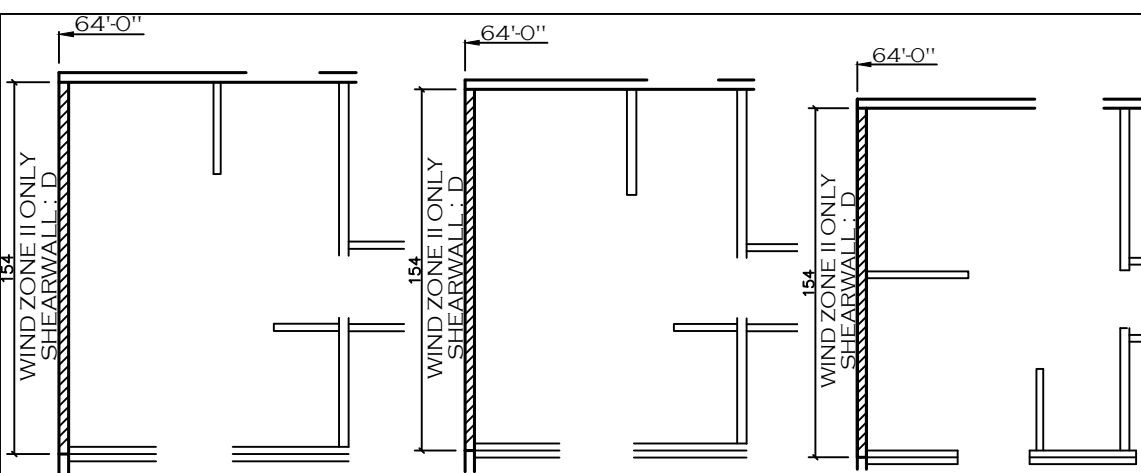




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Home Construction
And Safety Standards

Model # 34M404

Box Width =
Box Length =
No Skylights
No Porches
Joist Size =

158" Double wide
64 ft. 99.5" 12" MIN IBEAM
No Skylights
No Porches
Joist Size =

Minimum Joist Spacing 16"

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

Version R14.01

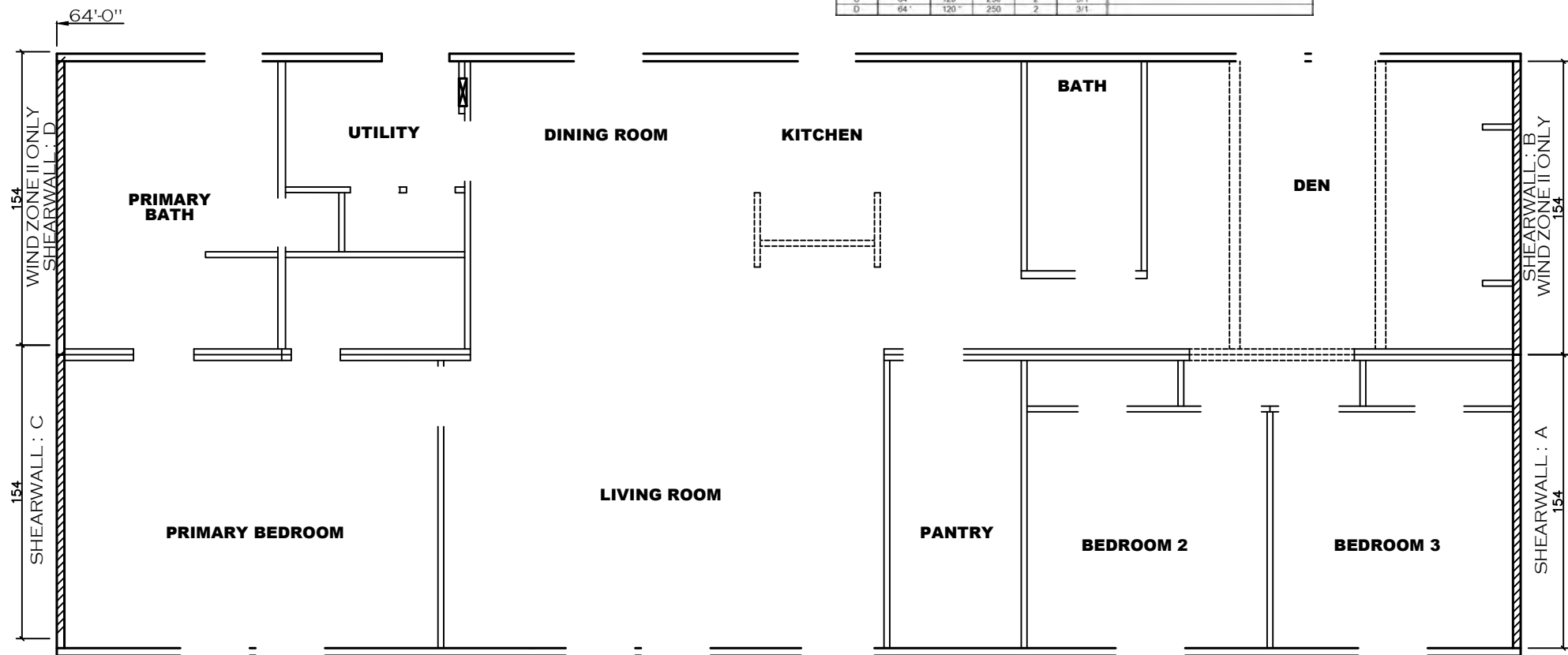
Wind Zone 1 Standard Roof		7/16" Rated Sheathing and Ceiling Board with 15 ga staple @ 6/12 (286.315) Chords: 2x4 SPF #3 Top Plate & 2x4 Rail. Each spliced w/ 12" glue block.		96 inch sidewall	
Diaphragm Construction:		Block Dist. 36'-0"			
Shearwall:	Dist / Hitch	Length	PLF	# of Joists	Lags
A	0'-	144'-	162	2	2/1
C	64'-	144'-	162	2	2/1
Wind Zone 2 Standard Roof		7/16" Rated Sheathing and Ceiling Board with 15 ga staple @ 6/12 (286.315) Chords: 2x4 SPF #3 Top Plate & 2x4 Rail. Each spliced w/ 12" glue block.		96 inch sidewall	
Diaphragm Construction:		Block Dist. 36'-0"			
Shearwall:	Dist / Hitch	Length	PLF	# of Joists	Lags
A	0'-	120'-	250	2	3/1
B	0'-	120'-	250	2	3/1
C	64'-	120'-	250	2	3/1
D	64'-	120'-	250	2	3/1

