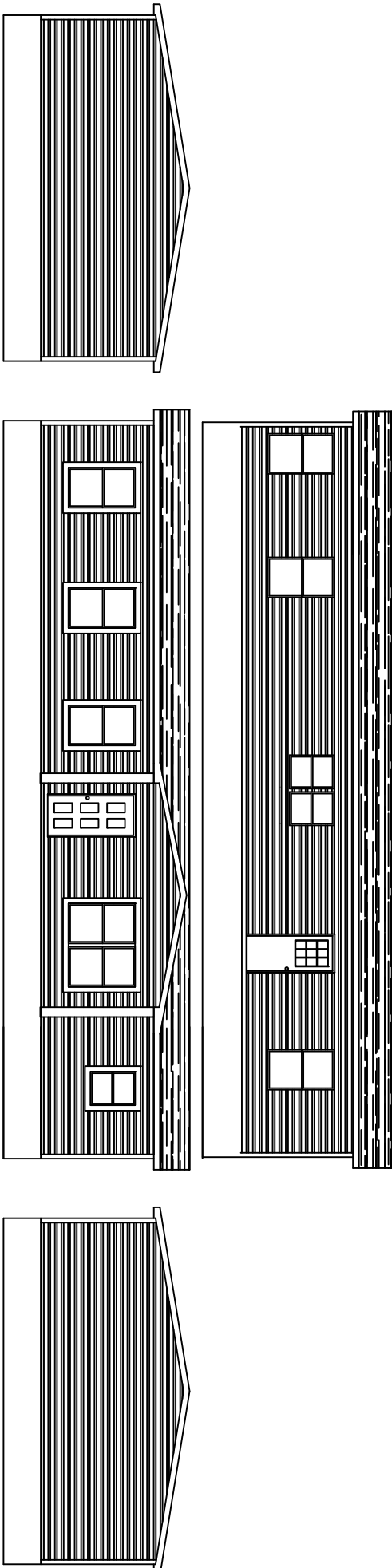
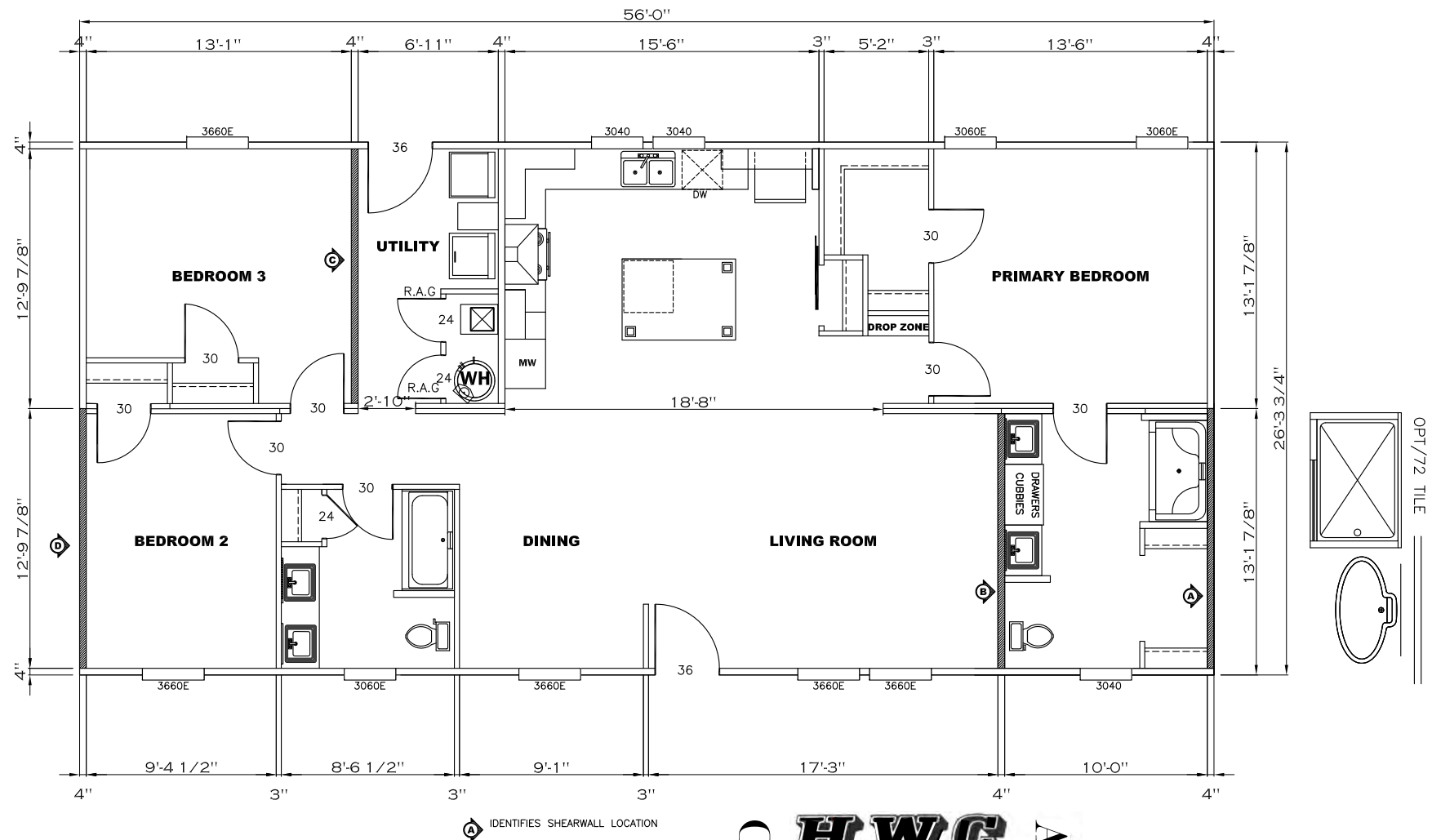






