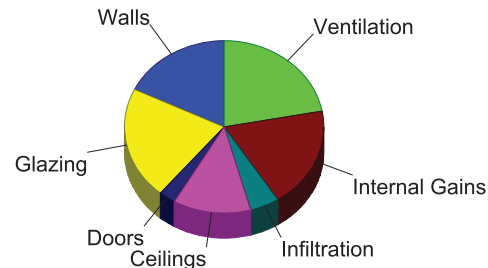
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	4.1	5300	23.3
Glazing	17.6	2323	10.2
Doors	16.1	677	3.0
Ceilings	1.6	1839	8.1
Floors	2.3	2655	11.7
Infiltration	2.6	3748	16.5
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		6225	27.3
Adjustments		0	0
Total		22767	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	2.2	2839	17.8
Glazing	25.7	3384	21.2
Doors	10.2	430	2.7
Ceilings	1.8	2025	12.7
Floors	0	0	0
Infiltration	0.5	760	4.8
Ducts		0	0
Ventilation		3523	22.0
Internal gains		3020	18.9
Blower		0	0
Adjustments		0	0
Total		15980	100.0



Latent Cooling Load = 6660 Btuh
Overall U-value = 0.068 Btuh/ft²·°F, Window / Floor Area = 11.5 %

Data entries checked.

5000 Clayton Road, Maryville, TN 37804 Phone: 865-380-3000

Project Information

For: S46026-FDJ-TZ-II, GILES



Design Conditions

Location:		Indoor:		Heating	Cooling
Millington Muni Arp, TN, US		Indoor temperature (°F)		70	75
Elevation: 322 ft		Design TD (°F)		50	20
Latitude: 35°N		Relative humidity (%)		30	50
		Moisture difference (gr/lb)		21.1	44.3
Outdoor:	Heating	Cooling	Infiltration:		
Dry bulb (°F)	20	95	Method	Simplified	
Daily range (°F)	-	19 (M)	Construction quality	Average	
Wet bulb (°F)	-	77	Fireplaces	0	
Wind speed (mph)	15.0	7.5			

Construction descriptions

	Or	Area ft²	U-value Btuh/ft²·°F	Insul R ft²·°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
CMH - SW - R-13 Wall - THP502-DOE: Single Wide - R-13 Insulation	n	120	0.082	13.0	4.13	496	2.21	266
THP502 2x4 Wall-DOE	e	516	0.082	13.0	4.13	2133	2.21	1143
	s	105	0.082	13.0	4.13	434	2.21	232
	w	541	0.082	13.0	4.13	2237	2.21	1198
	all	1282	0.082	13.0	4.13	5300	2.21	2839
Partitions								
(none)								
Windows								
Clayton - Thermopane Low-E: Clayton - Thermopane Low-E; 50% blinds	e	71	0.350	0	17.6	1250	27.2	1930
45°, medium; 50% outdoor insect screen; 6.67 ft head ht	s	15	0.350	0	17.6	265	13.6	204
	w	46	0.350	0	17.6	809	27.2	1249
	all	132	0.350	0	17.6	2323	25.7	3384
Doors								
CMH - Standard Door: CMH - Standard Door - Solid no storm	e	21	0.320	0	16.1	339	10.2	215
	w	21	0.320	0	16.1	339	10.2	215
	all	42	0.320	0	16.1	677	10.2	430
Ceilings								
SW -180 R-38: SW-180-R-38-THP-2002		1140	0.032	38.0	1.61	1839	1.78	2025
Floors								
CMH-SW-180- R22-THP176-DOE: CMH-SW-180-R22-THP176-DOE		1013	0.047	22.0	2.37	2398	0	0
CMH-SW-180- R33-THP472-DOE: CMH-SW-180-R33-THP472-DOE		128	0.040	33.0	2.02	257	0	0

5000 Clayton Road, Maryville, TN 37804 Phone: 865-380-3000

Project Information

For: S46026-FDJ-TZ-II, GILES

Notes: DUCT CAPACITY 24,433 BTUHS



Design Information

Weather: Millington Muni Arp, TN, US

Winter Design Conditions

Outside db 20 °F
 Inside db 70 °F
 Design TD 50 °F

Summer Design Conditions

Outside db 95 °F
 Inside db 75 °F
 Design TD 20 °F
 Daily range M
 Relative humidity 50 %
 Moisture difference 44 gr/lb