OPT. 60" SHOWER PRIMARY BATH

OPT. 65" SHOWER PRIMARY BATH

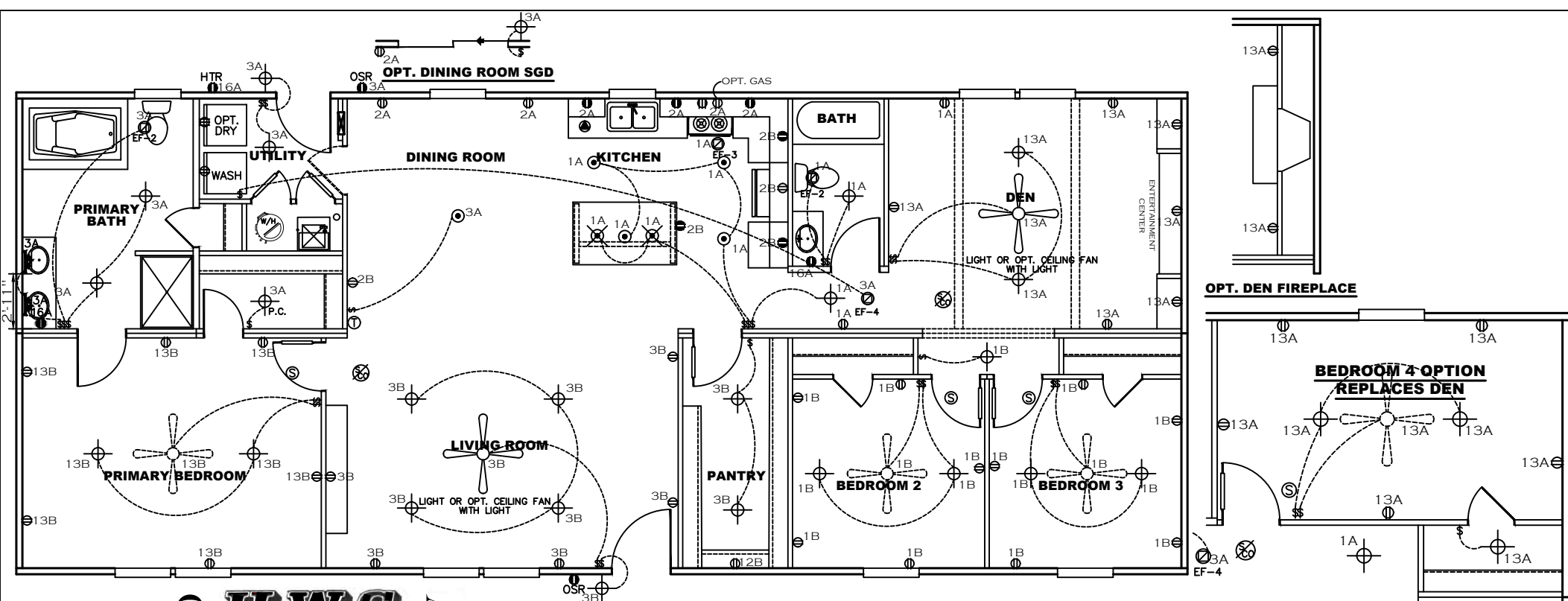
**PRIMARY BATH 72" SHOWER
OPTION**

OPT. DINING ROOM SGD



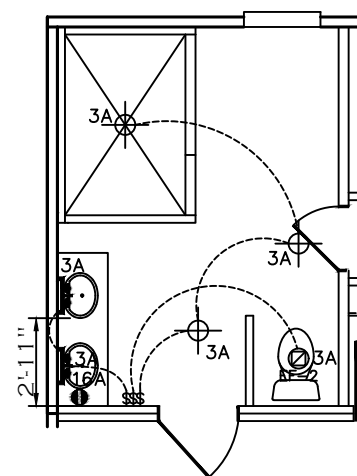
SHEET: SW	SHEARWALL PLAN	 Clayton - 934 1420 Mountain Rd, Andersonville, TN 37705 PH: 865.494.7800 FAX: 865.494.0243	DRAWING #: 34M404-SW		MODEL: MOUNTAINEER (28'X64')	STD PLAN "CONDITIONED": 1,685 FT ²
			MODEL #: MTN28643B		SERIES: MOUNTAINEER	REV. BY:
			DATE: 6/30/26		PRODUCT DESIGNER: BRIAN RIFFEY	REV. DATE:
			SCALE: N.T.S.			