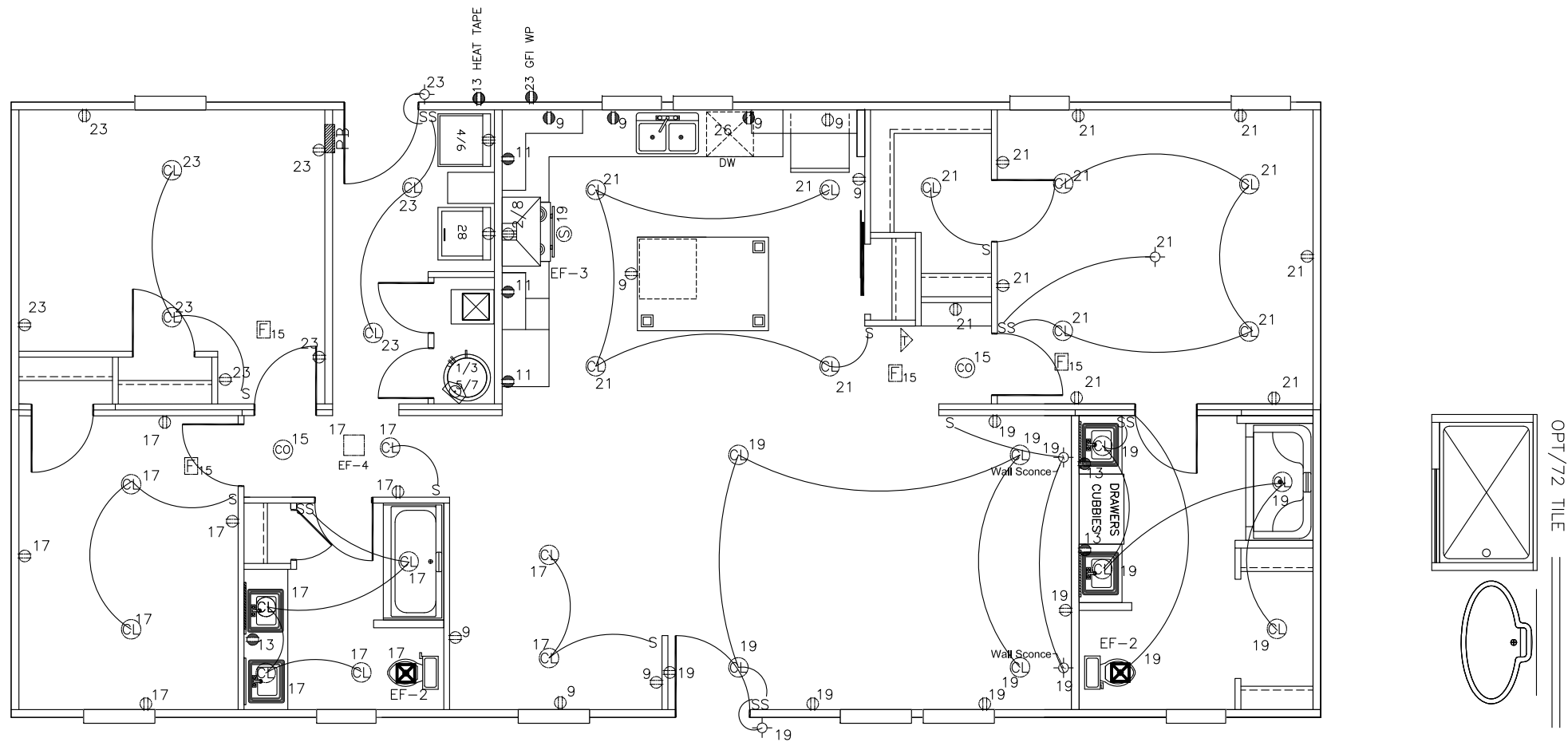
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GILES HOMES		Model #: 46ANN28563BH235	Drawing #:
405 S. BROAD ST., NEW TAZEWELL, TN 37825		Date: 7-19-23	Scale: N/A
Product Designer: HARVILLED		FARM HOUSE_56	
FLOOR PLAN SUB		M46058	



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.

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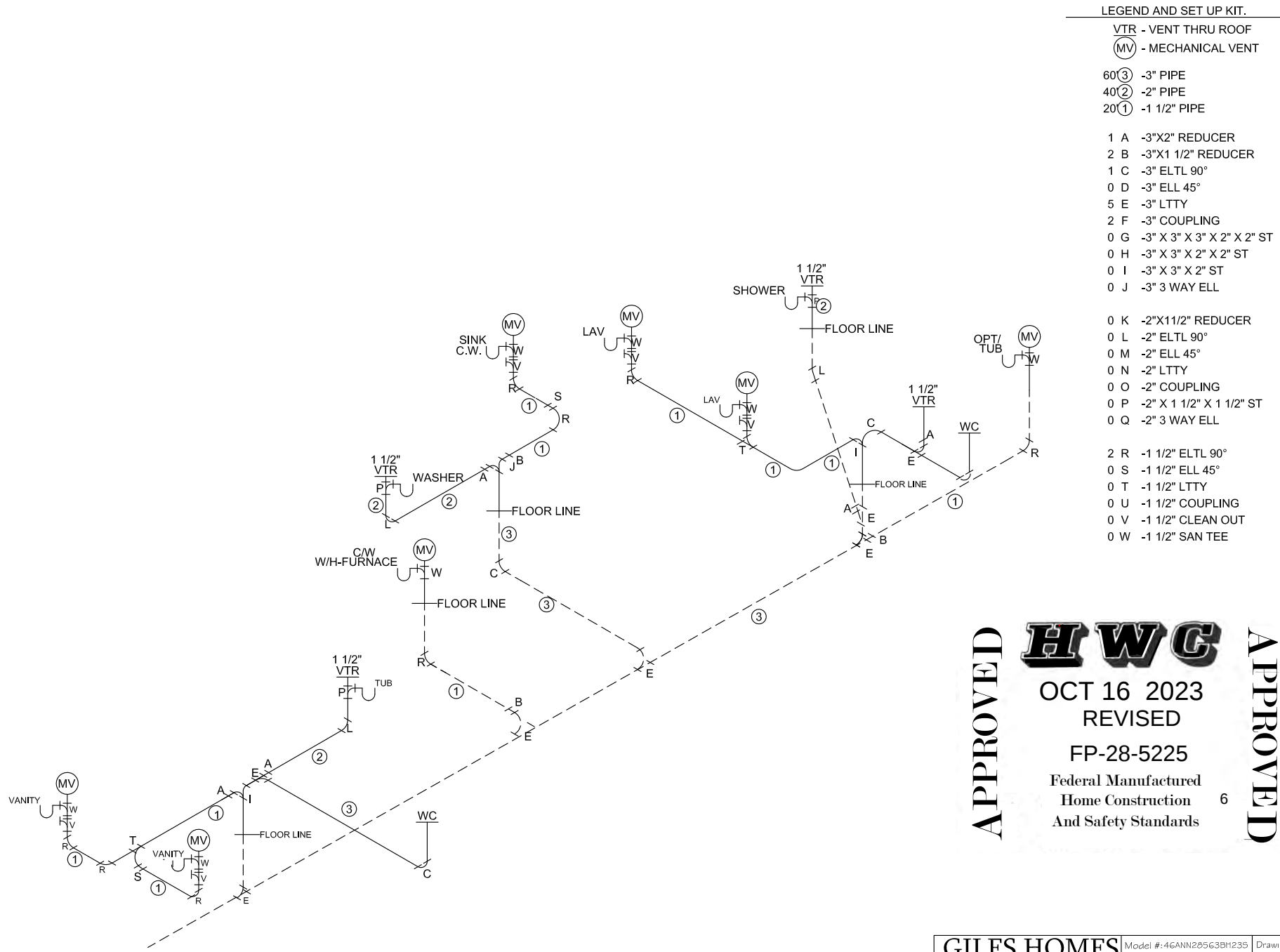
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GILES HOMES		Model #: 46ANN28563BH235	Drawing #: M46058-DOE
405 S. BROAD ST, NEW TAZEVELL TN 37825		Date: 7-19-23 Scale: N/A	
Product Designer: HARVILLED		FARM_HOUSE_56	
ELECT SUB			M46058



LEGEND AND SET UP KIT.

