

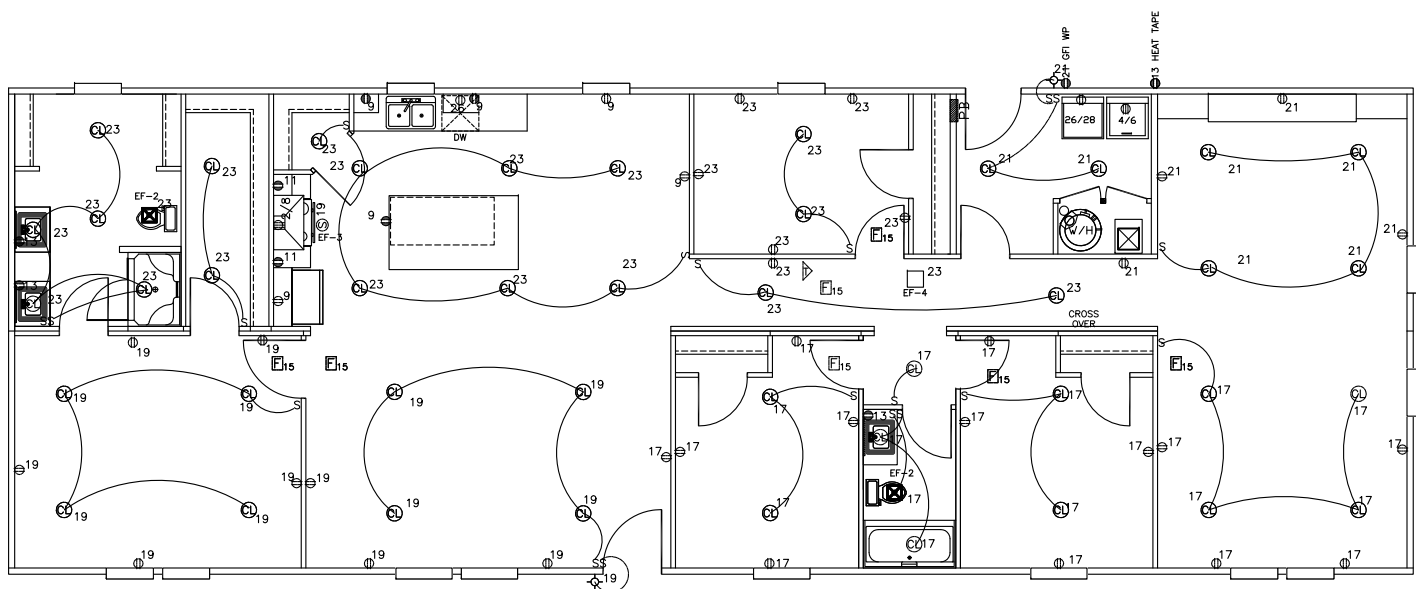
APPROVED

HWC

JUL 27 2023

Federal Manufactured
Home Construction
And Safety Standards

APPROVED



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/1.5 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.

M46032-DOE-EL

GILES HOMES 405 S. BROAD ST, NEW TAZEWELL TN 37825	Model #: MODEL#	Drawing #:
	Date: 7-21-23	Scale: N/A
Product Designer: CUPPA	BOLT	
ELECT	M46032	

H W C

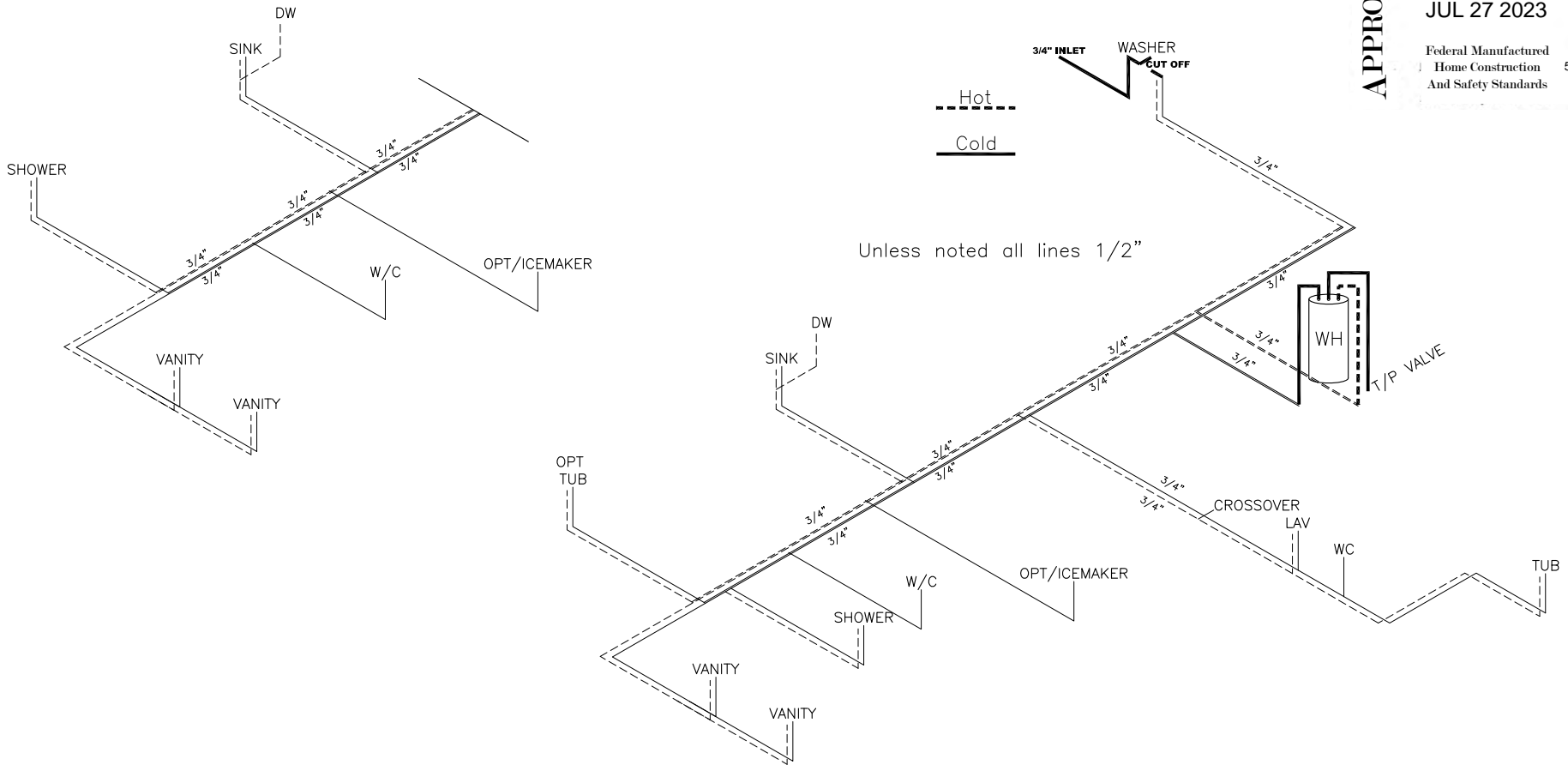
JUL 27 2023

Federal Manufactured
Home Construction
And Safety Standards

5

APPROVED

APPROVED



M46032-DOE-WL

GILES HOMES 405 S. BROAD ST. NEW TAZEWELL TN 37825	Model #:	MODEL#	Drawing #: M46032 DOE
	Date:	7-21-23	
Product Designer: CUPPA	BOLT		
PRESSURE LINES			M46032

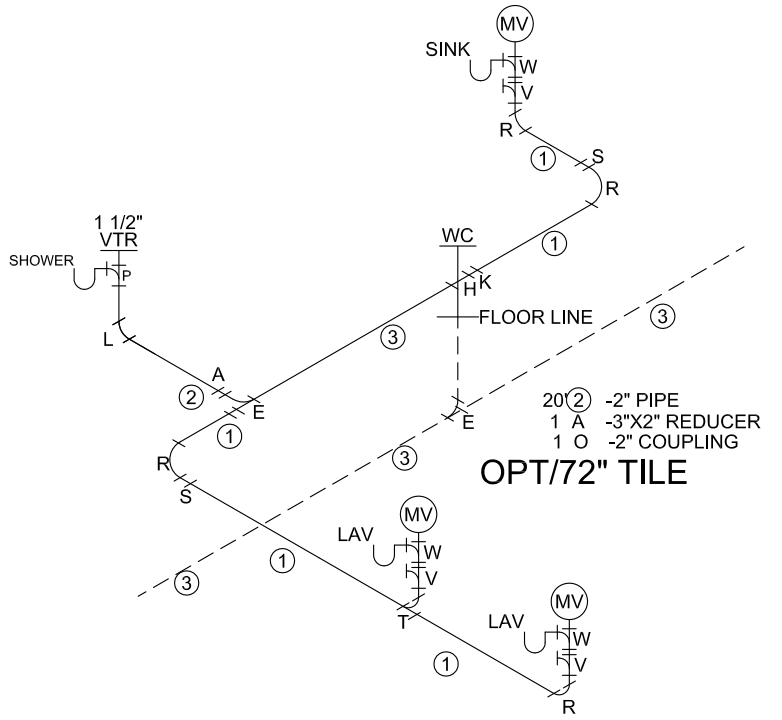
HWC

JUL 27 2023

Federal Manufactured
Home Construction
And Safety Standards

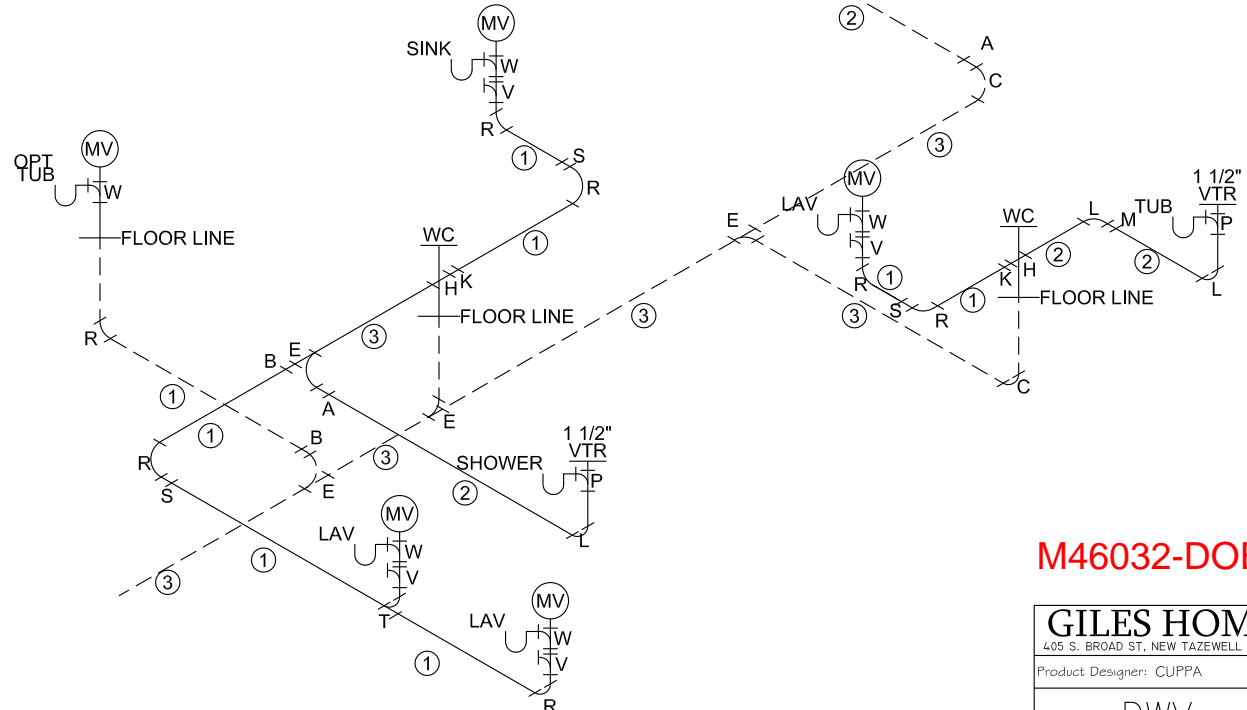
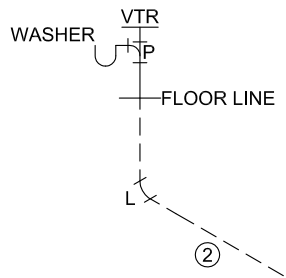
APPROVED