HILBORN, WERNER, CARTER,
AND ASSOCIATES, INC.
1627 SOUTH MYRTLE AVE.
CLEARWATER, FL. 33756



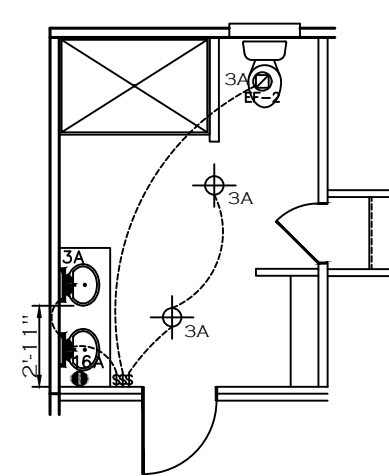
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 Home Construction
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- NOTES:**
1. ALL CIRCUITS SHOWN ARE FOR REFERENCE AND MAY BE CHANGED BASED ON OPTIONAL COMPONENTS INSTALLED IN THE HOME.
 2. REFER TO EL SECTION OF THE DAPIA FOR SYMBOL CHART.
 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 PER REQUIREMENTS IN S-HV-10 & 10A OR M-HV-11 & 11A OF DAPIA.
 8. REFER TO EL SECTION OF THE DAPIA 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. DIMENSIONS SHOWN ON PRINT ARE APPROXIMATE AND TO BE USED ONLY AS A GUIDELINE.
 11. LOUVERED DOORS SERVE AS RETURN AIR VENT.



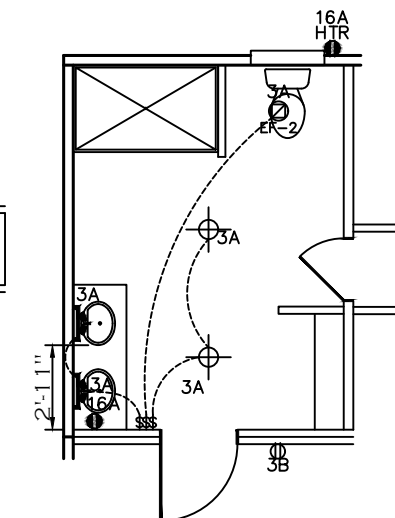
**PRIMARY BATH 72" SHOWER
OPTION**

CIRCUIT	CIRCUIT #	WIRE	BREAKER
LIGHT/RECEP	1A,1B,3A,3B,13A,13B	14-2	15-SP
KITCHEN/DINING	2A,2B	12-2	20-SP
WASHER	12A	12-2	20-SP
DRYER	5A,7B	SEE NOTE #8	



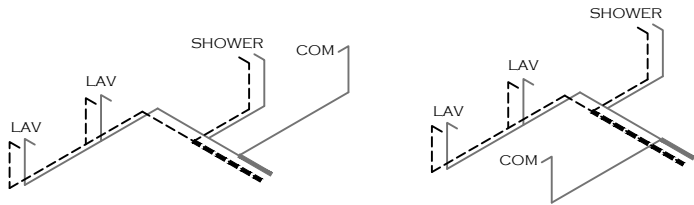
OPT. 65" SHOWER PRIMARY BATH

CIRCUIT	CIRCUIT #	WIRE	BREAKER
WATER HEATER	4A,6B	SEE NOTE #8	
RANGE	5B,7A	SEE NOTE #8	
FURNACE	6A,8A,B,10A,B	SEE NOTE #8	
OPT D/WASH	9A	SEE NOTE #8	
SMOKE ALARM	4B	SEE NOTE #8	

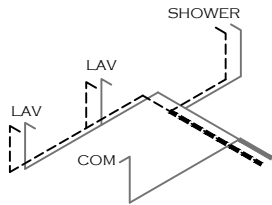


OPT. 60" SHOWER PRIMARY BATH

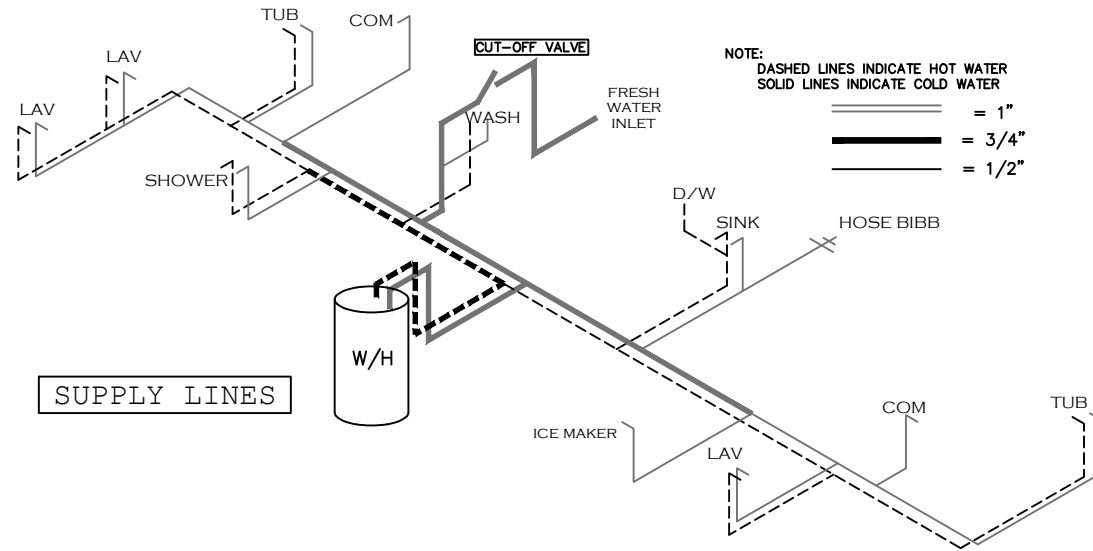
CIRCUIT	CIRCUIT #	WIRE	BREAKER
BATH/HTR	16A	12-2	20-SP
OPT G/DISP	9B	SEE NOTE #8	
OPT SPA/WP/JAC	11A,B	SEE NOTE #8	
FREEZER	12B	SEE NOTE #8	