- VTR - VENT THRU ROOF
- (MV) - MECHANICAL VENT

- 60' ③ - 3" PIPE
- 40' ② - 2" PIPE
- 20' ① - 1 1/2" PIPE
- 1 A - 3"x2" REDUCER
- 2 B - 3"x1 1/2" REDUCER
- 1 C - 3" ETL 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" ETL 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" ETL 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

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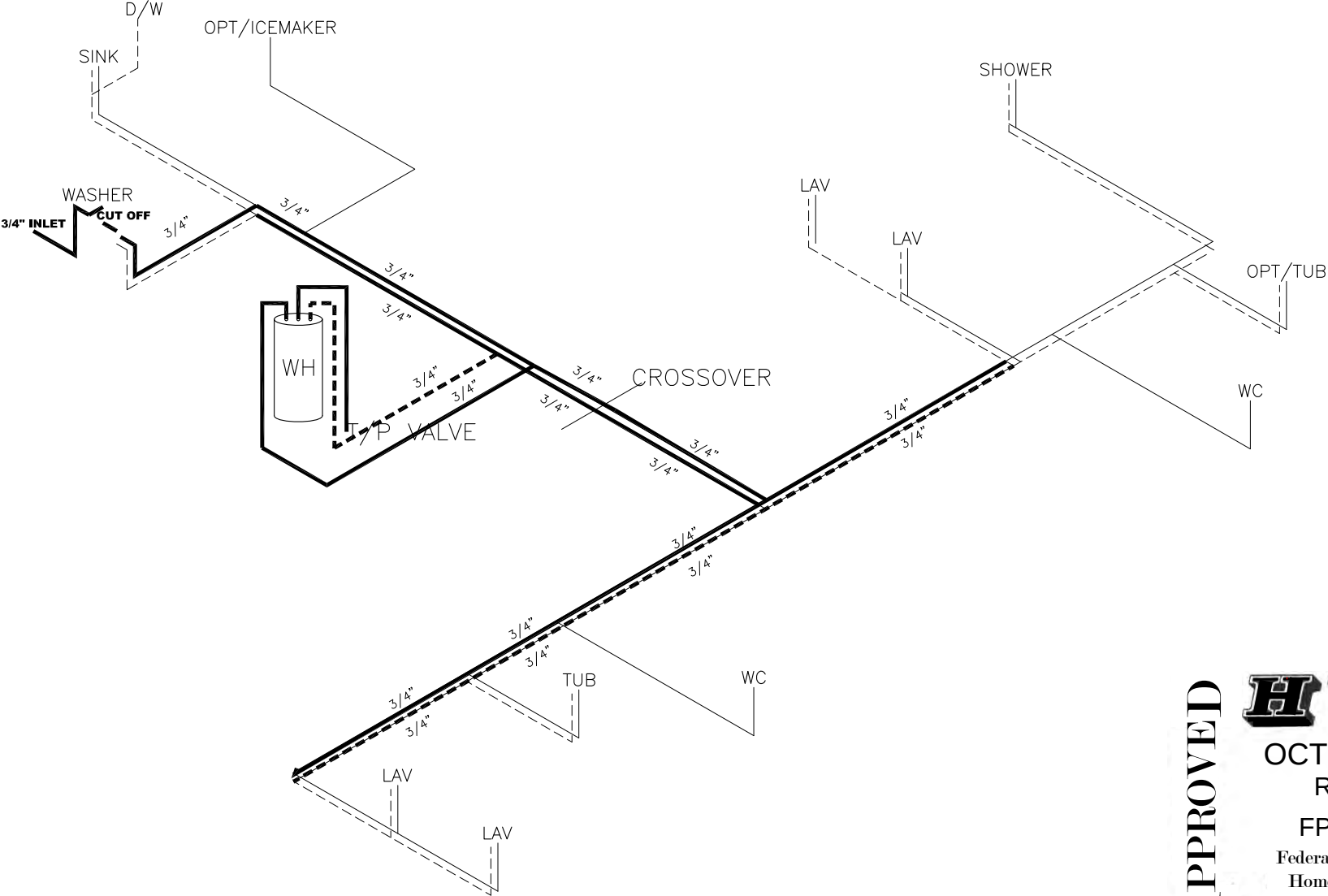
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GILES HOMES		Model #: 46ANN28563BH235	Drawing #: M46058-DOE
405 S. BROAD ST, NEW TAZEWEILL TN 37825		Date: 7-19-23 Scale: N/A	
Product Designer: HARVILLED		FARM_HOUSE_56	
DWV		M46058	



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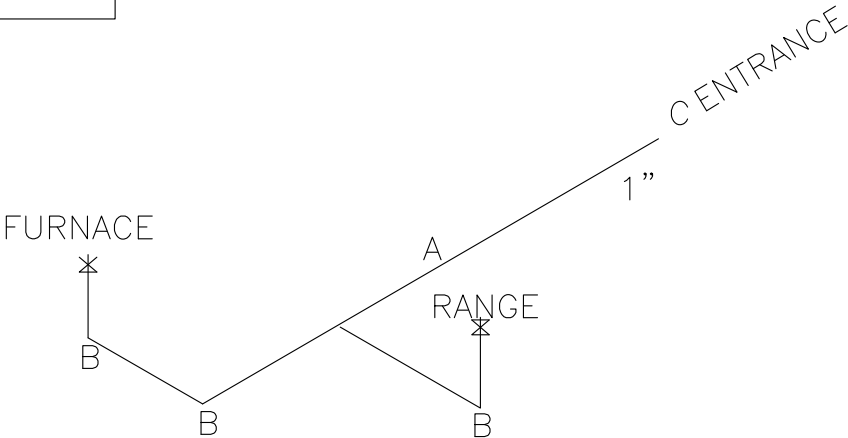
GILES HOMES		Model #: 46ANN28563BH235	Drawing #: M46058-DOE
405 S. BROAD ST, NEW TAZEWELL, TN 37825		Date: 7-19-23	
Product Designer: HARVILLE		Scale: N/A	
FARM HOUSE_56			
PRESSURE LINES		M46058	

LEGEND		APPLIANCE BTU'S RATINGS MAX. INPUT		
SYM	FITTINGS	FURNACE	77,000	BTU'S
A	TEE			
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



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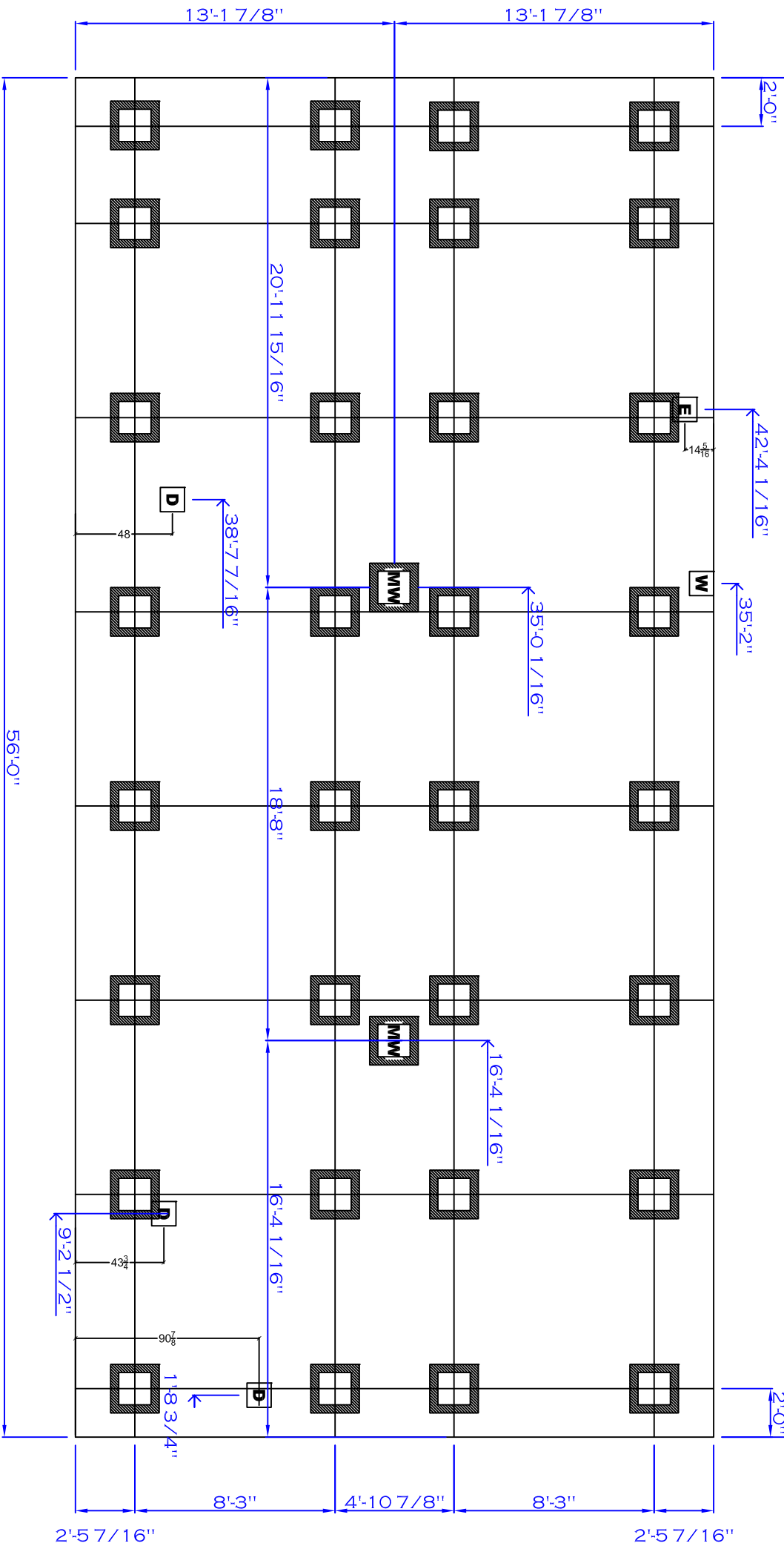
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GILES HOMES 405 S. BROAD ST. NEW TAZEWEEL TN 37825		Model #: 46ANN28563BH235		Drawing #:	
		Date: 7-19-23		Scale: N/A	
		M46058-DOE			
Product Designer: HARVILLE		FARM_HOUSE_56			
GAS			M46058		



