

11/11/2023

APPROVED



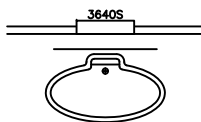
APPROVED

OCT 19 2023

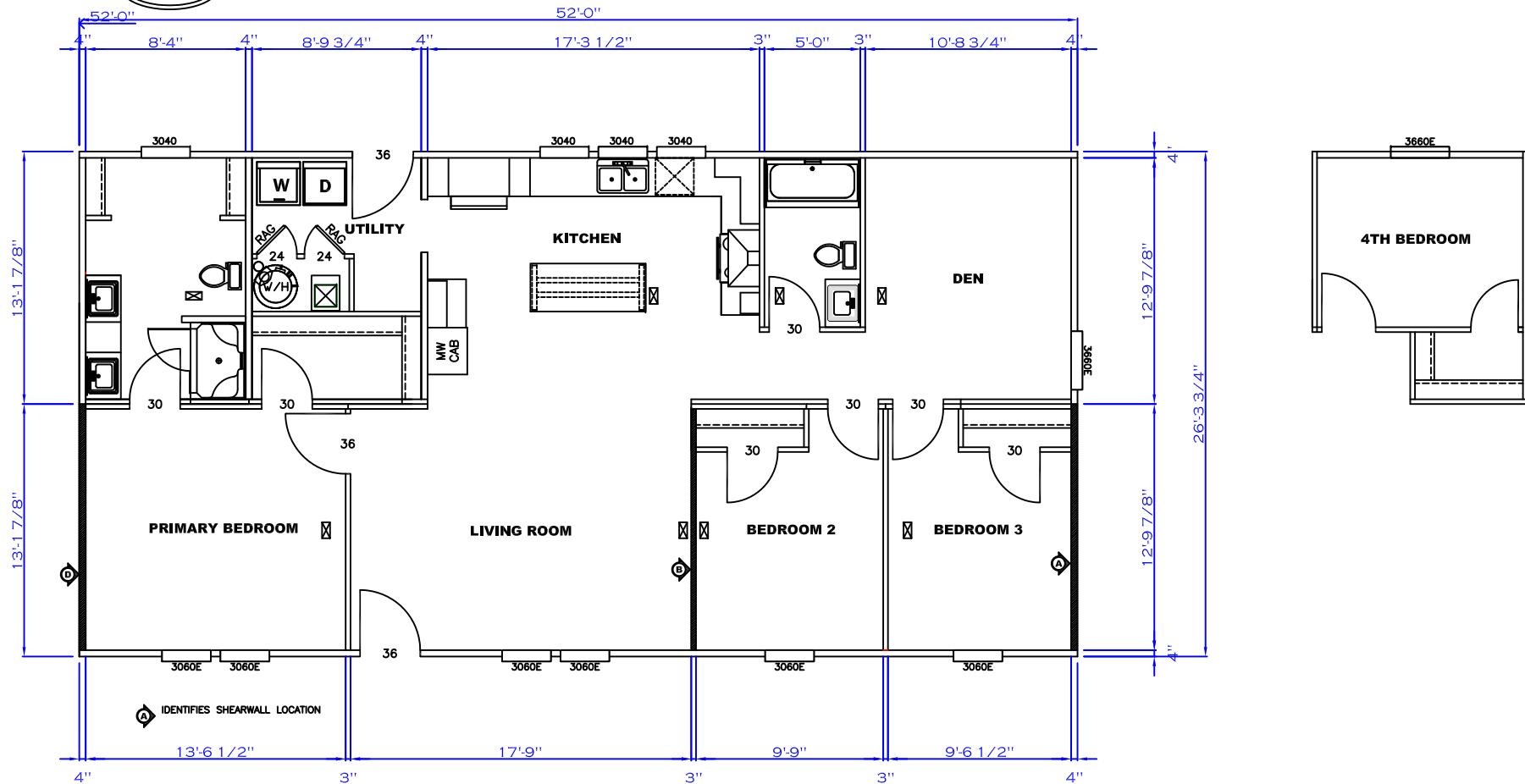
Federal Manufactured Home Construction And Safety Standards

6

PEDESTAL BATH TUB



OPT 72 TILE



IDENTIFIES SHEARWALL LOCATION

GILES HOMES 405 S. BROAD ST, NEW TAZEVELL TN 37825	Model #:	MODEL#	Drawing #:
	Date:	17-27-23	Scale: N/A
Product Designer: HARVILLE		M46027 DOE	
FLOOR PLAN SUB			M46027

APPROVED

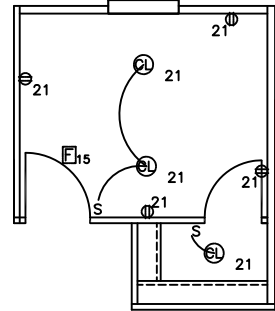
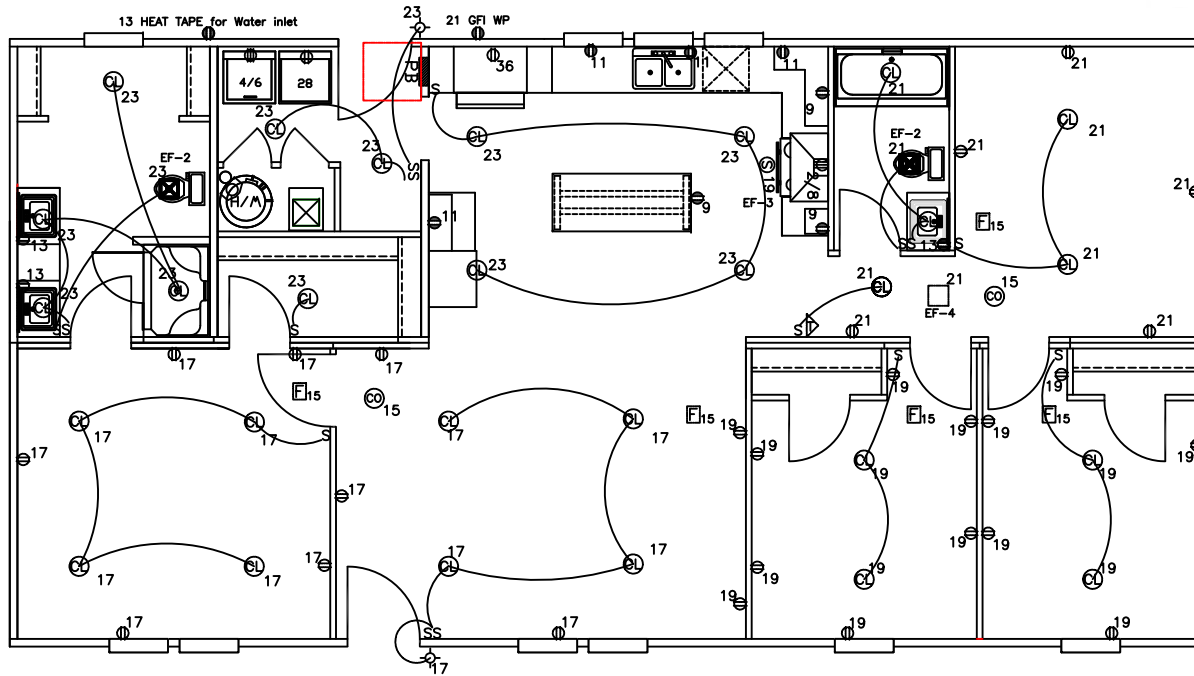
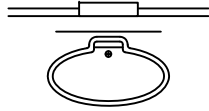
HWC

APPROVED

OCT 19 2023

Federal Manufactured
Home Construction
And Safety Standards

6



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.

