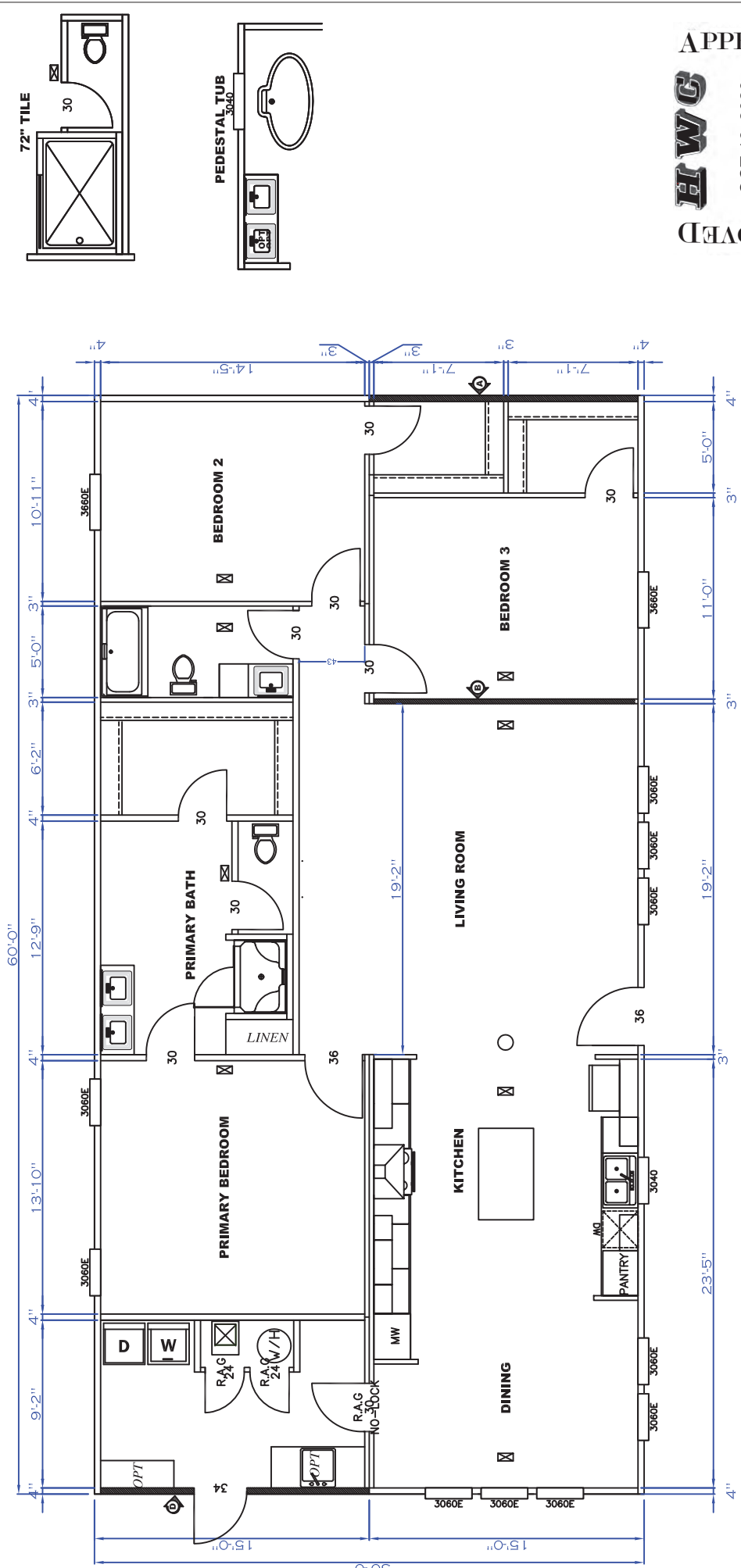


GILES HOMES
18401 E. 15th Ave., Suite 100
Denver, CO 80232
Phone: 303.751.1000
www.gileshomes.com

House # M46046
Presentation Name: NW
Model # M46046-2X4-2X3

Project Engineer: JBR/KUL/D
M46046

ELEVATION



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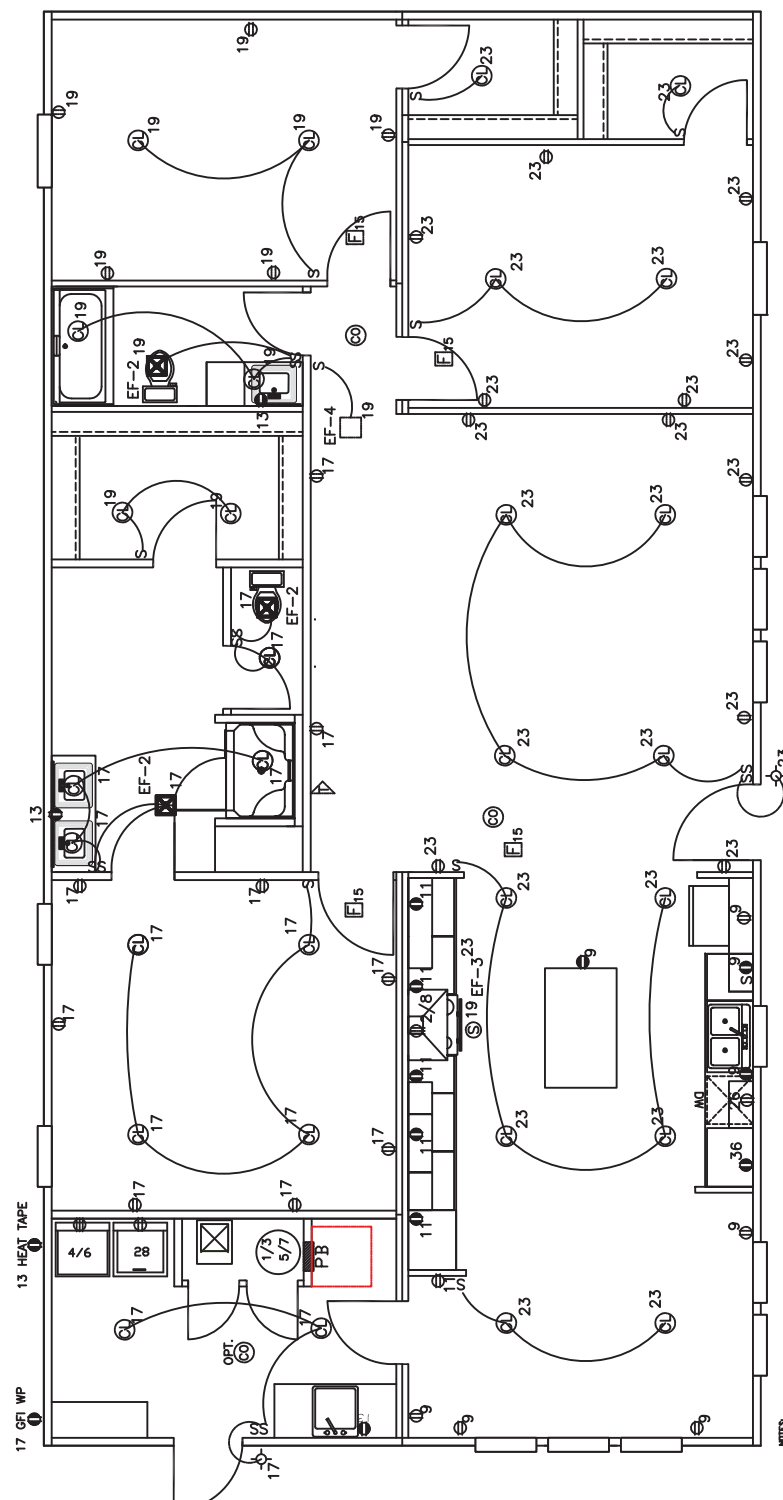
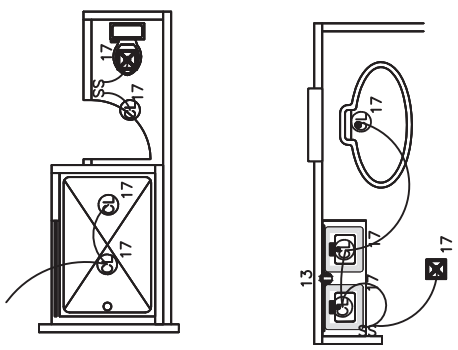
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M46046-FP-DOE

