

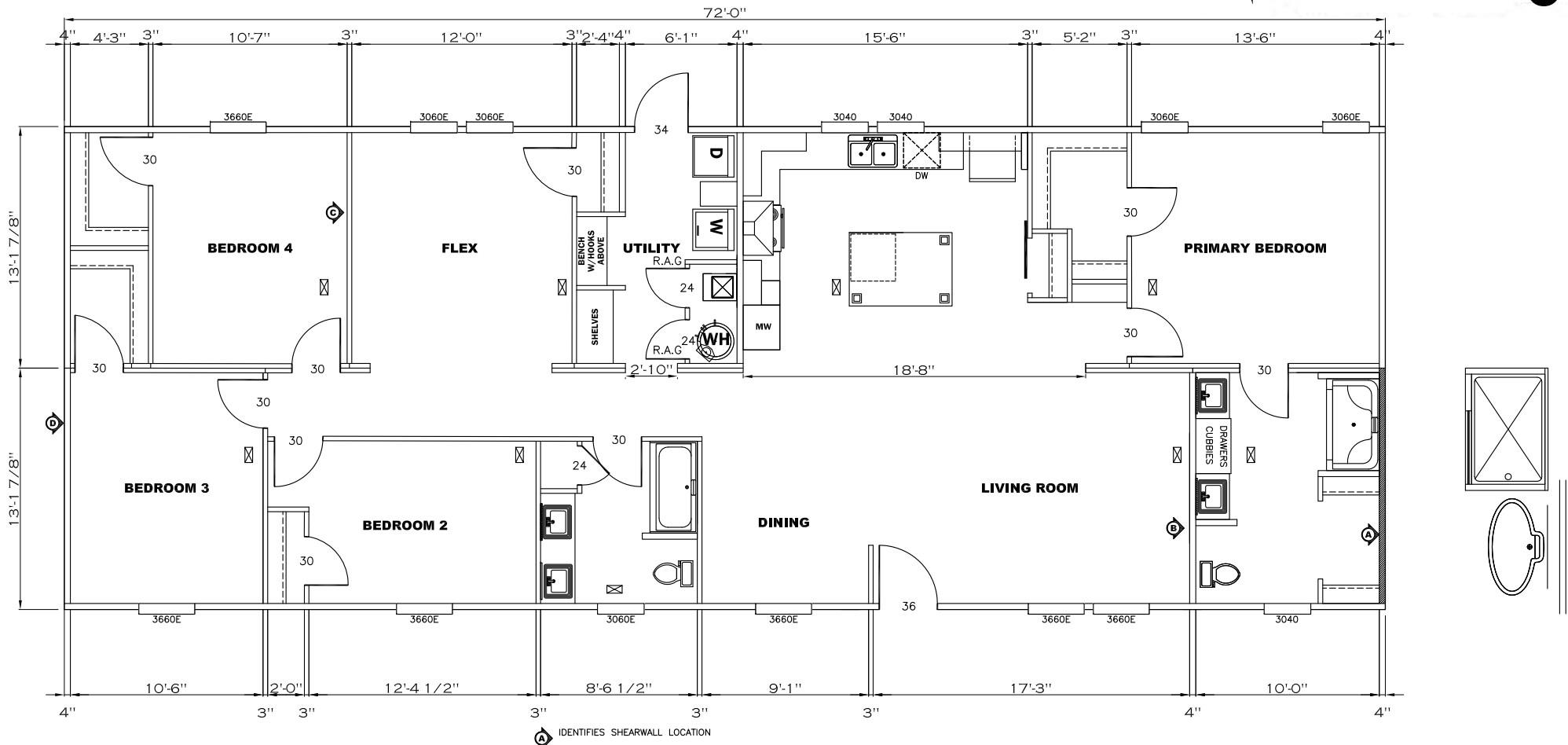
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HWC

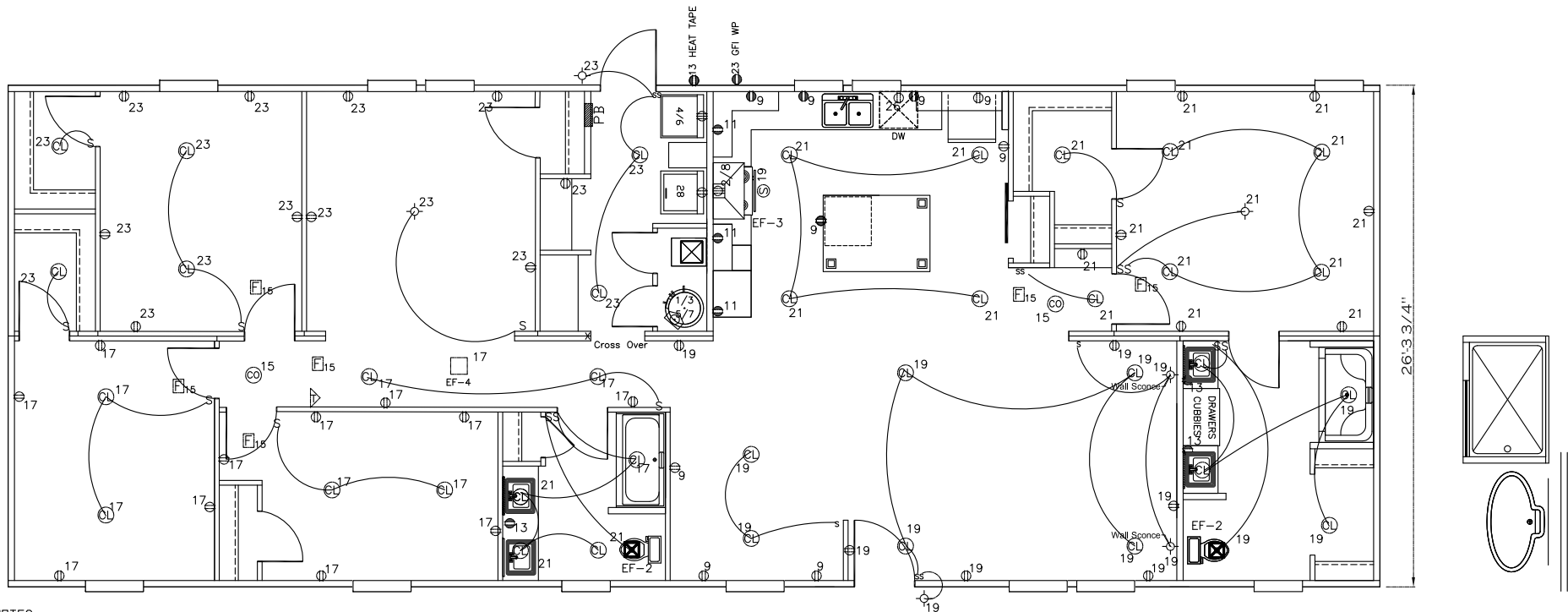
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OCT 19 2023

Federal Manufactured
Home Construction **6**
And Safety Standards



GILES HOMES		Model #: 46ANN28724AH235	Drawing #:
405 S. BROAD ST, NEW TAZEWELL TN 37825		Date: 7-24-23	Scale: N/A
Product Designer: HARVILLED		FARMHOUSE-72	
FLOOR PLAN SUB			M46057



NOTES:

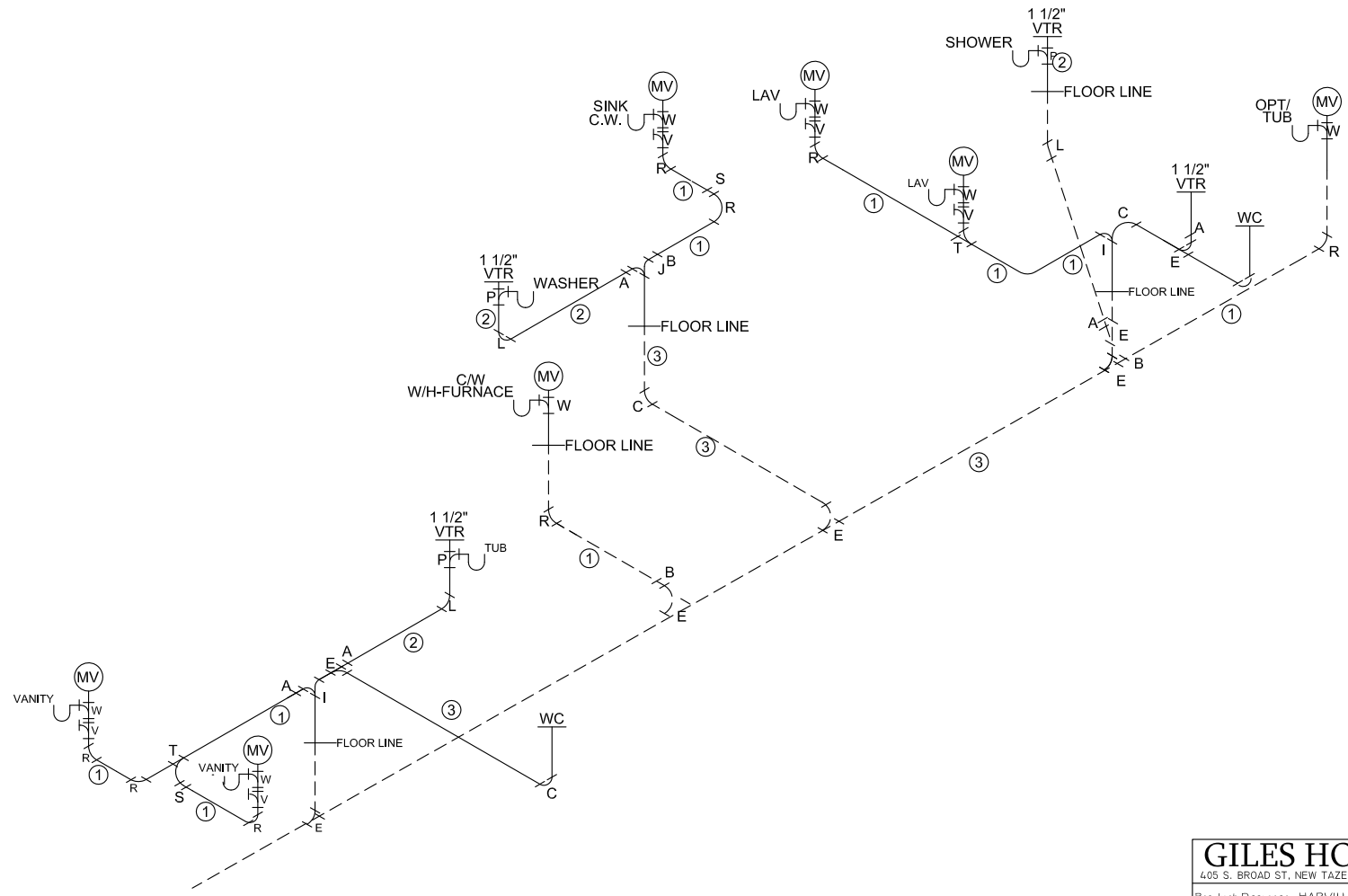
1. ALL CIRCUITS SHOWN ARE FOR REFERENCE AND MAY BE CHANGED BASED ON OPTIONAL COMPONENTS INSTALLED IN THE HOME.
2. REFER TO DAPIA MANUAL FOR SYMBOL CHART.
3. EITHER LIGHT OR RECEPTACLE MUST CONNECT TO SWITCH.
4. EF-1= 50 CFM EXHAUST FAN REQUIRED FOR THERMAL ZONE III THERMAL ZONES I & II MAY USE FAN OR 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.

APPROVED **HWC** **APPROVED**
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 Federal Manufactured Home Construction **6**
 And Safety Standards

GILES HOMES		Model #: 46ANN28724AH235	Drawing #:
405 S. BROAD ST, NEW TAZEWELL TN 37825		Date: 7-24-23	Scale: N/A
Product Designer: HARVILLED		M46057-DOE	
ELECT SUB		M46057	

APPROVED **HWC** **APPROVED**
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 Home Construction
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- LEGEND AND SET UP KIT.**
- VTR - VENT THRU ROOF
 - (MV) - MECHANICAL VENT
 - 60③ - 3" PIPE
 - 40② - 2" PIPE
 - 20① - 1 1/2" PIPE
 - 1 A - 3"x2" REDUCER
 - 2 B - 3"x1 1/2" REDUCER
 - 1 C - 3" ELTL 90°
 - 0 D - 3" ELL 45°
 - 5 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" ELTL 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
 - 2 R - 1 1/2" ELTL 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



GILES HOMES	Model #: +46ANN28724AH235	Drawing #:	
	405 S. BROAD ST. NEW TAZEWELL TN 37828	Date: 7-24-23	Scale: N/A
Product Designer: HARVILLE	FARMHOUSE-72		
DWV		M46057	

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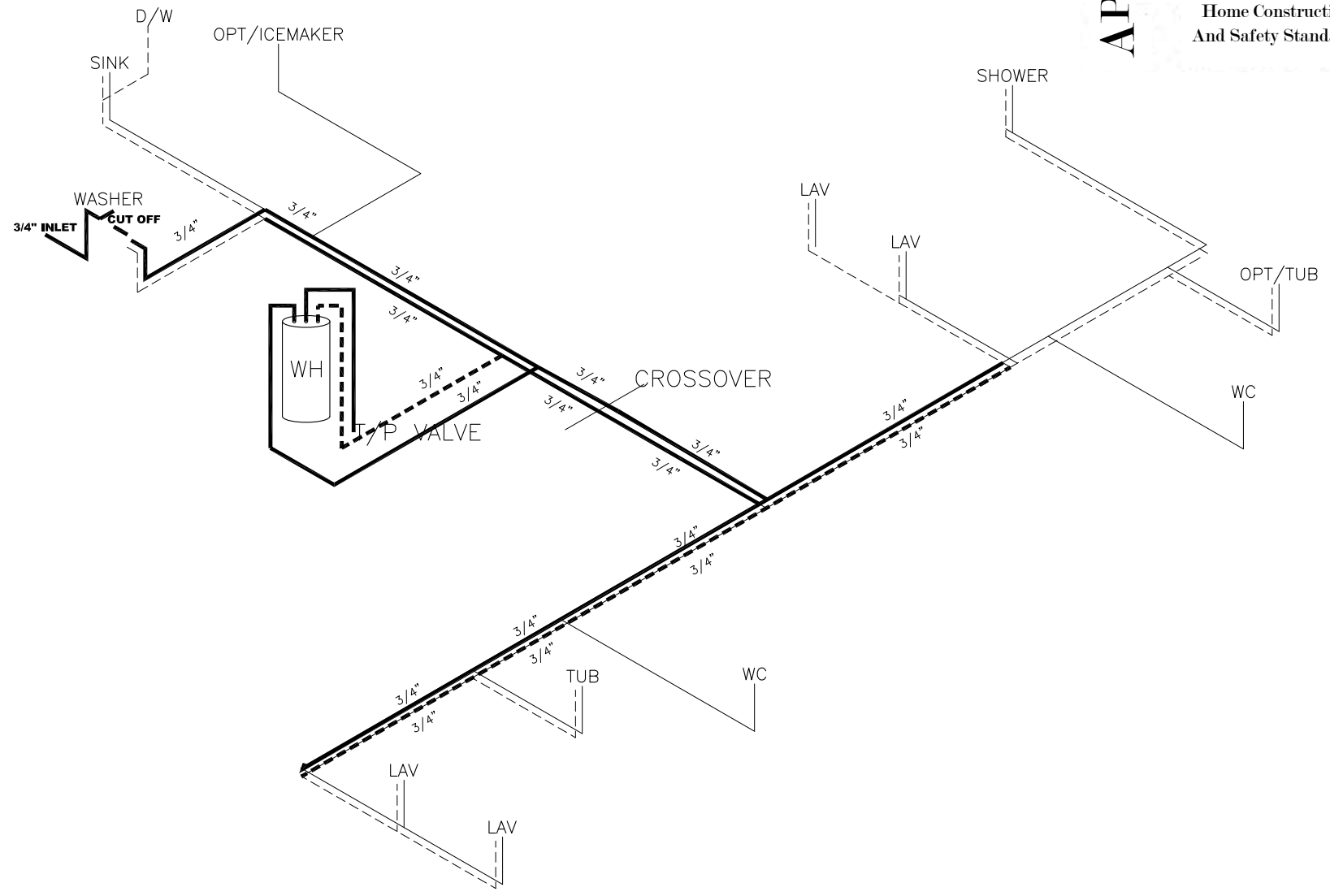