GILES HOMES 405 S. BROAD ST, NEW TAZEVELL TN 37825	Model #:	MODEL#	Drawing #:
	Date: 7-27-23	Scale: N/A	M46027 DOE
Product Designer: HARVILLED			
ELEC SUB		M46027	

APPROVED



APPROVED

OCT 19 2023

Federal Manufactured Home Construction And Safety Standards 6

LEGEND AND SET UP KIT.

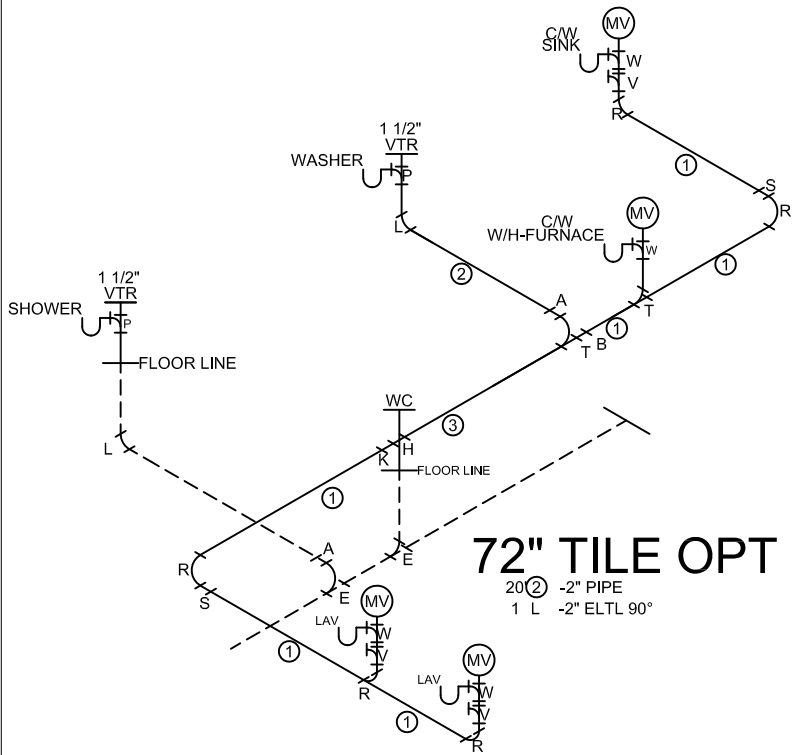
VTR - VENT THRU ROOF
MV - MECHANICAL VENT

40 ③ -3" PIPE
0 ② -2" PIPE
20 ① -1 1/2" PIPE

0 A -3"X2" REDUCER
1 B -3"X1 1/2" REDUCER
0 C -3" ELLT 90°
0 D -3" ELL 45°
2 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

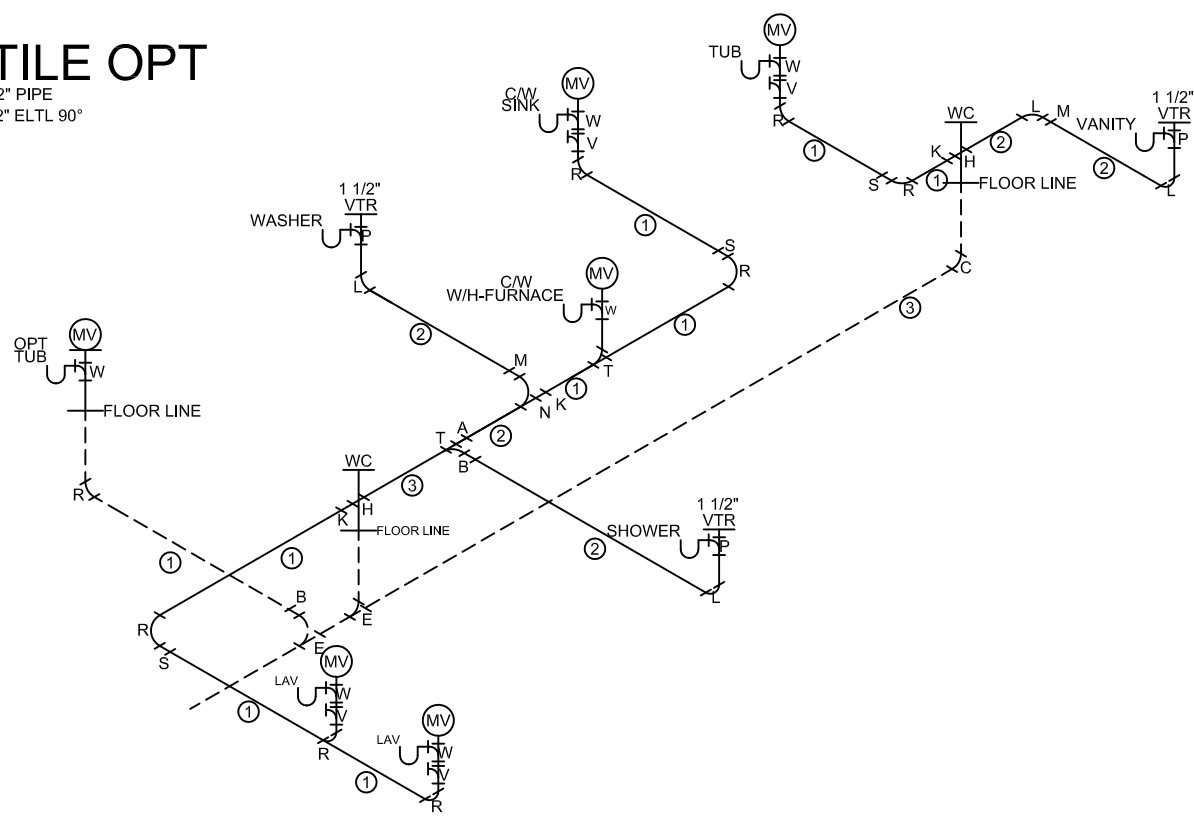
0 K -2"X1 1/2" REDUCER
0 L -2" ELLT 90°
0 M -2" ELL 45°
0 N -2" LTTY
0 O -2" COUPLING
0 P -2" X 1 1/2" X 1 1/2" ST
0 Q -2" 3 WAY ELL