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

MARRIAGE WALL PIER

W WATER INLET

DRAIN

E ELECTRICAL DROP

DOOR PIER

REGULAR PIER

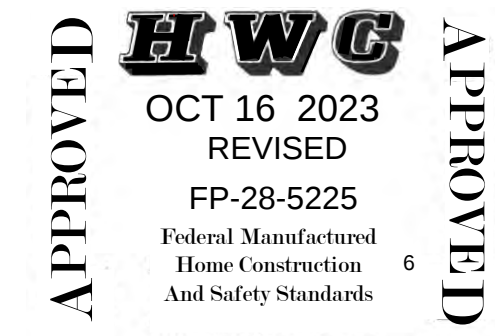
GILES HOMES		Model #:46ANN28563BH235	Drawing #:
405 S. BROAD ST. NEW TAZEWELL TN 37823		Date:7.19-23	Scale: N/A
Product Designer: HARVILLED		FARM_HOUSE_56	
		M46058	

Model # M46058-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	215	3660 x2	24.4	11.35%		12.4	5.77%		36
Kitchen	193	3040 X2	12.6	6.53%	X	6.6	3.42%	X	36
DINING	113	3660	12.2	10.80%	X	6.2	5.49%	X	24
Primary Bedroom	169	3060 x2	19.8	11.72%		10.4	6.15%		32
Bedroom 2	118	3660	12.2	10.34%		6.2	5.25%		24
Bedroom 3	145	3660	12.2	8.41%		6.2	4.28%		24
Primary Bath	123	3040	6.3	5.12%	X	3.3	2.68%	X	24
Bath 2	68	3060	9.9	14.56%	X	5.2	7.65%	X	24
Utility	71	0	0.00%		0	0.00%		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. M46058-DOE . 2**

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No Offset Box
No Clerestory
No Origami Dormer
No Sunken Floor
No Parapet Roof

Farm House **SL**

Model Number 46ESS28563AH23S

Drawing Number

M46058 HL T Z 1

Version 11

BOX SIZE: 26.33 ft. x 56 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

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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	141.00	0.300	42.30
Option	0.00	0.300	0.00
Net: Floor	1474.67	0.047	68.57
Wall	1132.33	0.082	92.51
Ceiling	1474.67	0.0306	45.12
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

Window Glass Area:

Net:

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	256.5
Th. Zone 2	124.0
Th. Zone 3	0.0

Outdoor

Design

Temp (F)

UA

Uo

Heatloss

BTUH/F

Thermal Zone 1

Thermal Zone 2

Thermal Zone 3

11

0

-14

280.69

279.19

277.84

0.065

0.064

0.064

396.00

394.50

393.10

Design Temperatures

Furnace Heating Temp (F)	Economy Outdoor Temp (F)	
-16	10	10kW
-33	-2	12kW
-59	-20	15kW
-31	-1	40k Gas
-82	-36	60k Gas
-132	-71	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 heatingFooting 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

Job: M46058-FDJ-TZI
Date: Jul 26, 2023
By:

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

Project Information

For: M46058-FDJ-TZI, GILES

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Cooling Equipment

Design Conditions

Outdoor design DB:	94.8°F	Sensible gain:	15925	Btuh	Entering coil DB:	77.3°F
Outdoor design WB:	75.9°F	Latent gain:	6226	Btuh	Entering coil WB:	64.3°F
Indoor design DB:	75.0°F	Total gain:	22151	Btuh		
Indoor RH:	50%	Estimated airflow:	813	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Smart Comfort	Model:	N4H5S24*K*AAA*+FEVA0036**+NAVA43601CK
Actual airflow:	813 cfm		
Sensible capacity:	17080 Btuh	107% of load	
Latent capacity:	7320 Btuh	118% of load	
Total capacity:	24400 Btuh	110% of load	SHR: 70%

Heating Equipment

Design Conditions

Outdoor design DB:	26.1°F	Heat loss:	21399	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:	N4H5S24*K*AAA*+FEVA0036**+NAVA43601CK
Actual airflow:	813 cfm		
Output capacity:	23000 Btuh	107% of load	Capacity balance: 27 °F
Supplemental heat required:	0 Btuh		Economic balance: -99 °F

Backup equipment type:	Elec furnace		
Manufacturer:	Smart Comfort	Model:	FEVA0036**+NAVA43601CK
Actual airflow:	813 cfm		
Output capacity:	22709 Btuh	106% of load	Temp. rise: 50 °F

Meets all requirements of ACCA Manual S.



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Building Analysis
Entire House
Clayton Homes

Job: M46058-FDJ-TZI
Date: Jul 26, 2023
By:

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

Project Information

For: M46058-FDJ-TZI, GILES



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And Safety Standards

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Design Conditions

Location:

Augusta/Bush Field, GA, US
Elevation: 148 ft
Latitude: 33°N

Outdoor:

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

Heating

26
-
-
15.0

Cooling

95
21 (M)
76
7.5

Indoor:

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

Heating

70
44
50
38.8

Cooling

75
20
50
40.2

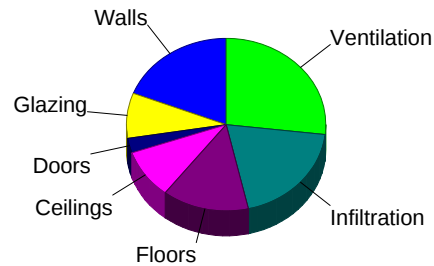
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Average
0

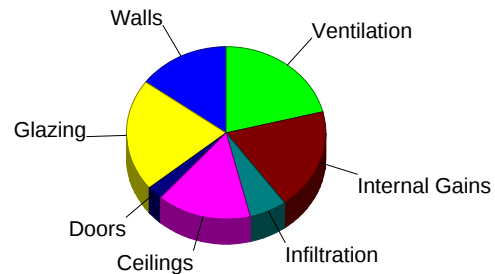
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	3.6	4077	19.1
Glazing	13.2	1811	8.5
Doors	14.0	590	2.8
Ceilings	1.4	1981	9.3
Floors	2.1	3004	14.0
Infiltration	3.2	4196	19.6
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		5740	26.8
Adjustments		0	0
Total		21399	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	2.1	2377	14.9
Glazing	24.4	3353	21.1
Doors	9.8	411	2.6
Ceilings	1.7	2442	15.3
Floors	0	0	0
Infiltration	0.7	967	6.1
Ducts		0	0
Ventilation		3354	21.1
Internal gains		3020	19.0
Blower		0	0
Adjustments		0	0
Total		15925	100.0



Latent Cooling Load = 6226 Btuh

Overall U-value = 0.062 Btuh/ft²·°F, Window / Floor Area = 9.4 %

Data entries checked.