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Federal Manufactured
Home Construction
And Safety Standards

6



GILES HOMES 405 S. BROAD ST. NEW TAZEWELL TN 37825	Model #: 46ANN28724AH235	Drawing #:
	Date: 7-24-23	Scale: N/A
Product Designer: HARVILLE	FARMHOUSE-72	
PRESSURE LINES		M46057

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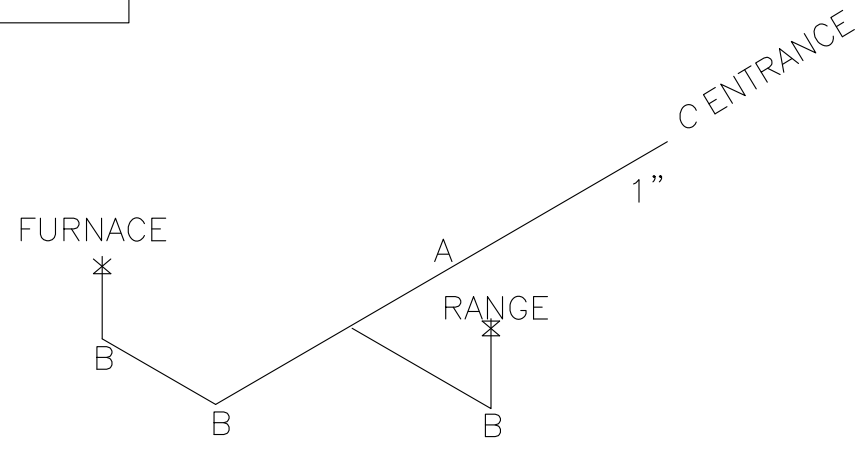
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And Safety Standards

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

MDL = 40'

NOTES:

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



GILES HOMES 405 S. BROAD ST. NEW TAZEWELL TN 37825	Model #: 46ANN28724AH235	Drawing #:
	Date: 7-24-23	Scale: N/A
Product Designer: HARVILLE	FARMHOUSE-72	
GAS LINES		M46057

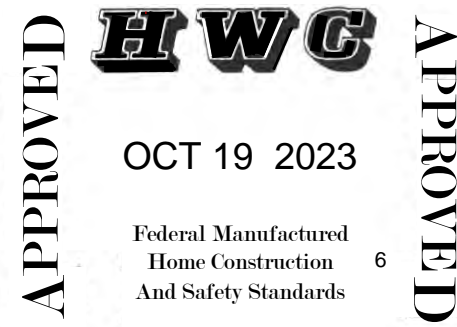
Model # M46057-DOE

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	213	3660 x2	24.4	11.46%		12.4	5.82%		36
Kitchen	194	3040 X2	12.6	6.49%	X	6.6	3.40%	X	36
DINING	114	3660	12.2	10.70%	X	6.2	5.44%	X	24
Primary Bedroom	169	3060 x2	19.8	11.72%		10.4	6.15%		32
Bedroom 2	117	3660	12.2	10.43%		6.2	5.30%		24
Bedroom 3	131	3660	12.2	9.31%		6.2	4.73%		24
Primary Bath	123	3040	6.3	5.12%	X	3.3	2.68%	X	24
Bath 2	67	3060	9.9	14.78%	X	5.2	7.76%	X	24
Utility	81	0		0	0.00%		24		
FLEX ROOM	150	3060 x2	19.8	13.20%		10.4	6.93%		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 the floor plan



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

REVISION

E. M46057-DOE . 2

CMH Inc.
SHEARWALL DESIGN - HUD

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OCT 19 2023

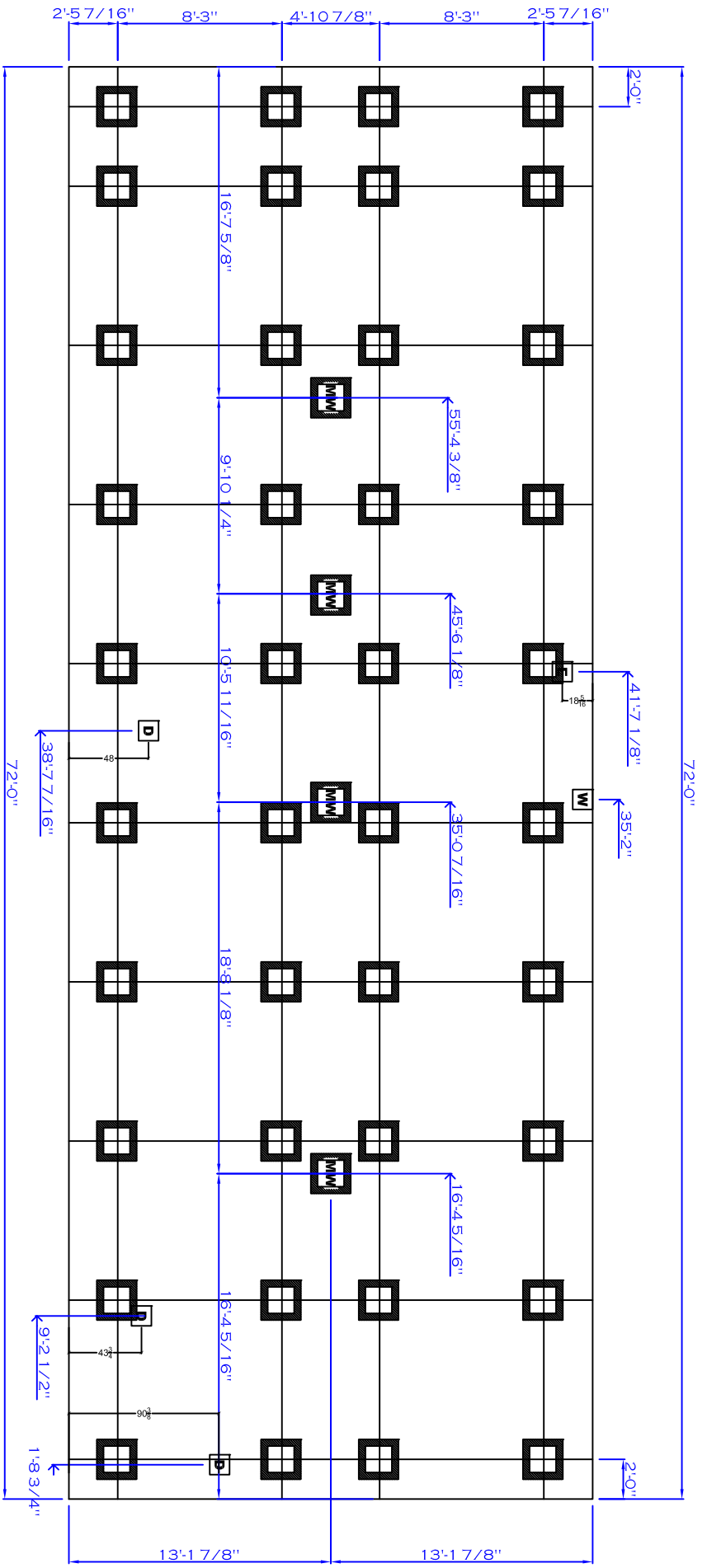
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And Safety Standards