Heating Summary

Structure 17835 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 4932 Btuh
 Outside air
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 22767 Btuh

Sensible Cooling Equipment Load Sizing

Structure 14023 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 1957 Btuh
 Outside air
 Blower 0 Btuh
 Use manufacturer's data n
 Rate/swing multiplier 1.00
 Equipment sensible load 15980 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 3982 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 2678 Btuh
 Outside air
 Equipment latent load 6660 Btuh

	Heating	Cooling
Area (ft ²)	1140	1140
Volume (ft ³)	9120	9120
Air changes/hour	0.45	0.23
Equiv. AVF (cfm)	68	35

Equipment Total Load (Sen+Lat) 22640 Btuh
 Req. total capacity at 0.70 SHR 1.9 ton

Heating Equipment Summary

Make Smart Comfort
 Trade SMART COMFORT
 Model R4H424GKC
 AHRI ref 10059783

Efficiency 8.2 HSPF
 Heating input
 Heating output 21800 Btuh @ 47°F
 Temperature rise 27 °F
 Actual air flow 733 cfm
 Air flow factor 0.041 cfm/Btuh
 Static pressure 0.30 in H2O
 Space thermostat
 Capacity balance point = 26 °F

Cooling Equipment Summary

Make Smart Comfort
 Trade SMART COMFORT
 Cond R4H424GKC
 Coil FXM4X2400AL
 AHRI ref 10059783

Efficiency 11.5 EER, 14 SEER
 Sensible cooling 15400 Btuh
 Latent cooling 6600 Btuh
 Total cooling 22000 Btuh
 Actual air flow 733 cfm
 Air flow factor 0.052 cfm/Btuh
 Static pressure 0.30 in H2O
 Load sensible heat ratio 0.71

Backup: Smart Comfort FXM4X2400AL
 Input = 10 kW, Output = 34121 Btuh, 100 AFUE

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.



Duct System Summary

Entire House

Clayton Homes

Job: S46026-FDJ-TZ-II
 Date: Jul 10, 2023
 By:

5000 Clayton Road, Maryville, TN 37804 Phone: 865-380-3000

Project Information

For: S46026-FDJ-TZ-II, GILES

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And Safety Standards

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	Heating	Cooling
External static pressure	0.30 in H2O	0.30 in H2O
Pressure losses	0 in H2O	0 in H2O
Available static pressure	0.30 in H2O	0.30 in H2O
Supply / return available pressure	0.150 / 0.150 in H2O	0.150 / 0.150 in H2O
Lowest friction rate	0.150 in/100ft	0.150 in/100ft
Actual air flow	733 cfm	733 cfm
Total effective length (TEL)	201 ft	

Supply Branch Detail Table

Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
BATH	h 919	38	19	0.714	5.0	0x0	VIFx	7.0	35.0	st1
BED 2	h 2761	113	76	0.674	5.0	0x0	VIFx	9.5	35.0	st1
BED 3	c 2695	117	141	0.789	6.0	0x0	VIFx	3.0	35.0	st2
KITCHEN	c 3212	139	168	0.522	6.0	0x0	VIFx	22.5	35.0	st2
LIVING ROOM	c 2957	138	155	0.741	6.0	0x0	VIFx	5.5	35.0	st2
P-BATH	h 2337	96	61	0.150	7.0	0x0	VIFx	50.5	150.0	st2
P-BED	c 2173	93	114	0.368	6.0	0x0	VIFx	46.5	35.0	st2

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st2	PeakAVF	582	637	0.150	1311	3.2	5 x 14	ShtMetl	
st1	PeakAVF	151	96	0.674	311	4.0	5 x 14	ShtMetl	

Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb1	0x0	733	733	0	0	0	0	0x 0		VIFx	



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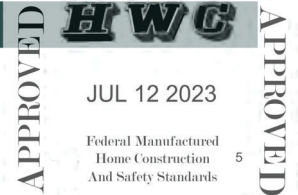
...-MODELS\ANNIVERSARY-S46026\New DOE\Project2.rup Calc = MJ8 Front Door faces: E