APPROVED



20(2) -2" PIPE
1 A -3"X2" REDUCER
1 O -2" COUPLING

OPT/72" TILE

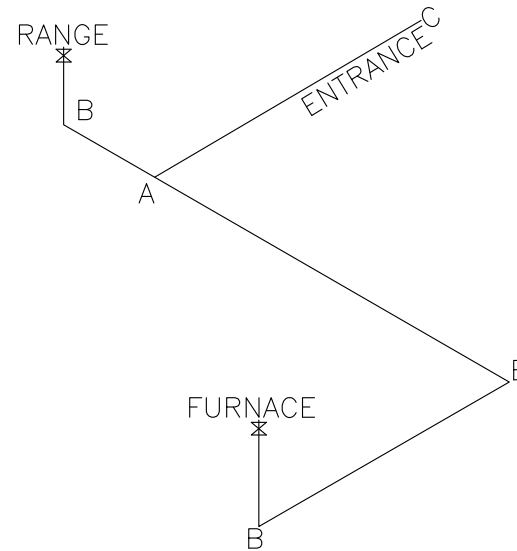


- LEGEND AND SET UP KIT.**
- VTR - VENT THRU ROOF
 - (MV) - MECHANICAL VENT
 - 50(3) -3" PIPE
 - 20(2) -2" PIPE
 - 20(1) -1 1/2" PIPE
 - 1 A -3"X2" REDUCER
 - 1 B -3"X1 1/2" REDUCER
 - 2 C -3" ELLT 90°
 - 0 D -3" ELL 45°
 - 3 E -3" LTTY
 - 2 F -3" COUPLING
 - 0 G -3" X 3" X 3" X 2" X 2" ST
 - 0 H -3" 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
 - 1 L -2" ELLT 90°
 - 0 M -2" ELL 45°
 - 0 N -2" LTTY
 - 1 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" ELLT 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

M46032-DOE-DWV

GILES HOMES	Model #:	MODEL#	Drawing #:
	405 S. BROAD ST, NEW TAZEWELL TN 37825		
Product Designer: CUPPA		Date: 7-21-23	Scale: N/A
DWV		BOLT	
		M46032	

LEGEND		APPLIANCE BTU'S RATINGS MAX. INPUT		
SYM	FITTINGS	FURNACE	77.000	BTU'S
A	TEE	RANGE	56,000	BTU'S
B	90 ELL			
∩	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

M46032-DOE-GL

GILES HOMES 405 S. BROAD ST. NEW TAZEWELL TN 37825	Model #:	MODEL#	Drawing #: M46032 DOE
	Date:	7-21-23	
Product Designer: CUPPA	BOLT		
GAS		M46032	

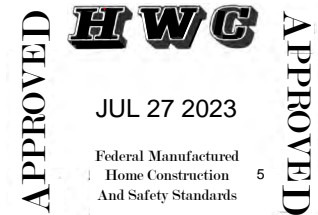
Model # **M46032-DOE**

Giles Homes Light and Vent Chart

Room	Floor Area SQFT	Window(s)	Glass Area	% of Floor	Artificial Light	Vent Area	% of Floor	Artificial Vent	Min. Door
Living Room	248	3660 x2	24.4	9.84%		12.4	5.00%		Vent
Kitchen	156	3040	6.3	4.04%	X	3.3	2.12%	X	28
DINING	108	3060	9.9	9.17%	X	5.2	4.81%	X	24
Primary Bedroom	149	3060 x2	19.8	13.29%		10.4	6.98%		24
Bedroom 2	119	3660	12.2	10.25%		6.2	5.21%		24
Bedroom 3	112	3660	12.2	10.89%		6.2	5.54%		24
Primary Bath	110	3040	6.3	5.73%	X	3.3	3.00%	X	24
Bath 2	43				X			X	24
Utility	75	0	0.00%		0	0.00%		24	
Bedroom 4	100	3060	9.9	9.90%		5.2	5.20%		24
ACTIVITY ROOM	346	3060 x4	39.6	11.45%		20.8	6.01%		Vent
Bedroom 5	157	3060 x2	19.8	12.61%		10.4	6.62%		28

* (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



Data on this submitted

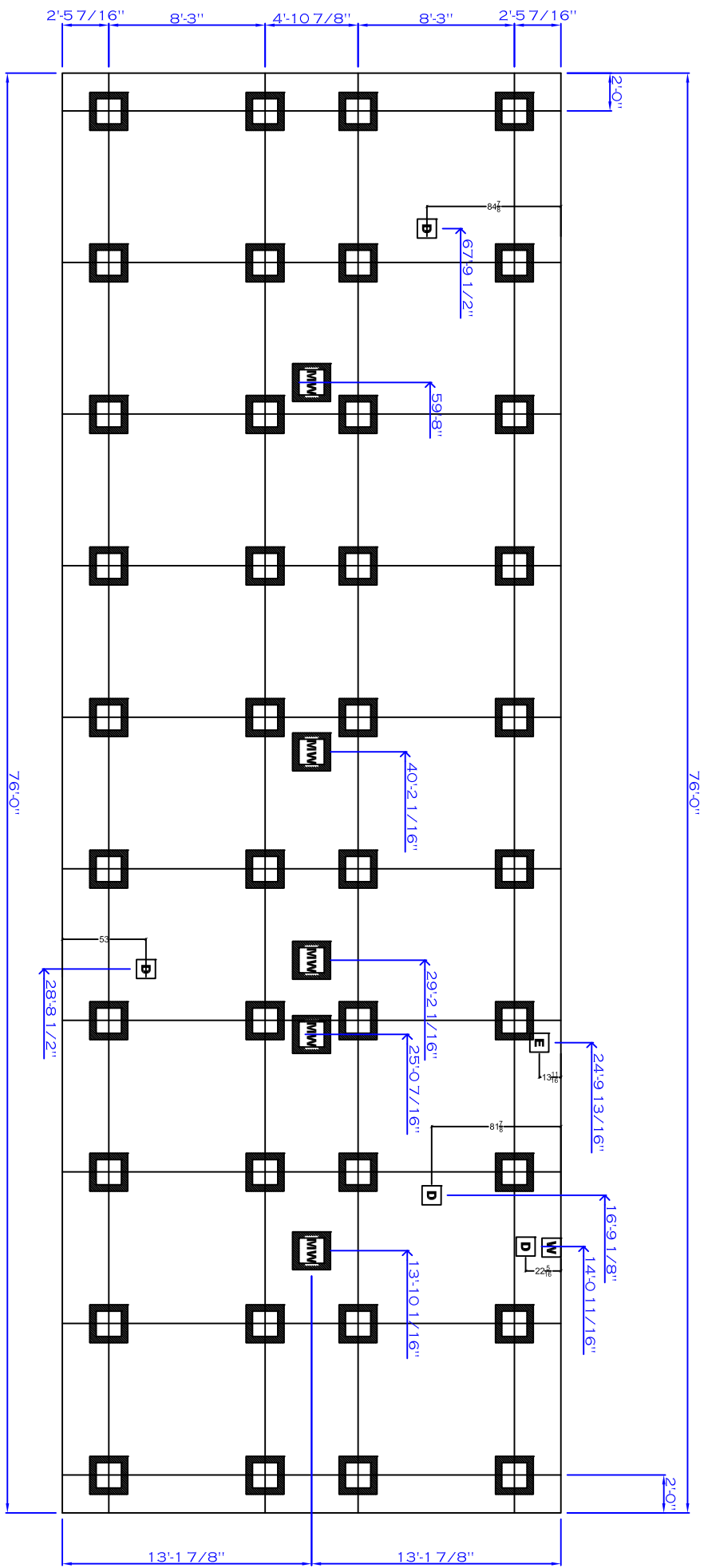
By: Andy Cupp

MFG. Giles Industries







REVISION

E. M46032-DOE . 2

M46032-DOE-LV



*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**

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 _____
--	---

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 _____

4. Fireplaces

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

Fireplace facing _____ lining _____ hearth _____ mantel _____

Additional information _____

5. Exterior Walls

Wood frame wood grade, and species _____ Corner bracing Building paper or felt _____

Sheathing _____ thickness _____ width _____ solid spaced _____ o.c. diagonal _____

Siding _____ grade _____ type _____ size _____ exposure _____ fastening _____

Shingles _____ grade _____ type _____ size _____ exposure _____ fastening _____

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 _____ other _____ bridging _____ anchors _____

Concrete slab basement floor first floor ground supported self-supporting mix _____ thickness _____

reinforcing _____ insulation _____ membrane _____

Fill under slab material _____ thickness _____

Additional information _____

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

Material grade and species _____ size _____ type _____

Laid first floor second floor attic _____ sq. ft. diagonal right angles

Additional information _____

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 _____ size and spacing _____ Other _____

Additional information _____

10. Ceiling Framing

Joists wood, grade, and species _____ Other _____ Bridging _____

Additional information _____

11. Roof Framing

Rafters wood, grade, and species _____ Roof trusses (see detail) grade and species _____

Additional information _____

12. Roofing

Sheathing wood, grade, and species _____ 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 _____ 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 _____ material _____ thickness _____
Door trim type _____ material _____ Base type _____ material _____ size _____
Finish doors _____ trim _____
Other trim (item, type and location) _____
Additional information _____

17. Windows

Windows type _____ 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 _____ 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 _____ 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				
	Bath				

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						
Lavatory						
Water closet						
Bathtub						
Shower over tub						
Stall shower						
Laundry trays						

Bathroom accessories Recessed material _____ number _____ Attached material _____ number _____

Additional information _____

Curtain rod Door Shower pan material _____ * (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 _____ House sewer (outside) cast iron tile other _____

Water piping galvanized steel copper tubing other _____ Sill cocks, number _____

Domestic water heater type _____ make and model _____ heating capacity _____ gph. 100° rise.

Storage tank material _____ capacity _____ 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 _____
 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 _____

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			
Ceiling			
Wall			
Floor			

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) _____ Signature _____

Signature _____

Project Information

For: M46032-FDJ-TZI, GILES



Cooling Equipment

Design Conditions

Outdoor design DB:	91.7°F	Sensible gain:	22327	Btuh	Entering coil DB:	76.4°F
Outdoor design WB:	73.9°F	Latent gain:	5645	Btuh	Entering coil WB:	63.5°F
Indoor design DB:	75.0°F	Total gain:	27972	Btuh		
Indoor RH:	50%	Estimated airflow:	1113	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP					
Manufacturer:	Smart Comfort	Model:	R4H5S36*K*AAA*+FEVA0036**+NAVA43601CK			
Actual airflow:	1113	cfm				
Sensible capacity:	23380	Btuh	105%	of load		
Latent capacity:	10020	Btuh	177%	of load		
Total capacity:	33400	Btuh	119%	SHR:	70%	

Heating Equipment

Design Conditions

Outdoor design DB:	26.4°F	Heat loss:	29005	Btuh	Entering coil DB:	66.4°F	
Indoor design DB:	70.0°F						

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP					
Manufacturer:	Smart Comfort	Model:	R4H5S36*K*AAA*+FEVA0036**+NAVA43601CK			
Actual airflow:	1113	cfm				
Output capacity:	33000	Btuh	114%	of load		
Supplemental heat required:	0	Btuh				Capacity balance: 26 °F
						Economic balance: -99 °F

Backup equipment type:	Elec strip					
Manufacturer:	Smart Comfort	Model:	R4H5S36*K*AAA*			
Actual airflow:	1113	cfm				
Output capacity:	10.0	kW	118%	Temp. rise:	29 °F	

Meets all requirements of ACCA Manual S.