Component Constructions
Entire House
Clayton Homes

Job: M46058-FDJ-TZI
Date: Jul 26, 2023
By:

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

Project Information

For: M46058-FDJ-TZI, GILES

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Home Construction 6
And Safety Standards

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Design Conditions

Location:

Augusta/Bush Field, GA, US
Elevation: 148 ft
Latitude: 33°N

Outdoor:

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

Heating

26
-
-
15.0

Cooling

95
21 (M)
76
7.5

Indoor:

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

Heating

70
44
50
38.8

Cooling

75
20
50
40.2

Infiltration:

Method
Construction quality
Fireplaces

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 Btu/h/ft ² ·°F	Insul R ft ² ·°F/Btu/h	Htg HTM Btu/h/ft ²	Loss Btu/h	Clg HTM Btu/h/ft ²	Gain Btu/h
n	208	0.082	13.0	3.60	749	2.10	437
e	370	0.082	13.0	3.60	1333	2.10	777
s	208	0.082	13.0	3.60	749	2.10	437
w	346	0.082	13.0	3.60	1246	2.10	727
all	1133	0.082	13.0	3.60	4077	2.10	2377

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	57	0.300	0	13.2	746	22.6	1282
w	81	0.300	0	13.2	1065	22.6	1828
all	138	0.300	0	13.2	1811	22.6	3110

Doors

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

e	21	0.320	0	14.0	295	9.79	206
w	21	0.320	0	14.0	295	9.79	206
all	42	0.320	0	14.0	590	9.79	411

Ceilings

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

	1456	0.031	38.0	1.36	1981	1.68	2442
--	------	-------	------	------	------	------	------

Floors

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

	1456	0.047	22.0	2.06	3004	0	0
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Project Summary

Entire House

Clayton Homes

Job: M46058-FDJ-TZI
Date: Jul 26, 2023
By:

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

Project Information

For: M46058-FDJ-TZI, GILES

Notes: DUCT CAPACITY-27100 BTUHS

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Design Information

Weather: Augusta/Bush Field, GA, US

Winter Design Conditions

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

Summer Design Conditions

Outside db 95 °F
Inside db 75 °F
Design TD 20 °F
Daily range M
Relative humidity 50 %
Moisture difference 40 gr/lb

Heating Summary

Structure 17076 Btuh
Ducts 0 Btuh
Central vent (90 cfm) 4323 Btuh
Outside air
Humidification 0 Btuh
Piping 0 Btuh
Equipment load 21399 Btuh

Sensible Cooling Equipment Load Sizing

Structure 13975 Btuh
Ducts 0 Btuh
Central vent (90 cfm) 1950 Btuh
Outside air
Blower 0 Btuh
Use manufacturer's data n
Rate/swing multiplier 1.00
Equipment sensible load 15893 Btuh

Infiltration

Method Simplified
Construction quality Average
Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 3778 Btuh
Ducts 0 Btuh
Central vent (90 cfm) 2449 Btuh
Outside air
Equipment latent load 6226 Btuh

	Heating	Cooling
Area (ft ²)	1456	1456
Volume (ft ³)	11648	11648
Air changes/hour	0.45	0.23
Equiv. AVF (cfm)	87	45

Equipment Total Load (Sen+Lat) 22119 Btuh
Req. total capacity at 0.70 SHR 1.9 ton

Heating Equipment Summary

Make Smart Comfort
Trade PERFORMANCE 15 SEER2 HP
Model N4H5S24*K*AAA*
AHRI ref 0
Efficiency 7.5 HSPF2
Heating input
Heating output 23000 Btuh @ 47°F
Temperature rise 26 °F
Actual air flow 813 cfm
Air flow factor 0.048 cfm/Btuh
Static pressure 0.30 in H2O
Space thermostat
Capacity balance point = 27 °F

Backup: Smart Comfort FEVA0036**+NAVA43601CK
Input = 10 kW, Output = 22709 Btuh, 100 AFUE

Cooling Equipment Summary

Make Smart Comfort
Trade PERFORMANCE 15 SEER2 HP
Cond N4H5S24*K*AAA*
Coil FEVA0036**+NAVA43601CK
AHRI ref 0
Efficiency 12.0 EER2,15.2 SEER2
Sensible cooling 17080 Btuh
Latent cooling 7320 Btuh
Total cooling 24400 Btuh
Actual air flow 813 cfm
Air flow factor 0.058 cfm/Btuh
Static pressure 0.30 in H2O
Load sensible heat ratio 0.72

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



Duct System Summary

Entire House

Clayton Homes

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

Job: M46058-FDJ-TZI

Date: Jul 26, 2023

By:



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Project Information

For: M46058-FDJ-TZI, GILES

	Heating	Cooling
External static pressure	0.30 in H ₂ O	0.30 in H ₂ O
Pressure losses	0 in H ₂ O	0 in H ₂ O
Available static pressure	0.30 in H ₂ O	0.30 in H ₂ O
Supply / return available pressure	0.150 / 0.150 in H ₂ O	0.150 / 0.150 in H ₂ O
Lowest friction rate	0.221 in/100ft	0.221 in/100ft
Actual air flow	813 cfm	813 cfm
Total effective length (TEL)	136 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 1010	48	44	0.231	5.0	0x0	VIFx	29.6	100.0	st4
BED 2	h 1840	88	79	0.221	6.0	0x0	VIFx	35.6	100.0	st4
BED 3	h 4564	217	184	0.690	7.0	0x0	VIFx	8.5	35.0	st3
DINING	h 1034	49	48	0.243	5.0	0x0	VIFx	23.6	100.0	st4
KITCHEN	c 2394	106	139	0.759	6.0	0x0	VIFx	4.5	35.0	st1
LIVING ROOM	c 2611	107	152	0.234	7.0	0x0	VIFx	28.1	100.0	st5
P-BATH	h 1825	87	56	0.226	6.0	0x0	VIFx	32.6	100.0	st5
P-BED	c 1913	111	111	0.517	5.0	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
st1	PeakAVF	217	251	0.517	515	4.1	5 x 14	ShtMetl	st2
st3	PeakAVF	217	184	0.690	447	4.6	5 x 14	ShtMetl	
st4	PeakAVF	185	170	0.221	380	4.6	5 x 14	ShtMetl	
st5	PeakAVF	193	208	0.226	427	4.6	5 x 14	ShtMetl	
st2	PeakAVF	378	378	0.221	908	5.3	5 x 12	VinlFix	