GILES HOMES Model #: M46046 Drawing #: _____
 405 S. BROAD ST. NEW TAZEWELL, TN 37825 Date: 6/21/23 Scale: N/A M46046-2X4-2X3
 Product Designer: HARVILLE_D M46046

FLOOR PLAN

IDENTIFIES SHEARWALL LOCATION



- NOTES:
1. ALL CIRCUITS SHOWN ARE FOR REFERENCE AND MAY BE CHANGED BASED ON OPTIONAL COMPONENTS INSTALLED IN THE HOME.
 2. REFER TO BMPA MANUAL FOR SYMBOL CHART.
 3. EITHER LIGHT OR RECEPTACLE MUST CONNECT TO SWITCH.
 4. EF-20 TO CFM EXHAUST FAN REQUIRES THERMAL ZONE 1L AND 1R.
 5. EF-20 TO CFM EXHAUST FAN REQUIRES THERMAL ZONE 1L AND 1R.
 6. EF-20 TO CFM EXHAUST FAN REQUIRES THERMAL ZONE 1L AND 1R.
 7. EF-20 TO CFM EXHAUST FAN REQUIRES THERMAL ZONE 1L AND 1R.
 8. REFER TO BMPA MANUAL OR THE IFC INSTALLATION INSTRUCTIONS FOR PROPER WIRE SIZE AND BREAKER SIZE FOR SPECIFIC APPLIANCE AND MODEL BEING INSTALLED.
 9. ALL SMOKE ALARMS ARE ONLY REQUIRED WHEN HOME HAS EITHER FUEL BURNING APPLIANCE, IS GARAGE READY OR IS IMMEDIATE READY. REFERENCE BMPA MANUAL FOR CURRENT REQUIREMENTS.
 10. DIMENSIONS SHOWN ON FRONT ARE APPROXIMATE AND TO BE USED ONLY AS A GUIDELINE.

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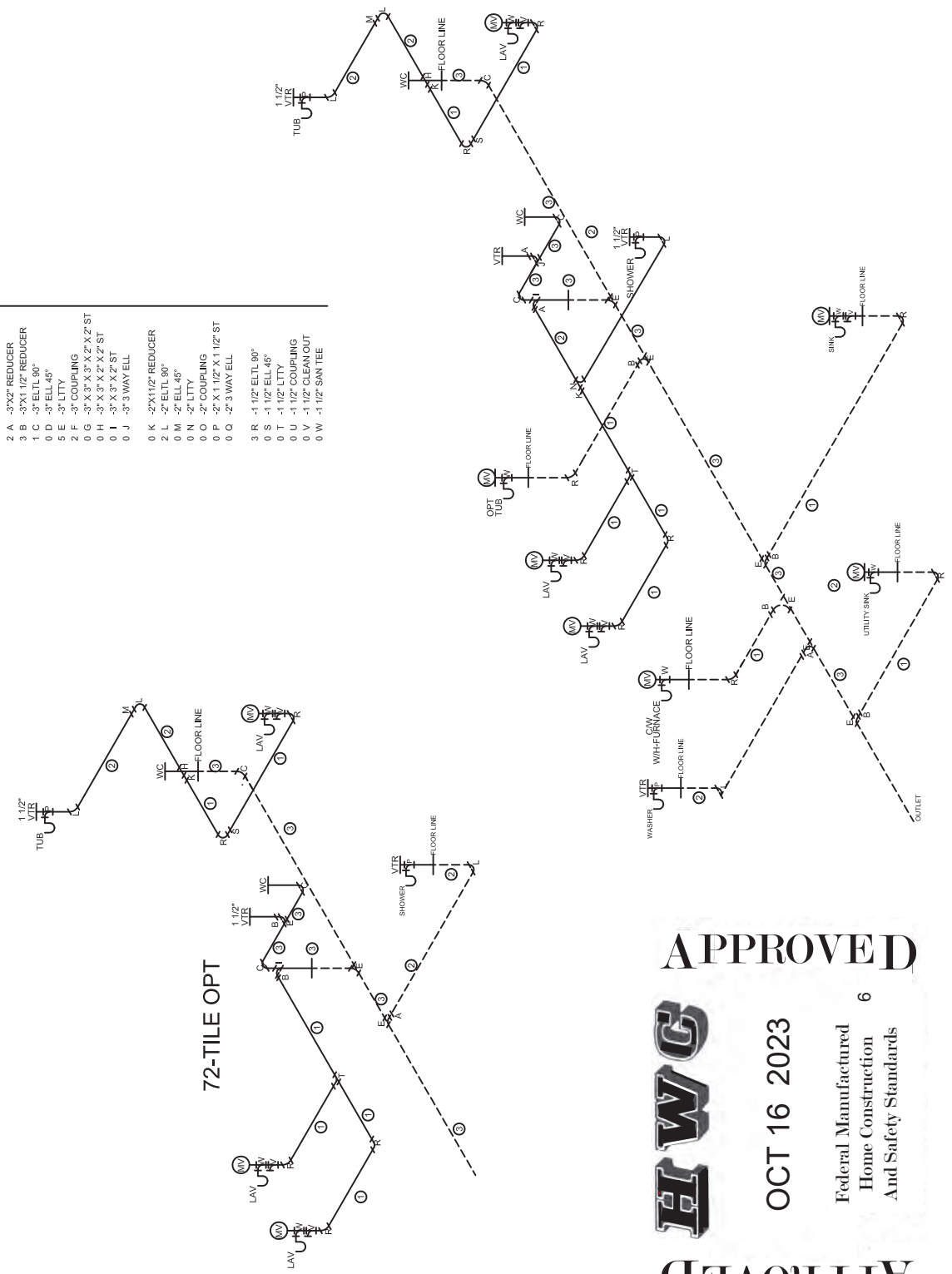
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LEGEND AND SET UP KIT.

VTR	- VENT THRU ROOF
(MV)	- MECHANICAL VENT
40 (3)	- 3" PIPE
0 (2)	- 2" PIPE
40 (1)	- 1 1/2" PIPE
2 A	- 3/4" X 2" REDUCER
3 B	- 3/4" X 1 1/2" REDUCER
0 D	- 3" ELL 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" X 3" X 2" ST
0 J	- 3" X 3" X 2" ST
0 K	- 2" X 1 1/2" REDUCER
2 L	- 2" ELL 90°
0 M	- 2" ELL 45°
0 N	- 2" LTTY
0 O	- 2" COUPLING
0 P	- 2" X 1 1/2" X 1 1/2" ST
0 Q	- 2" X 3" WAY ELL
3 R	- 1 1/2" ELL 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" SANTEE