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

Project Information

For: M46032-FDJ-TZI, GILES

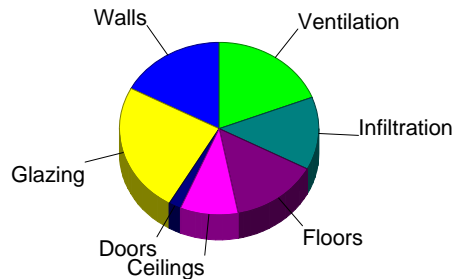


Design Conditions

Location: Atlanta Municipal, GA, US Elevation: 1027 ft Latitude: 34°N		Indoor: Indoor temperature (°F) Design TD (°F) Relative humidity (%) Moisture difference (gr/lb)		Heating 70 44 30 17.0	Cooling 75 17 50 35.3
Outdoor: Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	Heating 26 - - 15.0	Cooling 92 17 (M) 74 7.5	Infiltration: Method Construction quality Fireplaces	Simplified Average 0	

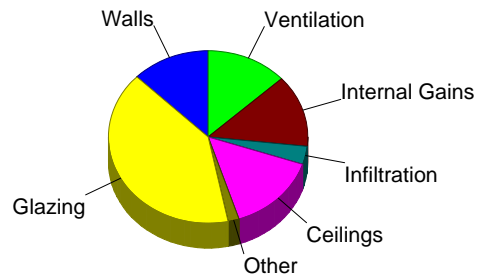
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	3.6	5005	17.3
Glazing	35.7	7072	24.4
Doors	14.0	586	2.0
Ceilings	1.4	2722	9.4
Floors	2.0	4128	14.2
Infiltration	2.4	3971	13.7
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		5522	19.0
Adjustments		0	0
Total		29005	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	2.0	2835	12.7
Glazing	45.7	9047	40.5
Doors	9.5	399	1.8
Ceilings	1.6	3322	14.9
Floors	0	0	0
Infiltration	0.5	761	3.4
Ducts		0	0
Ventilation		2943	13.2
Internal gains		3020	13.5
Blower		0	0
Adjustments		0	0
Total		22327	100.0



Latent Cooling Load = 5645 Btuh
Overall U-value = 0.079 Btuh/ft²·°F, Window / Floor Area = 9.8 %

Data entries checked.

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

Project Information

For: M46032-FDJ-TZI, GILES



Design Conditions

Location:		Indoor:		Heating	Cooling
Atlanta Municipal, GA, US		Indoor temperature (°F)		70	75
Elevation: 1027 ft		Design TD (°F)		44	17
Latitude: 34°N		Relative humidity (%)		30	50
		Moisture difference (gr/lb)		17.0	35.3
Outdoor:	Heating	Cooling	Infiltration:		
Dry bulb (°F)	26	92	Method	Simplified	
Daily range (°F)	-	17 (M)	Construction quality	Average	
Wet bulb (°F)	-	74	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 - DW - R-13 Wall - THP502-DOE: Double Wide - R-13 Insulation	n	212	0.082	13.0	3.58	758	2.03	429
THP502 2x4 Wall-DOE	e	528	0.082	13.0	3.58	1887	2.03	1069
	s	187	0.082	13.0	3.58	669	2.03	379
	w	473	0.082	13.0	3.58	1691	2.03	958
	all	1400	0.082	13.0	3.58	5005	2.03	2835

Partitions
(none)

Windows

1A-c1om: 1 glazing, clr glz, mtl no brk frm mat, 1/8" thk; 50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	e	29	1.270	0	55.4	1615	69.8	2036
	s	25	1.270	0	55.4	1384	35.6	891
	w	50	1.270	0	55.4	2769	69.8	3490
	all	104	1.270	0	55.4	5768	61.6	6417
Clayton - Thermopane Low-E: Clayton - Thermopane Low-E; 50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	e	34	0.350	0	15.3	519	26.3	894
Clayton - Thermopane Low-E DOE: Clayton-Thermopane Low-E DOE; 50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	w	60	0.300	0	13.1	785	21.8	1307

Doors

CMH - Standard Door: CMH - Standard Door - Solid no storm	e	21	0.320	0	14.0	293	9.50	200
	w	21	0.320	0	14.0	293	9.50	200
	all	42	0.320	0	14.0	586	9.50	399

Ceilings

CMH-DW-158 BOX R38 - THP1244 - DOE: CMH-DW-158 BOX R38-THP1244 - DOE		2014	0.031	38.0	1.35	2722	1.65	3322
--	--	------	-------	------	------	------	------	------

Floors

CMH-DW-158- R22-THP173-DOE: CMH-DW-158-R22-THP173-DOE		2014	0.047	22.0	2.05	4128	0	0
---	--	------	-------	------	------	------	---	---

Project Information

For: M46032-FDJ-TZI, GILES

Notes: DUCT CAPACITY 37000 BTUHS



Design Information

Weather: Atlanta Municipal, GA, US

Winter Design Conditions

Outside db 26 °F
 Inside db 70 °F
 Design TD 44 °F

Summer Design Conditions

Outside db 92 °F
 Inside db 75 °F
 Design TD 17 °F
 Daily range M
 Relative humidity 50 %
 Moisture difference 35 gr/lb

Heating Summary

Structure 24846 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 4159 Btuh
 Outside air
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 29005 Btuh

Sensible Cooling Equipment Load Sizing

Structure 20734 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 1593 Btuh
 Outside air
 Blower 0 Btuh
 Use manufacturer's data n
 Rate/swing multiplier 0.97
 Equipment sensible load 21590 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 3562 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 2084 Btuh
 Outside air
 Equipment latent load 5645 Btuh

	Heating	Cooling
Area (ft ²)	2014	2014
Volume (ft ³)	16114	16114
Air changes/hour	0.32	0.16
Equiv. AVF (cfm)	86	43

Equipment Total Load (Sen+Lat) 27235 Btuh
 Req. total capacity at 0.70 SHR 2.6 ton

Heating Equipment Summary

Make Smart Comfort
 Trade 15 SEER2 R SERIES R410A HP
 Model R4H5S36*K*AAA*
 AHRI ref 0

Efficiency 7.5 HSPF2
 Heating input
 Heating output 33000 Btuh @ 47°F
 Temperature rise 28 °F
 Actual air flow 1113 cfm
 Air flow factor 0.045 cfm/Btuh
 Static pressure 0.30 in H2O
 Space thermostat
 Capacity balance point = 26 °F

Cooling Equipment Summary

Make Smart Comfort
 Trade 15 SEER2 R SERIES R410A HP
 Cond R4H5S36*K*AAA*
 Coil FEVA0036**+NAVA43601CK
 AHRI ref 0

Efficiency 12.0 EER2, 15 SEER2
 Sensible cooling 23380 Btuh
 Latent cooling 10020 Btuh
 Total cooling 33400 Btuh
 Actual air flow 1113 cfm
 Air flow factor 0.054 cfm/Btuh
 Static pressure 0.30 in H2O
 Load sensible heat ratio 0.80

Backup: Smart Comfort R4H5S36*K*AAA*
 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: M46032-FDJ-TZI
 Date: Jul 24, 2023
 By:

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

Project Information

For: M46032-FDJ-TZI, GILES



	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	0.200 in/100ft	0.200 in/100ft
Actual air flow	1113 cfm	1113 cfm
Total effective length (TEL)		150 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
ACTIVITY ROOM 1	h 2609	117	65	0.811	5.0	0x0	VIFx	2.0	35.0	st1
ACTIVITY ROOM 2	h 3857	173	169	0.218	7.0	0x0	VIFx	37.4	100.0	st4
BATH	h 507	23	11	0.241	5.0	0x0	VIFx	24.4	100.0	st4
BED 2	c 1007	50	54	0.223	5.0	0x0	VIFx	34.4	100.0	st4
BED 3	c 989	48	53	0.238	5.0	0x0	VIFx	25.9	100.0	st5
BED 4	c 2540	110	136	0.526	6.0	0x0	VIFx	22.0	35.0	st3
DINIG	h 351	40	19	0	0	0x0	VIFx	0	0	
KITCHEN	c 2194	76	118	0.395	6.0	0x0	VIFx	41.0	35.0	st3
LIVING ROOM	c 2501	105	134	0.233	7.0	0x0	VIFx	28.9	100.0	st5
P-BATH	h 2394	107	75	0.333	6.0	0x0	VIFx	55.0	35.0	st3
P-BED	c 3476	150	187	0.200	8.0	0x0	VIFx	49.9	100.0	st5
UTILITY	h 2567	115	92	0.759	5.0	0x0	VIFx	4.5	35.0	st3

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st4	Peak AVF	245	234	0.218	785	7.0	5 x 9	ShtMetl	st2
st1	Peak AVF	117	65	0.811	240	4.1	5 x 14	ShtMetl	
st3	Peak AVF	408	421	0.333	866	4.1	5 x 14	ShtMetl	
st5	Peak AVF	303	374	0.200	897	8.3	5 x 12	ShtMetl	st2
st2	Peak AVF	548	608	0.200	876	9.9	5 x 20	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	1113	1113	0	0	0	0	0x 0		VIFx	



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

Project Information

For: M46032-FDJ-TZ II, GILES



Cooling Equipment

Design Conditions

Outdoor design DB:	95.0°F	Sensible gain:	24494 Btuh	Entering coil DB:	76.7°F
Outdoor design WB:	76.5°F	Latent gain:	7026 Btuh	Entering coil WB:	63.8°F
Indoor design DB:	75.0°F	Total gain:	31520 Btuh		
Indoor RH:	50%	Estimated airflow:	1113 cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Smart Comfort	Model:	R4H5S36*K*AAA*+FEVA0036**+NAVA43601CK		
Actual airflow:	1113 cfm				
Sensible capacity:	23380 Btuh	95% of load			
Latent capacity:	10020 Btuh	143% of load			
Total capacity:	33400 Btuh	106% of load	SHR:	70%	

Heating Equipment

Design Conditions

Outdoor design DB:	19.6°F	Heat loss:	33776 Btuh	Entering coil DB:	65.8°F
Indoor design DB:	70.0°F				

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Smart Comfort	Model:	R4H5S36*K*AAA*+FEVA0036**+NAVA43601CK		
Actual airflow:	1113 cfm				
Output capacity:	33000 Btuh	98% of load		Capacity balance:	26 °F
Supplemental heat required:	776 Btuh			Economic balance:	-99 °F

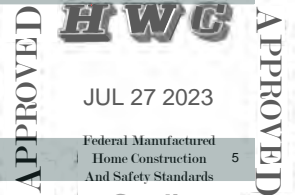
Backup equipment type:	Elec strip				
Manufacturer:	Smart Comfort	Model:	R4H5S36*K*AAA*		
Actual airflow:	1113 cfm				
Output capacity:	10.0 kW	101% of load	Temp. rise:	28 °F	

Meets all requirements of ACCA Manual S.