OPT. 60" & 65"
SHOWERS PRIMARY
BATH



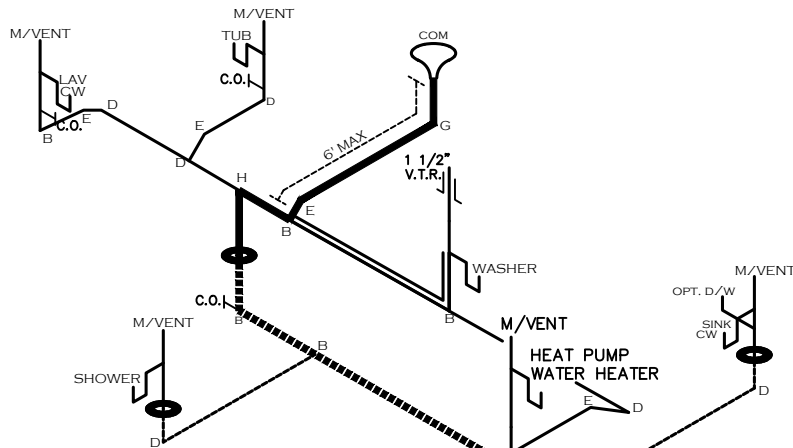
OPT. 72" SHOWER
PRIMARY BATH



SUPPLY LINES

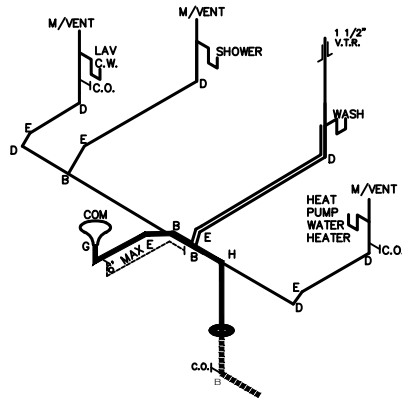
NOTE:
DASHED LINES INDICATE HOT WATER
SOLID LINES INDICATE COLD WATER

— = 1"
— = 3/4"
— = 1/2"

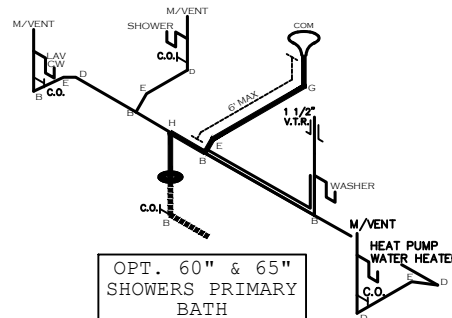


MAIN DRAIN
LINES

MAIN DRAIN



OPT. 72" SHOWER
PRIMARY BATH



OPT. 60" & 65"
SHOWERS PRIMARY
BATH

LEGEND	
A	SHORT TURN T-Y
B	LONG TURN T-Y
C	1/4 BEND
D	LONG SWEEP 1/4 BEND
E	45 ELL
F	DBL. SANITARY TEE
G	4x3 CLOSET ELL
H	DOUBLE ELL
I	22 1/2" ELL
J	45" Y
K	LONG TURN STREET ELBOW
L	45 FTG ELL

SHIP LOOSE CHART

PARTS SHIPPED LOOSE W/HOME
(TO BE INSTALLED IN FIELD)

QUANTITY	DESCRIPTION
1	(B) 3"x3"x3" LONG TURN T-Y/CLEANOUT
2	(B) 3"x3"x3" LONG TURN T-Y/REDUCER
3	(D) 1 1/2" LONG SWEEP 1/4 BEND
2	3" COUPLINGS
3	1 1/2" COUPLINGS
1	3" DOUBLE ELL
3	3" ABS PIPE 10'
2	1 1/2" ABS PIPE 10'
1	APPROVED CEMENT
varies	SUPPORT STRAPS

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SHEET:

WL

DRAIN & SUPPLY
LINES PLAN

Clayton

Clayton - 934
1420 Mountain Rd, Andersonville, TN 37705
PH: 865.494.7800 FAX: 865.494.0243

HILBORN, WERNER, CARTER,
AND ASSOCIATES, INC.
1627 SOUTH MYRTLE AVE.
CLEARWATER, FL. 33756

DRAWING #: 34M404-WL

MODEL #: MTN28643B

DATE: 6/30/26

SCALE: N.T.S.

MODEL: MOUNTAINEER (28'X64')

SERIES: MOUNTAINEER

PRODUCT DESIGNER: BRIAN RIFFEY

STD PLAN "CONDITIONED": 1,685 FT²

REV. BY:

REV. DATE:

LEGEND		APPLIANCE BTU's RATINGS MAX. INPUT	
SYM	FITTINGS		
A	TEE	FURNACE	70,000 BTU'S
B	90 ELL	W/H	42,000 BTU'S
X	VALVE	RANGE	54,000 BTU'S
C	CAP	DRYER	30,000 BTU'S