72-TILE OPT

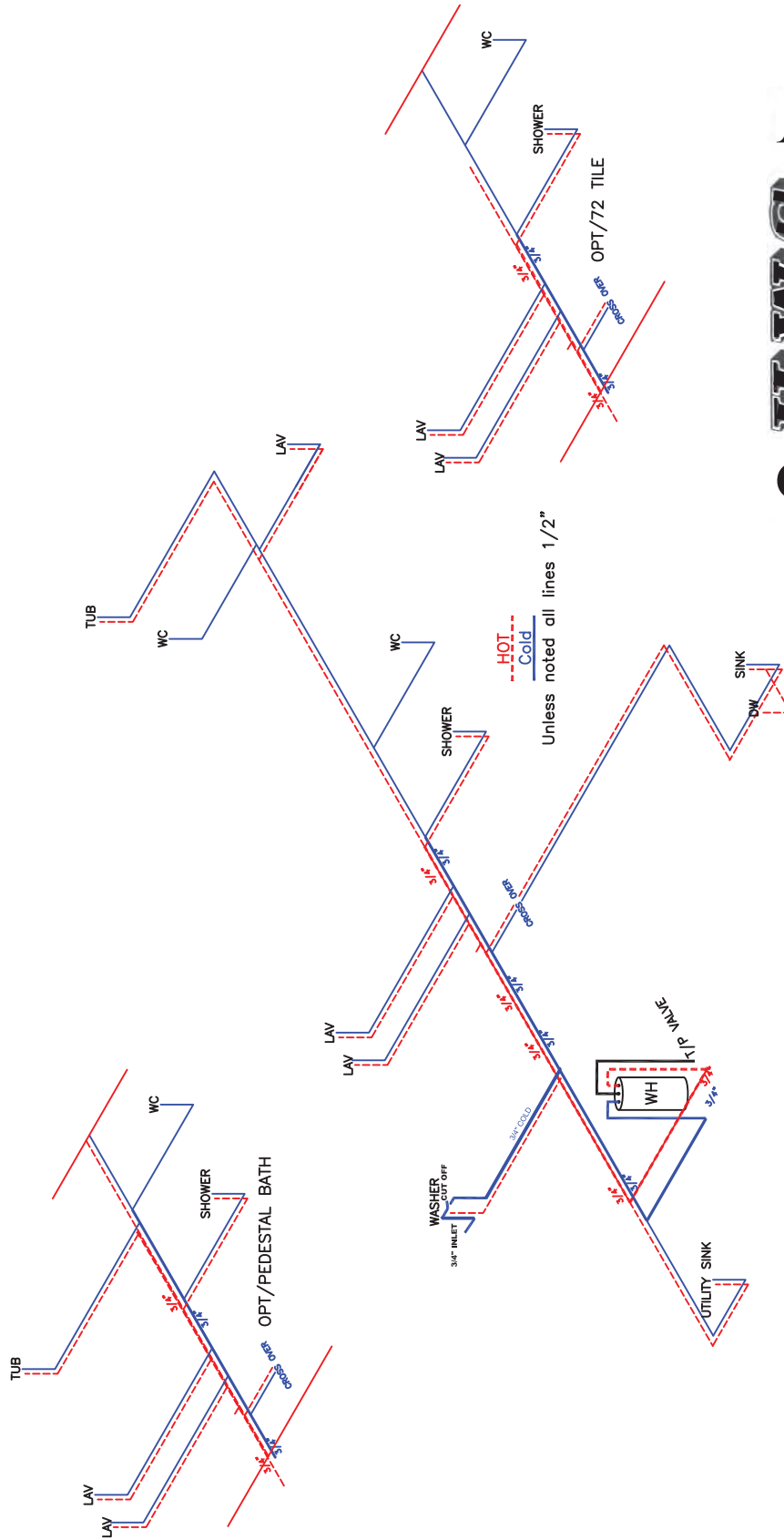


LEGEND AND SET UP KIT.

VTR	- VENT THRU ROOF
(MV)	- MECHANICAL VENT
40 (3)	- 3" PIPE
2 (2)	- 2" PIPE
40 (1)	- 1 1/2" PIPE
2 A	- 3/4" X 2" REDUCER
3 B	- 3/4" X 1 1/2" REDUCER
1 C	- 3" ELL 90°
0 D	- 3" ELL 45°
6 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" X 3" X 2" ST
0 K	- 2" X 1 1/2" REDUCER
2 L	- 2" ELL 90°
0 M	- 2" ELL 45°
0 N	- 2" LTTY
0 O	- 2" COUPLING
0 P	- 2" X 1 1/2" X 1 1/2" ST
0 Q	- 2" X 3" WAY ELL
3 R	- 1 1/2" ELL 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" SANTEE

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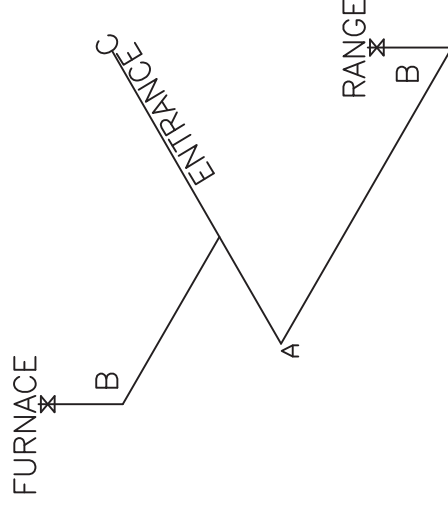
GILES HOMES	Model #: M46046	Drawing #:
405 S. BROAD ST. NEW TAZEWELL, TN 37825	Date: 6/21/23	Scale: N/A
Product Designer: HARVILLE_D	M46046	

PRESSURE LINES

F. M46046

LEGEND		APPLIANCE BTU'S RATINGS MAX. INPUT	
SYM	FITTINGS	FURNACE	BTU'S
A	TEE	77,000	BTU'S
B	90 ELL	56,000	
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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M46046-GL-DOE

GILES HOMES

Model #: M46046

Drawing #:

Date: 6/2/23

Scale: N/A

M46046-2X4-2X3

Product Designer: HARVILLE_D

M46046

GAS

F. M46046

J

CMH Inc.
SHEARWALL DESIGN - HUD



Model # M46046

Box Width = 180 " Double wide
 Box Length = 60 ft. 95.5" 12" MIN. IBEAM
 No Skylights
 No Porches
 Joist Size = #2 spf 2x6 Lags 9Mx3"

Minimum Joist Spacing 16 "
 No Offset Box
 No Clerestory
 No Origami Dormer
 No Sunken Floor
 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	SW1/SW2	
A	0'	136"	162	2	2/1			
D	60'	140"	162	2	2/2	Split Shearwall	79/61	
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	SW1/SW2	
A	0'	100"	162	2	1/1			
B	16.71'	136"	425	2	4/2			
D	60'	140"	425	6	4/4	Split Shearwall	79/61	
Diaphragm Construction:								
Shearwall	Dist./ Hitch	Length	PLF	# of Joists	Lags	Notes	SW1/SW2	
Diaphragm Construction:								
(3/8" sheathing 8d@ 6/12 oc (308) unblocked & (347) blocked Chords: 2x4 SPF #3 Top Plate spliced w/ 3x6 MCP & 2x6 SPF #3 Rail spliced w/ 12" glue block. Block Dist. X=0'								
Shearwall	Dist./ Hitch	Length	PLF	# of Joists	Lags	Notes	SW1/SW2	

Designed by JDN

Model # M46046

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 Vent
Living Room	354	3060 X3	29.7	8.39%		15.6	4.41%		Vent
Kitchen	210	3040	6.3	3.00%	X	3.3	1.57%	X	36
DINING	122	3060 X5	49.5	40.57%		26	21.31%		24
P-BED	200	3060 x2	19.8	9.90%		10.4	5.20%		36
Bedroom 2	151	3660	12.2	8.08%		6.2	4.11%		28
Bedroom 3	152	3660	12.2	8.03%		6.2	4.08%		28
P-BATH	120	3040	6.3	5.25%	X	3.3	2.75%	X	24
Bath 2	52	0	0.00%	X	X	0.00%	0	24	
Utility	115	0	0.00%		X	0.00%		X	
					0			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