Page 1

5000 Clayton Road, Maryville, TN 37804 Phone: 865-380-3000

Project Information

For: S46026-FDJ-TZ-III, GILES



Cooling Equipment

Design Conditions

Outdoor design DB:	87.6°F	Sensible gain:	12719	Btuh	Entering coil DB:	76.6°F
Outdoor design WB:	71.2°F	Latent gain:	4279	Btuh	Entering coil WB:	63.4°F
Indoor design DB:	75.0°F	Total gain:	16998	Btuh		
Indoor RH:	50%	Estimated airflow:	733	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Smart Comfort	Model:	R4H424GKC+FXM4X2400AL
Actual airflow:	733	cfm	
Sensible capacity:	15400	Btuh	121% of load
Latent capacity:	6600	Btuh	154% of load
Total capacity:	22000	Btuh	129% of load SHR: 70%

Heating Equipment

Design Conditions

Outdoor design DB:	15.8°F	Heat loss:	23798	Btuh	Entering coil DB:	63.2°F
Indoor design DB:	70.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Smart Comfort	Model:	R4H424GKC+FXM4X2400AL
Actual airflow:	733	cfm	
Output capacity:	21800	Btuh	92% of load
Supplemental heat required:	1998	Btuh	
			Capacity balance: 25 °F
			Economic balance: -99 °F

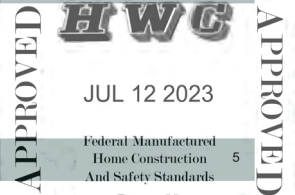
Backup equipment type:	Elec strip		
Manufacturer:	Smart Comfort	Model:	FXM4X2400AL
Actual airflow:	733	cfm	
Output capacity:	10.0	kW	143% of load Temp. rise: 46 °F

Meets all requirements of ACCA Manual S.

5000 Clayton Road, Maryville, TN 37804 Phone: 865-380-3000

Project Information

For: S46026-FDJ-TZ-III, GILES

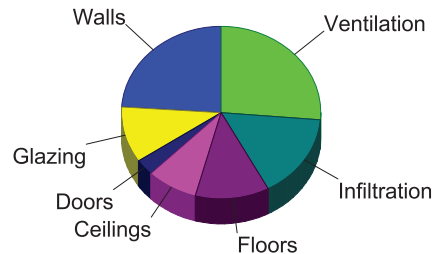


Design Conditions

Location: VA-SG22 Elevation: 2133 ft Latitude: 37°N		Indoor: Indoor temperature (°F) Design TD (°F) Relative humidity (%) Moisture difference (gr/lb)	Heating 70 54 30 24.8	Cooling 75 13 50 28.1
Outdoor: Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	Heating 16 - - 15.0	Cooling 88 20 (M) 71 7.5	Infiltration: Method Construction quality Fireplaces	Simplified Average 0

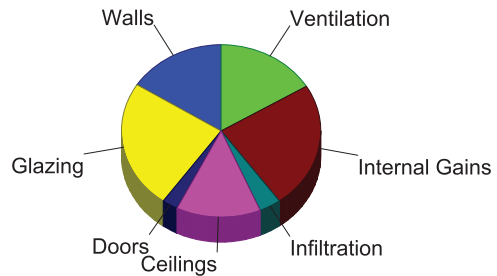
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	4.4	5699	23.9
Glazing	19.0	2498	10.5
Doors	17.3	728	3.1
Ceilings	1.7	1977	8.3
Floors	2.5	2856	12.0
Infiltration	2.6	3773	15.9
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		6267	26.3
Adjustments		0	0
Total		23798	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	1.6	2029	16.0
Glazing	23.3	3074	24.2
Doors	7.8	327	2.6
Ceilings	1.5	1744	13.7
Floors	0	0	0
Infiltration	0.3	448	3.5
Ducts		0	0
Ventilation		2078	16.3
Internal gains		3020	23.7
Blower		0	0
Adjustments		0	0
Total		12719	100.0



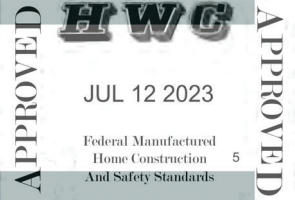
Latent Cooling Load = 4279 Btuh
Overall U-value = 0.068 Btuh/ft²·°F, Window / Floor Area = 11.5 %

Data entries checked.