1 R -1 1/2" ELLT 90°
0 S -1 1/2" ELL 45°
0 T -1 1/2" LTTY
0 U -1 1/2" COUPLING
0 V -1 1/2" CLEAN OUT
0 W -1 1/2" SAN TEE



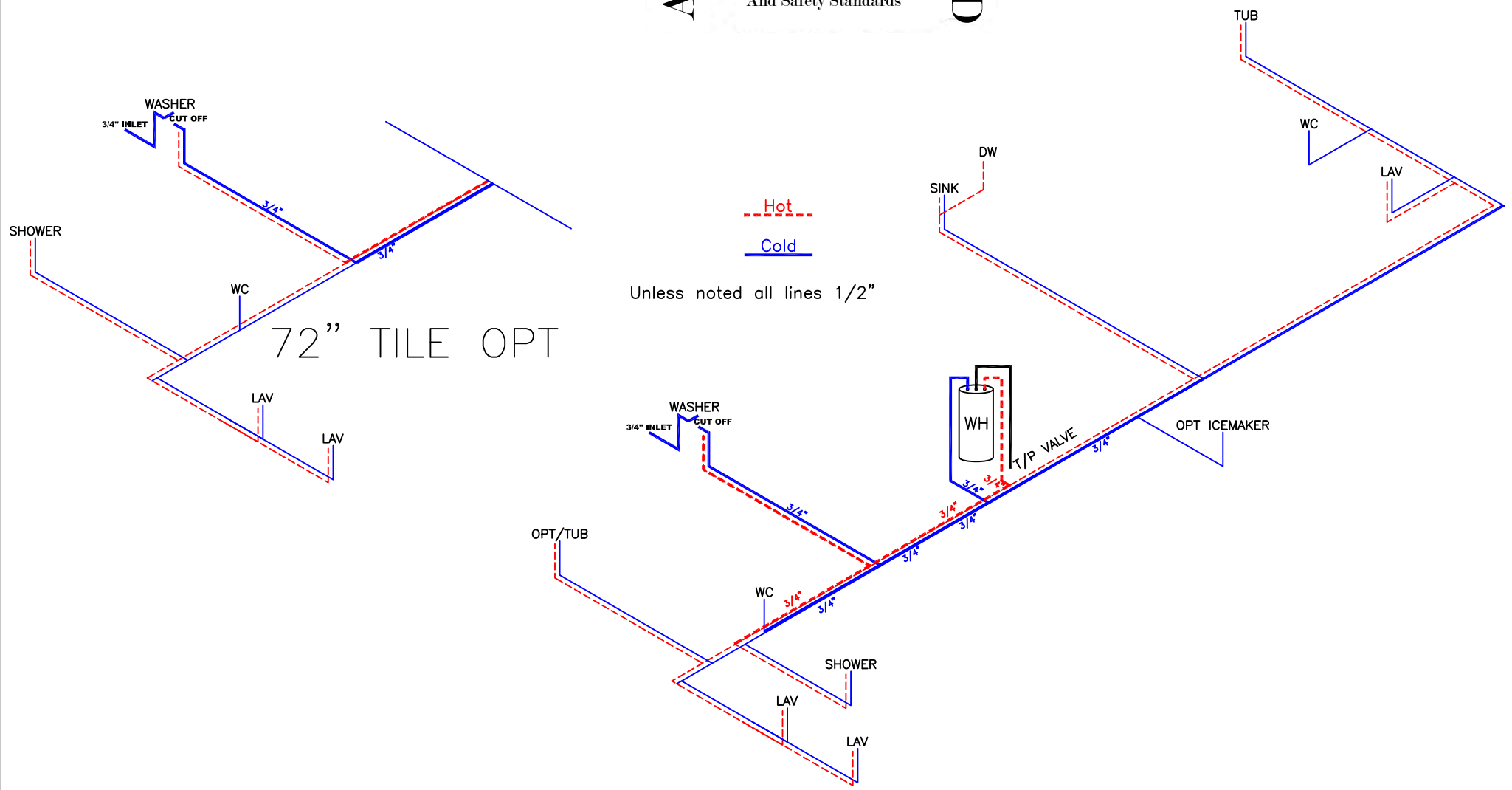
72" TILE OPT

20 ② -2" PIPE
1 L -2" ELLT 90°



GILES HOMES 405 S. BROAD ST, NEW TAZEWELL TN 37825	Model #:	MODEL#	Drawing #:
	Date: 7-27-23	Scale: N/A	M46027 DOE
Product Designer: HARVILLED			

DWV	M46027
-----	--------



GILES HOMES 405 S. BROAD ST, NEW TAZEWELL TN 37825	Model #:	MODEL#	Drawing #:
	Date:	7-27-23	Scale: N/A
Product Designer: HARVILLED		M46027 DOE	
PRESSURE LINES			M46027

Model # M46027-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	222	3060 x2	19.8	8.92%		10.4	4.68%		36
Kitchen / DR	217	3040 X3	18.9	8.71%	X	9.9	4.56%	X	36
					X			X	
Primary Bedroom	167	3060 x2	19.8	11.86%		10.4	6.23%		32
Bedroom 2	108	3060	9.9	9.17%		5.2	4.81%		24
Bedroom 3	107	3060	9.9	9.25%		5.2	4.86%		24
Primary Bath	103	3040	6.3	6.12%	X	3.3	3.20%	X	24
Bath 2	44				X			X	24
Utility	54								24
Bedroom 4	97	3660	12.2	12.58%		6.2	6.39%		24
DEN	133	3660	12.2	9.17%		6.2	4.66%		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



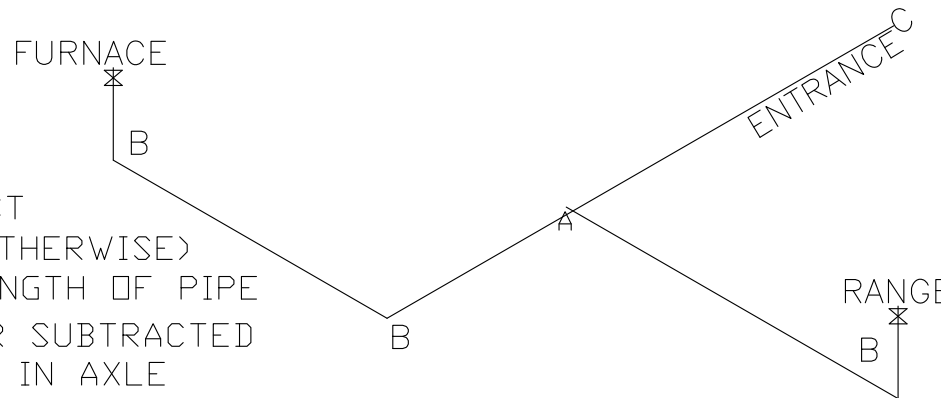
Data on this submitted
By: Andy Cupp
MFG. Giles Industries

REVISION

E. M46027-DOE . 2


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

MDL = 40'