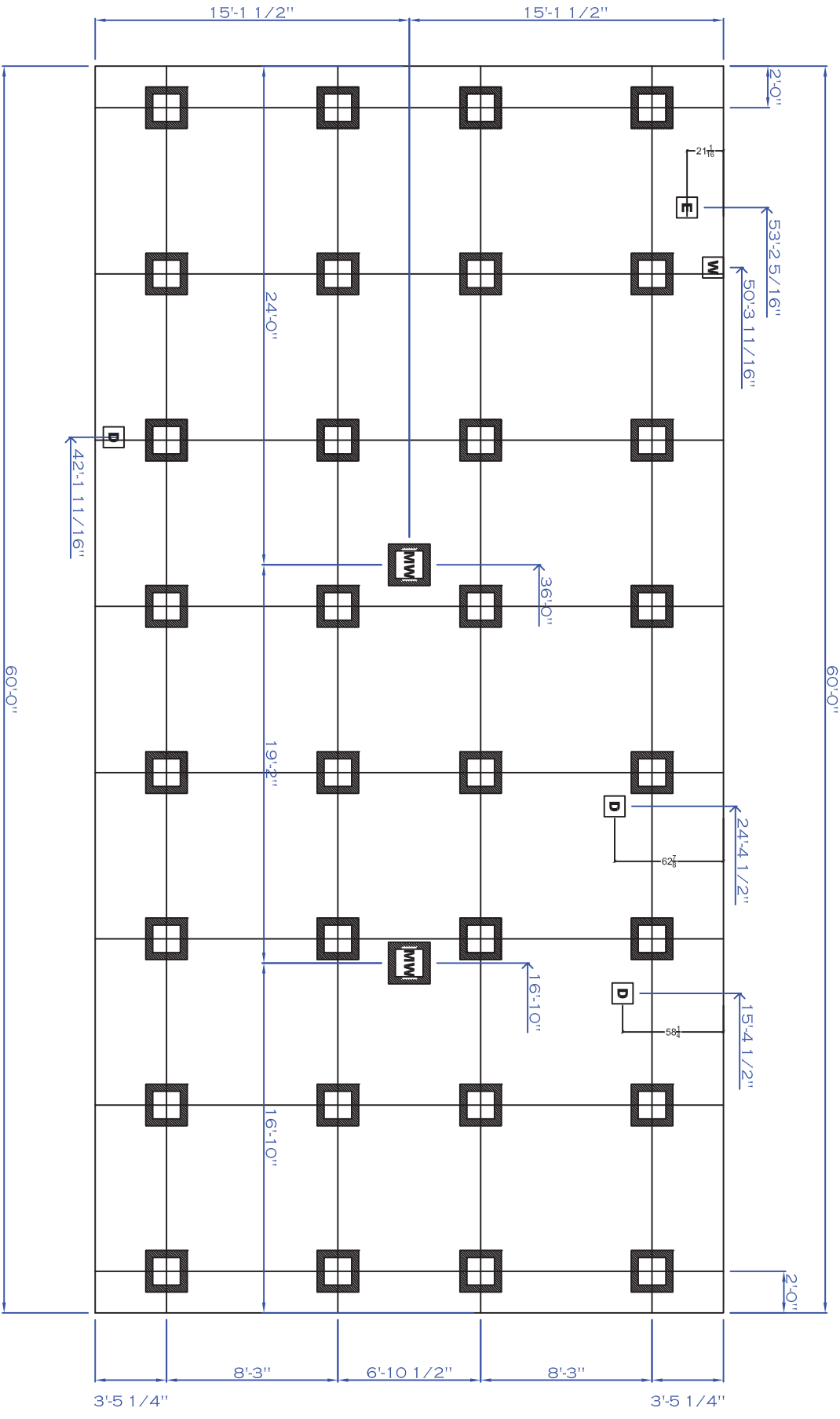


Data on this submitted
By: Andy Cupp
MFG. Giles Industries








REVISION

E. M46046 .2

M46046-LV-DOE



*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**
-  **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 Giles Homes 405 South Broad Street New Tazewell TN 37825
--	---

Instructions

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

1. Excavation

Bearing soil, type _____

2. Foundations

Footings concrete mix _____ strength psi _____ Reinforcing _____

Foundation wall material _____ Reinforcing _____

Interior foundation wall material _____ Party foundation wall _____

Columns material and sizes _____ Piers material and reinforcing _____

Girders material and sizes _____ Sills material _____

Basement entrance areaway _____ Window areaways _____

Waterproofing _____ Footing drains _____

Termite protection _____

Basementless space ground cover _____ insulation _____ foundation vents _____

Special foundations _____

Additional information

3. Chimneys

Material _____ Prefabricated (make and size) _____

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

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

Additional information

Chimney Kit 58621

4. Fireplaces

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

Fireplace facing _____ lining _____ hearth 103217 _____ mantel 1032918 _____

Additional information

Fireplace front 1032921

5. Exterior Walls

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

6. Floor Framing

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

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

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

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

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

Additional information _____

9. Partition Framing

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

10. Ceiling Framing

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

11. Roof Framing

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

12. Roofing

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

13. Gutters and Downspouts

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

14. Lath and Plaster

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

15. Decorating (Paint, wallpaper, etc.)

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

Additional information _____

16. Interior Doors and Trim

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

17. Windows

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

18. Entrances and Exterior Detail

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

19. Cabinets and Interior Detail

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

20. Stairs

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

Disappearing make and model number _____
 Additional information _____

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

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

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

Additional information _____

22. Plumbing

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

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

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

Additional information _____

23. Heating

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

Additional information Down flow

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

Additional information

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

Additional information

Controls make and types _____

Additional information

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

Additional information

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

Make and model _____

Control _____

Additional information

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

Additional information

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

Other heating, ventilating, or cooling equipment _____

Additional information

24. Electric Wiring

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

Additional information

25. Lighting Fixtures

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

Nontypical installation _____

Additional information

26. Insulation

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

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

Hardware (make, material, and finish.)

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

Porches

Terraces

Garages

Walks and Driveways

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

Other Onsite Improvements

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

Landscaping, Planting, and Finish Grading

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

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

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

Signature _____



Manual S Compliance Report
Entire House
Clayton Homes

M46046-FDJ-TZI-DOE

Job: M46046-FDJ-TZI

Date: Jun 27, 2023

By:

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

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Project Information

For: M46046-FDJ-TZI, GILES

OCT 16 2023

Federal Manufactured
 Home Construction 6
 And Safety Standards

Cooling Equipment

Design Conditions

Outdoor design DB:	91.7°F	Sensible gain:	11485 Btuh	Entering coil DB:	77.7°F
Outdoor design WB:	73.9°F	Latent gain:	3163 Btuh	Entering coil WB:	64.4°F
Indoor design DB:	75.0°F	Total gain:	14648 Btuh		
Indoor RH:	50%	Estimated airflow:	580 cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Smart Comfort	Model:	R4H5S18*K*AAA*+FEVA0024**+NAVA43601CK		
Actual airflow:	580 cfm				
Sensible capacity:	12180 Btuh	106% of load			
Latent capacity:	5220 Btuh	165% of load			
Total capacity:	17400 Btuh	119% of load	SHR:	70%	

Heating Equipment

Design Conditions

Outdoor design DB:	26.4°F	Heat loss:	21043 Btuh	Entering coil DB:	63.1°F
Indoor design DB:	70.0°F				

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Smart Comfort	Model:	R4H5S18*K*AAA*+FEVA0024**+NAVA43601CK		
Actual airflow:	580 cfm				
Output capacity:	16800 Btuh	80% of load		Capacity balance:	35 °F
Supplemental heat required:	4243 Btuh			Economic balance:	-99 °F

Backup equipment type:	Elec furnace				
Manufacturer:	Smart Comfort	Model:	FEVA0024**+NAVA43601CK		
Actual airflow:	580 cfm				
Output capacity:	21410 Btuh	102% of load	Temp. rise:	50 °F	

Meets all requirements of ACCA Manual S.



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Project Information

For: M46046-FDJ-TZI, GILES

OCT 16 2023

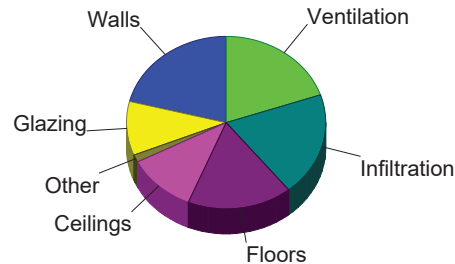
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 Home Construction 6
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Design Conditions

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			

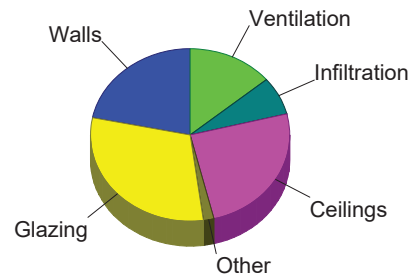
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	3.6	4418	21.0
Glazing	13.1	2136	10.2
Doors	14.0	293	1.4
Ceilings	1.4	2363	11.2
Floors	2.0	3582	17.0
Infiltration	2.9	4092	19.4
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		4159	19.8
Adjustments		0	0
Total		21043	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	2.0	2503	21.8
Glazing	21.3	3482	30.3
Doors	9.5	200	1.7
Ceilings	1.6	2883	25.1
Floors	0	0	0
Infiltration	0.6	825	7.2
Ducts		0	0
Ventilation		1593	13.9
Internal gains		0	0
Blower		0	0
Adjustments		0	0
Total		11485	100.0



Latent Cooling Load = 3163 Btuh
 Overall U-value = 0.060 Btuh/ft²·°F, Window / Floor Area = 9.3 %

Data entries checked.