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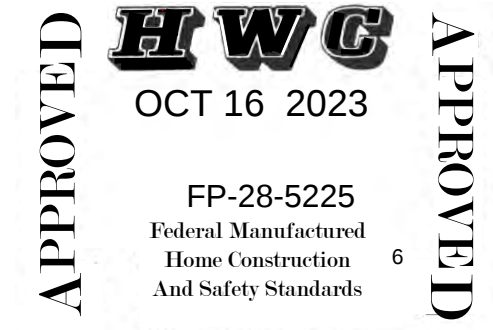
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Return Branch Detail Table

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	813	813	0	0	0	0	0x 0		VIFx	





Manual S Compliance Report

Entire House

Clayton Homes

Job: M46058-FDJ-TZII
Date: Jul 26, 2023
By:

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

Project Information

For: M46058-FDJ-TZII, GILES

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Home Construction
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Cooling Equipment

Design Conditions

Outdoor design DB:	95.0°F	Sensible gain:	16125	Btuh	Entering coil DB:	77.3°F
Outdoor design WB:	76.5°F	Latent gain:	6734	Btuh	Entering coil WB:	64.3°F
Indoor design DB:	75.0°F	Total gain:	22859	Btuh		
Indoor RH:	50%	Estimated airflow:	813	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Smart Comfort	Model:	N4H5S24*K*AAA*+FEVA0036**+NAVA43601CK	
Actual airflow:	813	cfm		
Sensible capacity:	17080	Btuh	106% of load	
Latent capacity:	7320	Btuh	109% of load	
Total capacity:	24400	Btuh	107% of load	SHR: 70%

Heating Equipment

Design Conditions

Outdoor design DB:	19.6°F	Heat loss:	23836	Btuh	Entering coil DB:	64.3°F
Indoor design DB:	70.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Smart Comfort	Model:	N4H5S24*K*AAA*+FEVA0036**+NAVA43601CK	
Actual airflow:	813	cfm		
Output capacity:	23000	Btuh	96% of load	Capacity balance: 25 °F
Supplemental heat required:	836	Btuh		Economic balance: -99 °F

Backup equipment type:	Elec furnace			
Manufacturer:	Smart Comfort	Model:	FEVA0036**+NAVA43601CK	
Actual airflow:	813	cfm		
Output capacity:	22709	Btuh	95% of load	Temp. rise: 50 °F

Meets all requirements of ACCA Manual S.



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Building Analysis Entire House Clayton Homes

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

Job: M46058-FDJ-TZII
Date: Jul 26, 2023
By:

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Project Information

For: M46058-FDJ-TZII, GILES

Design Conditions

Location:

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

Outdoor:

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

Heating

20
-
-
15.0

Cooling

95
19 (M)
77
7.5

Indoor:

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

Heating

70
50
50
43.5

Cooling

75
20
50
44.3

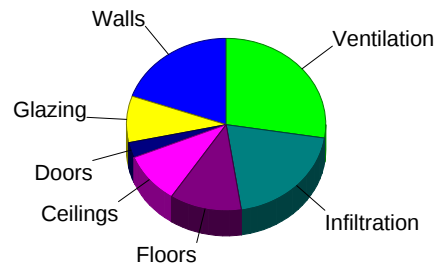
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Average
0

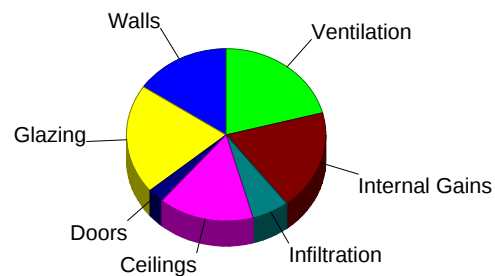
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	4.1	4680	19.6
Glazing	15.1	2079	8.7
Doors	16.1	677	2.8
Ceilings	1.6	2275	9.5
Floors	1.9	2789	11.7
Infiltration	3.6	4787	20.1
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		6548	27.5
Adjustments		0	0
Total		23836	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	2.2	2507	15.5
Glazing	24.2	3325	20.6
Doors	10.2	430	2.7
Ceilings	1.7	2505	15.5
Floors	0	0	0
Infiltration	0.7	971	6.0
Ducts		0	0
Ventilation		3366	20.9
Internal gains		3020	18.7
Blower		0	0
Adjustments		0	0
Total		16125	100.0



Latent Cooling Load = 6734 Btuh

Overall U-value = 0.059 Btuh/ft²·°F, Window / Floor Area = 9.4 %

Data entries checked.



Component Constructions
Entire House
Clayton Homes

Job: M46058-FDJ-TZII
Date: Jul 26, 2023
By:

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

Project Information

For: M46058-FDJ-TZII, GILES

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And Safety Standards

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Design Conditions

Location:

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

Outdoor:

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

Heating

20
-
-
15.0

Cooling

95
19 (M)
77
7.5

Indoor:

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

Heating

70
50
50
43.5

Cooling

75
20
50
44.3

Infiltration:

Method
Construction quality
Fireplaces

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 Btu/h/ft ² ·°F	Insul R ft ² ·°F/Btu/h	Htg HTM Btu/h/ft ²	Loss Btu/h	Clg HTM Btu/h/ft ²	Gain Btu/h
n	208	0.082	13.0	4.13	860	2.21	461
e	370	0.082	13.0	4.13	1531	2.21	820
s	208	0.082	13.0	4.13	860	2.21	461
w	346	0.082	13.0	4.13	1431	2.21	766
all	1133	0.082	13.0	4.13	4680	2.21	2507

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	57	0.300	0	15.1	857	22.6	1281
w	81	0.300	0	15.1	1222	22.6	1828
all	138	0.300	0	15.1	2079	22.6	3109

Doors

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

e	21	0.320	0	16.1	339	10.2	215
w	21	0.320	0	16.1	339	10.2	215
all	42	0.320	0	16.1	677	10.2	430

Ceilings

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

	1456	0.031	38.0	1.56	2275	1.72	2505
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Floors

CMH-DW-158- R33-THP469-DOE: CMH-DW-180-R33-THP472-DOE

	1456	0.038	33.0	1.92	2789	0	0
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Project Summary

Entire House

Clayton Homes

Job: M46058-FDJ-TZII
Date: Jul 26, 2023
By:

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

Project Information

For: M46058-FDJ-TZII, GILES

Notes: DUCT CAPACITY-27100 BTUHS

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Home Construction
And Safety Standards

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Design Information

Weather: Millington Muni Arp, TN, US

Winter Design Conditions

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

Summer Design Conditions

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

Heating Summary

Structure 18904 Btuh
Ducts 0 Btuh
Central vent (90 cfm) 4932 Btuh
Outside air
Humidification 0 Btuh
Piping 0 Btuh
Equipment load 23836 Btuh

Sensible Cooling Equipment Load Sizing

Structure 14168 Btuh
Ducts 0 Btuh
Central vent (90 cfm) 1957 Btuh
Outside air
Blower 0 Btuh
Use manufacturer's data n
Rate/swing multiplier 1.00
Equipment sensible load 16125 Btuh

Infiltration

Method Simplified
Construction quality Average
Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 4056 Btuh
Ducts 0 Btuh
Central vent (90 cfm) 2678 Btuh
Outside air
Equipment latent load 6734 Btuh

	Heating	Cooling
Area (ft ²)	1456	1456
Volume (ft ³)	11648	11648
Air changes/hour	0.45	0.23
Equiv. AVF (cfm)	87	45

Equipment Total Load (Sen+Lat) 22859 Btuh
Req. total capacity at 0.70 SHR 1.9 ton