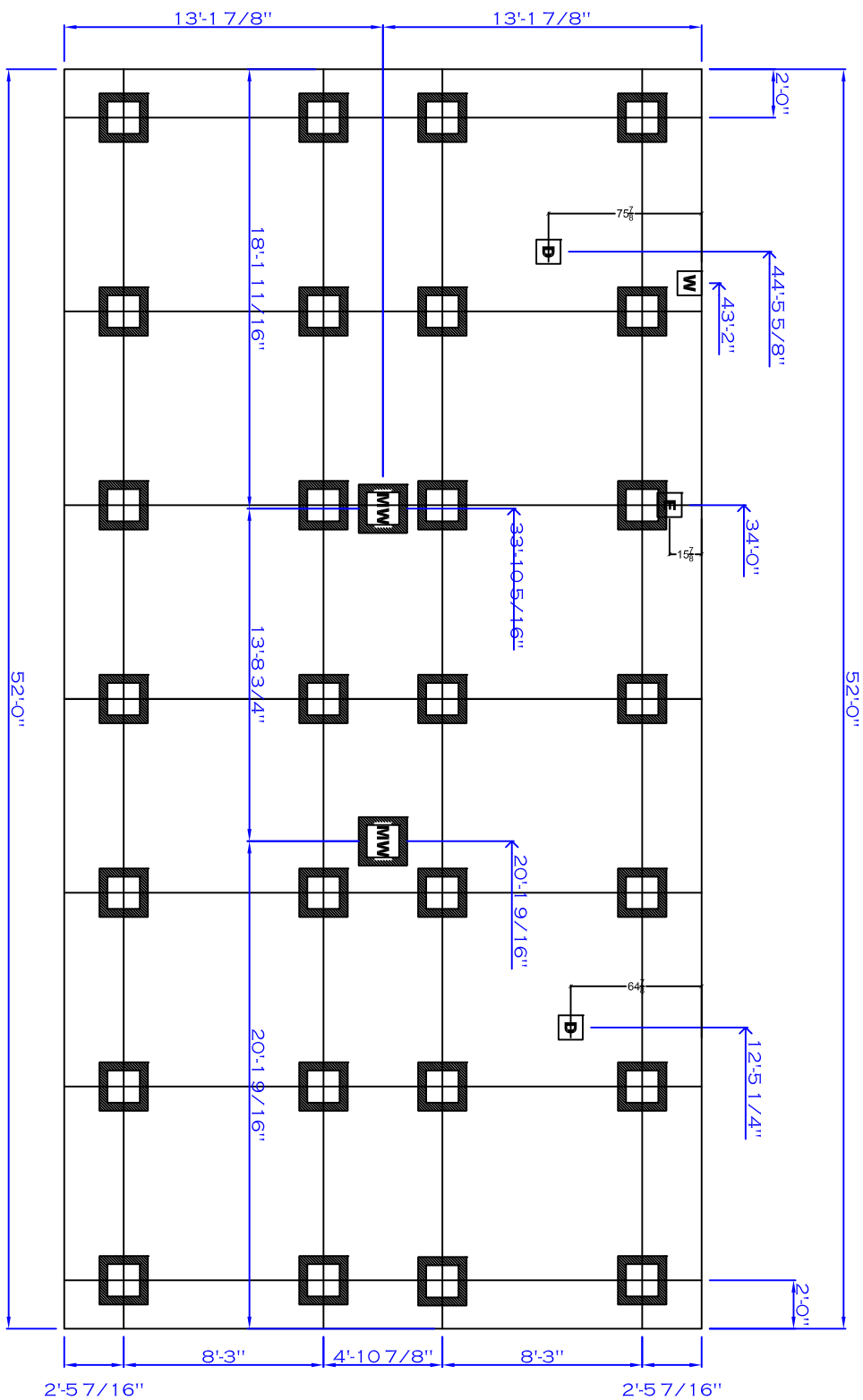
NOTES:

- 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







APPROVED

APPROVED

OCT 19 2023
 Federal Manufactured
 Home Construction
 And Safety Standards

GILES HOMES 405 S. BROAD ST. NEW TAZEWELL TN 37825	Model #:	MODEL#	Drawing #:
	Date:	7-27-23	Scale: N/A
Product Designer: HARVILLED		M46027 DOE	
GAS		M46027	



*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**

CLAYTON HOME BUILDING GROUP

Navigator

M46027-DOE-HL-TZ-1

Model Number 46ALL28523AH23S

Drawing Number

M46027-~~HL-TZ-1~~

Version 11

BOX SIZE: 26.33 ft. x 52 ft.

AVG. SIDEWALL HEIGHT = 8 FEET

PERCENTAGE OF CEILING THAT IS VAULTED = 0%

IN-FLOOR DUCT SYSTEM

	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

APPROVED



OCT 19 2023

Federal Manufactured
Home Construction
And Safety Standards

APPROVED

Window Glass Area:

Net:

Th. Zone 1:

Th. Zone 2:

Th. Zone 3:

Overhead TZ 1:

Overhead TZ 2:

Overhead TZ 3:

	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
Standard	127.00	0.300	38.10
Option	0.00	0.300	0.00
Floor	1369.33	0.047	63.67
Wall	1082.33	0.082	88.43
Ceiling	1369.33	0.0306	41.90
Ext. Duct	0.00	0.000	0.00
Ext. Duct	0.00	0.000	0.00
Ext. Duct	0.00	0.000	0.00
Supply	0.00	0.000	0.00
Supply	0.00	0.000	0.00
Supply	0.00	0.00	0.00

Energy Star v3 & ZERH Max Glass (sq ft)	
Th. Zone 1	290.7
Th. Zone 2	162.7
Th. Zone 3	0.0

Outdoor

	Design Temp (F)	UA	Uo	Heatloss BTUH/F
Thermal Zone 1	11	245.30	0.061	355.00
Thermal Zone 2	0	245.30	0.061	355.00
Thermal Zone 3	-14	245.30	0.061	355.00

Design Temperatures

Furnace Heating Temp (F)	Economy Outdoor Temp (F)	
-26	3	10kW
-45	-11	12kW
-74	-31	15kW
-43	-9	40k Gas
-99	-48	60k Gas
-155	-88	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

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 _____



Manual S Compliance Report
Entire House
Clayton Homes

M46027-DOE-FDJ-TZ-1

Job: M46027-FDJ-TZI
 Date: Jul 28, 2023
 By:

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

APPROVED



APPROVED

Project Information

For: M46027-FDJ-TZI, GILES

OCT 19 2023

Federal Manufactured
 Home Construction 6
 And Safety Standards

Cooling Equipment

Design Conditions

Outdoor design DB:	91.7°F	Sensible gain:	13018	Btuh	Entering coil DB:	77.6°F
Outdoor design WB:	73.9°F	Latent gain:	3835	Btuh	Entering coil WB:	64.4°F
Indoor design DB:	75.0°F	Total gain:	16852	Btuh		
Indoor RH:	50%	Estimated airflow:	593	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split AC			
Manufacturer:	Smart Comfort	Model:	R4A318GKH+FED002410++NADA43601CK	
Actual airflow:	600	cfm		
Sensible capacity:	12600	Btuh	97%	of load
Latent capacity:	5400	Btuh	141%	of load
Total capacity:	18000	Btuh	107%	of load
			SHR:	70%

Heating Equipment

Design Conditions

Outdoor design DB:	26.4°F	Heat loss:	18466	Btuh	Entering coil DB:	63.3°F
Indoor design DB:	70.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Elec strip					
Manufacturer:	Smart Comfort	Model:				
Actual airflow:	600	cfm				
Output capacity:	0	kW	0%	of load	Temp. rise:	0 °F

Meets all requirements of ACCA Manual S.





APPROVED

APPROVED

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

Project Information

For: M46027-FDJ-TZI, GILES

OCT 19 2023

Federal Manufactured
Home Construction 6
And Safety Standards

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
50
39.9

Cooling

75
17
50
35.3

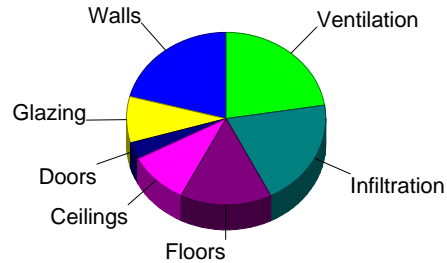
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Average
0

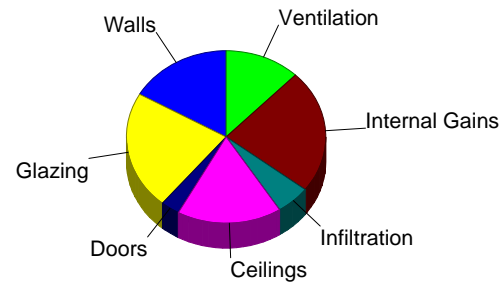
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	3.6	3842	20.8
Glazing	13.1	1613	8.7
Doors	14.0	586	3.2
Ceilings	1.4	1810	9.8
Floors	2.0	2744	14.9
Infiltration	3.0	3712	20.1
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		4159	22.5
Adjustments		0	0
Total		18466	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	2.0	2177	16.7
Glazing	23.5	2894	22.2
Doors	9.5	399	3.1
Ceilings	1.6	2208	17.0
Floors	0	0	0
Infiltration	0.6	727	5.6
Ducts		0	0
Ventilation		1593	12.2
Internal gains		3020	23.2
Blower		0	0
Adjustments		0	0
Total		13018	100.0



Latent Cooling Load = 3835 Btuh
Overall U-value = 0.062 Btuh/ft²·°F, Window / Floor Area = 9.2 %

Data entries checked.