5000 Clayton Road, Maryville, TN 37804 Phone: 865-380-3000

Project Information

For: S46026-FDJ-TZ-III, GILES



Design Conditions

Location: VA-SG22 Elevation: 2133 ft Latitude: 37°N			Indoor: Indoor temperature (°F) Design TD (°F) Relative humidity (%) Moisture difference (gr/lb)	Heating 70 54 30 24.8	Cooling 75 13 50 28.1
Outdoor: Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	Heating 16 - - 15.0	Cooling 88 20 (M) 71 7.5	Infiltration: Method Construction quality Fireplaces	Simplified Average 0	

Construction descriptions

	Or	Area ft²	U-value Btuh/ft²·°F	Insul R ft²·°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
CMH - SW - R-13 Wall - THP502-DOE: Single Wide - R-13 Insulation	n	120	0.082	13.0	4.44	533	1.58	190
THP502 2x4 Wall-DOE	e	516	0.082	13.0	4.44	2294	1.58	817
	s	105	0.082	13.0	4.44	467	1.58	166
	w	541	0.082	13.0	4.44	2405	1.58	856
	all	1282	0.082	13.0	4.44	5699	1.58	2029
Partitions (none)								
Windows								
Clayton - Thermopane Low-E: Clayton - Thermopane Low-E; 50% blinds	e	71	0.350	0	19.0	1344	24.8	1759
45°, medium; 50% outdoor insect screen; 6.67 ft head ht	s	15	0.350	0	19.0	285	11.8	177
	w	46	0.350	0	19.0	869	24.8	1138
	all	132	0.350	0	19.0	2498	23.3	3074
Doors								
CMH - Standard Door: CMH - Standard Door - Solid no storm	e	21	0.320	0	17.3	364	7.78	163
	w	21	0.320	0	17.3	364	7.78	163
	all	42	0.320	0	17.3	728	7.78	327
Ceilings								
SW -180 R-38: SW-180-R-38-THP-2002		1140	0.032	38.0	1.73	1977	1.53	1744
Floors								
CMH-SW-180- R22-THP176-DOE: CMH-SW-180-R22-THP176-DOE		1013	0.047	22.0	2.55	2579	0	0
CMH-SW-180- R33-THP472-DOE: CMH-SW-180-R33-THP472-DOE		128	0.040	33.0	2.17	276	0	0

5000 Clayton Road, Maryville, TN 37804 Phone: 865-380-3000

Project Information

For: S46026-FDJ-TZ-III, GILES

Notes: DUCT CAPACITY 24,433 BTUHS



Design Information

Weather: VA-SG22

Winter Design Conditions

Outside db 16 °F
 Inside db 70 °F
 Design TD 54 °F

Summer Design Conditions

Outside db 88 °F
 Inside db 75 °F
 Design TD 13 °F
 Daily range M
 Relative humidity 50 %
 Moisture difference 28 gr/lb

Heating Summary

Structure 18833 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 4965 Btuh
 Outside air
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 23798 Btuh

Sensible Cooling Equipment Load Sizing

Structure 11565 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 1154 Btuh
 Outside air
 Blower 0 Btuh
 Use manufacturer's data n
 Rate/swing multiplier 0.93
 Equipment sensible load 11778 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 2689 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 1590 Btuh
 Outside air
 Equipment latent load 4279 Btuh

	Heating	Cooling
Area (ft ²)	1140	1140
Volume (ft ³)	9120	9120
Air changes/hour	0.45	0.23
Equiv. AVF (cfm)	68	35

Equipment Total Load (Sen+Lat) 16057 Btuh
 Req. total capacity at 0.70 SHR 1.4 ton