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

Project Information

For: M46032-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

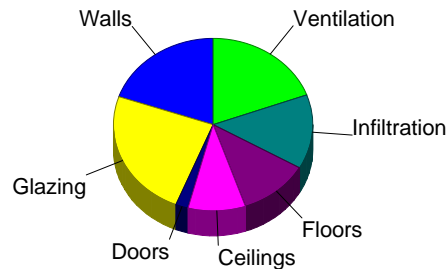
Infiltration:

Method
 Construction quality
 Fireplaces

Simplified
 Average
 0

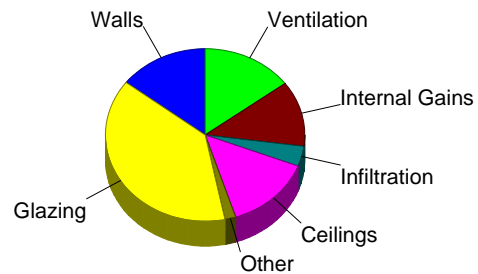
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	4.1	6661	19.7
Glazing	41.3	8174	24.2
Doors	16.1	677	2.0
Ceilings	1.6	3147	9.3
Floors	1.9	3858	11.4
Infiltration	2.5	4709	13.9
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		6548	19.4
Adjustments		0	0
Total		33776	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	2.2	3569	14.6
Glazing	47.7	9459	38.6
Doors	10.2	430	1.8
Ceilings	1.7	3466	14.1
Floors	0	0	0
Infiltration	0.5	934	3.8
Ducts		0	0
Ventilation		3616	14.8
Internal gains		3020	12.3
Blower		0	0
Adjustments		0	0
Total		24494	100.0



Latent Cooling Load = 7026 Btuh
 Overall U-value = 0.076 Btuh/ft²·°F, Window / Floor Area = 9.8 %

Data entries checked.



Component Constructions
Entire House
Clayton Homes

Job: M46032-FDJ-TZ II
Date: Jul 24, 2023
By:

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

Project Information

For: M46032-FDJ-TZ II, GILES



Design Conditions

Location: Millington Muni Arp, TN, US Elevation: 322 ft Latitude: 35°N			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
Outdoor: Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	Heating 20 - - 15.0	Cooling 95 19 (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 - DW - R-13 Wall - THP502-DOE: Double Wide - R-13 Insulation	n	316	0.082	13.0	4.13	1306	2.21	700
THP502 2x4 Wall-DOE	e	528	0.082	13.0	4.13	2181	2.21	1169
	s	291	0.082	13.0	4.13	1203	2.21	644
	w	477	0.082	13.0	4.13	1971	2.21	1056
	all	1612	0.082	13.0	4.13	6661	2.21	3569

Partitions
(none)

Windows

1A-c1om: 1 glazing, clr glz, mtl no brk frm mat, 1/8" thk; 50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	e	29	1.270	0	64.0	1867	73.4	2141
	s	25	1.270	0	64.0	1600	40.5	1014
	w	50	1.270	0	64.0	3200	73.4	3670
	all	104	1.270	0	64.0	6668	65.5	6825
Clayton - Thermopane Low-E: Clayton - Thermopane Low-E; 50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	e	34	0.350	0	17.6	600	27.2	926
Clayton - Thermopane Low-E DOE: Clayton-Thermopane Low-E DOE; 50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	w	60	0.300	0	15.1	907	22.6	1357

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

CMH-DW-158 BOX R38 - THP1244 - DOE: CMH-DW-158 BOX R38-THP1244 - DOE		2014	0.031	38.0	1.56	3147	1.72	3466
--	--	------	-------	------	------	------	------	------

Floors

CMH-DW-158- R33-THP469-DOE: CMH-DW-180-R33-THP472-DOE		2014	0.038	33.0	1.92	3858	0	0
---	--	------	-------	------	------	------	---	---



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

Project Information

For: M46032-FDJ-TZ II, GILES

Notes: DUCT CAPACITY 37000 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 28844 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 4932 Btuh
 Outside air
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 33776 Btuh

Sensible Cooling Equipment Load Sizing

Structure 22537 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 24494 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 4348 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 2678 Btuh
 Outside air
 Equipment latent load 7026 Btuh

	Heating	Cooling
Area (ft ²)	2014	2014
Volume (ft ³)	16114	16114
Air changes/hour	0.32	0.16
Equiv. AVF (cfm)	86	43

Equipment Total Load (Sen+Lat) 31520 Btuh
 Req. total capacity at 0.70 SHR 2.9 ton

Heating Equipment Summary

Make Smart Comfort
 Trade 15 SEER2 R SERIES R410A HP
 Model R4H5S36*K*AAA*
 AHRI ref 0

Efficiency 7.5 HSPF2
 Heating input
 Heating output 33000 Btuh @ 47°F
 Temperature rise 27 °F
 Actual air flow 1113 cfm
 Air flow factor 0.039 cfm/Btuh
 Static pressure 0.30 in H2O
 Space thermostat
 Capacity balance point = 26 °F

Cooling Equipment Summary

Make Smart Comfort
 Trade 15 SEER2 R SERIES R410A HP
 Cond R4H5S36*K*AAA*
 Coil FEVA0036**+NAVA43601CK
 AHRI ref 0

Efficiency 12.0 EER2, 15 SEER2
 Sensible cooling 23380 Btuh
 Latent cooling 10020 Btuh
 Total cooling 33400 Btuh
 Actual air flow 1113 cfm
 Air flow factor 0.049 cfm/Btuh
 Static pressure 0.30 in H2O
 Load sensible heat ratio 0.78

Backup: Smart Comfort R4H5S36*K*AAA*
 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: M46032-FDJ-TZ II
 Date: Jul 24, 2023
 By:

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

Project Information

For: M46032-FDJ-TZ II, GILES



	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	0.200 in/100ft	0.200 in/100ft
Actual air flow	1113 cfm	1113 cfm
Total effective length (TEL)		150 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
ACTIVITY ROOM 1	h 2874	111	66	0.811	5.0	0x0	VIFx	2.0	35.0	st1
ACTIVITY ROOM 2	h 4320	167	166	0.218	7.0	0x0	VIFx	37.4	100.0	st4
BATH	h 542	21	11	0.241	5.0	0x0	VIFx	24.4	100.0	st4
BED 2	c 1051	46	52	0.223	5.0	0x0	VIFx	34.4	100.0	st4
BED 3	c 1032	44	51	0.238	5.0	0x0	VIFx	25.9	100.0	st5
BED 4	c 2632	105	130	0.526	6.0	0x0	VIFx	22.0	35.0	st3
DINIG	h 379	37	19	0	0	0x0	VIFx	0	0	
KITCHEN	c 2275	73	112	0.395	6.0	0x0	VIFx	41.0	35.0	st3
LIVING ROOM	c 2854	125	141	0	0	0x0	VIFx	0	0	
P-BATH	h 2625	101	73	0.333	6.0	0x0	VIFx	55.0	35.0	st3
P-BED	c 3888	170	192	0.200	8.0	0x0	VIFx	49.9	100.0	st5
UTILITY	h 2922	113	101	0.759	5.0	0x0	VIFx	4.5	35.0	st3

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st4	Peak AVF	234	228	0.218	842	6.8	5 x 8	ShtMetl	st2
st1	Peak AVF	111	66	0.811	228	4.1	5 x 14	ShtMetl	
st3	Peak AVF	391	416	0.333	856	4.1	5 x 14	ShtMetl	
st5	Peak AVF	215	243	0.200	777	7.1	5 x 9	ShtMetl	st2
st2	Peak AVF	449	471	0.200	848	9.0	5 x 16	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	1113	1113	0	0	0	0	0x 0		VIFx	



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

Project Information

For: M46032-FDJ-TZ III, GILES



Cooling Equipment

Design Conditions

Outdoor design DB:	87.6°F	Sensible gain:	19495 Btuh	Entering coil DB:	76.0°F
Outdoor design WB:	71.2°F	Latent gain:	4496 Btuh	Entering coil WB:	63.0°F
Indoor design DB:	75.0°F	Total gain:	23992 Btuh		
Indoor RH:	50%	Estimated airflow:	1113 cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP	Model:	R4H5S36*K*AAA*+FEVA0036**+NAVA43601CK
Manufacturer:	Smart Comfort		
Actual airflow:	1113 cfm		
Sensible capacity:	23380 Btuh	120% of load	
Latent capacity:	10020 Btuh	223% of load	
Total capacity:	33400 Btuh	139% of load	SHR: 70%

Heating Equipment

Design Conditions

Outdoor design DB:	15.8°F	Heat loss:	33360 Btuh	Entering coil DB:	65.5°F
Indoor design DB:	70.0°F				

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP	Model:	R4H5S36*K*AAA*+FEVA0036**+NAVA43601CK
Manufacturer:	Smart Comfort		
Actual airflow:	1113 cfm		
Output capacity:	33000 Btuh	99% of load	Capacity balance: 24 °F
Supplemental heat required:	360 Btuh		Economic balance: -99 °F

Backup equipment type:	Elec strip	Model:	R4H5S36*K*AAA*
Manufacturer:	Smart Comfort		
Actual airflow:	1113 cfm		
Output capacity:	10.0 kW	102% of load	Temp. rise: 30 °F

Meets all requirements of ACCA Manual S.

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

Project Information

For: M46032-FDJ-TZ III, GILES

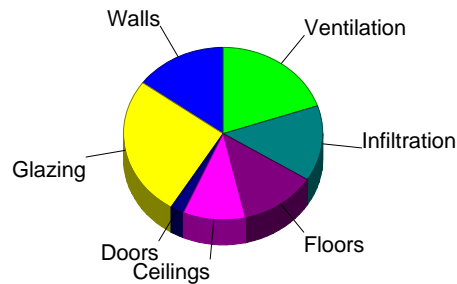


Design Conditions

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	

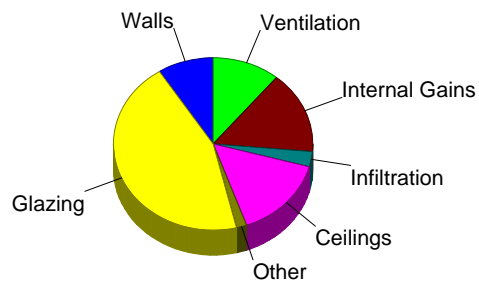
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	3.1	4974	14.9
Glazing	44.4	8791	26.4
Doors	17.3	728	2.2
Ceilings	1.7	3384	10.1
Floors	2.1	4149	12.4
Infiltration	2.6	4741	14.2
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		6592	19.8
Adjustments		0	0
Total		33360	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	1.1	1771	9.1
Glazing	43.9	8709	44.7
Doors	7.8	327	1.7
Ceilings	1.5	2985	15.3
Floors	0	0	0
Infiltration	0.3	551	2.8
Ducts		0	0
Ventilation		2133	10.9
Internal gains		3020	15.5
Blower		0	0
Adjustments		0	0
Total		19495	100.0



Latent Cooling Load = 4496 Btuh
Overall U-value = 0.069 Btuh/ft²·°F, Window / Floor Area = 9.8 %

Data entries checked.