Component Constructions
Entire House
Clayton Homes

Job: M46027-FDJ-TZI
 Date: Jul 28, 2023
 By:

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

Project Information

For: M46027-FDJ-TZI, GILES

APPROVED



APPROVED

OCT 19 2023

Federal Manufactured
 Home Construction 6
 And Safety Standards

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)

Infiltration:

Method
 Construction quality
 Fireplaces

Heating

70
 44
 50
 39.9

Simplified
 Average
 0

Cooling

75
 17
 50
 35.3

Construction descriptions

Walls

CMH - DW - R-13 Wall - THP502-DOE: Double Wide - R-13 Insulation
 THP502 2x4 Wall-DOE

	Or	Area ft ²	U-value Btuh/ft ² °F	Insul R ft ² °F/Btuh	Htg HTM Btuh/ft ²	Loss Btuh	Clg HTM Btuh/ft ²	Gain Btuh
n		208	0.082	13.0	3.58	744	2.03	421
e		358	0.082	13.0	3.58	1279	2.03	724
s		193	0.082	13.0	3.58	690	2.03	391
w		316	0.082	13.0	3.58	1130	2.03	640
all		1075	0.082	13.0	3.58	3842	2.03	2177

Partitions

(none)

Windows

Clayton - Thermopane Low-E DOE: Clayton-Thermopane Low-E DOE;
 50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht

e		33	0.300	0	13.1	436	21.8	726
s		15	0.300	0	13.1	196	10.1	152
w		75	0.300	0	13.1	981	21.8	1633
all		123	0.300	0	13.1	1613	20.4	2511

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

		1339	0.031	38.0	1.35	1810	1.65	2208
--	--	------	-------	------	------	------	------	------

Floors

CMH-DW-158- R22-THP173-DOE: CMH-DW-158-R22-THP173-DOE

		1339	0.047	22.0	2.05	2744	0	0
--	--	------	-------	------	------	------	---	---



Project Summary
Entire House
Clayton Homes

Job: M46027-FDJ-TZI
 Date: Jul 28, 2023
 By:

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

Project Information

For: M46027-FDJ-TZI, GILES

Notes: DUCT CAPACITY -27100 BTUHS

APPROVED



APPROVED

OCT 19 2023

Federal Manufactured
 Home Construction 6
 And Safety Standards

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 14307 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 4159 Btuh
 Outside air
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 18466 Btuh

Sensible Cooling Equipment Load Sizing

Structure 11425 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 12588 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 1751 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 2084 Btuh
 Outside air
 Equipment latent load 3835 Btuh

	Heating	Cooling
Area (ft ²)	1339	1339
Volume (ft ³)	10712	10712
Air changes/hour	0.45	0.23
Equiv. AVF (cfm)	80	41

Equipment Total Load (Sen+Lat) 16423 Btuh
 Req. total capacity at 0.70 SHR 1.5 ton

Heating Equipment Summary

Make Smart Comfort
 Trade
 Model
 AHRI ref
 Efficiency 100 EFF
 Heating input 0 kW
 Heating output 0 Btuh
 Temperature rise 0 °F
 Actual air flow 600 cfm
 Air flow factor 0.042 cfm/Btuh
 Static pressure 0.30 in H2O
 Space thermostat

Cooling Equipment Summary

Make Smart Comfort
 Trade SMART COMFORT
 Cond R4A318GKH
 Coil FED002410++NADA43601CK
 AHRI ref 203358040
 Efficiency 11.5 EER, 13 SEER
 Sensible cooling 12600 Btuh
 Latent cooling 5400 Btuh
 Total cooling 18000 Btuh
 Actual air flow 600 cfm
 Air flow factor 0.053 cfm/Btuh
 Static pressure 0.30 in H2O
 Load sensible heat ratio 0.77

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

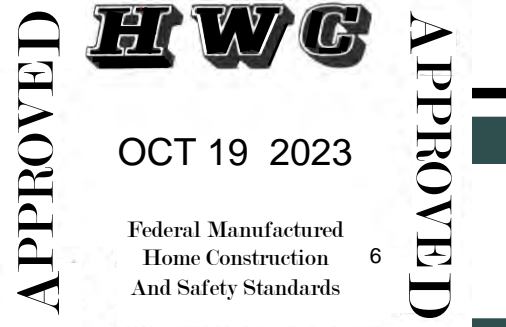




Duct System Summary
Entire House
Clayton Homes

Job: M46027-FDJ-TZI
 Date: Jul 28, 2023
 By:

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



Project Information

For: M46027-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	0.222 in/100ft	0.222 in/100ft
Actual air flow	600 cfm	600 cfm
Total effective length (TEL)	135 ft	

Supply Branch Detail Table

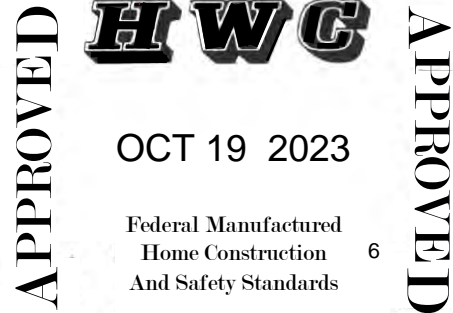
Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
BATH	h 532	22	11	0.522	5.0	0x0	VIFx	22.5	35.0	st1
BED 2	c 983	46	52	0.239	5.0	0x0	VIFx	25.3	100.0	st4
BED 3	h 1770	74	65	0.222	6.0	0x0	VIFx	35.3	100.0	st4
DEN	h 1890	79	44	0.476	5.0	0x0	VIFx	28.0	35.0	st1
KITCHEN	c 2447	81	129	0.583	6.0	0x0	VIFx	16.5	35.0	st1
LIVING ROOM	c 2441	92	128	0.246	7.0	0x0	VIFx	21.8	100.0	st4
P-4BATH	h 2674	112	68	0.723	5.0	0x0	VIFx	6.5	35.0	st3
P-BED	c 1962	93	103	0	0	0x0	VIFx	0	0	

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st1	Peak AVF	183	184	0.476	379	4.9	5 x 14	ShtMetl	
st3	Peak AVF	112	68	0.723	231	4.5	5 x 14	ShtMetl	
st4	Peak AVF	212	245	0.222	503	4.8	5 x 14	ShtMetl	st2
st2	Peak AVF	212	245	0.222	587	5.5	5 x 12	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	600	600	0	0	0	0	0x 0		VIFx	





Manual S Compliance Report
Entire House
Clayton Homes

M46027-DOE-FDJ-TZ-II

Job: M46027-FDJ-TZII
 Date: Jul 28, 2023
 By:

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

APPROVED



APPROVED

Project Information

For: M46027-FDJ-TZII, GILES

OCT 19 2023

Federal Manufactured
 Home Construction 6
 And Safety Standards

Cooling Equipment

Design Conditions

Outdoor design DB:	92.6°F	Sensible gain:	13180	Btuh	Entering coil DB:	77.1°F
Outdoor design WB:	74.3°F	Latent gain:	3915	Btuh	Entering coil WB:	64.0°F
Indoor design DB:	75.0°F	Total gain:	17095	Btuh		
Indoor RH:	50%	Estimated airflow:	767	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split AC			
Manufacturer:	Smart Comfort	Model:	R4A324GKH+FED002410++NADA43601CK	
Actual airflow:	767	cfm		
Sensible capacity:	16100	Btuh	122%	of load
Latent capacity:	6900	Btuh	176%	of load
Total capacity:	23000	Btuh	135%	of load SHR: 70%

Heating Equipment

Design Conditions

Outdoor design DB:	15.0°F	Heat loss:	22648	Btuh	Entering coil DB:	63.4°F
Indoor design DB:	70.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Elec strip					
Manufacturer:	Smart Comfort	Model:				
Actual airflow:	767	cfm				
Output capacity:	0	kW	0%	of load	Temp. rise:	0 °F

Meets all requirements of ACCA Manual S.