Component Constructions
Entire House
Clayton Homes

Job: M46046-FDJ-TZI
 Date: Jun 27, 2023
 By:

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

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Project Information

OCT 16 2023

For: M46046-FDJ-TZI, GILES

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			

Construction descriptions

	Or	Area ft²	U-value Btuh/ft²·F	Insul R ft²·F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
CMH - DW - R-13 Wall - THP502-DOE: Double Wide - R-13 Insulation	n	199	0.082	13.0	3.58	710	2.03	402
THP502 2x4 Wall-DOE	e	436	0.082	13.0	3.58	1559	2.03	883
	s	236	0.082	13.0	3.58	844	2.03	478
	w	365	0.082	13.0	3.58	1306	2.03	740
	all	1236	0.082	13.0	3.58	4418	2.03	2503
Partitions								
(none)								
Windows								
Clayton - Thermopane Low-E DOE: Clayton-Thermopane Low-E DOE;	n	38	0.300	0	13.1	491	7.72	290
50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	e	40	0.300	0	13.1	523	21.8	871
	w	86	0.300	0	13.1	1123	21.8	1869
	all	163	0.300	0	13.1	2136	18.5	3030
Doors								
CMH - Standard Door: CMH - Standard Door - Solid no storm	w	21	0.320	0	14.0	293	9.50	200
Ceilings								
CMH-DW-158 BOX R38 - THP1244 - DOE: CMH-DW-158 BOX R38-THP1244 - DOE		1748	0.031	38.0	1.35	2363	1.65	2883
Floors								
CMH-DW-158- R22-THP173-DOE: CMH-DW-158-R22-THP173-DOE		1748	0.047	22.0	2.05	3582	0	0



Project Summary
Entire House
Clayton Homes

Job: M46046-FDJ-TZI
 Date: Jun 27, 2023
 By:

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

Project Information

For: M46046-FDJ-TZI, GILES

Notes: DUCT CAPACITY 19333

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Federal Manufactured
 Home Construction 6
 And Safety Standards

Design Information

Weather: Atlanta Municipal, GA, US

Winter Design Conditions

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

Summer Design Conditions

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

Heating Summary

Structure 16884 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 4159 Btuh
 Outside air
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 21043 Btuh

Sensible Cooling Equipment Load Sizing

Structure 9892 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 11106 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 1079 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 2084 Btuh
 Outside air
 Equipment latent load 3163 Btuh

	Heating	Cooling
Area (ft ²)	1748	1748
Volume (ft ³)	13984	13984
Air changes/hour	0.38	0.20
Equiv. AVF (cfm)	89	47

Equipment Total Load (Sen+Lat) 14269 Btuh
 Req. total capacity at 0.70 SHR 1.3 ton

Heating Equipment Summary

Make Smart Comfort
 Trade 15 SEER2 R SERIES R410A HP
 Model R4H5S18*K*AAA*
 AHRI ref 0

Efficiency 7.5 HSPF2
 Heating input
 Heating output 16800 Btuh @ 47°F
 Temperature rise 27 °F
 Actual air flow 580 cfm
 Air flow factor 0.034 cfm/Btuh
 Static pressure 0.30 in H2O
 Space thermostat
 Capacity balance point = 35 °F

Cooling Equipment Summary

Make Smart Comfort
 Trade 15 SEER2 R SERIES R410A HP
 Cond R4H5S18*K*AAA*
 Coil FEVA0024**+NAVA43601CK
 AHRI ref 0

Efficiency 12.0 EER2, 15 SEER2
 Sensible cooling 12180 Btuh
 Latent cooling 5220 Btuh
 Total cooling 17400 Btuh
 Actual air flow 580 cfm
 Air flow factor 0.059 cfm/Btuh
 Static pressure 0.30 in H2O
 Load sensible heat ratio 0.78

Backup: Smart Comfort FEVA0024**+NAVA43601CK
 Input = 10 kW, Output = 21410 Btuh, 100 AFUE

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





Duct System Summary
Entire House
Clayton Homes

Job: M46046-FDJ-TZI
 Date: Jun 27, 2023
 By:

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

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Federal Manufactured
 Home Construction
 And Safety Standards 6

Project Information

For: M46046-FDJ-TZI, GILES

	Heating	Cooling
External static pressure	0.30 in H2O	0.30 in H2O
Pressure losses	0 in H2O	0 in H2O
Available static pressure	0.30 in H2O	0.30 in H2O
Supply / return available pressure	0.150 / 0.150 in H2O	0.150 / 0.150 in H2O
Lowest friction rate	0.142 in/100ft	0.142 in/100ft
Actual air flow	580 cfm	580 cfm
Total effective length (TEL)	212 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 1283	44	31	0.417	5.0	0x0	VIFx	37.0	35.0	st1
BED 2	h 1995	69	65	0.397	5.0	0x0	VIFx	40.5	35.0	st1
BED 3	h 2558	88	82	0.212	6.0	0x0	VIFx	41.7	100.0	st3
DINING	c 1557	81	91	0.142	7.0	0x0	VIFx	46.7	165.0	st5
KITCHEN	h 1392	48	46	0.155	5.0	0x0	VIFx	28.2	165.0	st5
LIVING ROOM	c 2063	87	121	0.219	7.0	0x0	VIFx	37.2	100.0	st3
P-BATH	h 1335	46	32	0.508	5.0	0x0	VIFx	24.0	35.0	st1
P-BED	h 3425	118	112	0.632	5.0	0x0	VIFx	12.5	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	175	203	0.212	418	5.2	5 x 14	ShtMetl	st2
st5	Peak AVF	129	137	0.142	282	5.2	5 x 14	ShtMetl	st4
st4	Peak AVF	129	137	0.142	564	6.1	5 x 7	ShtMetl	st2
st2	Peak AVF	304	340	0.142	754	8.6	5 x 13	ShtMetl	
st1	Peak AVF	276	240	0.397	568	4.3	5 x 14	ShtMetl	

Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb1	0x0	580	580	0	0	0	0	0x 0		VIFx	

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Federal Manufactured
Home Construction ⁶
And Safety Standards



Manual S Compliance Report
Entire House
Clayton Homes

M46046-FDJ-TZII-DOE
 Job: M46046-FDJ-TZII
 Date: Jun 27, 2023
 By:

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



Project Information

For: M46046-FDJ-TZII, GILES

Cooling Equipment

Design Conditions

Outdoor design DB:	90.6°F	Sensible gain:	10999 Btuh	Entering coil DB:	77.5°F
Outdoor design WB:	73.7°F	Latent gain:	3209 Btuh	Entering coil WB:	64.4°F
Indoor design DB:	75.0°F	Total gain:	14207 Btuh		
Indoor RH:	50%	Estimated airflow:	580 cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Smart Comfort	Model:	R4H5S18*K*AAA*+FEVA0024**+NAVA43601CK		
Actual airflow:	580 cfm				
Sensible capacity:	12180 Btuh	111% of load			
Latent capacity:	5220 Btuh	163% of load			
Total capacity:	17400 Btuh	122% of load	SHR:	70%	

Heating Equipment

Design Conditions

Outdoor design DB:	20.8°F	Heat loss:	23057 Btuh	Entering coil DB:	62.2°F
Indoor design DB:	70.0°F				

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Smart Comfort	Model:	R4H5S18*K*AAA*+FEVA0024**+NAVA43601CK		
Actual airflow:	580 cfm				
Output capacity:	16800 Btuh	73% of load		Capacity balance:	34 °F
Supplemental heat required:	6257 Btuh			Economic balance:	-99 °F

Backup equipment type:	Elec furnace				
Manufacturer:	Smart Comfort	Model:	FEVA0024**+NAVA43601CK		
Actual airflow:	580 cfm				
Output capacity:	21410 Btuh	93% of load	Temp. rise:	50 °F	

Meets all requirements of ACCA Manual S.