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

Project Information

For: M46032-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 - DW - R-21 Wall - THP510-DOE: Double Wide - R-22 Insulation	n	316	0.055	21.0	2.98	942	1.06	335
THP510 2x6 Wall-DOE	e	428	0.055	21.0	2.98	1276	1.06	454
	s	291	0.055	21.0	2.98	867	1.06	309
	w	473	0.055	21.0	2.98	1410	1.06	502
	all	1508	0.055	21.0	2.98	4496	1.06	1601
CMH - DW - R-13 Wall - THP502-DOE: Double Wide - R-13 Insulation	e	100	0.082	13.0	4.44	443	1.58	158
THP502 2x4 Wall-DOE	w	8	0.082	13.0	4.44	36	1.58	13
	all	108	0.082	13.0	4.44	479	1.58	170

Partitions
(none)

Windows

1A-c1om: 1 glazing, clr glz, mtl no brk frm mat, 1/8" thk; 50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	e	8	1.270	0	68.8	574	64.7	539
	e	21	1.270	0	68.8	1434	64.7	1349
	s	25	1.270	0	68.8	1721	33.3	832
	w	50	1.270	0	68.8	3442	64.7	3236
	all	104	1.270	0	68.8	7170	57.2	5957
Clayton - Thermopane Low-E: Clayton - Thermopane Low-E; 50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	e	34	0.350	0	19.0	645	24.8	844
Clayton - Thermopane Low-E DOE: Clayton-Thermopane Low-E DOE; 50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	w	60	0.300	0	16.3	976	20.5	1232

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

CMH-DW-158 BOX R38 - THP1244 - DOE: CMH-DW-158 BOX R38-THP1244 - DOE		2014	0.031	38.0	1.68	3384	1.48	2985
--	--	------	-------	------	------	------	------	------

Floors

CMH-DW-158- R33-THP469-DOE: CMH-DW-180-R33-THP472-DOE		2014	0.038	33.0	2.06	4149	0	0
---	--	------	-------	------	------	------	---	---



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

Project Information

For: M46032-FDJ-TZ III, GILES

Notes: DUCT CAPACITY 37000 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 28395 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 4965 Btuh
 Outside air
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 33360 Btuh

Sensible Cooling Equipment Load Sizing

Structure 18341 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 18053 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 2907 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 1590 Btuh
 Outside air
 Equipment latent load 4496 Btuh

	Heating	Cooling
Area (ft ²)	2014	2014
Volume (ft ³)	16114	16114
Air changes/hour	0.32	0.16
Equiv. AVF (cfm)	86	43

Equipment Total Load (Sen+Lat) 22549 Btuh
 Req. total capacity at 0.70 SHR 2.1 ton

Heating Equipment Summary

Make Smart Comfort
 Trade 15 SEER2 R SERIES R410A HP
 Model R4H5S36*K*AAA*
 AHRI ref 0

Efficiency 7.5 HSPF2
 Heating input
 Heating output 33000 Btuh @ 47°F
 Temperature rise 29 °F
 Actual air flow 1113 cfm
 Air flow factor 0.039 cfm/Btuh
 Static pressure 0.30 in H2O
 Space thermostat
 Capacity balance point = 24 °F

Cooling Equipment Summary

Make Smart Comfort
 Trade 15 SEER2 R SERIES R410A HP
 Cond R4H5S36*K*AAA*
 Coil FEVA0036**+NAVA43601CK
 AHRI ref 0

Efficiency 12.0 EER2, 15 SEER2
 Sensible cooling 23380 Btuh
 Latent cooling 10020 Btuh
 Total cooling 33400 Btuh
 Actual air flow 1113 cfm
 Air flow factor 0.061 cfm/Btuh
 Static pressure 0.30 in H2O
 Load sensible heat ratio 0.81

Backup: Smart Comfort R4H5S36*K*AAA*
 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: M46032-FDJ-TZ III
 Date: Jul 24, 2023
 By:

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

Project Information

For: M46032-FDJ-TZ III, GILES

APPROVED



JUL 27 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	0.200 in/100ft	0.200 in/100ft
Actual air flow	1113 cfm	1113 cfm
Total effective length (TEL)		150 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
ACTIVITY ROOM 1	h 2748	108	59	0.811	5.0	0x0	VIFx	2.0	35.0	st1
ACTIVITY ROOM 2	c 2825	170	171	0.218	7.0	0x0	VIFx	37.4	100.0	st4
BATH	h 511	20	9	0.241	5.0	0x0	VIFx	24.4	100.0	st4
BED 2	c 894	46	54	0.223	5.0	0x0	VIFx	34.4	100.0	st4
BED 3	c 881	44	53	0.238	5.0	0x0	VIFx	25.9	100.0	st5
BED 4	c 2306	109	140	0.526	6.0	0x0	VIFx	22.0	35.0	st3
DINIG	h 253	35	15	0	0	0x0	VIFx	0	0	
KITCHEN	c 2064	80	125	0.395	6.0	0x0	VIFx	41.0	35.0	st3
LIVING ROOM	c 2386	123	145	0	0	0x0	VIFx	0	0	
P-BATH	h 2473	97	67	0.333	6.0	0x0	VIFx	55.0	35.0	st3
P-BED	c 3252	166	197	0.200	8.0	0x0	VIFx	49.9	100.0	st5
UTILITY	h 2924	115	76	0.759	5.0	0x0	VIFx	4.5	35.0	st3

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st4	Peak AVF	236	234	0.218	851	6.9	5 x 8	ShtMetl	st2
st1	Peak AVF	108	59	0.811	222	4.1	5 x 14	ShtMetl	
st3	Peak AVF	400	408	0.333	840	4.1	5 x 14	ShtMetl	
st5	Peak AVF	210	251	0.200	802	7.1	5 x 9	ShtMetl	st2
st2	Peak AVF	447	485	0.200	873	9.1	5 x 16	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	1113	1113	0	0	0	0	0x 0		VIFx	



Project Information

For: M46032-FDJ-TZI, GILES



Cooling Equipment

Design Conditions

Outdoor design DB:	91.7°F	Sensible gain:	22380 Btuh	Entering coil DB:	76.4°F
Outdoor design WB:	73.9°F	Latent gain:	5642 Btuh	Entering coil WB:	63.5°F
Indoor design DB:	75.0°F	Total gain:	28022 Btuh		
Indoor RH:	50%	Estimated airflow:	1113 cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Smart Comfort	Model:	R4H5S36*K*AAA*+FEVA0036**+NAVA43601CK		
Actual airflow:	1113 cfm				
Sensible capacity:	23380 Btuh	104% of load			
Latent capacity:	10020 Btuh	178% of load			
Total capacity:	33400 Btuh	119% of load	SHR:	70%	

Heating Equipment

Design Conditions

Outdoor design DB:	26.4°F	Heat loss:	29205 Btuh	Entering coil DB:	66.4°F
Indoor design DB:	70.0°F				

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Smart Comfort	Model:	R4H5S36*K*AAA*+FEVA0036**+NAVA43601CK		
Actual airflow:	1113 cfm				
Output capacity:	33000 Btuh	113% of load		Capacity balance:	26 °F
Supplemental heat required:	0 Btuh			Economic balance:	-99 °F

Backup equipment type:	Elec strip				
Manufacturer:	Smart Comfort	Model:	R4H5S36*K*AAA*		
Actual airflow:	1113 cfm				
Output capacity:	10.0 kW	117% of load	Temp. rise:	29 °F	

Meets all requirements of ACCA Manual S.

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

Project Information

For: M46032-FDJ-TZI, GILES



Design Conditions

Location:

Atlanta Municipal, GA, US
Elevation: 1027 ft
Latitude: 34°N

Outdoor:

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

Heating

26
-
-
15.0

Cooling

92
17 (M)
74
7.5

Indoor:

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

Heating

70
44
30
17.0

Cooling

75
17
50
35.3

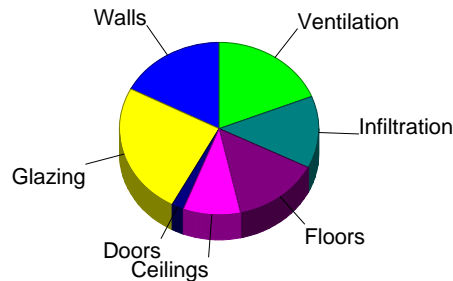
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Average
0

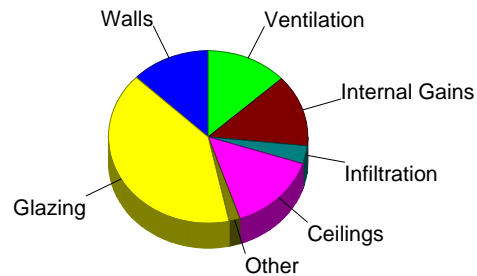
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	3.6	5067	17.4
Glazing	41.0	7245	24.8
Doors	14.0	586	2.0
Ceilings	1.4	2713	9.3
Floors	2.0	4114	14.1
Infiltration	2.4	3958	13.6
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		5522	18.9
Adjustments		0	0
Total		29205	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	2.0	2871	12.8
Glazing	51.4	9078	40.6
Doors	9.5	399	1.8
Ceilings	1.6	3311	14.8
Floors	0	0	0
Infiltration	0.5	758	3.4
Ducts		0	0
Ventilation		2943	13.2
Internal gains		3020	13.5
Blower		0	0
Adjustments		0	0
Total		22380	100.0



Latent Cooling Load = 5642 Btuh
Overall U-value = 0.080 Btuh/ft²·°F, Window / Floor Area = 8.8 %

Data entries checked.



Component Constructions
Entire House
Clayton Homes

Job: M46032-FDJ-TZI
 Date: Jul 24, 2023
 By:

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

Project Information

For: M46032-FDJ-TZI, GILES



Design Conditions

Location:		Indoor:		Heating	Cooling
Atlanta Municipal, GA, US		Indoor temperature (°F)		70	75
Elevation: 1027 ft		Design TD (°F)		44	17
Latitude: 34°N		Relative humidity (%)		30	50
		Moisture difference (gr/lb)		17.0	35.3
Outdoor:	Heating	Cooling	Infiltration:		
Dry bulb (°F)	26	92	Method	Simplified	
Daily range (°F)	-	17 (M)	Construction quality	Average	
Wet bulb (°F)	-	74	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 - DW - R-13 Wall - THP502-DOE: Double Wide - R-13 Insulation	n	212	0.082	13.0	3.58	758	2.03	429
THP502 2x4 Wall-DOE	e	545	0.082	13.0	3.58	1950	2.03	1105
	s	187	0.082	13.0	3.58	669	2.03	379
	w	473	0.082	13.0	3.58	1691	2.03	958
	all	1417	0.082	13.0	3.58	5067	2.03	2871

Partitions
(none)

Windows

1A-c1om: 1 glazing, clr glz, mtl no brk frm mat, 1/8" thk; 50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	e	42	1.270	0	55.4	2307	69.8	2908
	s	25	1.270	0	55.4	1384	35.6	891
	w	50	1.270	0	55.4	2769	69.8	3490
	all	117	1.270	0	55.4	6460	62.5	7289
Clayton - Thermopane Low-E DOE: Clayton-Thermopane Low-E DOE; 50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	w	60	0.300	0	13.1	785	21.8	1307

Doors

CMH - Standard Door: CMH - Standard Door - Solid no storm	e	21	0.320	0	14.0	293	9.50	200
	w	21	0.320	0	14.0	293	9.50	200
	all	42	0.320	0	14.0	586	9.50	399

Ceilings

CMH-DW-158 BOX R38 - THP1244 - DOE: CMH-DW-158 BOX R38-THP1244 - DOE		2008	0.031	38.0	1.35	2713	1.65	3311
--	--	------	-------	------	------	------	------	------

Floors

CMH-DW-158- R22-THP173-DOE: CMH-DW-158-R22-THP173-DOE		2008	0.047	22.0	2.05	4114	0	0
---	--	------	-------	------	------	------	---	---