Model # M46057-DOE
 Box Width = 158 " Double wide Minimum Joist Spacing 16 "
 Box Length = 56 ft. 95.5" 12" MIN. IBEAM No Offset Box
 No Skylights No Clerestory No Origami Dormer
 No Porches No Sunken Floor
 Joist Size = #2 spf 2x6 Lags 9Mx3" No Parapet Roof







Version R13.20

Wind Zone 1 Standard Roof							(3/8" sheathing only with 15 gax 1.5" at 5/10" oc. (197 plf) Chords: 2x4 SPF #3 Top Plate spliced w/ 2x4 MCP & 1x6 SPF Rail spliced w/ 12" glue block.	96 inch sidewall
Diaphragm Construction:								
Shearwall	Dist./ Hitch	Length	PLF	# of Joists	Lags	Notes		
A	0'	Full	425	2	5/5			
D	72'	Full	425	2	5/5			
Wind Zone 2 Standard Roof							(3/8" sheathing only with 15 gax 1.5" at 5/10" oc. (197 plf) Chords: 2x4 SPF #3 Top Plate spliced w/ 2.5x6 MCP & 2x4 SPF #3 Rail spliced w/ 12" glue block.	96 inch sidewall
Diaphragm Construction:								
Shearwall	Dist./ Hitch	Length	PLF	# of Joists	Lags	Notes		
A	0'	64"	162	2	1/1			
B	10.5'	128"	425	2	4/1			
C	56.46'	Full	425	2	3/3			
D	72'	92"	162	2	1/1			
Diaphragm Construction:								
Shearwall	Dist./ Hitch	Length	PLF	# of Joists	Lags	Notes	SW1/SW2	
					0/0	Split Shearwall	40/98	
					0/0			
					0/0			
					0/0			
Diaphragm Construction:								
Shearwall	Dist./ Hitch	Length	PLF	# of Joists	Lags	Notes	SW1/SW2	
					0/0	Split Shearwall	40/98	
					0/0			

Designed by JDN



*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 _____



Manual S Compliance Report
Entire House
Clayton Homes

M46057-DOE-FDJ-TZ-1

Job: M46057-FDJ-TZ-1

Date: Jul 25, 2023

By:

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

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OCT 19 2023

Federal Manufactured
 Home Construction 6
 And Safety Standards

Project Information

For: M46057-FDJ-TZ-1, GILES

Cooling Equipment

Design Conditions

Outdoor design DB:	91.7°F	Sensible gain:	17165	Btuh	Entering coil DB:	76.7°F
Outdoor design WB:	73.9°F	Latent gain:	5766	Btuh	Entering coil WB:	63.7°F
Indoor design DB:	75.0°F	Total gain:	22931	Btuh		
Indoor RH:	50%	Estimated airflow:	920	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP					
Manufacturer:	Smart Comfort	Model:	N4H5S30*K*AAA*+FEVA0036**+NAVA43601CK			
Actual airflow:	920	cfm				
Sensible capacity:	19320	Btuh	113% of load			
Latent capacity:	8280	Btuh	144% of load			
Total capacity:	27600	Btuh	120% of load	SHR:	70%	

Heating Equipment

Design Conditions

Outdoor design DB:	26.4°F	Heat loss:	24265	Btuh	Entering coil DB:	65.7°F
Indoor design DB:	70.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP					
Manufacturer:	Smart Comfort	Model:	N4H5S30*K*AAA*+FEVA0036**+NAVA43601CK			
Actual airflow:	920	cfm				
Output capacity:	28000	Btuh	115% of load			
Supplemental heat required:	0	Btuh	Capacity balance: 26 °F			
			Economic balance: -99 °F			

Backup equipment type:	Elec furnace					
Manufacturer:	Smart Comfort	Model:	FEVA0036**+NAVA43601CK			
Actual airflow:	920	cfm				
Output capacity:	25469	Btuh	105% of load	Temp. rise:	52 °F	

Meets all requirements of ACCA Manual S.



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



Project Information

For: M46057-FDJ-TZ-I, GILES

OCT 19 2023

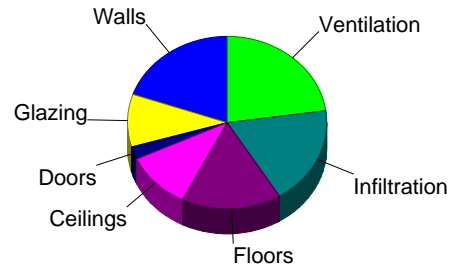
Federal Manufactured
Home Construction 6
And Safety Standards

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 (%)		50	50
		Moisture difference (gr/lb)		39.9	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			

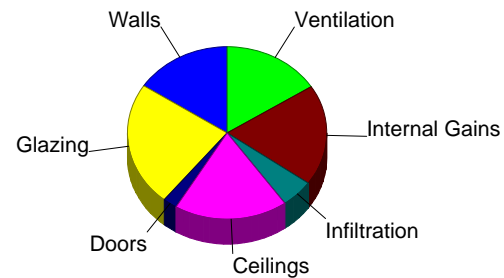
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	3.5	4776	19.7
Glazing	13.1	2387	9.8
Doors	14.0	586	2.4
Ceilings	1.4	2588	10.7
Floors	2.0	3924	16.2
Infiltration	2.8	4483	18.5
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		5522	22.8
Adjustments		0	0
Total		24265	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	2.0	2706	15.8
Glazing	22.0	4008	23.4
Doors	9.5	399	2.3
Ceilings	1.6	3158	18.4
Floors	0	0	0
Infiltration	0.6	904	5.3
Ducts		0	0
Ventilation		2740	16.0
Internal gains		3250	18.9
Blower		0	0
Adjustments		0	0
Total		17165	100.0



Latent Cooling Load = 5766 Btuh
Overall U-value = 0.060 Btuh/ft²·°F, Window / Floor Area = 9.5 %

Data entries checked.