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Project Information

For: M46046-FDJ-TZII, GILES

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Federal Manufactured Home Construction And Safety Standards 6

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

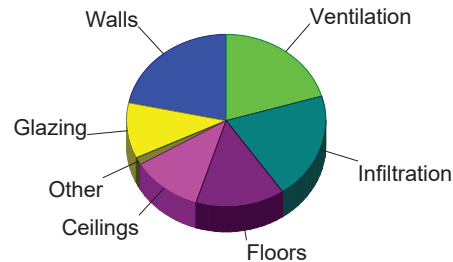
Cooling

75
16
50
35.8

Simplified
Average
0

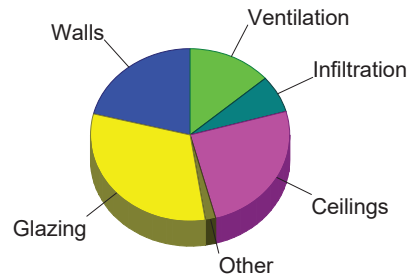
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	4.0	4985	21.6
Glazing	14.8	2411	10.5
Doors	15.7	331	1.4
Ceilings	1.5	2666	11.6
Floors	1.9	3338	14.5
Infiltration	3.3	4626	20.1
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		4701	20.4
Adjustments		0	0
Total		23057	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	1.9	2315	21.1
Glazing	21.1	3451	31.4
Doors	8.9	187	1.7
Ceilings	1.6	2783	25.3
Floors	0	0	0
Infiltration	0.5	772	7.0
Ducts		0	0
Ventilation		1490	13.6
Internal gains		0	0
Blower		0	0
Adjustments		0	0
Total		10999	100.0



Latent Cooling Load = 3209 Btuh
Overall U-value = 0.057 Btuh/ft²·°F, Window / Floor Area = 9.3 %

Data entries checked.



Component Constructions
Entire House
Clayton Homes

Job: M46046-FDJ-TZII
Date: Jun 27, 2023
By:

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

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Project Information

For: M46046-FDJ-TZII, GILES

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Federal Manufactured
Home Construction 6
And Safety Standards

Design Conditions

Location:			Indoor:	Heating	Cooling
TN-SG25			Indoor temperature (°F)	70	75
Elevation: 981 ft			Design TD (°F)	49	16
Latitude: 36°N			Relative humidity (%)	50	50
			Moisture difference (gr/lb)	43.8	35.8
Outdoor:	Heating	Cooling	Infiltration:		
Dry bulb (°F)	21	91	Method	Simplified	
Daily range (°F)	-	19 (M)	Construction quality	Average	
Wet bulb (°F)	-	74	Fireplaces	0	
Wind speed (mph)	15.0	7.5			

Construction descriptions

	Or	Area ft²	U-value Btuh/ft²·F	Insul R ft²·F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
CMH - DW - R-13 Wall - THP502-DOE: Double Wide - R-13 Insulation	n	199	0.082	13.0	4.03	801	1.87	372
THP502 2x4 Wall-DOE	e	436	0.082	13.0	4.03	1759	1.87	817
	s	236	0.082	13.0	4.03	952	1.87	442
	w	365	0.082	13.0	4.03	1473	1.87	684
	all	1236	0.082	13.0	4.03	4985	1.87	2315

Partitions
(none)

Windows

Clayton - Thermopane Low-E DOE: Clayton-Thermopane Low-E DOE;	n	38	0.300	0	14.8	554	7.37	276
50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	e	40	0.300	0	14.8	590	21.4	856
	w	86	0.300	0	14.8	1267	21.4	1837
	all	163	0.300	0	14.8	2411	18.2	2969

Doors

CMH - Standard Door: CMH - Standard Door - Solid no storm	w	21	0.320	0	15.7	331	8.91	187
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Ceilings

CMH-DW-158 BOX R38 - THP1244 - DOE: CMH-DW-158 BOX R38-THP1244 - DOE		1748	0.031	38.0	1.53	2666	1.59	2783
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Floors

CMH-DW-158- R22-THP173-DOE: CMH-DW-158-R22-THP173-DOE		158	0.047	22.0	2.31	364	0	0
CMH-DW-158- R33-THP469-DOE: CMH-DW-158-R33-THP469-DOE		1591	0.038	33.0	1.87	2974	0	0



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

Project Information

For: M46046-FDJ-TZII, GILES

Notes: DUCT CAPACITY 19333

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Federal Manufactured
 Home Construction
 And Safety Standards

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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 18356 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 4701 Btuh
 Outside air
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 23057 Btuh

Sensible Cooling Equipment Load Sizing

Structure 9508 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 10515 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 1095 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 2114 Btuh
 Outside air
 Equipment latent load 3209 Btuh

	Heating	Cooling
Area (ft ²)	1748	1748
Volume (ft ³)	13984	13984
Air changes/hour	0.38	0.20
Equiv. AVF (cfm)	89	47

Equipment Total Load (Sen+Lat) 13723 Btuh
 Req. total capacity at 0.70 SHR 1.3 ton

Heating Equipment Summary

Make Smart Comfort
 Trade 15 SEER2 R SERIES R410A HP
 Model R4H5S18*K*AAA*
 AHRI ref 0

Efficiency 7.5 HSPF2
 Heating input
 Heating output 16800 Btuh @ 47°F
 Temperature rise 27 °F
 Actual air flow 580 cfm
 Air flow factor 0.032 cfm/Btuh
 Static pressure 0.30 in H2O
 Space thermostat
 Capacity balance point = 34 °F

Cooling Equipment Summary

Make Smart Comfort
 Trade 15 SEER2 R SERIES R410A HP
 Cond R4H5S18*K*AAA*
 Coil FEVA0024**+NAVA43601CK
 AHRI ref 0

Efficiency 12.0 EER2, 15 SEER2
 Sensible cooling 12180 Btuh
 Latent cooling 5220 Btuh
 Total cooling 17400 Btuh
 Actual air flow 580 cfm
 Air flow factor 0.061 cfm/Btuh
 Static pressure 0.30 in H2O
 Load sensible heat ratio 0.77

Backup: Smart Comfort FEVA0024**+NAVA43601CK
 Input = 10 kW, Output = 21410 Btuh, 100 AFUE

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



Duct System Summary
Entire House
Clayton Homes

Job: M46046-FDJ-TZII
 Date: Jun 27, 2023
 By:

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

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Project Information

For: M46046-FDJ-TZII, GILES

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Federal Manufactured
 Home Construction 6
 And Safety Standards

	Heating	Cooling
External static pressure	0.30 in H2O	0.30 in H2O
Pressure losses	0 in H2O	0 in H2O
Available static pressure	0.30 in H2O	0.30 in H2O
Supply / return available pressure	0.150 / 0.150 in H2O	0.150 / 0.150 in H2O
Lowest friction rate	0.142 in/100ft	0.142 in/100ft
Actual air flow	580 cfm	580 cfm
Total effective length (TEL)	212 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 1366	43	30	0.417	5.0	0x0	VIFx	37.0	35.0	st1
BED 2	h 2253	71	65	0.397	5.0	0x0	VIFx	40.5	35.0	st1
BED 3	h 2781	88	82	0.212	6.0	0x0	VIFx	41.7	100.0	st3
DINING	c 1510	82	92	0.142	7.0	0x0	VIFx	46.7	165.0	st5
KITCHEN	h 1488	47	46	0.155	5.0	0x0	VIFx	28.2	165.0	st5
LIVING ROOM	c 2005	87	122	0.219	7.0	0x0	VIFx	37.2	100.0	st3
P-BATH	h 1420	45	31	0.508	5.0	0x0	VIFx	24.0	35.0	st1
P-BED	h 3711	117	111	0.632	5.0	0x0	VIFx	12.5	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	175	204	0.212	420	5.2	5 x 14	ShtMetl	st2
st5	Peak AVF	129	138	0.142	284	5.2	5 x 14	ShtMetl	st4
st4	Peak AVF	129	138	0.142	568	6.1	5 x 7	ShtMetl	st2
st2	Peak AVF	304	342	0.142	758	8.6	5 x 13	ShtMetl	
st1	Peak AVF	276	238	0.397	569	4.3	5 x 14	ShtMetl	

Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb1	0x0	580	580	0	0	0	0	0x 0		VIFx	





Manual S Compliance Report
Entire House
Clayton Homes

M46046-FDJ-TZIII-DOE
 Job: M46046-FDJ-TZIII
 Date: Jun 27, 2023
 By:

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



Project Information

For: M46046-FDJ-TZIII, GILES

OCT 16 2023

Federal Manufactured
 Home Construction 6
 And Safety Standards

Cooling Equipment

Design Conditions

Outdoor design DB:	87.6°F	Sensible gain:	9285 Btuh	Entering coil DB:	77.0°F
Outdoor design WB:	71.2°F	Latent gain:	2413 Btuh	Entering coil WB:	63.8°F
Indoor design DB:	75.0°F	Total gain:	11698 Btuh		
Indoor RH:	50%	Estimated airflow:	580 cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Smart Comfort	Model:	R4H5S18*K*AAA*+FEVA0024**+NAVA43601CK		
Actual airflow:	580 cfm				
Sensible capacity:	12180 Btuh	131% of load			
Latent capacity:	5220 Btuh	216% of load			
Total capacity:	17400 Btuh	149% of load	SHR:	70%	

Heating Equipment

Design Conditions

Outdoor design DB:	15.8°F	Heat loss:	23396 Btuh	Entering coil DB:	61.4°F
Indoor design DB:	70.0°F				

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Smart Comfort	Model:	R4H5S18*K*AAA*+FEVA0024**+NAVA43601CK		
Actual airflow:	580 cfm				
Output capacity:	16800 Btuh	72% of load		Capacity balance:	32 °F
Supplemental heat required:	6596 Btuh			Economic balance:	-99 °F

Backup equipment type:	Elec furnace				
Manufacturer:	Smart Comfort	Model:	FEVA0024**+NAVA43601CK		
Actual airflow:	580 cfm				
Output capacity:	21410 Btuh	92% of load	Temp. rise:	52 °F	

Meets all requirements of ACCA Manual S.



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Project Information

For: M46046-FDJ-TZIII, GILES

OCT 16 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

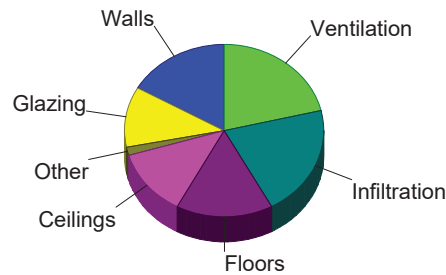
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Average
0

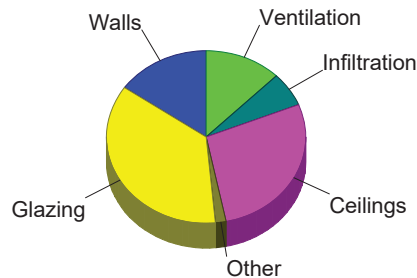
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	3.2	3911	16.7
Glazing	16.3	2656	11.4
Doors	17.3	364	1.6
Ceilings	1.7	2937	12.6
Floors	2.1	3677	15.7
Infiltration	3.4	4886	20.9
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		4965	21.2
Adjustments		0	0
Total		23396	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	1.1	1418	15.3
Glazing	20.6	3361	36.2
Doors	7.8	163	1.8
Ceilings	1.5	2590	27.9
Floors	0	0	0
Infiltration	0.4	598	6.4
Ducts		0	0
Ventilation		1154	12.4
Internal gains		0	0
Blower		0	0
Adjustments		0	0
Total		9285	100.0



Latent Cooling Load = 2413 Btuh
Overall U-value = 0.051 Btuh/ft²·°F, Window / Floor Area = 9.3 %

Data entries checked.



Component Constructions
Entire House
Clayton Homes

Job: M46046-FDJ-TZIII
Date: Jun 27, 2023
By:



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

Project Information

For: M46046-FDJ-TZIII, GILES

OCT 16 2023

Federal Manufactured
Home Construction 6
And Safety Standards

Design Conditions

Location: VA-SG22 Elevation: 2133 ft Latitude: 37°N			Indoor: Indoor temperature (°F) Design TD (°F) Relative humidity (%) Moisture difference (gr/lb)	Heating 70 54 50 48.7	Cooling 75 13 50 28.1
Outdoor: Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	Heating 16 - - 15.0	Cooling 88 20 (M) 71 7.5	Infiltration: Method Construction quality Fireplaces	Simplified Average 0	

Construction descriptions

	Or	Area ft²	U-value Btuh/ft²·°F	Insul R ft²·°F/Btuh	Htg HTM Btuh/ft²	Loss Btuh	Clg HTM Btuh/ft²	Gain Btuh
Walls								
CMH - DW - R-21 Wall - THP510-DOE: Double Wide - R-22 Insulation	n	199	0.055	21.0	2.98	592	1.06	211
THP510 2x6 Wall-DOE	e	336	0.055	21.0	2.98	1002	1.06	357
	s	236	0.055	21.0	2.98	704	1.06	251
	w	365	0.055	21.0	2.98	1089	1.06	388
	all	1136	0.055	21.0	2.98	3385	1.06	1206
CMH - SW - R-11 Wall - S-TH-19: Single Wide - R-11 Insulation S-TH-19 2x4 Wall	e	100	0.097	11.0	5.26	526	2.12	212

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	n	38	0.300	0	16.3	610	6.52	244
	e	40	0.300	0	16.3	650	20.5	821
	w	86	0.300	0	16.3	1396	20.5	1763
	all	163	0.300	0	16.3	2656	17.3	2829

Doors

CMH - Standard Door: CMH - Standard Door - Solid no storm	w	21	0.320	0	17.3	364	7.78	163
---	---	----	-------	---	------	-----	------	-----

Ceilings

CMH-DW-158 BOX R38 - THP1244 - DOE: CMH-DW-158 BOX R38-THP1244 - DOE		1748	0.031	38.0	1.68	2937	1.48	2590
--	--	------	-------	------	------	------	------	------

Floors

CMH-DW-158- R22-THP173-DOE: CMH-DW-158-R22-THP173-DOE		158	0.047	22.0	2.55	401	0	0
CMH-DW-158- R33-THP469-DOE: CMH-DW-158-R33-THP469-DOE		1591	0.038	33.0	2.06	3276	0	0

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Project Information

For: M46046-FDJ-TZIII, GILES

Notes: DUCT CAPACITY 19333

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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 18431 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 4965 Btuh
 Outside air
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 23396 Btuh

Sensible Cooling Equipment Load Sizing

Structure 8131 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 8598 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 823 Btuh
 Ducts 0 Btuh
 Central vent (90 cfm) 1590 Btuh
 Outside air
 Equipment latent load 2413 Btuh

	Heating	Cooling
Area (ft ²)	1748	1748
Volume (ft ³)	13984	13984
Air changes/hour	0.38	0.20
Equiv. AVF (cfm)	89	47

Equipment Total Load (Sen+Lat) 11011 Btuh
 Req. total capacity at 0.70 SHR 1.0 ton

Heating Equipment Summary

Make Smart Comfort
 Trade 15 SEER2 R SERIES R410A HP
 Model R4H5S18*K*AAA*
 AHRI ref 0

Efficiency 7.5 HSPF2
 Heating input
 Heating output 16800 Btuh @ 47°F
 Temperature rise 28 °F
 Actual air flow 580 cfm
 Air flow factor 0.031 cfm/Btuh
 Static pressure 0.30 in H2O
 Space thermostat
 Capacity balance point = 32 °F

Cooling Equipment Summary

Make Smart Comfort
 Trade 15 SEER2 R SERIES R410A HP
 Cond R4H5S18*K*AAA*
 Coil FEVA0024**+NAVA43601CK
 AHRI ref 0