Project Information

For: M46027-FDJ-TZII, GILES

OCT 19 2023

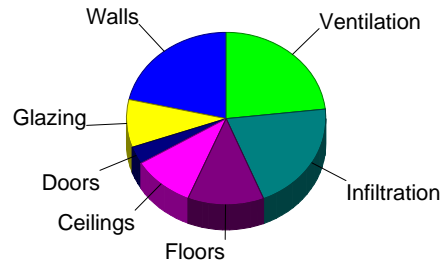
Federal Manufactured
Home Construction 6
And Safety Standards

Design Conditions

Location:		Indoor:		Heating	Cooling
Knoxville McGhee Tyson AP, TN, US		Indoor temperature (°F)		70	75
Elevation: 981 ft		Design TD (°F)		55	18
Latitude: 36°N		Relative humidity (%)		50	50
		Moisture difference (gr/lb)		47.0	36.2
Outdoor:	Heating	Cooling	Infiltration:		
Dry bulb (°F)	15	93	Method	Simplified	
Daily range (°F)	-	19 (M)	Construction quality	Average	
Wet bulb (°F)	-	74	Fireplaces	0	
Wind speed (mph)	15.0	7.5			

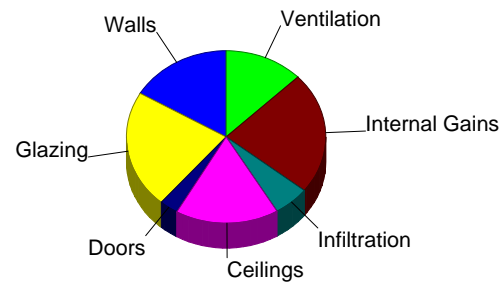
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	4.5	4847	21.4
Glazing	16.5	2035	9.0
Doors	17.6	739	3.3
Ceilings	1.7	2283	10.1
Floors	2.1	2799	12.4
Infiltration	3.8	4691	20.7
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		5255	23.2
Adjustments		0	0
Total		22648	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	2.0	2181	16.5
Glazing	23.7	2920	22.2
Doors	9.5	400	3.0
Ceilings	1.7	2210	16.8
Floors	0	0	0
Infiltration	0.6	767	5.8
Ducts		0	0
Ventilation		1682	12.8
Internal gains		3020	22.9
Blower		0	0
Adjustments		0	0
Total		13180	100.0



Latent Cooling Load = 3915 Btuh
Overall U-value = 0.059 Btuh/ft²·°F, Window / Floor Area = 9.2 %

Data entries checked.



Component Constructions
Entire House
Clayton Homes

Job: M46027-FDJ-TZII
 Date: Jul 28, 2023
 By:



APPROVED

APPROVED

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

Project Information

For: M46027-FDJ-TZII, GILES

OCT 19 2023

Federal Manufactured
 Home Construction 6
 And Safety Standards

Design Conditions

Location:

Knoxville McGhee Tyson AP, TN, US
 Elevation: 981 ft
 Latitude: 36°N

Outdoor:

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

Heating

15
 -
 -
 15.0

Cooling

93
 19 (M)
 74
 7.5

Indoor:

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

Heating

70
 55
 50
 47.0

Cooling

75
 18
 50
 36.2

Infiltration:

Method
 Construction quality
 Fireplaces

Simplified
 Average
 0

Construction descriptions

Construction descriptions	Or	Area ft ²	U-value Btuh/ft ² ·°F	Insul R ft ² ·°F/Btuh	Htg HTM Btuh/ft ²	Loss Btuh	Clg HTM Btuh/ft ²	Gain Btuh
Walls								
CMH - DW - R-13 Wall - THP502-DOE: Double Wide - R-13 Insulation	n	208	0.082	13.0	4.51	938	2.03	422
THP502 2x4 Wall-DOE	e	358	0.082	13.0	4.51	1613	2.03	726
	s	193	0.082	13.0	4.51	870	2.03	392
	w	316	0.082	13.0	4.51	1425	2.03	641
	all	1075	0.082	13.0	4.51	4847	2.03	2181
Partitions								
(none)								
Windows								
Clayton - Thermopane Low-E DOE: Clayton-Thermopane Low-E DOE;	e	33	0.300	0	16.5	550	21.9	731
50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	s	15	0.300	0	16.5	248	10.9	163
	w	75	0.300	0	16.5	1238	21.9	1646
	all	123	0.300	0	16.5	2035	20.6	2540
Doors								
CMH - Standard Door: CMH - Standard Door - Solid no storm	e	21	0.320	0	17.6	370	9.52	200
	w	21	0.320	0	17.6	370	9.52	200
	all	42	0.320	0	17.6	739	9.52	400
Ceilings								
CMH-DW-158 BOX R38 - THP1244 - DOE: CMH-DW-158 BOX R38- THP1244 - DOE		1339	0.031	38.0	1.70	2283	1.65	2210
Floors								
CMH-DW-158- R33-THP469-DOE: CMH-DW-180-R33-THP472-DOE		1339	0.038	33.0	2.09	2799	0	0



Project Summary
Entire House
Clayton Homes

Job: M46027-FDJ-TZII
 Date: Jul 28, 2023
 By:

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

Project Information

For: M46027-FDJ-TZII, GILES

Notes: DUCT CAPACITY -27100 BTUHS



OCT 19 2023

Federal Manufactured
 Home Construction 6
 And Safety Standards

APPROVED

APPROVED

Design Information

Weather: Knoxville McGhee Tyson AP, TN, US

Winter Design Conditions

Outside db 15 °F
 Inside db 70 °F
 Design TD 55 °F

Summer Design Conditions

Outside db 93 °F
 Inside db 75 °F
 Design TD 18 °F
 Daily range M
 Relative humidity 50 %
 Moisture difference 36 gr/lb

Heating Summary

Structure 17393 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 5255 Btuh
 Outside air
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 22648 Btuh

Sensible Cooling Equipment Load Sizing

Structure 11498 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 1682 Btuh
 Outside air
 Blower 0 Btuh
 Use manufacturer's data n
 Rate/swing multiplier 0.98
 Equipment sensible load 12863 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 1776 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 2139 Btuh
 Outside air
 Equipment latent load 3915 Btuh

	Heating	Cooling
Area (ft ²)	1339	1339
Volume (ft ³)	10712	10712
Air changes/hour	0.45	0.23
Equiv. AVF (cfm)	80	41

Equipment Total Load (Sen+Lat) 16779 Btuh
 Req. total capacity at 0.70 SHR 1.5 ton

Heating Equipment Summary

Make Smart Comfort
 Trade
 Model
 AHRI ref
 Efficiency 100 EFF
 Heating input 0 kW
 Heating output 0 Btuh
 Temperature rise 0 °F
 Actual air flow 767 cfm
 Air flow factor 0.044 cfm/Btuh
 Static pressure 0.30 in H2O
 Space thermostat