Heating Equipment Summary

Make Smart Comfort
 Trade SMART COMFORT
 Model R4H424GKC
 AHRI ref 10059783

Efficiency 8.2 HSPF
 Heating input
 Heating output 21800 Btuh @ 47°F
 Temperature rise 29 °F
 Actual air flow 733 cfm
 Air flow factor 0.039 cfm/Btuh
 Static pressure 0.30 in H2O
 Space thermostat
 Capacity balance point = 25 °F

Cooling Equipment Summary

Make Smart Comfort
 Trade SMART COMFORT
 Cond R4H424GKC
 Coil FXM4X2400AL
 AHRI ref 10059783

Efficiency 11.5 EER, 14 SEER
 Sensible cooling 15400 Btuh
 Latent cooling 6600 Btuh
 Total cooling 22000 Btuh
 Actual air flow 733 cfm
 Air flow factor 0.063 cfm/Btuh
 Static pressure 0.30 in H2O
 Load sensible heat ratio 0.75

Backup: Smart Comfort FXM4X2400AL
 Input = 10 kW, Output = 34121 Btuh, 100 AFUE

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

5000 Clayton Road, Maryville, TN 37804 Phone: 865-380-3000

Project Information

For: S46026-FDJ-TZ-III, GILES

APPROVED



JUL 12 2023

Federal Manufactured
Home Construction
And Safety Standards

APPROVED

	Heating	Cooling
External static pressure	0.30 in H2O	0.30 in H2O
Pressure losses	0 in H2O	0 in H2O
Available static pressure	0.30 in H2O	0.30 in H2O
Supply / return available pressure	0.150 / 0.150 in H2O	0.150 / 0.150 in H2O
Lowest friction rate	0.150 in/100ft	0.150 in/100ft
Actual air flow	733 cfm	733 cfm
Total effective length (TEL)	201 ft	

Supply Branch Detail Table

Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
BATH	h 972	38	17	0.714	5.0	0x0	VIFx	7.0	35.0	st1
BED 2	h 2919	114	74	0.674	5.0	0x0	VIFx	9.5	35.0	st1
BED 3	c 1900	114	120	0.789	5.0	0x0	VIFx	3.0	35.0	st2
KITCHEN	c 2833	139	180	0.522	7.0	0x0	VIFx	22.5	35.0	st2
LIVING ROOM	c 2562	138	162	0.741	6.0	0x0	VIFx	5.5	35.0	st2
P-BATH	h 2468	96	57	0.150	7.0	0x0	VIFx	50.5	150.0	st2
P-BED	c 1928	93	122	0.368	6.0	0x0	VIFx	46.5	35.0	st2

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st2	PeakAVF	582	641	0.150	1320	3.2	5 x 14	ShtMetl	
st1	PeakAVF	151	92	0.674	312	4.0	5 x 14	ShtMetl	

Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb1	0x0	733	733	0	0	0	0	0x 0		VIFx	

BOX SIZE: 15 ft. x 76 ft.
 AVG. SIDEWALL HEIGHT = 8 FEET
 PERCENTAGE OF CEILING THAT IS VAULTED = 0%

No SGD

IN-FLOOR DUCT SYSTEM

	HEATED FLOOR	WALL	FLAT ROOF
INSULATION VALUES	R-22 FW	R-13	R-38
DAPIA PAGE	THP-176	THP-502	THP-2002
U VALUE (BTUH/SQ.FT.-F)	0.047	0.0817	0.0319

Overhead Duct	
Diameter	Length
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
15	0
Exterior Supply	Length
14	0
16	0
Exterior Return	Length
14	0
16	0

		Area	U Value	UA
Doors:	Front	22.00	0.300	6.60
	Rear	22.00	0.300	6.60
	Other Door	0.00	0.300	0.00
	Other Door	0.00	0.330	0.00
	OSB	0.00	0.000	0.00
	Skylights	0.00	0.330	0.00
	Window Glass Area:	Standard	136.00	0.300
Option		0.00	0.300	0.00
Net:	Floor	1140.00	0.047	54.04
	Wall	1276.00	0.082	104.25
	Ceiling	1140.00	0.0319	36.37
Th. Zone 1:	Ext. Duct	0.00	0.000	0.00
Th. Zone 2:	Ext. Duct	0.00	0.000	0.00
Th. Zone 3:	Ext. Duct	0.00	0.000	0.00
Overhead TZ 1:	Supply	0.00	0.000	0.00
Overhead TZ 2:	Supply	0.00	0.000	0.00
Overhead TZ 3:	Supply	0.00	0.00	0.00