Project Information

For: M46032-FDJ-TZI, GILES

Notes: DUCT CAPACITY 37000 BTUHS



Design Information

Weather: Atlanta Municipal, GA, US

Winter Design Conditions

Outside db 26 °F
 Inside db 70 °F
 Design TD 44 °F

Summer Design Conditions

Outside db 92 °F
 Inside db 75 °F
 Design TD 17 °F
 Daily range M
 Relative humidity 50 %
 Moisture difference 35 gr/lb

Heating Summary

Structure 25046 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 4159 Btuh
 Outside air
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 29205 Btuh

Sensible Cooling Equipment Load Sizing

Structure 20787 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 1593 Btuh
 Outside air
 Blower 0 Btuh
 Use manufacturer's data n
 Rate/swing multiplier 0.97
 Equipment sensible load 21641 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 3558 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 2084 Btuh
 Outside air
 Equipment latent load 5642 Btuh
Equipment Total Load (Sen+Lat) 27283 Btuh
 Req. total capacity at 0.70 SHR 2.6 ton

	Heating	Cooling
Area (ft ²)	2008	2008
Volume (ft ³)	16060	16060
Air changes/hour	0.32	0.16
Equiv. AVF (cfm)	86	43

Heating Equipment Summary

Make Smart Comfort
 Trade 15 SEER2 R SERIES R410A HP
 Model R4H5S36*K*AAA*
 AHRI ref 0

Efficiency 7.5 HSPF2
 Heating input
 Heating output 33000 Btuh @ 47°F
 Temperature rise 28 °F
 Actual air flow 1113 cfm
 Air flow factor 0.044 cfm/Btuh
 Static pressure 0.30 in H2O
 Space thermostat
 Capacity balance point = 26 °F

Cooling Equipment Summary

Make Smart Comfort
 Trade 15 SEER2 R SERIES R410A HP
 Cond R4H5S36*K*AAA*
 Coil FEVA0036**+NAVA43601CK
 AHRI ref 0

Efficiency 12.0 EER2, 15 SEER2
 Sensible cooling 23380 Btuh
 Latent cooling 10020 Btuh
 Total cooling 33400 Btuh
 Actual air flow 1113 cfm
 Air flow factor 0.054 cfm/Btuh
 Static pressure 0.30 in H2O
 Load sensible heat ratio 0.80

Backup: Smart Comfort R4H5S36*K*AAA*
 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: M46032-FDJ-TZI
 Date: Jul 24, 2023
 By:

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

Project Information

For: M46032-FDJ-TZI, GILES



	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	0.200 in/100ft	0.200 in/100ft
Actual air flow	1113 cfm	1113 cfm
Total effective length (TEL)	150 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
ACTIVITY ROOM 1	h 2609	116	65	0.811	5.0	0x0	VIFx	2.0	35.0	st1
ACTIVITY ROOM 2	h 3856	171	170	0.218	7.0	0x0	VIFx	37.4	100.0	st4
BATH	h 507	23	11	0.241	5.0	0x0	VIFx	24.4	100.0	st4
BED 2	c 1013	49	54	0.223	5.0	0x0	VIFx	34.4	100.0	st4
BED 3	c 995	47	53	0.238	5.0	0x0	VIFx	25.9	100.0	st5
BED 4	h 2055	91	82	0.526	5.0	0x0	VIFx	22.0	35.0	st3
DINIG	c 1308	66	70	0.513	5.0	0x0	VIFx	23.5	35.0	st3
KITCHEN	c 2207	75	118	0.395	6.0	0x0	VIFx	41.0	35.0	st3
LIVING ROOM	c 2516	104	135	0.233	7.0	0x0	VIFx	28.9	100.0	st5
P-BATH	h 2393	106	75	0.333	6.0	0x0	VIFx	55.0	35.0	st3
P-BED	c 3496	149	187	0.200	8.0	0x0	VIFx	49.9	100.0	st5
UTILITY	h 2567	114	92	0.759	5.0	0x0	VIFx	4.5	35.0	st3

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st4	Peak AVF	243	235	0.218	778	6.9	5 x 9	ShtMetl	st2
st1	Peak AVF	116	65	0.811	239	4.1	5 x 14	ShtMetl	
st3	Peak AVF	454	437	0.333	933	4.1	5 x 14	ShtMetl	
st5	Peak AVF	300	375	0.200	900	8.3	5 x 12	ShtMetl	st2
st2	Peak AVF	544	610	0.200	879	10.0	5 x 20	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	1113	1113	0	0	0	0	0x 0		VIFx	





Manual S Compliance Report
Entire House
Clayton Homes

Job: M46032-FDJ-TZII
 Date: Jul 24, 2023
 By:

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

Project Information

For: M46032-FDJ-TZII, GILES



Cooling Equipment

Design Conditions

Outdoor design DB:	95.0°F	Sensible gain:	24091 Btuh	Entering coil DB:	76.7°F
Outdoor design WB:	76.5°F	Latent gain:	7022 Btuh	Entering coil WB:	63.8°F
Indoor design DB:	75.0°F	Total gain:	31113 Btuh		
Indoor RH:	50%	Estimated airflow:	1113 cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Smart Comfort	Model:	R4H5S36*K*AAA*+FEVA0036**+NAVA43601CK		
Actual airflow:	1113 cfm				
Sensible capacity:	23380 Btuh	97% of load			
Latent capacity:	10020 Btuh	143% of load			
Total capacity:	33400 Btuh	107% of load	SHR:	70%	

Heating Equipment

Design Conditions

Outdoor design DB:	19.6°F	Heat loss:	33165 Btuh	Entering coil DB:	65.8°F
Indoor design DB:	70.0°F				

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Smart Comfort	Model:	R4H5S36*K*AAA*+FEVA0036**+NAVA43601CK		
Actual airflow:	1113 cfm				
Output capacity:	33000 Btuh	100% of load		Capacity balance:	25 °F
Supplemental heat required:	165 Btuh			Economic balance:	-99 °F

Backup equipment type:	Elec strip				
Manufacturer:	Smart Comfort	Model:	R4H5S36*K*AAA*		
Actual airflow:	1113 cfm				
Output capacity:	10.0 kW	103% of load	Temp. rise:	28 °F	

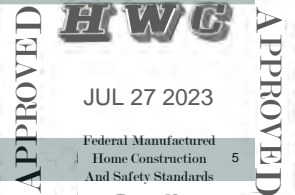
Meets all requirements of ACCA Manual S.



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

Project Information

For: M46032-FDJ-TZII, 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

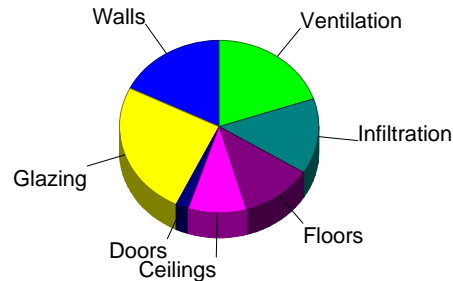
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Average
0

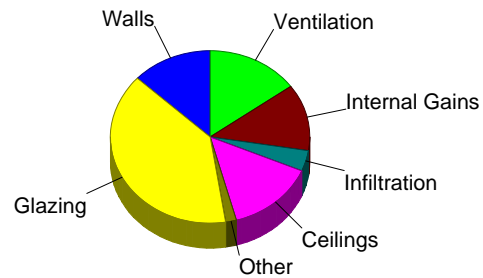
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	4.1	5858	17.7
Glazing	47.4	8375	25.3
Doors	16.1	677	2.0
Ceilings	1.6	3137	9.5
Floors	1.9	3877	11.7
Infiltration	2.9	4694	14.2
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		6548	19.7
Adjustments		0	0
Total		33165	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	2.2	3138	13.0
Glazing	53.8	9502	39.4
Doors	10.2	430	1.8
Ceilings	1.7	3454	14.3
Floors	0	0	0
Infiltration	0.6	931	3.9
Ducts		0	0
Ventilation		3616	15.0
Internal gains		3020	12.5
Blower		0	0
Adjustments		0	0
Total		24091	100.0



Latent Cooling Load = 7022 Btuh
Overall U-value = 0.077 Btuh/ft²·°F, Window / Floor Area = 8.8 %

Data entries checked.

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

Project Information

For: M46032-FDJ-TZII, GILES



Design Conditions

Location: Millington Muni Arp, TN, US Elevation: 322 ft Latitude: 35°N			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
Outdoor: Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	Heating 20 - - 15.0	Cooling 95 19 (M) 77 7.5	Infiltration: Method Construction quality Fireplaces	Simplified Average 0	

Construction descriptions

	Or	Area ft²	U-value Btu/h/ft²·°F	Insul R ft²·°F/Btu/h	Htg HTM Btu/h/ft²	Loss Btu/h	Clg HTM Btu/h/ft²	Gain Btu/h
Walls CMH - DW - R-13 Wall - THP502-DOE: Double Wide - R-13 Insulation THP502 2x4 Wall-DOE	n e s w all	212 545 187 473 1417	0.082 0.082 0.082 0.082 0.082	13.0 13.0 13.0 13.0 13.0	4.13 4.13 4.13 4.13 4.13	876 2254 773 1955 5858	2.21 2.21 2.21 2.21 2.21	469 1207 414 1047 3138

Partitions
(none)

Windows

1A-c1om: 1 glazing, clr glz, mtl no brk frm mat, 1/8" thk; 50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	e s w all	42 25 50 117	1.270 1.270 1.270 1.270	0 0 0 0	64.0 64.0 64.0 64.0	2667 1600 3200 7468	73.4 40.5 73.4 66.4	3058 1014 3670 7742
Clayton - Thermopane Low-E DOE: Clayton-Thermopane Low-E DOE; 50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	w	60	0.300	0	15.1	907	22.6	1357

Doors

CMH - Standard Door: CMH - Standard Door - Solid no storm	e w all	21 21 42	0.320 0.320 0.320	0 0 0	16.1 16.1 16.1	339 339 677	10.2 10.2 10.2	215 215 430
---	---------------	----------------	-------------------------	-------------	----------------------	-------------------	----------------------	-------------------

Ceilings

CMH-DW-158 BOX R38 - THP1244 - DOE: CMH-DW-158 BOX R38-THP1244 - DOE		2008	0.031	38.0	1.56	3137	1.72	3454
--	--	------	-------	------	------	------	------	------

Floors

CMH-DW-158- R22-THP173-DOE: CMH-DW-158-R22-THP173-DOE		72	0.047	22.0	2.37	169	0	0
CMH-DW-158- R33-THP469-DOE: CMH-DW-180-R33-THP472-DOE		1936	0.038	33.0	1.92	3708	0	0

Project Information

For: M46032-FDJ-TZII, GILES

Notes: DUCT CAPACITY 37000 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 28234 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 4932 Btuh
 Outside air
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 33165 Btuh

Sensible Cooling Equipment Load Sizing

Structure 22134 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 24091 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 4344 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 2678 Btuh
 Outside air
 Equipment latent load 7022 Btuh

	Heating	Cooling
Area (ft ²)	2008	2008
Volume (ft ³)	16060	16060
Air changes/hour	0.32	0.16
Equiv. AVF (cfm)	86	43

Equipment Total Load (Sen+Lat) 31113 Btuh
 Req. total capacity at 0.70 SHR 2.9 ton

Heating Equipment Summary

Make Smart Comfort
 Trade 15 SEER2 R SERIES R410A HP
 Model R4H5S36*K*AAA*
 AHRI ref 0