Cooling Equipment Summary

Make Smart Comfort
 Trade SMART COMFORT
 Cond R4A324GKH
 Coil FED002410++NADA43601CK
 AHRI ref 203358027
 Efficiency 11.5 EER, 13 SEER
 Sensible cooling 16100 Btuh
 Latent cooling 6900 Btuh
 Total cooling 23000 Btuh
 Actual air flow 767 cfm
 Air flow factor 0.067 cfm/Btuh
 Static pressure 0.30 in H2O
 Load sensible heat ratio 0.77

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





Duct System Summary
Entire House
Clayton Homes

Job: M46027-FDJ-TZII
 Date: Jul 28, 2023
 By:

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



Project Information

For: M46027-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	0.222 in/100ft	0.222 in/100ft
Actual air flow	767 cfm	767 cfm
Total effective length (TEL)	135 ft	

Supply Branch Detail Table

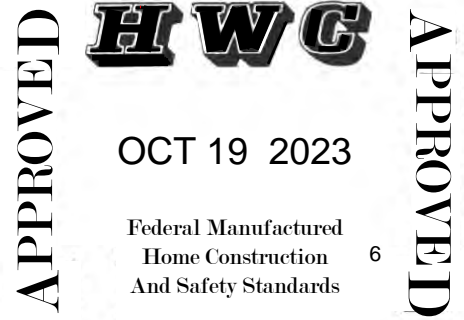
Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
BATH	h 636	28	15	0.522	5.0	0x0	VIFx	22.5	35.0	st1
BED 2	c 988	58	66	0.239	5.0	0x0	VIFx	25.3	100.0	st4
BED 3	h 2169	96	83	0.222	6.0	0x0	VIFx	35.3	100.0	st4
DEN	h 2315	102	58	0.476	5.0	0x0	VIFx	28.0	35.0	st1
KITCHEN	c 2451	102	163	0.583	6.0	0x0	VIFx	16.5	35.0	st1
LIVING ROOM	c 2451	117	163	0.246	7.0	0x0	VIFx	21.8	100.0	st4
P-4BATH	h 3262	144	87	0.723	6.0	0x0	VIFx	6.5	35.0	st3
P-BED	c 1974	120	132	0	0	0x0	VIFx	0	0	

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st1	Peak AVF	233	236	0.476	485	4.9	5 x 14	ShtMetl	
st3	Peak AVF	144	87	0.723	296	4.5	5 x 14	ShtMetl	
st4	Peak AVF	270	312	0.222	642	4.8	5 x 14	ShtMetl	st2
st2	Peak AVF	270	312	0.222	749	5.5	5 x 12	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	767	767	0	0	0	0	0x 0		VIFx	





Manual S Compliance Report
Entire House
Clayton Homes

M46027-DOE-FDJ-TZ-III

Job: M46027-FDJ-TZIII

Date: Jul 28, 2023

By:

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



Project Information

For: M46027-FDJ-TZIII, GILES

OCT 19 2023

Federal Manufactured
 Home Construction 6
 And Safety Standards

Cooling Equipment

Design Conditions

Outdoor design DB:	87.6°F	Sensible gain:	10958	Btuh	Entering coil DB:	77.0°F
Outdoor design WB:	71.2°F	Latent gain:	3115	Btuh	Entering coil WB:	63.7°F
Indoor design DB:	75.0°F	Total gain:	14073	Btuh		
Indoor RH:	50%	Estimated airflow:	593	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split AC			
Manufacturer:	Smart Comfort	Model:	R4A518GKB+FED002410++NADA43601CK	
Actual airflow:	593	cfm		
Sensible capacity:	12460	Btuh	114%	of load
Latent capacity:	5340	Btuh	171%	of load
Total capacity:	17800	Btuh	126%	of load SHR: 70%

Heating Equipment

Design Conditions

Outdoor design DB:	15.8°F	Heat loss:	20342	Btuh	Entering coil DB:	61.6°F
Indoor design DB:	70.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Elec strip					
Manufacturer:	Smart Comfort	Model:				
Actual airflow:	593	cfm				
Output capacity:	0	kW	0%	of load	Temp. rise:	0 °F

Meets all requirements of ACCA Manual S.



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

Project Information

For: M46027-FDJ-TZIII, GILES

OCT 19 2023

Federal Manufactured
Home Construction 6
And Safety Standards

Design Conditions

Location:

VA-SG22
Elevation: 2133 ft
Latitude: 37°N

Outdoor:

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

Heating

16
-
-
15.0

Cooling

88
20 (M)
71
7.5

Indoor:

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

Heating

70
54
50
48.7

Cooling

75
13
50
28.1

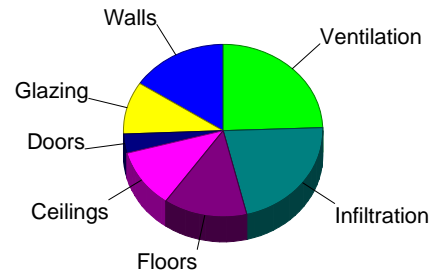
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Average
0

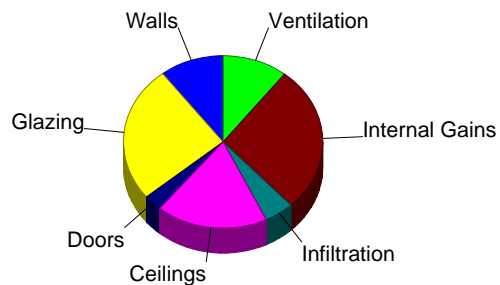
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	3.0	3204	15.7
Glazing	16.3	2005	9.9
Doors	17.3	728	3.6
Ceilings	1.7	2250	11.1
Floors	2.1	2758	13.6
Infiltration	3.6	4432	21.8
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		4965	24.4
Adjustments		0	0
Total		20342	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	1.1	1141	10.4
Glazing	22.8	2806	25.6
Doors	7.8	327	3.0
Ceilings	1.5	1984	18.1
Floors	0	0	0
Infiltration	0.4	527	4.8
Ducts		0	0
Ventilation		1154	10.5
Internal gains		3020	27.6
Blower		0	0
Adjustments		0	0
Total		10958	100.0



Latent Cooling Load = 3115 Btuh
Overall U-value = 0.052 Btuh/ft²·°F, Window / Floor Area = 9.2 %

Data entries checked.



Component Constructions
Entire House
Clayton Homes

Job: M46027-FDJ-TZIII
 Date: Jul 28, 2023
 By:

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

APPROVED



APPROVED

Project Information

OCT 19 2023

For: M46027-FDJ-TZIII, GILES

Federal Manufactured
 Home Construction 6
 And Safety Standards

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 50 48.7	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 THP510 2x6 Wall-DOE	n e s w all	208 358 193 316 1075	0.055 0.055 0.055 0.055 0.055	21.0 21.0 21.0 21.0 21.0	2.98 2.98 2.98 2.98 2.98	620 1066 575 942 3204	1.06 1.06 1.06 1.06 1.06	221 380 205 335 1141

Partitions
(none)

Windows

Clayton - Thermopane Low-E DOE: Clayton-Thermopane Low-E DOE; 50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	e s w all	33 15 75 123	0.300 0.300 0.300 0.300	0 0 0 0	16.3 16.3 16.3 16.3	542 244 1220 2005	20.5 9.83 20.5 19.2	685 147 1540 2372
---	--------------------	-----------------------	----------------------------------	------------------	------------------------------	----------------------------	------------------------------	----------------------------

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	17.3 17.3 17.3	364 364 728	7.78 7.78 7.78	163 163 327
---	---------------	----------------	-------------------------	-------------	----------------------	-------------------	----------------------	-------------------