Energy Star v3 & ZERH	
Max Glass (sq ft)	
Th. Zone 1	304.5
Th. Zone 2	116.2
Th. Zone 3	0.0

	Outdoor Design Temp (F)	UA	Uo	Heatloss BTUH/F
Thermal Zone 1	11	248.65	0.067	376.10
Thermal Zone 2	0	248.65	0.067	376.10
Thermal Zone 3	-14	248.65	0.067	376.10

Design Temperatures

Furnace Heating Temp (F)	Economy Outdoor Temp (F)	
-21	6	10kW
-39	-6	12kW
-66	-25	15kW
-36	-4	40k Gas
-90	-42	60k Gas
-143	-79	80k Gas

Thermal Zone	U-Value	Thermal Zone	U-Value	Thermal Zone	U-Value
Energy Star Version 2					
1-EHP-S	0.080	2-EHP-S	0.080	3-EHP-S	0.079
1-GAS-S	0.080	2-GAS-S	0.080	3-GAS-S	0.071
1-ENV-S	0.076	2-ENV-S	0.067	3-ENV-S	0.059
1-EHP-M	0.074	2-EHP-M	0.074	3-EHP-M	0.074
1-GAS-M	0.074	2-GAS-M	0.074	3-GAS-M	0.065
1-ENV-M	0.071	2-ENV-M	0.064	3-ENV-M	0.056

Energy Star Version 3 & ZERH					
1 Single	0.076	2 Single	0.065	3 Single	0.057
1 Double	0.070	2 Double	0.063	3 Double	0.054



BOX SIZE: 15 ft. x 76 ft.
 AVG. SIDEWALL HEIGHT = 8 FEET
 PERCENTAGE OF CEILING THAT IS VAULTED = 0%

No SGD

IN-FLOOR DUCT SYSTEM

	HEATED FLOOR	WALL	FLAT ROOF
INSULATION VALUES	R-22 OR / R-33 BIB	R-13	R-38
DAPIA PAGE	THP-472	THP-502	THP-2002
U VALUE (BTUH/SQ.FT.-F)	0.040	0.0817	0.0319

Overhead Duct	
Diameter	Length
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
15	0
Exterior Supply	Length
14	0
16	0
Exterior Return	Length
14	0
16	0

	Area	U Value	UA
Doors:			
Front	22.00	0.300	6.60
Rear	22.00	0.300	6.60
Other Door	0.00	0.300	0.00
Other Door	0.00	0.330	0.00
OSB	0.00	0.000	0.00
Skylights	0.00	0.330	0.00
Window Glass Area:			
Standard	136.00	0.300	40.80
Option	0.00	0.300	0.00
Net:			
Floor	1140.00	0.040	45.71
Wall	1276.00	0.082	104.25
Ceiling	1140.00	0.0319	36.37
Th. Zone 1:			
Ext. Duct	0.00	0.000	0.00
Th. Zone 2:			
Ext. Duct	0.00	0.000	0.00
Th. Zone 3:			
Ext. Duct	0.00	0.000	0.00
Overhead TZ 1:			
Supply	0.00	0.000	0.00
Overhead TZ 2:			
Supply	0.00	0.000	0.00
Overhead TZ 3:			
Supply	0.00	0.00	0.00

Energy Star v3 & ZERH	
Max Glass (sq ft)	
Th. Zone 1	342.6
Th. Zone 2	154.3
Th. Zone 3	17.4

	Outdoor Design Temp (F)	UA	Uo	Heatloss BTUH/F
Thermal Zone 1	11	240.33	0.064	367.70
Thermal Zone 2	0	240.33	0.064	367.70
Thermal Zone 3	-14	240.33	0.064	367.70

Design Temperatures

Furnace Heating Temp (F)	Economy Outdoor Temp (F)	
-23	5	10kW
-41	-8	12kW
-69	-27	15kW
-39	-6	40k Gas
-93	-44	60k Gas
-148	-82	80k Gas