Component Constructions
Entire House
Clayton Homes

Job: M46057-FDJ-TZ-I
 Date: Jul 25, 2023
 By:

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

Project Information

For: M46057-FDJ-TZ-I, GILES

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Home Construction 6
And Safety Standards

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 (%)		50	50
		Moisture difference (gr/lb)		39.9	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 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	212	0.082	13.0	3.58	758	2.03	429
THP502 2x4 Wall-DOE	e	472	0.082	13.0	3.58	1689	2.03	957
	s	212	0.082	13.0	3.58	758	2.03	429
	w	400	0.082	13.0	3.58	1429	2.03	809
	all	1296	0.082	13.0	3.58	4633	2.03	2625
CMH - DW - R-21 Wall - THP510-DOE: Double Wide - R-22 Insulation	w	60	0.055	21.0	2.40	143	1.36	81
THP510 2x6 Wall-DOE								
Partitions								
(none)								
Windows								
Clayton - Thermopane Low-E DOE: Clayton-Thermopane Low-E DOE;	e	87	0.300	0	13.1	1134	21.8	1887
50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	w	83	0.300	0	13.1	1090	21.8	1815
	w	13	0.300	0	13.1	164	21.8	272
	all	183	0.300	0	13.1	2387	21.8	3974
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-		1915	0.031	38.0	1.35	2588	1.65	3158
THP1244 - DOE								
Floors								
CMH-DW-158- R22-THP173-DOE: CMH-DW-158-R22-THP173-DOE		1915	0.047	22.0	2.05	3924	0	0



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

Project Information

For: M46057-FDJ-TZ-I, GILES

Notes: DUCT CAPACITY 27600 BTUHS

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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 20107 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 4159 Btuh
 Outside air
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 24265 Btuh

Sensible Cooling Equipment Load Sizing

Structure 15572 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 16598 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 3683 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 2084 Btuh
 Outside air
 Equipment latent load 5766 Btuh

	Heating	Cooling
Area (ft ²)	1915	1915
Volume (ft ³)	15318	15318
Air changes/hour	0.38	0.20
Equiv. AVF (cfm)	97	51

Equipment Total Load (Sen+Lat) 22364 Btuh
 Req. total capacity at 0.70 SHR 2.0 ton

Heating Equipment Summary

Make Smart Comfort
 Trade PERFORMANCE 15 SEER2 HP
 Model N4H5S30*K*AAA*
 AHRI ref 0
 Efficiency 7.5 HSPF2
 Heating input
 Heating output 28000 Btuh @ 47°F
 Temperature rise 29 °F
 Actual air flow 920 cfm
 Air flow factor 0.046 cfm/Btuh
 Static pressure 0.30 in H2O
 Space thermostat
 Capacity balance point = 26 °F

Cooling Equipment Summary

Make Smart Comfort
 Trade PERFORMANCE 15 SEER2 HP
 Cond N4H5S30*K*AAA*
 Coil FEVA0036**+NAVA43601CK
 AHRI ref 0
 Efficiency 12.0 EER2, 14.3 SEER2
 Sensible cooling 19320 Btuh
 Latent cooling 8280 Btuh
 Total cooling 27600 Btuh
 Actual air flow 920 cfm
 Air flow factor 0.059 cfm/Btuh
 Static pressure 0.30 in H2O
 Load sensible heat ratio 0.75

Backup: Smart Comfort FEVA0036**+NAVA43601CK
 Input = 10 kW, Output = 25469 Btuh, 100 AFUE

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



Duct System Summary
Entire House
Clayton Homes

Job: M46057-FDJ-TZ-I
 Date: Jul 25, 2023
 By:

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

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Project Information

For: M46057-FDJ-TZ-I, GILES

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	Heating	Cooling
External static pressure	0.30 in H2O	0.30 in H2O
Pressure losses	0 in H2O	0 in H2O
Available static pressure	0.30 in H2O	0.30 in H2O
Supply / return available pressure	0.150 / 0.150 in H2O	0.150 / 0.150 in H2O
Lowest friction rate	0.218 in/100ft	0.218 in/100ft
Actual air flow	920 cfm	920 cfm
Total effective length (TEL)	137 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 665	42	39	0	0	0x0	VIFx	0	0	
BED 2	h 1204	72	71	0	0	0x0	VIFx	0	0	
BED 3	h 1295	85	76	0	0	0x0	VIFx	0	0	
BED 4	h 2390	109	85	0.526	5.0	0x0	VIFx	22.0	35.0	st3
DINING	h 1002	46	46	0.268	5.0	0x0	VIFx	11.8	100.0	st4
FLEX	h 3909	179	154	0.698	4.9	5x6	ShMt	8.0	35.0	st3
KITCHEN	c 2291	101	135	0.750	6.0	0x0	VIFx	5.0	35.0	st1
LIVING ROOM	c 2470	99	146	0.226	7.0	0x0	VIFx	32.8	100.0	st5
P-BATH	h 1749	80	52	0.218	6.0	0x0	VIFx	37.3	100.0	st5
P-BED	c 1943	107	115	0.517	6.0	0x0	VIFx	23.0	35.0	st1

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st3	Peak AVF	288	239	0.526	593	4.7	5 x 14	ShtMetl	
st1	Peak AVF	208	250	0.517	515	4.4	5 x 14	ShtMetl	
st4	Peak AVF	46	46	0.268	94	4.7	5 x 14	ShtMetl	st2
st5	Peak AVF	180	198	0.218	407	4.7	5 x 14	ShtMetl	st2
st2	Peak AVF	225	243	0.218	584	5.4	5 x 12	VinIFix	

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	920	920	0	0	0	0	0x 0		VIFx	





Manual S Compliance Report
Entire House
Clayton Homes

M46057-DOE-FDJ-TZ-1

Job: M46057-FDJ-TZ-II

Date: Jul 25, 2023

By:

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



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Project Information

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For: M46057-FDJ-TZ-II, GILES

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 Home Construction
 And Safety Standards

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Cooling Equipment

Design Conditions

Outdoor design DB:	90.6°F	Sensible gain:	16564	Btuh	Entering coil DB:	76.6°F
Outdoor design WB:	73.7°F	Latent gain:	5835	Btuh	Entering coil WB:	63.7°F
Indoor design DB:	75.0°F	Total gain:	22399	Btuh		
Indoor RH:	50%	Estimated airflow:	920	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP					
Manufacturer:	Smart Comfort	Model:	N4H5S30*K*AAA*+FEVA0036**+NAVA43601CK			
Actual airflow:	920	cfm				
Sensible capacity:	19320	Btuh	117%	of load		
Latent capacity:	8280	Btuh	142%	of load		
Total capacity:	27600	Btuh	123%	SHR:	70%	

Heating Equipment

Design Conditions

Outdoor design DB:	20.8°F	Heat loss:	26553	Btuh	Entering coil DB:	65.1°F
Indoor design DB:	70.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP					
Manufacturer:	Smart Comfort	Model:	N4H5S30*K*AAA*+FEVA0036**+NAVA43601CK			
Actual airflow:	920	cfm				
Output capacity:	28000	Btuh	105%	of load		
Supplemental heat required:	0	Btuh	Capacity balance:	24 °F		
			Economic balance:	-99 °F		

Backup equipment type:	Elec furnace					
Manufacturer:	Smart Comfort	Model:	FEVA0036**+NAVA43601CK			
Actual airflow:	920	cfm				
Output capacity:	25469	Btuh	96%	Temp. rise:	51 °F	

Meets all requirements of ACCA Manual S.