Efficiency 12.0 EER2, 15 SEER2
 Sensible cooling 12180 Btuh
 Latent cooling 5220 Btuh
 Total cooling 17400 Btuh
 Actual air flow 580 cfm
 Air flow factor 0.071 cfm/Btuh
 Static pressure 0.30 in H2O
 Load sensible heat ratio 0.79

Backup: Smart Comfort FEVA0024**+NAVA43601CK
 Input = 10 kW, Output = 21410 Btuh, 100 AFUE

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



Duct System Summary
Entire House
Clayton Homes

Job: M46046-FDJ-TZIII
 Date: Jun 27, 2023
 By:

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

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Project Information

For: M46046-FDJ-TZIII, 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	0.142 in/100ft	0.142 in/100ft
Actual air flow	580 cfm	580 cfm
Total effective length (TEL)	212 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 1571	49	34	0.417	5.0	0x0	VIFx	37.0	35.0	st1
BED 2	h 2175	68	61	0.397	5.0	0x0	VIFx	40.5	35.0	st1
BED 3	h 2687	85	78	0.212	6.0	0x0	VIFx	41.7	100.0	st3
DINING	c 1326	83	95	0.142	7.0	0x0	VIFx	46.7	165.0	st5
KITCHEN	h 1483	47	45	0.155	5.0	0x0	VIFx	28.2	165.0	st5
LIVING ROOM	c 1820	90	130	0.219	7.0	0x0	VIFx	37.2	100.0	st3
P-BATH	h 1397	44	29	0.508	5.0	0x0	VIFx	24.0	35.0	st1
P-BED	h 3628	114	108	0.632	5.0	0x0	VIFx	12.5	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	175	208	0.212	428	5.2	5 x 14	ShtMetl	st2
st5	Peak AVF	129	140	0.142	288	5.2	5 x 14	ShtMetl	st4
st4	Peak AVF	129	140	0.142	576	6.2	5 x 7	ShtMetl	st2
st2	Peak AVF	304	348	0.142	716	8.7	5 x 14	ShtMetl	
st1	Peak AVF	276	232	0.397	568	4.3	5 x 14	ShtMetl	

Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb1	0x0	580	580	0	0	0	0	0x 0		VIFx	

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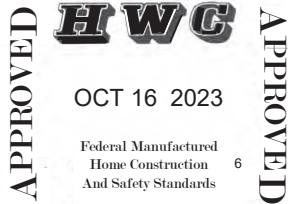
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BOX SIZE: 30 ft. x 60 ft.
 AVG. SIDEWALL HEIGHT = 8 FEET
 PERCENTAGE OF CEILING THAT IS VAULTED = 0%
 12 INCH DIAMETER XOVER DUCT AREA = 78.5 SQ.FT. MAX. WITH R-8 INSULATION
 IN-FLOOR DUCT SYSTEM

INSULATION VALUES	HEATED FLOOR	WALL	FLAT ROOF
DAPIA PAGE	R-22 FW	R-13	R-38
U VALUE (BTUH/SQ.FT.-F)	THP-176	THP-502	THP-1244
	0.047	0.0817	0.0306

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



INCORRECT ROOF THP PAGE			
	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	178.00	0.300	53.40
Option	0.00	0.300	0.00
Net:			
Floor	1800.00	0.047	85.32
Wall	1218.00	0.082	99.51
Ceiling	1800.00	0.0306	55.08
Th. Zone 1:	Ext. Duct	78.50	0.242
Th. Zone 2:	Ext. Duct	78.50	0.223
Th. Zone 3:	Ext. Duct	78.50	0.206
Overhead TZ 1:	Supply	0.00	0.000
Overhead TZ 2:	Supply	0.00	0.000
Overhead TZ 3:	Supply	0.00	0.000

Energy Star v3 & ZERH	
Max Glass (sq ft)	
Th. Zone 1	337.6
Th. Zone 2	180.4
Th. Zone 3	0.0

	Outdoor Design Temp (F)	UA	Uo	Heatloss BTUH/F
Thermal Zone 1	11	325.50	0.064	451.50
Thermal Zone 2	0	323.99	0.063	450.00
Thermal Zone 3	-14	322.65	0.063	448.60

Design Temperatures		
Furnace Heating Temp (F)	Economy Outdoor Temp (F)	
-6	17	10kW
-21	7	12kW
-43	-9	15kW
-19	8	40k Gas
-63	-23	60k Gas
-107	-54	80k Gas

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

CLAYTON HOME BUILDING GROUP

Diamond

Model Number	46EXC32603AH23S	Drawing Number	M46046 -HLTZII	Version 11
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BOX SIZE: 30 ft. x 60 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-395	THP-502	THP-1343
U VALUE (BTUH/SQ.FT.-F)	0.038	0.0817	0.0312

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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	Area	U Value	UA
Doors:			
Front	22.00	0.300	6.60
Rear	22.00	0.300	6.60
Other Door	0.00	0.330	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	179.00	0.300	53.70
Option	0.00	0.300	0.00
Net:			
Floor	1800.00	0.038	68.22
Wall	1217.00	0.082	99.43
Ceiling	1800.00	0.0312	56.16
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	411.0
Th. Zone 2	253.8
Th. Zone 3	48.9

	Outdoor Design Temp (F)	UA	Uo	Heatloss BTUH/F
Thermal Zone 1	11	309.69	0.061	435.70
Thermal Zone 2	0	308.19	0.060	434.20
Thermal Zone 3	-14	306.84	0.060	432.80

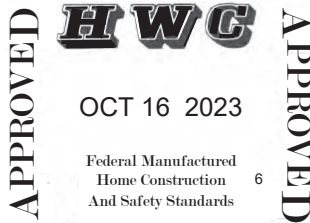
Design Temperatures		
Furnace Heating Temp (F)	Economy Outdoor Temp (F)	
-8	15	10kW
-24	4	12kW
-47	-12	15kW
-22	6	40k Gas
-68	-26	60k Gas
-114	-59	80k Gas

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

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

BOX SIZE: 30 ft. x 60 ft.
 AVG. SIDEWALL HEIGHT = 8 FEET
 PERCENTAGE OF CEILING THAT IS VAULTED = 0%
 12 INCH DIAMETER XOVER DUCT AREA = 78.5 SQ.FT. MAX. WITH R-8 INSULATION
 IN-FLOOR DUCT SYSTEM

	HEATED FLOOR	WALL	FLAT ROOF
INSULATION VALUES	R-22 OR / R-33 BIB	R-21	R-38
DAPIA PAGE	THP-472	THP-510	THP-1244
U VALUE (BTUH/SQ.FT.-F)	0.040	0.0546	0.0306



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

Energy Star v3 & ZERH Max Glass (sq ft)	
Th. Zone 1	508.1
Th. Zone 2	368.2
Th. Zone 3	185.9

Design Temperatures		
Furnace Heating Temp (F)	Economy Outdoor Temp (F)	
-14	11	10kW
-31	-1	12kW
-56	-18	15kW
-29	1	40k Gas
-78	-34	60k Gas
-127	-68	80k Gas

		INCORRECT ROOF THP PAGE			
		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	Standard	178.00	0.300	53.40
		Option	0.00	0.300	0.00
	Net:	Floor	1800.00	0.040	72.18
		Wall	1218.00	0.055	66.50
Th. Zone 1:	Ceiling	1800.00	0.0306	55.08	
	Ext. Duct	78.50	0.242	18.98	
	Ext. Duct	78.50	0.223	17.48	
Th. Zone 2:	Ext. Duct	78.50	0.206	16.14	
	Supply	0.00	0.000	0.00	
Overhead TZ 1:	Supply	0.00	0.000	0.00	
	Supply	0.00	0.000	0.00	
Overhead TZ 2:	Supply	0.00	0.000	0.00	
	Supply	0.00	0.000	0.00	
Overhead TZ 3:	Supply	0.00	0.000	0.00	
	Supply	0.00	0.000	0.00	

		Outdoor Design Temp (F)			Heatloss BTUH/F
Thermal Zone	U-Value	UA	Uo		
Thermal Zone 1	11	279.35	0.055	405.30	
Thermal Zone 2	0	277.84	0.054	403.80	
Thermal Zone 3	-14	276.50	0.054	402.50	

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