Thermal Zone	U-Value	Thermal Zone	U-Value	Thermal Zone	U-Value
Energy Star Version 2					
1-EHP-S	0.080	2-EHP-S	0.080	3-EHP-S	0.079
1-GAS-S	0.080	2-GAS-S	0.080	3-GAS-S	0.071
1-ENV-S	0.076	2-ENV-S	0.067	3-ENV-S	0.059
1-EHP-M	0.074	2-EHP-M	0.074	3-EHP-M	0.074
1-GAS-M	0.074	2-GAS-M	0.074	3-GAS-M	0.065
1-ENV-M	0.071	2-ENV-M	0.064	3-ENV-M	0.056
Energy Star Version 3 & ZERH					
1 Single	0.076	2 Single	0.065	3 Single	0.057
1 Double	0.070	2 Double	0.063	3 Double	0.054



BOX SIZE: 15 ft. x 76 ft.
 AVG. SIDEWALL HEIGHT = 8 FEET
 PERCENTAGE OF CEILING THAT IS VAULTED = 0%

No SGD

IN-FLOOR DUCT SYSTEM

	HEATED FLOOR	WALL	FLAT ROOF
INSULATION VALUES	R-22 OR / R-33 BIB	R-21	R-38
DAPIA PAGE	THP-472	THP-510	THP-2002
U VALUE (BTUH/SQ.FT.-F)	0.040	0.0546	0.0319

Overhead Duct	
Diameter	Length
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
15	0
Exterior Supply	Length
14	0
16	0
Exterior Return	Length
14	0
16	0

	Area	U Value	UA	
Doors:	Front	22.00	0.300	6.60
	Rear	22.00	0.300	6.60
	Other Door	0.00	0.300	0.00
	Other Door	0.00	0.330	0.00
	OSB	0.00	0.000	0.00
	Skylights	0.00	0.330	0.00
Window Glass Area:	Standard	136.00	0.300	40.80
	Option	0.00	0.300	0.00
Net:	Floor	1140.00	0.040	45.71
	Wall	1276.00	0.055	69.67
	Ceiling	1140.00	0.0319	36.37
Th. Zone 1:	Ext. Duct	0.00	0.000	0.00
Th. Zone 2:	Ext. Duct	0.00	0.000	0.00
Th. Zone 3:	Ext. Duct	0.00	0.000	0.00
Overhead TZ 1:	Supply	0.00	0.000	0.00
Overhead TZ 2:	Supply	0.00	0.000	0.00
Overhead TZ 3:	Supply	0.00	0.00	0.00

Energy Star v3 & ZERH	
Max Glass (sq ft)	
Th. Zone 1	460.7
Th. Zone 2	293.2
Th. Zone 3	171.4