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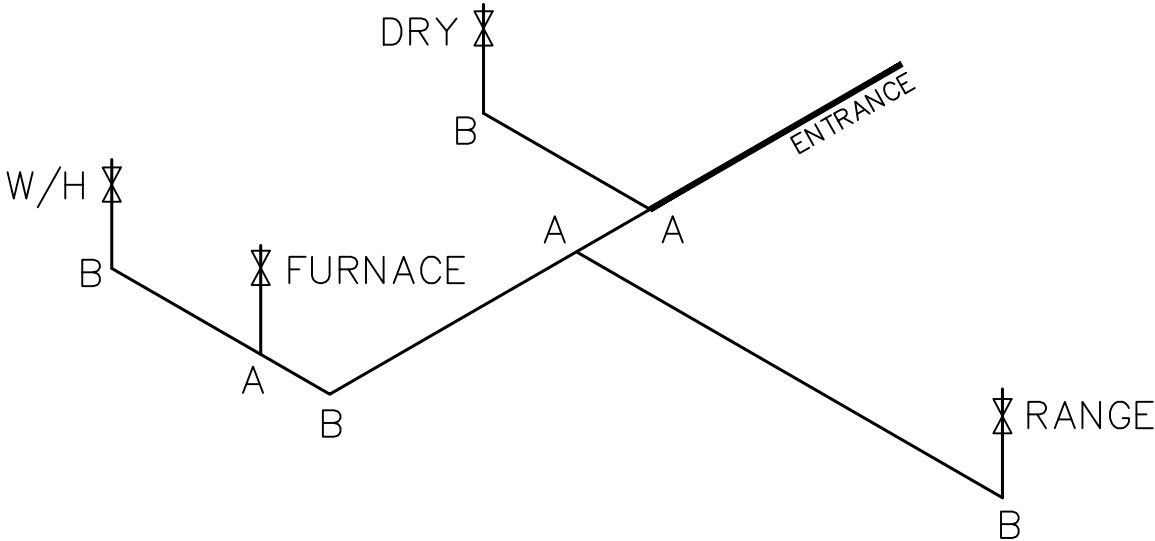


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And Safety Standards

MDL=30'



GAS LINE SIZE CHART	
	= 1"
	= 3/4"

- 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

SHEET:					DRAWING #:	34M404-GL	MODEL:	MOUNTAINEER (28'X64')	STD PLAN "CONDITIONED":	1,685 F
GL	GAS LINE PLAN	 Clayton - 934 1420 Mountain Rd, Andersonville, TN 37705 PH: 865.494.7800 FAX: 865.494.0243	HILBORN, WERNER, CARTER, AND ASSOCIATES, INC. 1627 SOUTH MYRTLE AVE. CLEARWATER, FL. 33756		MODEL #:	MTN28643B	SERIES:	MOUNTAINEER	REV. BY:	
					DATE:	6/30/26	SCALE:	N.T.S.	PRODUCT DESIGNER:	BRIAN RIFFEY

HILBORN, WERNER, CARTER,
AND ASSOCIATES, INC.
1627 SOUTH MYRTLE AVE.
CLEARWATER, FL. 33756



Building Analysis

Entire House

CMH Manufacturing Appalachia

Job: 34M404-FDJ-TZ1
Date: June 16, 2026
By: BRIAN RIFFEY



1420 Mountain Road, Maryville, TN 37705 Phone: 865-494-7800 Ext 257 Fax: 865-494-0243 Web: www.claytonhomes.com

Project Information

For: 34M404-FDJ-TZ1

JULY 01 2026

Federal Manufactured
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Design Conditions

Location:

GA 36
Elevation: 1010 ft
Latitude: 34°N

Outdoor:

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

Heating

26
-
-
15.0

Cooling

92
16 (M)
74
7.5

Indoor:

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

Heating

70
44
50
39.9

Cooling

75
17
50
33.6

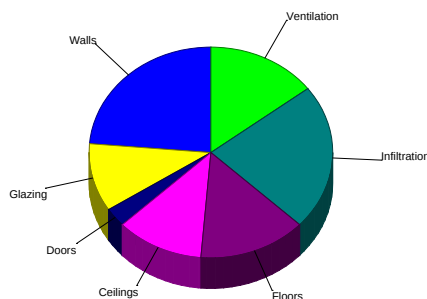
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Average
0

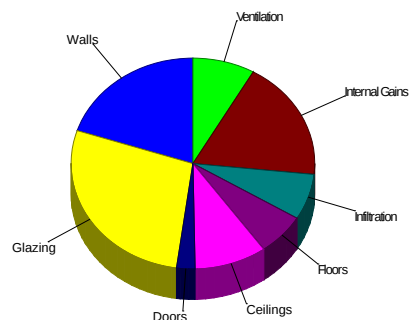
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	3.6	4485	23.7
Glazing	13.1	1982	10.5
Doors	13.1	549	2.9
Ceilings	1.3	2212	11.7
Floors	1.6	2713	14.3
Infiltration	2.9	4240	22.4
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		2774	14.6
Adjustments		0	0
Total		18954	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	2.0	2556	19.9
Glazing	23.6	3576	27.9
Doors	7.5	313	2.4
Ceilings	0.7	1230	9.6
Floors	0.5	823	6.4
Infiltration	0.6	903	7.0
Ducts		0	0
Ventilation		1056	8.2
Internal gains		2360	18.4
Blower		0	0
Adjustments		0	0
Total		12818	100.0



Latent Cooling Load = 2852 Btuh

Overall U-value = 0.057 Btuh/ft²-°F, Window / Floor Area = 8.9 %

Data entries checked.