Heating Equipment Summary

Make Smart Comfort
Trade PERFORMANCE 15 SEER2 HP
Model N4H5S24*K*AAA*
AHRI ref 0
Efficiency 7.5 HSPF2
Heating input
Heating output 23000 Btuh @ 47°F
Temperature rise 26 °F
Actual air flow 813 cfm
Air flow factor 0.043 cfm/Btuh
Static pressure 0.30 in H2O
Space thermostat
Capacity balance point = 25 °F

Backup: Smart Comfort FEVA0036**+NAVA43601CK
Input = 10 kW, Output = 22709 Btuh, 100 AFUE

Cooling Equipment Summary

Make Smart Comfort
Trade PERFORMANCE 15 SEER2 HP
Cond N4H5S24*K*AAA*
Coil FEVA0036**+NAVA43601CK
AHRI ref 0
Efficiency 12.0 EER2,15.2 SEER2
Sensible cooling 17080 Btuh
Latent cooling 7320 Btuh
Total cooling 24400 Btuh
Actual air flow 813 cfm
Air flow factor 0.057 cfm/Btuh
Static pressure 0.30 in H2O
Load sensible heat ratio 0.71

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



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Duct System Summary

Entire House

Clayton Homes

Job: M46058-FDJ-TZII
Date: Jul 26, 2023
By:

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

Project Information

For: M46058-FDJ-TZII, 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	0.221 in/100ft	0.221 in/100ft
Actual air flow	813 cfm	813 cfm
Total effective length (TEL)	136 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 1104	48	44	0.231	5.0	0x0	VIFx	29.6	100.0	st4
BED 2	h 2049	88	79	0.221	6.0	0x0	VIFx	35.6	100.0	st4
BED 3	h 5099	219	185	0.690	7.0	0x0	VIFx	8.5	35.0	st3
DINING	h 1132	49	48	0.243	5.0	0x0	VIFx	23.6	100.0	st4
KITCHEN	c 2423	105	139	0.759	6.0	0x0	VIFx	4.5	35.0	st1
LIVING ROOM	c 2633	106	151	0.234	7.0	0x0	VIFx	28.1	100.0	st5
P-BATH	h 2029	87	56	0.226	6.0	0x0	VIFx	32.6	100.0	st5
P-BED	c 1943	111	112	0.517	5.0	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
st1	PeakAVF	216	251	0.517	515	4.1	5 x 14	ShtMetl	st2
st3	PeakAVF	219	185	0.690	451	4.6	5 x 14	ShtMetl	
st4	PeakAVF	184	170	0.221	379	4.6	5 x 14	ShtMetl	
st5	PeakAVF	193	207	0.226	426	4.6	5 x 14	ShtMetl	
st2	PeakAVF	377	378	0.221	906	5.3	5 x 12	VinlFix	



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...08\2023-MODELS\FARMHOUSE 56-M46058\Project2.rup Calc = MJ8 Front Door faces: E

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	813	813	0	0	0	0	0x 0		VIFx	

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Manual S Compliance Report

Entire House

Clayton Homes

Job: M46058-FDJ-TZIII
Date: Jul 26, 2023
By:

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

Project Information

For: M46058-FDJ-TZIII, GILES

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Cooling Equipment

Design Conditions

Outdoor design DB:	87.6°F	Sensible gain:	12617 Btuh	Entering coil DB:	76.4°F
Outdoor design WB:	71.2°F	Latent gain:	4323 Btuh	Entering coil WB:	63.3°F
Indoor design DB:	75.0°F	Total gain:	16940 Btuh		
Indoor RH:	50%	Estimated airflow:	813 cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Smart Comfort	Model:	N4H5S24*K*AAA*+FEVA0036**+NAVA43601CK
Actual airflow:	813 cfm		
Sensible capacity:	17080 Btuh	135% of load	
Latent capacity:	7320 Btuh	169% of load	
Total capacity:	24400 Btuh	144% of load	SHR: 70%

Heating Equipment

Design Conditions

Outdoor design DB:	15.8°F	Heat loss:	23829 Btuh	Entering coil DB:	63.9°F
Indoor design DB:	70.0°F				

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Smart Comfort	Model:	N4H5S24*K*AAA*+FEVA0036**+NAVA43601CK
Actual airflow:	813 cfm		
Output capacity:	23000 Btuh	97% of load	Capacity balance: 23 °F
Supplemental heat required:	829 Btuh		Economic balance: -99 °F

Backup equipment type:	Elec furnace		
Manufacturer:	Smart Comfort	Model:	FEVA0036**+NAVA43601CK
Actual airflow:	813 cfm		
Output capacity:	22709 Btuh	95% of load	Temp. rise: 54 °F

Meets all requirements of ACCA Manual S.



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Building Analysis Entire House Clayton Homes

Job: M46058-FDJ-TZIII
Date: Jul 26, 2023
By:



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

Project Information

For: M46058-FDJ-TZIII, GILES

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

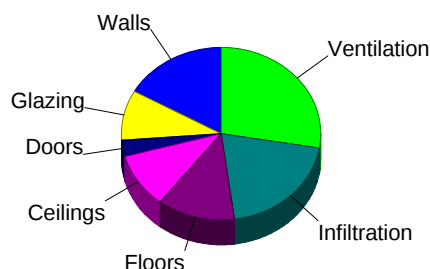
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Average
0

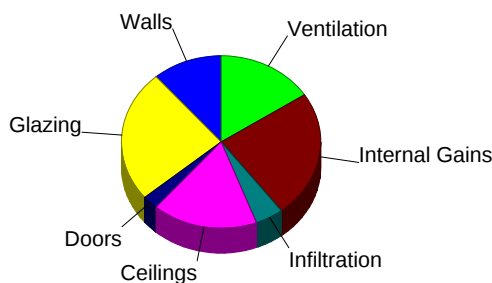
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	3.0	4008	16.8
Glazing	16.3	2236	9.4
Doors	17.3	728	3.1
Ceilings	1.7	2446	10.3
Floors	2.1	2999	12.6
Infiltration	3.2	4819	20.2
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		6592	27.7
Adjustments		0	0
Total		23829	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	1.1	1427	11.3
Glazing	22.7	3128	24.8
Doors	7.8	327	2.6
Ceilings	1.5	2158	17.1
Floors	0	0	0
Infiltration	0.4	573	4.5
Ducts		0	0
Ventilation		1985	15.7
Internal gains		3020	23.9
Blower		0	0
Adjustments		0	0
Total		12617	100.0



Latent Cooling Load = 4323 Btuh

Overall U-value = 0.052 Btuh/ft²·°F, Window / Floor Area = 9.4 %

Data entries checked.