Efficiency 7.5 HSPF2
 Heating input
 Heating output 33000 Btuh @ 47°F
 Temperature rise 27 °F
 Actual air flow 1113 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 15 SEER2 R SERIES R410A HP
 Cond R4H5S36*K*AAA*
 Coil FEVA0036**+NAVA43601CK
 AHRI ref 0

Efficiency 12.0 EER2, 15 SEER2
 Sensible cooling 23380 Btuh
 Latent cooling 10020 Btuh
 Total cooling 33400 Btuh
 Actual air flow 1113 cfm
 Air flow factor 0.050 cfm/Btuh
 Static pressure 0.30 in H2O
 Load sensible heat ratio 0.77

Backup: Smart Comfort R4H5S36*K*AAA*
 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: M46032-FDJ-TZII
 Date: Jul 24, 2023
 By:

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

Project Information

For: M46032-FDJ-TZII, GILES



	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	0.200 in/100ft	0.200 in/100ft
Actual air flow	1113 cfm	1113 cfm
Total effective length (TEL)		150 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
ACTIVITY ROOM 1	h 2946	116	68	0.811	5.0	0x0	VIFx	2.0	35.0	st1
ACTIVITY ROOM 2	h 4391	173	170	0.218	8.0	0x0	VIFx	37.4	100.0	st4
BATH	h 589	23	11	0.241	5.0	0x0	VIFx	24.4	100.0	st4
BED 2	c 1060	48	53	0.223	5.0	0x0	VIFx	34.4	100.0	st4
BED 3	c 1040	46	52	0.238	5.0	0x0	VIFx	25.9	100.0	st5
BED 4	h 2293	90	81	0.526	5.0	0x0	VIFx	22.0	35.0	st3
DINIG	c 1364	66	69	0.513	5.0	0x0	VIFx	23.5	35.0	st3
KITCHEN	c 2279	74	115	0.395	6.0	0x0	VIFx	41.0	35.0	st3
LIVING ROOM	c 2621	103	132	0.233	7.0	0x0	VIFx	28.9	100.0	st5
P-BATH	h 2697	106	75	0.333	6.0	0x0	VIFx	55.0	35.0	st3
P-BED	c 3663	150	184	0.200	8.0	0x0	VIFx	49.9	100.0	st5
UTILITY	h 2950	116	103	0.759	5.0	0x0	VIFx	4.5	35.0	st3

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st4	Peak AVF	245	234	0.218	783	7.0	5 x 9	ShtMetl	st2
st1	Peak AVF	116	68	0.811	239	4.1	5 x 14	ShtMetl	
st3	Peak AVF	453	442	0.333	933	4.1	5 x 14	ShtMetl	
st5	Peak AVF	299	368	0.200	884	8.2	5 x 12	ShtMetl	st2
st2	Peak AVF	543	602	0.200	867	9.9	5 x 20	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	1113	1113	0	0	0	0	0x 0		VIFx	



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

Project Information

For: M46032-FDJ-TZ III, GILES



Cooling Equipment

Design Conditions

Outdoor design DB:	87.6°F	Sensible gain:	19543 Btuh	Entering coil DB:	76.0°F
Outdoor design WB:	71.2°F	Latent gain:	4496 Btuh	Entering coil WB:	63.0°F
Indoor design DB:	75.0°F	Total gain:	24039 Btuh		
Indoor RH:	50%	Estimated airflow:	1113 cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Smart Comfort	Model:	R4H5S36*K*AAA*+FEVA0036**+NAVA43601CK		
Actual airflow:	1113 cfm				
Sensible capacity:	23380 Btuh	120% of load			
Latent capacity:	10020 Btuh	223% of load			
Total capacity:	33400 Btuh	139% of load	SHR:	70%	

Heating Equipment

Design Conditions

Outdoor design DB:	15.8°F	Heat loss:	33639 Btuh	Entering coil DB:	65.5°F
Indoor design DB:	70.0°F				

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Smart Comfort	Model:	R4H5S36*K*AAA*+FEVA0036**+NAVA43601CK		
Actual airflow:	1113 cfm				
Output capacity:	33000 Btuh	98% of load		Capacity balance:	24 °F
Supplemental heat required:	639 Btuh			Economic balance:	-99 °F

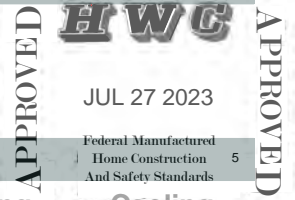
Backup equipment type:	Elec strip				
Manufacturer:	Smart Comfort	Model:	R4H5S36*K*AAA*		
Actual airflow:	1113 cfm				
Output capacity:	10.0 kW	101% of load	Temp. rise:	30 °F	

Meets all requirements of ACCA Manual S.

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

Project Information

For: M46032-FDJ-TZ III, GILES

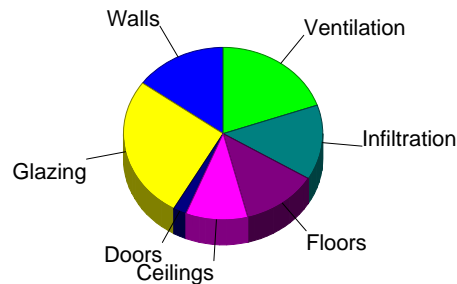


Design Conditions

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	

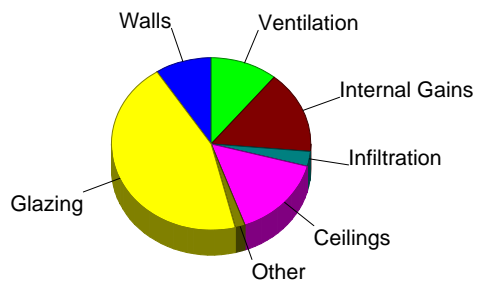
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	3.1	5038	15.0
Glazing	51.0	9006	26.8
Doors	17.3	728	2.2
Ceilings	1.7	3384	10.1
Floors	2.1	4149	12.3
Infiltration	2.6	4741	14.1
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		6592	19.6
Adjustments		0	0
Total		33639	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	1.1	1794	9.2
Glazing	49.4	8733	44.7
Doors	7.8	327	1.7
Ceilings	1.5	2985	15.3
Floors	0	0	0
Infiltration	0.3	551	2.8
Ducts		0	0
Ventilation		2133	10.9
Internal gains		3020	15.5
Blower		0	0
Adjustments		0	0
Total		19543	100.0



Latent Cooling Load = 4496 Btuh
Overall U-value = 0.070 Btuh/ft²·°F, Window / Floor Area = 8.8 %

Data entries checked.

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

Project Information

For: M46032-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 - DW - R-21 Wall - THP510-DOE: Double Wide - R-22 Insulation	n	316	0.055	21.0	2.98	942	1.06	335
THP510 2x6 Wall-DOE	e	450	0.055	21.0	2.98	1340	1.06	477
	s	291	0.055	21.0	2.98	867	1.06	309
	w	473	0.055	21.0	2.98	1410	1.06	502
	all	1530	0.055	21.0	2.98	4560	1.06	1624
CMH - DW - R-13 Wall - THP502-DOE: Double Wide - R-13 Insulation	e	100	0.082	13.0	4.44	443	1.58	158
THP502 2x4 Wall-DOE	w	8	0.082	13.0	4.44	36	1.58	13
	all	108	0.082	13.0	4.44	479	1.58	170

Partitions
(none)

Windows

1A-c1om: 1 glazing, clr glz, mtl no brk frm mat, 1/8" thk; 50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	e	8	1.270	0	68.8	574	64.7	539
	e	33	1.270	0	68.8	2294	64.7	2158
	s	25	1.270	0	68.8	1721	33.3	832
	w	50	1.270	0	68.8	3442	64.7	3236
	all	117	1.270	0	68.8	8031	58.0	6766
Clayton - Thermopane Low-E DOE: Clayton-Thermopane Low-E DOE; 50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	w	60	0.300	0	16.3	976	20.5	1232

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

CMH-DW-158 BOX R38 - THP1244 - DOE: CMH-DW-158 BOX R38-THP1244 - DOE		2014	0.031	38.0	1.68	3384	1.48	2985
--	--	------	-------	------	------	------	------	------

Floors

CMH-DW-158- R33-THP469-DOE: CMH-DW-180-R33-THP472-DOE		2014	0.038	33.0	2.06	4149	0	0
---	--	------	-------	------	------	------	---	---

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

Project Information

For: M46032-FDJ-TZ III, GILES

Notes: DUCT CAPACITY 37000 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 28674 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 4965 Btuh
 Outside air
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 33639 Btuh

Sensible Cooling Equipment Load Sizing

Structure 18389 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 18097 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 2907 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 1590 Btuh
 Outside air
 Equipment latent load 4496 Btuh

	Heating	Cooling
Area (ft ²)	2014	2014
Volume (ft ³)	16114	16114
Air changes/hour	0.32	0.16
Equiv. AVF (cfm)	86	43

Equipment Total Load (Sen+Lat) 22593 Btuh
 Req. total capacity at 0.70 SHR 2.2 ton

Heating Equipment Summary

Make Smart Comfort
 Trade 15 SEER2 R SERIES R410A HP
 Model R4H5S36*K*AAA*
 AHRI ref 0

Efficiency 7.5 HSPF2
 Heating input
 Heating output 33000 Btuh @ 47°F
 Temperature rise 29 °F
 Actual air flow 1113 cfm
 Air flow factor 0.039 cfm/Btuh
 Static pressure 0.30 in H2O
 Space thermostat
 Capacity balance point = 24 °F

Cooling Equipment Summary

Make Smart Comfort
 Trade 15 SEER2 R SERIES R410A HP
 Cond R4H5S36*K*AAA*
 Coil FEVA0036**+NAVA43601CK
 AHRI ref 0

Efficiency 12.0 EER2, 15 SEER2
 Sensible cooling 23380 Btuh
 Latent cooling 10020 Btuh
 Total cooling 33400 Btuh
 Actual air flow 1113 cfm
 Air flow factor 0.061 cfm/Btuh
 Static pressure 0.30 in H2O
 Load sensible heat ratio 0.81

Backup: Smart Comfort R4H5S36*K*AAA*
 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: M46032-FDJ-TZ III
 Date: Jul 24, 2023
 By:

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

Project Information

For: M46032-FDJ-TZ III, GILES

APPROVED



JUL 27 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	0.200 in/100ft	0.200 in/100ft
Actual air flow	1113 cfm	1113 cfm
Total effective length (TEL)	150 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
ACTIVITY ROOM 1	h 2748	107	60	0.811	5.0	0x0	VIFx	2.0	35.0	st1
ACTIVITY ROOM 2	c 2844	169	172	0.218	7.0	0x0	VIFx	37.4	100.0	st4
BATH	h 511	20	9	0.241	5.0	0x0	VIFx	24.4	100.0	st4
BED 2	c 900	46	54	0.223	5.0	0x0	VIFx	34.4	100.0	st4
BED 3	c 887	44	54	0.238	5.0	0x0	VIFx	25.9	100.0	st5
BED 4	h 2245	87	80	0.526	5.0	0x0	VIFx	22.0	35.0	st3
DINIG	c 1175	67	71	0	0	0x0	VIFx	0	0	
KITCHEN	c 2078	79	126	0.395	6.0	0x0	VIFx	41.0	35.0	st3
LIVING ROOM	c 2403	122	145	0	0	0x0	VIFx	0	0	
P-BATH	h 2473	96	68	0.333	6.0	0x0	VIFx	55.0	35.0	st3
P-BED	c 3274	164	198	0.200	8.0	0x0	VIFx	49.9	100.0	st5
UTILITY	h 2924	113	76	0.759	5.0	0x0	VIFx	4.5	35.0	st3