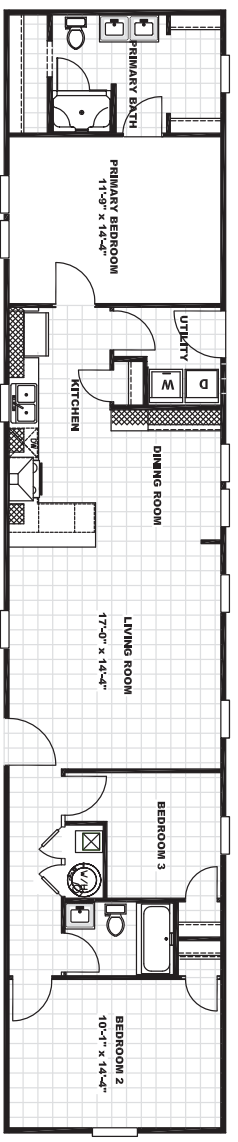
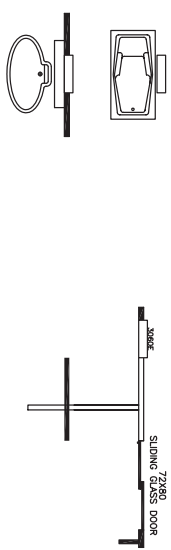
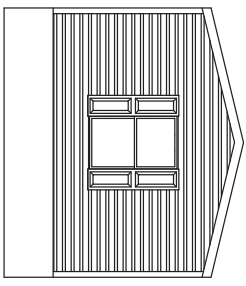
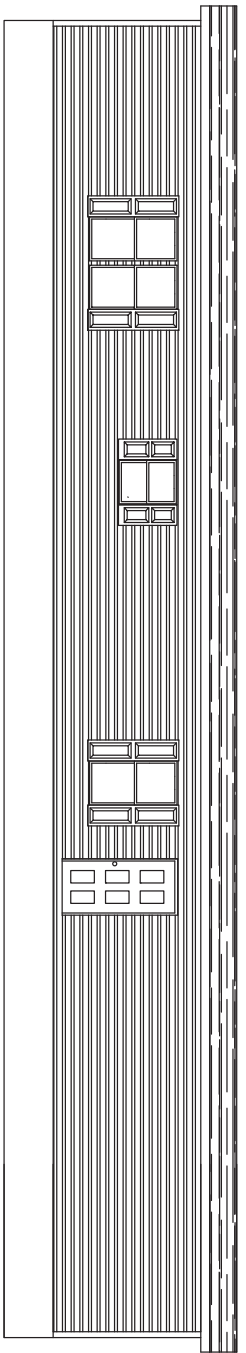
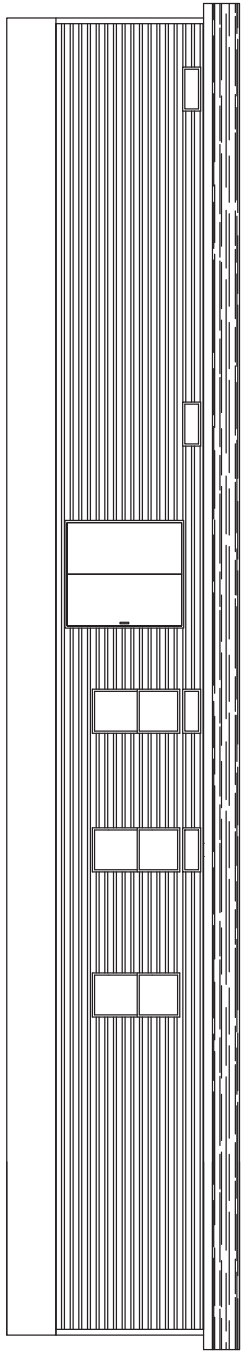
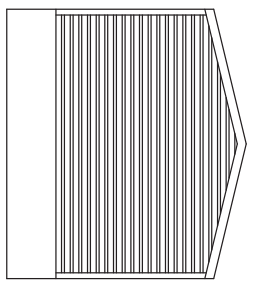
	Outdoor Design Temp (F)	UA	Uo	Heatloss BTUH/F
Thermal Zone 1	11	205.75	0.055	333.10
Thermal Zone 2	0	205.75	0.055	333.10
Thermal Zone 3	-14	205.75	0.055	333.10

Design Temperatures

Furnace Heating Temp (F)	Economy Outdoor Temp (F)	
-32	-2	10kW
-53	-16	12kW
-84	-38	15kW
-50	-14	40k Gas
-110	-56	60k Gas
-170	-98	80k Gas

Thermal Zone	U-Value	Thermal Zone	U-Value	Thermal Zone	U-Value
Energy Star Version 2					
1-EHP-S	0.080	2-EHP-S	0.080	3-EHP-S	0.079
1-GAS-S	0.080	2-GAS-S	0.080	3-GAS-S	0.071
1-ENV-S	0.076	2-ENV-S	0.067	3-ENV-S	0.059
1-EHP-M	0.074	2-EHP-M	0.074	3-EHP-M	0.074
1-GAS-M	0.074	2-GAS-M	0.074	3-GAS-M	0.065
1-ENV-M	0.071	2-ENV-M	0.064	3-ENV-M	0.056
Energy Star Version 3 & ZERH					
1 Single	0.076	2 Single	0.065	3 Single	0.057
1 Double	0.070	2 Double	0.063	3 Double	0.054





NOTES:
1. LOUVER
LITTLE

GILLES HOMES	Model #:	S46026	Plant #:
	Order #:	546026-2X4-DOE	
Product Designer: UNREVISED			
ELEVATION			