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Project Information

For: M46057-FDJ-TZ-II, GILES

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Federal Manufactured
Home Construction 6
And Safety Standards

Design Conditions

Location:

TN-SG25
Elevation: 981 ft
Latitude: 36°N

Outdoor:

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

Heating

21
-
-
15.0

Cooling

91
19 (M)
74
7.5

Indoor:

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

Heating

70
49
50
43.8

Cooling

75
16
50
35.8

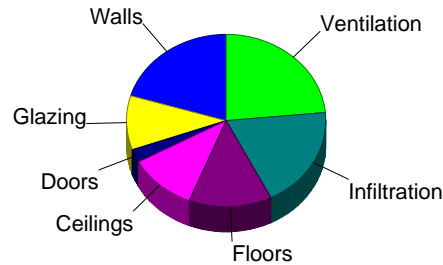
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Average
0

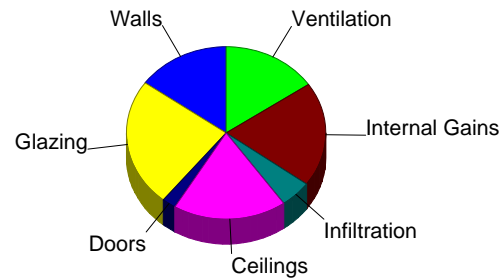
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	4.0	5390	20.3
Glazing	14.8	2694	10.1
Doors	15.7	661	2.5
Ceilings	1.5	2920	11.0
Floors	1.9	3580	13.5
Infiltration	3.2	5067	19.1
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		6241	23.5
Adjustments		0	0
Total		26553	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	1.8	2503	15.1
Glazing	21.8	3979	24.0
Doors	8.9	374	2.3
Ceilings	1.6	3048	18.4
Floors	0	0	0
Infiltration	0.5	846	5.1
Ducts		0	0
Ventilation		2564	15.5
Internal gains		3250	19.6
Blower		0	0
Adjustments		0	0
Total		16564	100.0



Latent Cooling Load = 5835 Btuh
Overall U-value = 0.057 Btuh/ft²·°F, Window / Floor Area = 9.5 %

Data entries checked.



Component Constructions
Entire House
Clayton Homes

Job: M46057-FDJ-TZ-II
Date: Jul 25, 2023
By:

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

Project Information

For: M46057-FDJ-TZ-II, GILES

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Federal Manufactured
Home Construction 6
And Safety Standards

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Design Conditions

Location:

TN-SG25
Elevation: 981 ft
Latitude: 36°N

Outdoor:

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

Heating

21
-
-
15.0

Cooling

91
19 (M)
74
7.5

Indoor:

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

Infiltration:

Method
Construction quality
Fireplaces

Heating

70
49
50
43.8

Cooling

75
16
50
35.8

Simplified
Average
0

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	212	0.082	13.0	4.03	855	1.87	397
e	472	0.082	13.0	4.03	1906	1.87	885
s	212	0.082	13.0	4.03	855	1.87	397
w	400	0.082	13.0	4.03	1612	1.87	749
all	1296	0.082	13.0	4.03	5229	1.87	2428
w	60	0.055	21.0	2.71	161	1.26	75

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	87	0.300	0	14.8	1279	21.4	1855
w	83	0.300	0	14.8	1230	21.4	1783
w	13	0.300	0	14.8	185	21.4	268
all	183	0.300	0	14.8	2694	21.4	3906

Doors

CMH - Standard Door: CMH - Standard Door - Solid no storm

e	21	0.320	0	15.7	331	8.91	187
w	21	0.320	0	15.7	331	8.91	187
all	42	0.320	0	15.7	661	8.91	374

Ceilings

CMH-DW-158 BOX R38 - THP1244 - DOE: CMH-DW-158 BOX R38-
THP1244 - DOE

	1915	0.031	38.0	1.53	2920	1.59	3048
--	------	-------	------	------	------	------	------

Floors

CMH-DW-158- R33-THP469-DOE: CMH-DW-158-R33-THP469-DOE

	1915	0.038	33.0	1.87	3580	0	0
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5000 Clayton Road, Maryville, TN 37804 Phone: 865-380-3000

Project Information

For: M46057-FDJ-TZ-II, GILES

Notes: DUCT CAPACITY 27600
 BTUHS

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 Home Construction 6
 And Safety Standards

Design Information

Weather: TN-SG25

Winter Design Conditions

Outside db 21 °F
 Inside db 70 °F
 Design TD 49 °F

Summer Design Conditions

Outside db 91 °F
 Inside db 75 °F
 Design TD 16 °F
 Daily range M
 Relative humidity 50 %
 Moisture difference 36 gr/lb

Heating Summary

Structure 21852 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 4701 Btuh
 Outside air
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 26553 Btuh

Sensible Cooling Equipment Load Sizing

Structure 15074 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 1490 Btuh
 Outside air
 Blower 0 Btuh
 Use manufacturer's data n
 Rate/swing multiplier 0.96
 Equipment sensible load 15835 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 3721 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 2114 Btuh
 Outside air
 Equipment latent load 5835 Btuh
Equipment Total Load (Sen+Lat) 21670 Btuh
 Req. total capacity at 0.70 SHR 1.9 ton

	Heating	Cooling
Area (ft ²)	1915	1915
Volume (ft ³)	15318	15318
Air changes/hour	0.38	0.20
Equiv. AVF (cfm)	97	51

Heating Equipment Summary

Make Smart Comfort
 Trade PERFORMANCE 15 SEER2 HP
 Model N4H5S30*K*AAA*
 AHRI ref 0

Efficiency 7.5 HSPF2
 Heating input
 Heating output 28000 Btuh @ 47°F
 Temperature rise 29 °F
 Actual air flow 920 cfm
 Air flow factor 0.042 cfm/Btuh
 Static pressure 0.30 in H2O
 Space thermostat
 Capacity balance point = 24 °F

Cooling Equipment Summary

Make Smart Comfort
 Trade PERFORMANCE 15 SEER2 HP
 Cond N4H5S30*K*AAA*
 Coil FEVA0036**+NAVA43601CK
 AHRI ref 0

Efficiency 12.0 EER2, 14.3 SEER2
 Sensible cooling 19320 Btuh
 Latent cooling 8280 Btuh
 Total cooling 27600 Btuh
 Actual air flow 920 cfm
 Air flow factor 0.061 cfm/Btuh
 Static pressure 0.30 in H2O
 Load sensible heat ratio 0.74

Backup: Smart Comfort FEVA0036**+NAVA43601CK
 Input = 10 kW, Output = 25469 Btuh, 100 AFUE

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



Duct System Summary
Entire House
Clayton Homes

Job: M46057-FDJ-TZ-II
 Date: Jul 25, 2023
 By:

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

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Project Information

For: M46057-FDJ-TZ-II, GILES

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 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	0.218 in/100ft	0.218 in/100ft
Actual air flow	920 cfm	920 cfm
Total effective length (TEL)	137 ft	

Supply Branch Detail Table

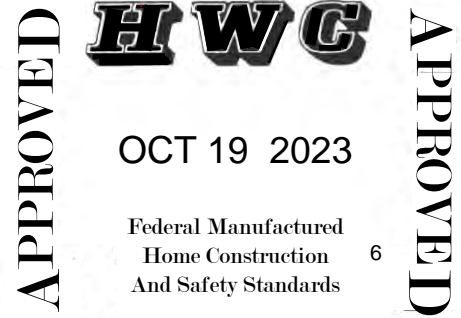
Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
BATH	h 648	41	40	0	0	0x0	VIFx	0	0	
BED 2	c 1171	71	71	0	0	0x0	VIFx	0	0	
BED 3	h 1252	86	76	0	0	0x0	VIFx	0	0	
BED 4	h 2603	110	85	0.526	5.0	0x0	VIFx	22.0	35.0	st3
DINING	c 753	45	46	0.268	5.0	0x0	VIFx	11.8	100.0	st4
FLEX	h 4286	180	151	0.698	4.9	5x6	ShMt	8.0	35.0	st3
KITCHEN	c 2240	99	137	0.750	6.0	0x0	VIFx	5.0	35.0	st1
LIVING ROOM	c 2421	99	148	0.226	7.0	0x0	VIFx	32.8	100.0	st5
P-BATH	h 1914	81	51	0.218	6.0	0x0	VIFx	37.3	100.0	st5
P-BED	c 1886	108	115	0.517	6.0	0x0	VIFx	23.0	35.0	st1