Component Constructions

Entire House

CMH Manufacturing Appalachia

Job: 34M404-FDJ-TZ1
Date: June 16, 2026
By: BRIAN RIFFEY

1420 Mountain Road, Maryville, TN 37705 Phone: 865-494-7800 Ext 257 Fax: 865-494-0243 Web: www.claytonhomes.com

Project Information

For: 34M404-FDJ-TZ1

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Design Conditions

Location:

GA 36
Elevation: 1010 ft
Latitude: 34°N

Outdoor:

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

Heating

26
-
-
15.0

Cooling

92
16 (M)
74
7.5

Indoor:

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

Heating

70
44
50
39.9

Cooling

75
17
50
33.6

Infiltration:

Method
Construction quality
Fireplaces

Simplified
Average
0

Construction descriptions

Walls

CMH - DW - R-13 Wall - THP-502 DOE: Double Wide - R-13 Applegate
Insulation THP-504 2x4 Wall DOE

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
n	212	0.082	13.0	3.58	758	2.04	432
e	430	0.082	13.0	3.58	1536	2.04	875
s	212	0.082	13.0	3.58	758	2.04	432
w	353	0.082	13.0	3.58	1262	2.04	719
all	1206	0.082	13.0	3.58	4313	2.04	2458
w	48	0.082	13.0	3.58	172	2.04	98

CMH - DW - R-13 Wall - THP-502 DOE: Double Wide - R-13 Applegate
Insulation THP-502 2x4 Wall DOE

Partitions

(none)

Windows

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

e	8	0.300	0	13.1	108	21.7	179
e	53	0.300	0	13.1	697	21.7	1158
w	90	0.300	0	13.1	1177	21.7	1957
all	152	0.300	0	13.1	1982	21.7	3295

Doors

CMH - Standard Door DOE: CMH - Standard Door -Solid no strom DOE

e	21	0.300	0	13.1	275	7.45	157
w	21	0.300	0	13.1	275	7.45	157
all	42	0.300	0	13.1	549	7.45	313

Ceilings

CHM - DW - 158 box R-38 - THP771 Zone 2 DOE: DW - 135 box R-38

Applegate Insulation THP- 771 Flat Ceiling 24 oc Zone 2 DOE

CMH - DW - 158 box R-38 - THP771 - DOE: DW - 158 box R-38

Applegate Insulation THP771 - Flat Ceiling 24oc

	78	0.028	38.0	1.22	95	0	0
	1618	0.030	38.0	1.31	2116	0.76	1230

Floors

CMH - DW - R-22 - THP-161 DOE: Double Wide - R-22 Applegate

Insulation THP-161 DOE

CMH-DW-R-27 - THP-392: Double Wide - R-22 OR R-33 BIB Roll Knuaf

Insulation THP-392

	78	0.051	22.0	2.22	173	0.59	46
	1618	0.036	27.0	1.57	2540	0.48	778



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Project Summary

Entire House

CMH Manufacturing Appalachia

Job: 34M404-FDJ-TZ1
Date: June 16, 2026
By: BRIAN RIFFEY

1420 Mountain Road, Maryville, TN 37705 Phone: 865-494-7800 Ext 257 Fax: 865-494-0243 Web: www.claytonhomes.com

Project Information

For: 34M404-FDJ-TZ1

Notes: Duct Capacity 26000 BTUH



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Design Information

Weather: GA 36

Winter Design Conditions

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

Ventilation Method MJ8

Heating Summary

Structure 16180 Btuh
Ducts 0 Btuh
Central vent (60 cfm) 2774 Btuh
Outside air
Humidification 0 Btuh
Piping 0 Btuh
Equipment load 18954 Btuh

Infiltration

Method Simplified
Construction quality Average
Fireplaces 0

	Heating	Cooling
Area (ft ²)	1696	1696
Volume (ft ³)	13568	13568
Air changes/hour	0.38	0.20
Equiv. AVF (cfm)	92	51

Heating Equipment Summary

Make Smart Comfort
Trade 15 SEER2 R SERIES R410A HP
Model R4H5S24*K*AAA*
AHRI ref 0

Efficiency 7.5 HSPF2
Heating input
Heating output 22800 Btuh @ 47°F
Temperature rise 28 °F
Actual air flow 780 cfm
Air flow factor 0.048 cfm/Btuh
Static pressure 0.30 in H2O
Space thermostat
Capacity balance point = 24 °F

Backup: Smart Comfort
Input = 10 kW, Output = 34121 Btuh, 100 AFUE

Summer Design Conditions

Outside db 92 °F
Inside db 75 °F
Design TD 17 °F
Daily range M
Relative humidity 50 %
Moisture difference 34 gr/lb

Sensible Cooling Equipment Load Sizing

Structure 11762 Btuh
Ducts 0 Btuh
Central vent (60 cfm) 1056 Btuh
Outside air
Blower 0 Btuh

Use manufacturer's data n
Rate/swing multiplier 0.97
Equipment sensible load 12382 Btuh

Latent Cooling Equipment Load Sizing

Structure 1530 Btuh
Ducts 0 Btuh
Central vent (60 cfm) 1322 Btuh
Outside air
Equipment latent load 2852 Btuh

Equipment Total Load (Sen+Lat) 15234 Btuh
Req. total capacity at 0.70 SHR 1.5 ton

Cooling Equipment Summary

Make Smart Comfort
Trade 15 SEER2 R SERIES R410A HP
Cond R4H5S24*K*AAA*
Coil FEVA0024***+NAVA43601CK
AHRI ref 0

Efficiency 12.0 EER2, 15.2 SEER2
Sensible cooling 16380 Btuh
Latent cooling 7020 Btuh
Total cooling 23400 Btuh
Actual air flow 780 cfm
Air flow factor 0.066 cfm/Btuh
Static pressure 0.30 in H2O
Load sensible heat ratio 0.82