Component Constructions
Entire House
Clayton Homes

Job: M46058-FDJ-TZIII
Date: Jul 26, 2023
By:

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

Project Information

For: M46058-FDJ-TZIII, GILES

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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

Construction descriptions

Walls

CMH - DW - R-21 Wall - THP510-DOE: Double Wide - R-22 Insulation
THP510 2x6 Wall-DOE

Or	Area ft ²	U-value Btu/h/ft ² ·°F	Insul R ft ² ·°F/Btu/h	Htg HTM Btu/h/ft ²	Loss Btu/h	Clg HTM Btu/h/ft ²	Gain Btu/h
n	312	0.055	21.0	2.98	930	1.06	331
e	370	0.055	21.0	2.98	1104	1.06	393
s	312	0.055	21.0	2.98	930	1.06	331
w	350	0.055	21.0	2.98	1044	1.06	372
all	1345	0.055	21.0	2.98	4008	1.06	1427

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	57	0.300	0	16.3	921	20.5	1164
w	81	0.300	0	16.3	1314	20.5	1660
all	138	0.300	0	16.3	2236	20.5	2824

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

	1456	0.031	38.0	1.68	2446	1.48	2158
--	------	-------	------	------	------	------	------

Floors

CMH-DW-158- R33-THP469-DOE: CMH-DW-180-R33-THP472-DOE

	1456	0.038	33.0	2.06	2999	0	0
--	------	-------	------	------	------	---	---



Project Summary

Entire House

Clayton Homes

Job: M46058-FDJ-TZIII
Date: Jul 26, 2023
By:

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

Project Information

For: M46058-FDJ-TZIII, GILES

Notes: DUCT CAPACITY-27100 BTUHS

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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 18864 Btuh
Ducts 0 Btuh
Central vent (90 cfm) 4965 Btuh
Outside air
Humidification 0 Btuh
Piping 0 Btuh
Equipment load 23829 Btuh

Sensible Cooling Equipment Load Sizing

Structure 11463 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 11683 Btuh

Infiltration

Method Simplified
Construction quality Average
Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 2733 Btuh
Ducts 0 Btuh
Central vent (90 cfm) 1590 Btuh
Outside air
Equipment latent load 4323 Btuh

	Heating	Cooling
Area (ft ²)	1456	1456
Volume (ft ³)	11648	11648
Air changes/hour	0.45	0.23
Equiv. AVF (cfm)	87	45

Equipment Total Load (Sen+Lat) 16006 Btuh
Req. total capacity at 0.70 SHR 1.4 ton

Heating Equipment Summary

Make Smart Comfort
Trade PERFORMANCE 15 SEER2 HP
Model N4H5S24*K*AAA*
AHRI ref 0
Efficiency 7.5 HSPF2
Heating input
Heating output 23000 Btuh @ 47°F
Temperature rise 28 °F
Actual air flow 813 cfm
Air flow factor 0.043 cfm/Btuh
Static pressure 0.30 in H2O
Space thermostat
Capacity balance point = 23 °F

Backup: Smart Comfort FEVA0036**+NAVA43601CK
Input = 10 kW, Output = 22709 Btuh, 100 AFUE

Cooling Equipment Summary

Make Smart Comfort
Trade PERFORMANCE 15 SEER2 HP
Cond N4H5S24*K*AAA*
Coil FEVA0036**+NAVA43601CK
AHRI ref 0
Efficiency 12.0 EER2,15.2 SEER2
Sensible cooling 17080 Btuh
Latent cooling 7320 Btuh
Total cooling 24400 Btuh
Actual air flow 813 cfm
Air flow factor 0.071 cfm/Btuh
Static pressure 0.30 in H2O
Load sensible heat ratio 0.74

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



Duct System Summary

Entire House

Clayton Homes

Job: M46058-FDJ-TZIII
Date: Jul 26, 2023
By:

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

Project Information

For: M46058-FDJ-TZIII, GILES



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	Heating	Cooling
External static pressure	0.30 in H ₂ O	0.30 in H ₂ O
Pressure losses	0 in H ₂ O	0 in H ₂ O
Available static pressure	0.30 in H ₂ O	0.30 in H ₂ O
Supply / return available pressure	0.150 / 0.150 in H ₂ O	0.150 / 0.150 in H ₂ O
Lowest friction rate	0.221 in/100ft	0.221 in/100ft
Actual air flow	813 cfm	813 cfm
Total effective length (TEL)	136 ft	

Supply Branch Detail Table

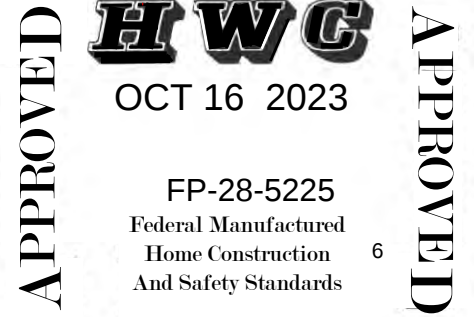
Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
BATH	h 1046	45	44	0.231	5.0	0x0	VIFx	29.6	100.0	st4
BED 2	h 1816	78	75	0.221	6.0	0x0	VIFx	35.6	100.0	st4
BED 3	h 4820	208	155	0.690	7.0	0x0	VIFx	8.5	35.0	st3
DINING	h 1718	74	59	0.243	5.0	0x0	VIFx	23.6	100.0	st4
KITCHEN	c 2090	99	148	0.759	6.0	0x0	VIFx	4.5	35.0	st1
LIVING ROOM	c 2447	131	174	0	0	0x0	VIFx	0	0	
P-BATH	h 1776	77	48	0.226	6.0	0x0	VIFx	32.6	100.0	st5
P-BED	c 1564	101	111	0.517	5.0	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
st1	PeakAVF	200	259	0.517	533	4.1	5 x 14	ShtMetl	st2
st3	PeakAVF	208	155	0.690	427	4.6	5 x 14	ShtMetl	
st4	PeakAVF	197	178	0.221	406	4.6	5 x 14	ShtMetl	
st5	PeakAVF	77	48	0.226	157	4.6	5 x 14	ShtMetl	
st2	PeakAVF	274	226	0.221	657	5.3	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	813	813	0	0	0	0	0x 0		VIFx	



Farm House 56

Model Number 46ESS28563AH23S

Drawing Number

M46058 HLTZ 2

Version 11

BOX SIZE: 26.33 ft. x 56 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

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

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

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Window Glass Area:

 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
s Area:	Standard	141.00	0.300	42.30
	Option	0.00	0.300	0.00
Net:	Floor	1474.67	0.038	56.18
	Wall	1132.33	0.082	92.51
	Ceiling	1474.67	0.0306	45.12
Zone 1:	Ext. Duct	78.50	0.242	18.98
Zone 2:	Ext. Duct	78.50	0.223	17.48
Zone 3:	Ext. Duct	78.50	0.206	16.14
d TZ 1:	Supply	0.00	0.000	0.00
d TZ 2:	Supply	0.00	0.000	0.00
d TZ 3:	Supply	0.00	0.00	0.00

Energy Star v3 & ZERH Max Glass (sq ft)	
Th. Zone 1	313.2
Th. Zone 2	180.8
Th. Zone 3	7.8

Outdoor

	Design Temp (F)	UA	Uo	Heatloss BTUH/F
Thermal Zone 1	11	268.31	0.062	383.60
Thermal Zone 2	0	266.80	0.061	382.10
Thermal Zone 3	-14	265.46	0.061	380.70

Design Temperatures

Furnace Heating Temp (F)	Economy Outdoor Temp (F)	
-19	8	10kW
-37	-5	12kW
-63	-23	15kW
-34	-3	40k Gas
-86	-39	60k Gas
-139	-76	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 56

Model Number 46ESS28563AH23S

Drawing Number

M46058 HL T2 3

Version 11

BOX SIZE: 26.33 ft. x 56 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

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

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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	419.2
Th. Zone 2	301.4
Th. Zone 3	147.5

Design Temperatures

Furnace Heating Temp (F)	Economy Outdoor Temp (F)	
-27	2	10kW
-46	-11	12kW
-75	-32	15kW
-43	-9	40k Gas
-100	-49	60k Gas
-157	-89	80k Gas

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	141.00	0.300	42.30
Option	0.00	0.300	0.00
Net: Floor	1474.67	0.038	56.18
Wall	1132.33	0.055	61.83
Ceiling	1474.67	0.0306	45.12
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

Window Glass Area:

Net:

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	237.62	0.055	352.90
Thermal Zone 2	0	236.12	0.054	351.40
Thermal Zone 3	-14	234.77	0.054	350.00

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