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st3	Peak AVF	290	236	0.526	597	4.7	5 x 14	ShtMetl	
st1	Peak AVF	207	252	0.517	518	4.4	5 x 14	ShtMetl	
st4	Peak AVF	45	46	0.268	94	4.7	5 x 14	ShtMetl	st2
st5	Peak AVF	180	199	0.218	409	4.7	5 x 14	ShtMetl	st2
st2	Peak AVF	225	245	0.218	587	5.4	5 x 12	VinIFix	

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	920	920	0	0	0	0	0x 0		VIFx	





Manual S Compliance Report
Entire House
Clayton Homes

M46057-DOE-FDJ-TZ-III

Job: M46057-FDJ-TZ-III

Date: Jul 25, 2023

By:

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

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Federal Manufactured
 Home Construction 6
 And Safety Standards

Project Information

For: M46057-FDJ-TZ-III, GILES

Cooling Equipment

Design Conditions

Outdoor design DB:	87.6°F	Sensible gain:	14376 Btuh	Entering coil DB:	76.3°F
Outdoor design WB:	71.2°F	Latent gain:	4636 Btuh	Entering coil WB:	63.2°F
Indoor design DB:	75.0°F	Total gain:	19012 Btuh		
Indoor RH:	50%	Estimated airflow:	920 cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Smart Comfort	Model:	N4H5S30*K*AAA*+FEVA0036**+NAVA43601CK		
Actual airflow:	920 cfm				
Sensible capacity:	19320 Btuh	134% of load			
Latent capacity:	8280 Btuh	179% of load			
Total capacity:	27600 Btuh	145% of load	SHR:	70%	

Heating Equipment

Design Conditions

Outdoor design DB:	15.8°F	Heat loss:	26842 Btuh	Entering coil DB:	64.6°F
Indoor design DB:	70.0°F				

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Smart Comfort	Model:	N4H5S30*K*AAA*+FEVA0036**+NAVA43601CK		
Actual airflow:	920 cfm				
Output capacity:	28000 Btuh	104% of load		Capacity balance:	22 °F
Supplemental heat required:	0 Btuh			Economic balance:	-99 °F

Backup equipment type:	Elec furnace				
Manufacturer:	Smart Comfort	Model:	FEVA0036**+NAVA43601CK		
Actual airflow:	920 cfm				
Output capacity:	25469 Btuh	95% of load	Temp. rise:	54 °F	

Meets all requirements of ACCA Manual S.



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Project Information

For: M46057-FDJ-TZ-III, 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

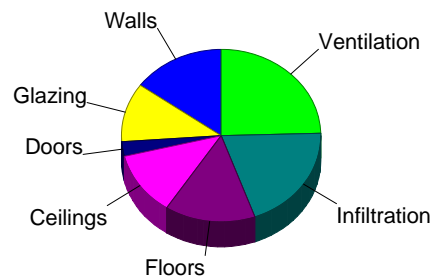
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Average
0

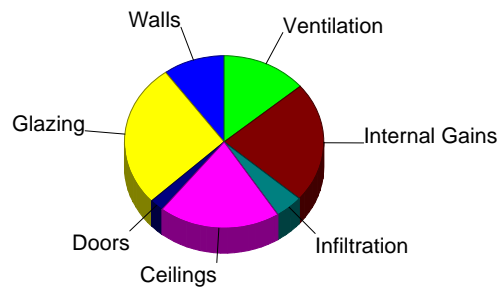
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	3.0	4041	15.1
Glazing	16.3	2967	11.1
Doors	17.3	728	2.7
Ceilings	1.7	3217	12.0
Floors	2.1	3944	14.7
Infiltration	3.4	5352	19.9
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		6592	24.6
Adjustments		0	0
Total		26842	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	1.1	1439	10.0
Glazing	21.3	3883	27.0
Doors	7.8	327	2.3
Ceilings	1.5	2837	19.7
Floors	0	0	0
Infiltration	0.4	655	4.6
Ducts		0	0
Ventilation		1985	13.8
Internal gains		3250	22.6
Blower		0	0
Adjustments		0	0
Total		14376	100.0



Latent Cooling Load = 4636 Btuh
Overall U-value = 0.051 Btuh/ft²·°F, Window / Floor Area = 9.5 %

Data entries checked.



Component Constructions
Entire House
Clayton Homes

Job: M46057-FDJ-TZ-III
 Date: Jul 25, 2023
 By:

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

Project Information

For: M46057-FDJ-TZ-III, GILES

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Federal Manufactured
Home Construction 6
And Safety Standards

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Design Conditions

Location:				Indoor:		Heating	Cooling
VA-SG22				Indoor temperature (°F)		70	75
Elevation: 2133 ft				Design TD (°F)		54	13
Latitude: 37°N				Relative humidity (%)		50	50
				Moisture difference (gr/lb)		48.7	28.1
Outdoor:		Heating	Cooling	Infiltration:			
Dry bulb (°F)		16	88	Method		Simplified	
Daily range (°F)		-	20 (M)	Construction quality		Average	
Wet bulb (°F)		-	71	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-21 Wall - THP510-DOE: Double Wide - R-22 Insulation	n	212	0.055	21.0	2.98	632	1.06	225
THP510 2x6 Wall-DOE	e	472	0.055	21.0	2.98	1408	1.06	501
	s	212	0.055	21.0	2.98	632	1.06	225
	w	459	0.055	21.0	2.98	1369	1.06	487
	all	1356	0.055	21.0	2.98	4041	1.06	1439
Partitions								
(none)								
Windows								
Clayton - Thermopane Low-E DOE: Clayton-Thermopane Low-E DOE;	e	87	0.300	0	16.3	1409	20.5	1780
50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	w	96	0.300	0	16.3	1558	20.5	1968
	all	183	0.300	0	16.3	2967	20.5	3748
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		1915	0.031	38.0	1.68	3217	1.48	2837
Floors								
CMH-DW-158- R33-THP469-DOE: CMH-DW-158-R33-THP469-DOE		1915	0.038	33.0	2.06	3944	0	0





Project Summary
Entire House
Clayton Homes

Job: M46057-FDJ-TZ-III
 Date: Jul 25, 2023
 By:

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



Project Information

For: M46057-FDJ-TZ-III, GILES

OCT 19 2023

Notes: DUCT CAPACITY 27600 BTUHS

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 21877 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 4965 Btuh
 Outside air
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 26842 Btuh

Sensible Cooling Equipment Load Sizing

Structure 13221 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 13312 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 3046 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 1590 Btuh
 Outside air
 Equipment latent load 4636 Btuh

	Heating	Cooling
Area (ft ²)	1915	1915
Volume (ft ³)	15318	15318
Air changes/hour	0.38	0.20
Equiv. AVF (cfm)	97	51

Equipment Total Load (Sen+Lat) 17948 Btuh
 Req. total capacity at 0.70 SHR 1.6 ton

Heating Equipment Summary

Make Smart Comfort
 Trade PERFORMANCE 15 SEER2 HP
 Model N4H5S30*K*AAA*
 AHRI ref 0

Efficiency 7.5 HSPF2
 Heating input
 Heating output 28000 Btuh @ 47°F
 Temperature rise 30 °F
 Actual air flow 920 cfm
 Air flow factor 0.042 cfm/Btuh
 Static pressure 0.30 in H2O
 Space thermostat
 Capacity balance point = 22 °F