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st4	Peak AVF	234	235	0.218	847	6.9	5 x 8	ShtMetl	st2
st1	Peak AVF	107	60	0.811	219	4.1	5 x 14	ShtMetl	
st3	Peak AVF	375	349	0.333	772	4.1	5 x 14	ShtMetl	
st5	Peak AVF	208	252	0.200	806	7.2	5 x 9	ShtMetl	st2
st2	Peak AVF	442	487	0.200	877	9.2	5 x 16	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	1113	1113	0	0	0	0	0x 0		VIFx	



BOIT

BOX SIZE: 26.33 ft. x 76 ft.
 AVG. SIDEWALL HEIGHT = 8 FEET
 PERCENTAGE OF CEILING THAT IS VAULTED = 0%
 12 INCH DIAMETER XOVER DUCT AREA = 78.5 SQ.FT. MAX. WITH R-8 INSULATION
 IN-FLOOR DUCT SYSTEM

No SGD

	HEATED FLOOR	WALL	FLAT ROOF
INSULATION VALUES	R-22 FW	R-13	R-38
DAPIA PAGE	THP-173	THP-502	THP-1244
U VALUE (BTUH/SQ.FT.-F)	0.047	0.0817	0.0306

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	183.00	0.300	54.90	
Option	0.00	0.300	0.00	
Net:				
Floor	2001.33	0.047	93.06	
Wall	1410.33	0.082	115.22	
Ceiling	2001.33	0.0306	61.24	
Th. Zone 1:	Ext. Duct	78.50	0.242	18.98
Th. Zone 2:	Ext. Duct	78.50	0.223	17.48
Th. Zone 3:	Ext. Duct	78.50	0.206	16.14
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	393.6
Th. Zone 2	217.1
Th. Zone 3	0.0

	Outdoor Design Temp (F)	UA	Uo	Heatloss BTUH/F
Thermal Zone 1	11	356.61	0.062	499.90
Thermal Zone 2	0	355.11	0.062	498.40
Thermal Zone 3	-14	353.76	0.062	497.00

Design Temperatures		
Furnace Heating Temp (F)	Economy Outdoor Temp (F)	
2	22	10kW
-12	13	12kW
-32	-2	15kW
-10	14	40k Gas
-50	-14	60k Gas
-90	-42	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

Bolt

Model Number 46EXC28764AH23S Drawing Number M46032-HLTZ 2 Version 11

BOX SIZE: 26.33 ft. x 76 ft.
 AVG. SIDEWALL HEIGHT = 8 FEET
 PERCENTAGE OF CEILING THAT IS VAULTED = 0%
 12 INCH DIAMETER XOVER DUCT AREA = 78.5 SQ.FT. MAX. WITH R-8 INSULATION
 IN-FLOOR DUCT SYSTEM

No SGD

	HEATED FLOOR	WALL	FLAT ROOF
INSULATION VALUES	R-22 OR / R-33 BIB	R-13	R-38
DAPIA PAGE	THP-469	THP-502	THP-1244
U VALUE (BTUH/SQ.FT.-F)	0.038	0.0817	0.0306

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	183.00	0.300	54.90
	Option	0.00	0.300	0.00
Net:	Floor	2001.33	0.038	76.25
	Wall	1410.33	0.082	115.22
	Ceiling	2001.33	0.0306	61.24
Th. Zone 1:	Ext. Duct	78.50	0.242	18.98
Th. Zone 2:	Ext. Duct	78.50	0.223	17.48
Th. Zone 3:	Ext. Duct	78.50	0.206	16.14
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	470.6
Th. Zone 2	294.1
Th. Zone 3	64.5

	Outdoor Design Temp (F)	UA	Uo	Heatloss BTUH/F
Thermal Zone 1	11	339.80	0.059	483.10
Thermal Zone 2	0	338.30	0.059	481.60
Thermal Zone 3	-14	336.95	0.059	480.20

Design Temperatures

Furnace Heating Temp (F)	Economy Outdoor Temp (F)	
-1	21	10kW
-15	11	12kW
-36	-4	15kW
-13	12	40k Gas
-54	-17	60k Gas
-96	-46	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


 APPROVED
 JUL 27 2023
 Federal Manufactured Home Construction And Safety Standards
 APPROVED

Bolt

Model Number **46EXC28764AH23S** Drawing Number **M46032HLTZ 3** Version 11

BOX SIZE: 26.33 ft. x 76 ft.
 AVG. SIDEWALL HEIGHT = 8 FEET
 PERCENTAGE OF CEILING THAT IS VAULTED = 0%
 12 INCH DIAMETER XOVER DUCT AREA = 78.5 SQ.FT. MAX. WITH R-8 INSULATION
 IN-FLOOR DUCT SYSTEM

No SGD

	HEATED FLOOR	WALL	FLAT ROOF
INSULATION VALUES	R-22 OR / R-33 BIB	R-21	R-38
DAPIA PAGE	THP-469	THP-510	THP-1244
U VALUE (BTUH/SQ.FT.-F)	0.038	0.0546	0.0306

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	183.00	0.300	54.90
	Option	0.00	0.300	0.00
Net:	Floor	2001.33	0.038	76.25
	Wall	1410.33	0.055	77.00
Th. Zone 1:	Ceiling	2001.33	0.0306	61.24
	Ext. Duct	78.50	0.242	18.98
	Ext. Duct	78.50	0.223	17.48
Th. Zone 2:	Ext. Duct	78.50	0.206	16.14
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	594.6
Th. Zone 2	437.6
Th. Zone 3	233.3

	Outdoor Design Temp (F)	UA	Uo	Heatloss BTUH/F
Thermal Zone 1	11	301.58	0.053	444.80
Thermal Zone 2	0	300.08	0.052	443.30
Thermal Zone 3	-14	298.73	0.052	442.00

Design Temperatures

Furnace Heating Temp (F)	Economy Outdoor Temp (F)	
-7	16	10kW
-22	6	12kW
-45	-11	15kW
-20	7	40k Gas
-65	-24	60k Gas
-110	-56	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

APPROVED

HWC

JUL 27 2023

Federal Manufactured Home Construction And Safety Standards 5

APPROVED

MOIT

BOX SIZE: 26.33 ft. x 76 ft.
 AVG. SIDEWALL HEIGHT = 8 FEET
 PERCENTAGE OF CEILING THAT IS VAULTED = 0%
 12 INCH DIAMETER XOVER DUCT AREA = 78.5 SQ.FT. MAX. WITH R-8 INSULATION
 IN-FLOOR DUCT SYSTEM

W / SGD

INSULATION VALUES	HEATED FLOOR	WALL	FLAT ROOF
DAPIA PAGE	R-22 FW	R-13	R-38
U VALUE (BTUH/SQ.FT.-F)	THP-173	THP-502	THP-1244
	0.047	0.0817	0.0306

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	41.28	0.300	12.38
	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	170.00	0.300	51.00
	Option	0.00	0.300	0.00
Net:	Floor	2001.33	0.047	93.06
	Wall	1382.05	0.082	112.91
	Ceiling	2001.33	0.0306	61.24
Th. Zone 1:	Ext. Duct	78.50	0.242	18.98
Th. Zone 2:	Ext. Duct	78.50	0.223	17.48
Th. Zone 3:	Ext. Duct	78.50	0.206	16.14
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	352.3
Th. Zone 2	175.8
Th. Zone 3	0.0

	Outdoor Design Temp (F)			Heatloss BTUH/F
	UA	Uo		
Thermal Zone 1	11	362.79	0.063	506.10
Thermal Zone 2	0	361.28	0.063	504.50
Thermal Zone 3	-14	359.94	0.063	503.20

Design Temperatures

Furnace Heating Temp (F)	Economy Outdoor Temp (F)	
3	23	10kW
-11	13	12kW
-31	-1	15kW
-9	15	40k Gas
-49	-13	60k Gas
-88	-41	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

Bolt

Model Number 46EXC28764AH23S Drawing Number M46032+SGD-HL-7Z-2 Version 11

BOX SIZE: 26.33 ft. x 76 ft.
 AVG. SIDEWALL HEIGHT = 8 FEET
 PERCENTAGE OF CEILING THAT IS VAULTED = 0%
 12 INCH DIAMETER XOVER DUCT AREA = 78.5 SQ.FT. MAX. WITH R-8 INSULATION
 IN-FLOOR DUCT SYSTEM

W/SGD

INSULATION VALUES	HEATED FLOOR	WALL	FLAT ROOF
DAPIA PAGE	R-22 OR / R-33 BIB	R-13	R-38
U VALUE (BTUH/SQ.FT.-F)	THP-469	THP-502	THP-1244
	0.038	0.0817	0.0306

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	41.28	0.300	12.38
	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	170.00	0.300
Option		0.00	0.300	0.00
Net:	Floor	2001.33	0.038	76.25
	Wall	1382.05	0.082	112.91
	Ceiling	2001.33	0.0306	61.24
Th. Zone 1:	Ext. Duct	78.50	0.242	18.98
Th. Zone 2:	Ext. Duct	78.50	0.223	17.48
Th. Zone 3:	Ext. Duct	78.50	0.206	16.14
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	429.3
Th. Zone 2	252.8
Th. Zone 3	23.2

	Outdoor Design Temp (F)	UA	Uo	Heatloss BTUH/F
Thermal Zone 1	11	345.97	0.061	489.20
Thermal Zone 2	0	344.47	0.060	487.70
Thermal Zone 3	-14	343.13	0.060	486.40

Design Temperatures		
Furnace Heating Temp (F)	Economy Outdoor Temp (F)	
0	21	10kW
-14	11	12kW
-35	-3	15kW
-12	13	40k Gas
-53	-16	60k Gas
-94	-44	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

APPROVED **HWC** **APPROVED**

JUL 27 2023

Federal Manufactured Home Construction And Safety Standards 5

Boit

Model Number 46EXC28764AH23S Drawing Number M46032.SGD-HL-TZ 3 Version 11

BOX SIZE: 26.33 ft. x 76 ft.
 AVG. SIDEWALL HEIGHT = 8 FEET
 PERCENTAGE OF CEILING THAT IS VAULTED = 0%
 12 INCH DIAMETER XOVER DUCT AREA = 78.5 SQ.FT. MAX. WITH R-8 INSULATION
 IN-FLOOR DUCT SYSTEM

W/SGD

INSULATION VALUES	HEATED FLOOR	WALL	FLAT ROOF
DAPIA PAGE	R-22 OR / R-33 BIB	R-21	R-38
U VALUE (BTUH/SQ.FT.-F)	THP-469	THP-510	THP-1244
	0.038	0.0546	0.0306

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	41.28	0.300	12.38
	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	170.00	0.300
Option		0.00	0.300	0.00
Net:	Floor	2001.33	0.038	76.25
	Wall	1382.05	0.055	75.46
	Ceiling	2001.33	0.0306	61.24
Th. Zone 1:	Ext. Duct	78.50	0.242	18.98
Th. Zone 2:	Ext. Duct	78.50	0.223	17.48
Th. Zone 3:	Ext. Duct	78.50	0.206	16.14
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	553.3
Th. Zone 2	396.3
Th. Zone 3	192.1

	Outdoor Design Temp (F)	UA	Uo	Heatloss BTUH/F
Thermal Zone 1	11	308.52	0.054	451.80
Thermal Zone 2	0	307.02	0.054	450.30
Thermal Zone 3	-14	305.67	0.053	448.90

Design Temperatures		
Furnace Heating Temp (F)	Economy Outdoor Temp (F)	
-6	17	10kW
-21	7	12kW
-43	-9	15kW
-19	8	40k Gas
-63	-23	60k Gas
-107	-54	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	0.078	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