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



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Duct System Summary

Entire House

CMH Manufacturing Appalachia

Job: 34M404-FDJ-TZ1

Date: June 16, 2026

By: BRIAN RIFFEY

1420 Mountain Road, Maryville, TN 37705 Phone: 865-494-7800 Ext 257 Fax: 865-494-0243 Web: www.claytonhomes.com

Project Information

For: 34M404-FDJ-TZ1

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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	0.186 in/100ft	0.186 in/100ft
Actual air flow	780 cfm	780 cfm
Total effective length (TEL)	161 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 454	22	11	0.462	5.0	0x0	VIFx	30.0	35.0	st1
BEDROOM 2	h 1318	64	56	0.211	4.2	5x5	ShMt	32.2	110.0	st5
BEDROOM 3	h 1803	87	83	0.186	6.0	0x0	VIFx	51.2	110.0	st5
DEN	h 1243	60	59	0.380	5.0	0x0	VIFx	44.0	35.0	st1
DEN-A	h 1243	60	59	0.444	3.6	5x5	ShMt	32.5	35.0	st1
KITCHEN	c 819	46	54	0.632	5.0	0x0	VIFx	12.5	35.0	st1
KITCHEN-A	c 819	46	54	0.550	5.0	0x0	VIFx	19.5	35.0	st1
KITCHEN-B	c 819	46	54	0.789	5.0	0x0	VIFx	3.0	35.0	st1
LIVING ROOM-A	c 1248	59	83	0.223	4.6	5x5	ShMt	24.7	110.0	st5
LIVING ROOM-B	c 1248	59	83	0.228	4.6	5x5	ShMt	21.7	110.0	st4
PRIMARY BATH	h 2030	98	63	0.698	5.0	0x0	VIFx	8.0	35.0	st3
PRIMARY BEDROOM	h 1394	67	60	0.201	4.4	5x5	ShMt	39.2	110.0	st4
PRIMARY BEDROOM-A	h 1394	67	60	0.222	4.3	5x5	ShMt	25.2	110.0	st4

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st1	Peak AVF	279	292	0.380	600	6.2	5 x 14	ShtMetl	st2
st5	Peak AVF	210	223	0.186	458	9.9	5 x 14	ShtMetl	
st4	Peak AVF	194	203	0.201	417	6.9	5 x 14	ShtMetl	
st3	Peak AVF	98	63	0.698	201	4.4	5 x 14	ShtMetl	
st2	Peak AVF	404	426	0.186	1021	9.9	5 x 12	VinlFlx	

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	0x 0	780	780	0	0	0	0	0x 0		VIFx	





Manual S Compliance Report

Entire House

CMH Manufacturing Appalachia

Job: 34M404-FDJ-TZ1
Date: June 16, 2026
By: BRIAN RIFFEY

1420 Mountain Road, Maryville, TN 37705 Phone: 865-494-7800 Ext 257 Fax: 865-494-0243 Web: www.claytonhomes.com

Project Information

For: 34M404-FDJ-TZ1

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Cooling Equipment

Design Conditions

Outdoor design DB:	91.6°F	Sensible gain:	12818	Btuh	Entering coil DB:	76.3°F
Outdoor design WB:	73.6°F	Latent gain:	2852	Btuh	Entering coil WB:	63.4°F
Indoor design DB:	75.0°F	Total gain:	15670	Btuh		
Indoor RH:	50%	Estimated airflow:	780	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Smart Comfort	Model:	R4H5S24*K*AAA*+FEVA0024**+NAVA43601CK	
Actual airflow:	780	cfm		
Sensible capacity:	16380	Btuh	128% of load	
Latent capacity:	7020	Btuh	246% of load	
Total capacity:	23400	Btuh	149% of load	SHR: 70%

Heating Equipment

Design Conditions

Outdoor design DB:	26.4°F	Heat loss:	18954	Btuh	Entering coil DB:	66.6°F
Indoor design DB:	70.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Smart Comfort	Model:	R4H5S24*K*AAA*+FEVA0024**+NAVA43601CK	
Actual airflow:	780	cfm		
Output capacity:	22800	Btuh	120% of load	Capacity balance: 24 °F
Supplemental heat required:	0	Btuh		Economic balance: -99 °F

Backup equipment type:	Elec strip			
Manufacturer:	Smart Comfort	Model:		
Actual airflow:	780	cfm		
Output capacity:	10.0	kW	180% of load	Temp. rise: 41 °F

Meets all requirements of ACCA Manual S.



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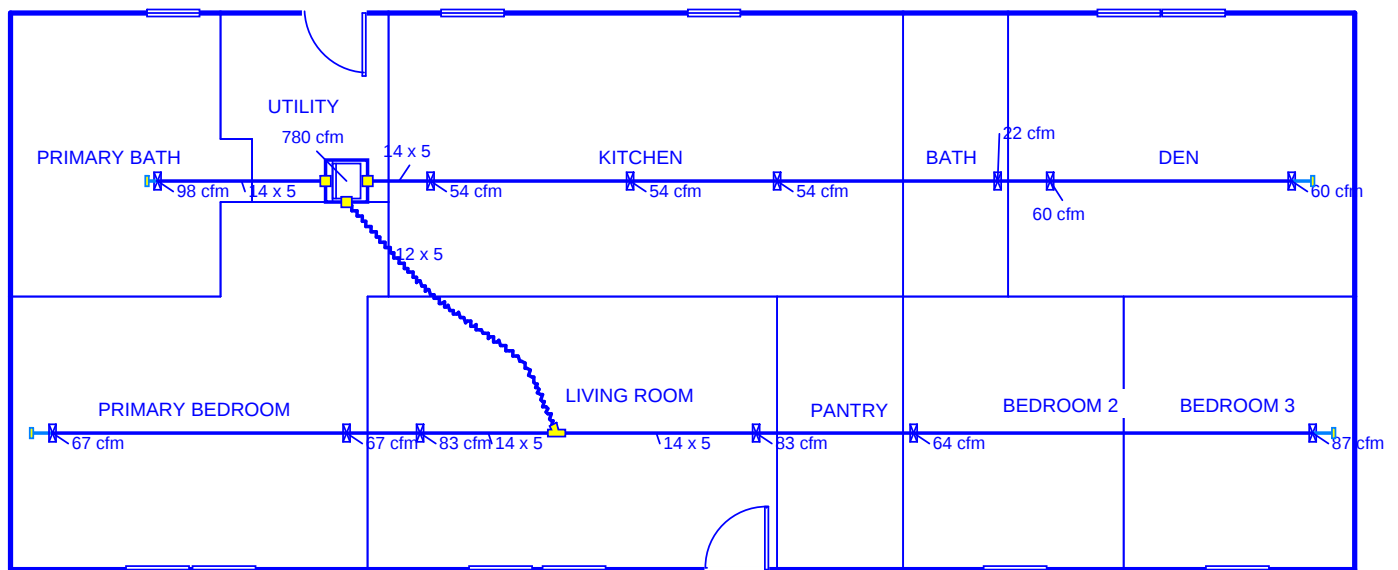
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And Safety Standards