Cooling Equipment Summary

Make Smart Comfort
 Trade PERFORMANCE 15 SEER2 HP
 Cond N4H5S30*K*AAA*
 Coil FEVA0036**+NAVA43601CK
 AHRI ref 0

Efficiency 12.0 EER2, 14.3 SEER2
 Sensible cooling 19320 Btuh
 Latent cooling 8280 Btuh
 Total cooling 27600 Btuh
 Actual air flow 920 cfm
 Air flow factor 0.070 cfm/Btuh
 Static pressure 0.30 in H2O
 Load sensible heat ratio 0.76

Backup: Smart Comfort FEVA0036**+NAVA43601CK
 Input = 10 kW, Output = 25469 Btuh, 100 AFUE

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





Duct System Summary
Entire House
Clayton Homes

Job: M46057-FDJ-TZ-III
 Date: Jul 25, 2023
 By:

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

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Project Information

For: M46057-FDJ-TZ-III, GILES

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 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	0.218 in/100ft	0.218 in/100ft
Actual air flow	920 cfm	920 cfm
Total effective length (TEL)	137 ft	

Supply Branch Detail Table

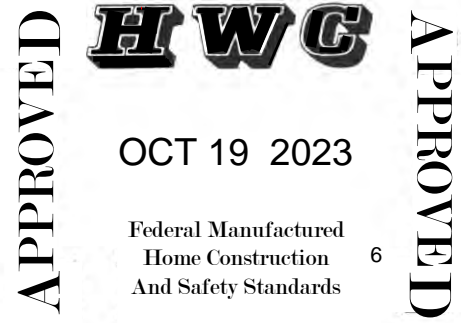
Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
BATH	h 603	45	42	0	0	0x0	VIFx	0	0	
BED 2	c 1041	71	72	0	0	0x0	VIFx	0	0	
BED 3	h 1067	82	74	0	0	0x0	VIFx	0	0	
BED 4	h 2510	106	80	0.526	5.0	0x0	VIFx	22.0	35.0	st3
DINING	c 675	46	47	0.268	5.0	0x0	VIFx	11.8	100.0	st4
FLEX	h 4442	187	143	0.698	5.0	5x6	ShMt	8.0	35.0	st3
KITCHEN	c 2046	99	142	0.750	6.0	0x0	VIFx	5.0	35.0	st1
LIVING ROOM	c 2251	103	157	0.226	7.0	0x0	VIFx	32.8	100.0	st5
P-BATH	h 1818	76	46	0.218	6.0	0x0	VIFx	37.3	100.0	st5
P-BED	c 1663	105	116	0.517	6.0	0x0	VIFx	23.0	35.0	st1

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st3	Peak AVF	292	224	0.526	601	4.7	5 x 14	ShtMetl	
st1	Peak AVF	204	258	0.517	531	4.4	5 x 14	ShtMetl	
st4	Peak AVF	46	47	0.268	97	4.7	5 x 14	ShtMetl	st2
st5	Peak AVF	179	203	0.218	417	4.7	5 x 14	ShtMetl	st2
st2	Peak AVF	225	250	0.218	599	5.4	5 x 12	VinIFix	

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	920	920	0	0	0	0	0x 0		VIFx	

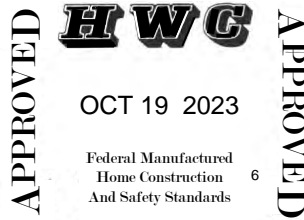


Farm House 72

Model Number 46ESS28723AH23S Drawing Number M46057 HLT21 Version 11

BOX SIZE: 26.33 ft. x 72 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 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
Standard	182.00	0.300	54.60
Option	0.00	0.300	0.00
Net:			
Floor	1896.00	0.047	88.16
Wall	1347.33	0.082	110.08
Ceiling	1896.00	0.0306	58.02
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	366.2
Th. Zone 2	198.5
Th. Zone 3	0.0

	Outdoor Design Temp (F)	UA	Uo	Heatloss BTUH/F
Thermal Zone 1	11	343.04	0.063	480.70
Thermal Zone 2	0	341.54	0.063	479.20
Thermal Zone 3	-14	340.19	0.062	477.90

Design Temperatures		
Furnace Heating Temp (F)	Economy Outdoor Temp (F)	
-1	20	10kW
-15	10	12kW
-36	-5	15kW
-13	12	40k Gas
-55	-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

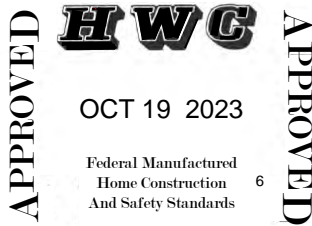
Farm House 72

M46057-DOE-HL-Z-3

Model Number 46ESS28723AH23S Drawing Number M46057 HLTZ 2 Version 11

BOX SIZE: 26.33 ft. x 72 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

	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	182.00	0.300	54.60
Option	0.00	0.300	0.00
Net:			
Floor	1896.00	0.038	72.24
Wall	1347.33	0.082	110.08
Ceiling	1896.00	0.0306	58.02
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	439.1
Th. Zone 2	271.4
Th. Zone 3	53.2

	Outdoor Design Temp (F)	UA	Uo	Heatloss BTUH/F
Thermal Zone 1	11	327.12	0.060	464.80
Thermal Zone 2	0	325.61	0.060	463.30
Thermal Zone 3	-14	324.27	0.060	461.90

Design Temperatures		
Furnace Heating Temp (F)	Economy Outdoor Temp (F)	
-3	19	10kW
-18	8	12kW
-40	-7	15kW
-16	10	40k Gas
-59	-20	60k Gas
-102	-50	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

Model Number	46ESS28723AH23S	Drawing Number	M46057HLTZ3	Version 11
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BOX SIZE: 26.33 ft. x 72 ft.
 AVG. SIDEWALL HEIGHT = 8 FEET
 PERCENTAGE OF CEILING THAT IS VAULTED = 0%
 12 INCH DIAMETER COVER DUCT AREA = 78.5 SQ.FT. MAX. WITH R-8 INSULATION
 IN-FLOOR DUCT SYSTEM

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

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Federal Manufactured Home Construction And Safety Standards

Doors:		Area	U Value	UA
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		182.00	0.300	54.60
Option		0.00	0.300	0.00
Net:				
Floor		1896.00	0.038	72.24
Wall		1347.33	0.055	73.56
Ceiling		1896.00	0.0306	58.02
Ext. Duct	Th. Zone 1:	78.50	0.242	18.98
Ext. Duct	Th. Zone 2:	78.50	0.223	17.48
Ext. Duct	Th. Zone 3:	78.50	0.206	16.14
Supply	Overhead TZ 1:	0.00	0.000	0.00
Supply	Overhead TZ 2:	0.00	0.000	0.00
Supply	Overhead TZ 3:	0.00	0.00	0.00

Window Glass Area:

Th. Zone 1:
 Th. Zone 2:
 Th. Zone 3:
 Overhead TZ 1:
 Overhead TZ 2:
 Overhead TZ 3:

Energy Star v3 & ZERH	
Max Glass (sq ft)	
Th. Zone 1	559.5
Th. Zone 2	410.4
Th. Zone 3	216.2

Outdoor

	Design Temp (F)	UA	Uo	Heatloss BTUH/F
Thermal Zone 1	11	290.60	0.053	428.30
Thermal Zone 2	0	289.10	0.053	426.80
Thermal Zone 3	-14	287.76	0.053	425.40

Design Temperatures

Furnace Heating Temp (F)	Economy Outdoor Temp (F)	
-10	14	10kW
-26	3	12kW
-49	-14	15kW
-23	5	40k Gas
-70	-28	60k Gas
-117	-61	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