Ceilings

CMH-DW-158 BOX R38 - THP1244 - DOE: CMH-DW-158 BOX R38- THP1244 - DOE		1339	0.031	38.0	1.68	2250	1.48	1984
--	--	------	-------	------	------	------	------	------

Floors

CMH-DW-158- R33-THP469-DOE: CMH-DW-180-R33-THP472-DOE		1339	0.038	33.0	2.06	2758	0	0
---	--	------	-------	------	------	------	---	---

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

Project Information

For: M46027-FDJ-TZIII, GILES

Notes: DUCT CAPACITY -27100 BTUHS

APPROVED



APPROVED

OCT 19 2023

Federal Manufactured
 Home Construction 6
 And Safety Standards

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 15377 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 4965 Btuh
 Outside air
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 20342 Btuh

Sensible Cooling Equipment Load Sizing

Structure 9804 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 10147 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 1525 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 1590 Btuh
 Outside air
 Equipment latent load 3115 Btuh

	Heating	Cooling
Area (ft ²)	1339	1339
Volume (ft ³)	10712	10712
Air changes/hour	0.45	0.23
Equiv. AVF (cfm)	80	41

Equipment Total Load (Sen+Lat) 13262 Btuh
 Req. total capacity at 0.70 SHR 1.2 ton

Heating Equipment Summary

Make Smart Comfort
 Trade
 Model
 AHRI ref
 Efficiency 100 EFF
 Heating input 0 kW
 Heating output 0 Btuh
 Temperature rise 0 °F
 Actual air flow 593 cfm
 Air flow factor 0.039 cfm/Btuh
 Static pressure 0.30 in H2O
 Space thermostat

Cooling Equipment Summary

Make Smart Comfort
 Trade SMART COMFORT
 Cond R4A518GKB
 Coil FED002410++NADA43601CK
 AHRI ref 203358045
 Efficiency 12.2 EER, 14 SEER
 Sensible cooling 12460 Btuh
 Latent cooling 5340 Btuh
 Total cooling 17800 Btuh
 Actual air flow 593 cfm
 Air flow factor 0.061 cfm/Btuh
 Static pressure 0.30 in H2O
 Load sensible heat ratio 0.78

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



Duct System Summary

Entire House

Clayton Homes

Job: M46027-FDJ-TZIII
 Date: Jul 28, 2023
 By:

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

APPROVED



APPROVED

Project Information

For: M46027-FDJ-TZIII, GILES

OCT 19 2023

Federal Manufactured
 Home Construction 6
 And Safety Standards

	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	0.222 in/100ft	0.222 in/100ft
Actual air flow	593 cfm	593 cfm
Total effective length (TEL)	135 ft	

Supply Branch Detail Table

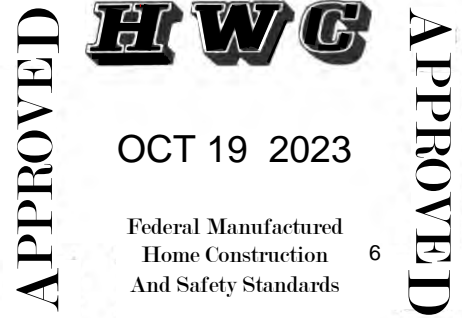
Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
BATH	h 556	21	10	0.522	5.0	0x0	VIFx	22.5	35.0	st1
BED 2	c 870	45	53	0.239	5.0	0x0	VIFx	25.3	100.0	st4
BED 3	h 1858	72	61	0.222	6.0	0x0	VIFx	35.3	100.0	st4
DEN	h 1993	77	38	0.476	5.0	0x0	VIFx	28.0	35.0	st1
KITCHEN	c 2234	81	135	0.583	6.0	0x0	VIFx	16.5	35.0	st1
LIVING ROOM	c 2217	95	134	0.246	7.0	0x0	VIFx	21.8	100.0	st4
P-4BATH	h 2863	110	59	0.723	5.0	0x0	VIFx	6.5	35.0	st3
P-BED	c 1697	92	103	0	0	0x0	VIFx	0	0	

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st1	Peak AVF	179	183	0.476	377	4.9	5 x 14	ShtMetl	st2
st3	Peak AVF	110	59	0.723	227	4.5	5 x 14	ShtMetl	
st4	Peak AVF	212	248	0.222	510	4.8	5 x 14	ShtMetl	
st2	Peak AVF	212	248	0.222	595	5.5	5 x 12	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	593	593	0	0	0	0	0x 0		VIFx	



CLAYTON HOME BUILDING GROUP

Navigator

M46027-DOE-HL-TZ-2

Model Number 46ALL28523AH23S

Drawing Number

M46027-~~HL-TZ-2~~

Version 11

BOX SIZE: 26.33 ft. x 52 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

	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

APPROVED

OCT 19 2023

Federal Manufactured
Home Construction
And Safety Standards 6

APPROVED

Window Glass Area:

	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
Standard	127.00	0.300	38.10
Option	0.00	0.300	0.00
Net:			
Floor	1369.33	0.038	52.17
Wall	1082.33	0.082	88.43
Ceiling	1369.33	0.0306	41.90
Ext. Duct	78.50	0.242	18.98
Ext. Duct	78.50	0.223	17.48
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	281.7
Th. Zone 2	158.1
Th. Zone 3	0.0

Outdoor

	Design Temp (F)	UA	U _o	Heatloss BTUH/F
Thermal Zone 1	11	252.78	0.062	362.50
Thermal Zone 2	0	251.28	0.062	360.90
Thermal Zone 3	-14	249.94	0.061	359.60

Design Temperatures

Furnace Heating Temp (F)	Economy Outdoor Temp (F)	
-24	4	10kW
-43	-9	12kW
-71	-29	15kW
-40	-7	40k Gas
-96	-46	60k Gas
-151	-84	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

CLAYTON HOME BUILDING GROUP

Navigator

M46027-DOE-HL-TZ-3

Model Number 46ALL28523AH23S

Drawing Number

M46027-~~HL-TZ-3~~

Version 11

BOX SIZE: 26.33 ft. x 52 ft.

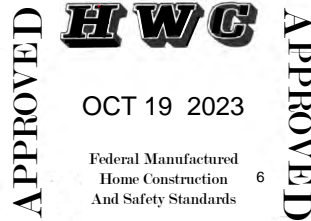
AVG. SIDEWALL HEIGHT = 8 FEET

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

	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

Energy Star v3 & ZERH Max Glass (sq ft)	
Th. Zone 1	384.2
Th. Zone 2	274.2
Th. Zone 3	130.4

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

	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
Standard	127.00	0.300	38.10
Option	0.00	0.300	0.00
Net:			
Floor	1369.33	0.038	52.17
Wall	1082.33	0.055	59.10
Ceiling	1369.33	0.0306	41.90
Ext. Duct	78.50	0.242	18.98
Ext. Duct	78.50	0.223	17.48
Ext. Duct	78.50	0.206	16.14
Supply	0.00	0.000	0.00
Supply	0.00	0.000	0.00
Supply	0.00	0.00	0.00
Th. Zone 1:			
Th. Zone 2:			
Th. Zone 3:			
Overhead TZ 1:			
Overhead TZ 2:			
Overhead TZ 3:			

	Outdoor Design Temp (F)	UA	Uo	Heatloss BTUH/F
Thermal Zone 1	11	223.45	0.055	333.10
Thermal Zone 2	0	221.95	0.055	331.60
Thermal Zone 3	-14	220.60	0.054	330.30

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