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Level 1



Job #: 34M404-FDJ-TZ1
Performed by BRIAN RIFFEY for:
34M404-FDJ-TZ1

CMH Manufacturing Appalachia

1420 Mountain Road
Maryville, TN 37705
Phone: 865-494-7800 Ext 257 Fax: 865-494-0243
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CLAYTON HOME BUILDING GROUP

Model Number	MTN28643B	Drawing Number	34M404 HEATLOSS-TZ1	Version 29
Serial Number	X	Model Name	MOUNTAINEER	

BOX SIZE: 26.33 ft. x 64 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

	UNHEATED FLOOR	WALL	FLAT ROOF
INSULATION VALUES	R-22 FW	R-13	R-38
DAPIA PAGE	THP-161	THP-502	THP-1255
U VALUE (BTUH/SQ.FT.-F)	0.0445	0.0817	0.0297

THIS INSULATION COMBINATION COMPLIES WITH
ZONE 1 PRESCRIPTIVE ZERH REQUIREMENTS

Overhead Duct	
Diameter	Length
4	0
5	0
6	0
7	0
8	0
9	0
10	0
12	0
14	0
Exterior Supply	Length
14	0
16	0
Exterior Return	Length
14	0
16	0

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Window Glass Area:

Doors:

	Area	U Value	UA
Front	21.63	0.300	6.49
Rear	19.37	0.300	5.81
Other Door	40.00	0.300	12.00
Other Door	0.00	0.330	0.00
OSB	0.00	0.000	0.00
Skylights	0.00	0.330	0.00
Standard	140.00	0.300	42.00
Option	0.00	0.300	0.00
Floor	1685.33	0.045	75.00
Wall	1224.33	0.082	100.03
Ceiling	1685.33	0.0297	50.05
Ext. Duct	78.50	0.242	18.98
Ext. Duct	78.50	0.223	17.48
Ext. Duct	78.50	0.206	16.14
Supply	0.00	0.000	0.00
Supply	0.00	0.000	0.00
Supply	0.00	0.00	0.00

Energy Star v3 & ZERH Max Glass (sq ft)	
Th. Zone 1	297.6
Th. Zone 2	147.5
Th. Zone 3	0.0

Thermal Zone	Outdoor Design Temp (F)	UA	Uo	ZERH / EStar 3.0 Compliant	Heatloss BTUH/F
1	11	310.36	0.063	OK	436.80
2	0	308.86	0.063	OK	435.30
3	-14	307.52	0.063	NG	434.00

Design Temperatures	
Furnace Heating Temp (F)	Economy Outdoor Temp (F)
-8	15
-24	4
-47	-12
-22	6
-67	-26
-113	-58

10kW
12kW
15kW
40k Gas
60k Gas
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



Building Analysis
Entire House
CMH Manufacturing Appalachia

Job: 34M404-FDJ-TZ2
Date: June 30, 2026
By: BRIAN RIFFEY



1420 Mountain Road, Maryville, TN 37705 Phone: 865-494-7800 Ext 257 Fax: 865-494-0243 Web: www.claytonhomes.com

Project Information

For: 34M404-FDJ-TZ2

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Design Conditions

Location:

TN 25
Elevation: 962 ft
Latitude: 36°N

Outdoor:

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

Heating

21
-
-
15.0

Cooling

90
18 (M)
73
7.5

Indoor:

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

Heating

70
49
50
43.6

Cooling

75
15
50
33.6

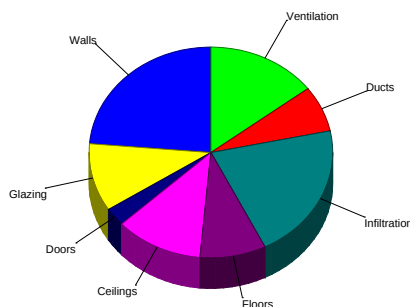
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Average
0

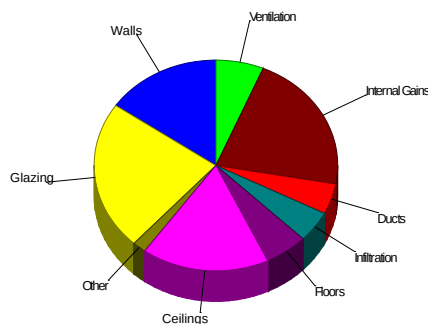
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	4.0	5047	23.7
Glazing	14.7	2227	10.4
Doors	14.7	594	2.8
Ceilings	1.5	2493	11.7
Floors	1.1	1870	8.8
Infiltration	3.1	4473	21.0
Ducts		1507	7.1
Piping		0	0
Humidification		0	0
Ventilation		3123	14.6
Adjustments		0	0
Total		21334	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	1.9	2374	15.4
Glazing	23.4	3540	22.9
Doors	6.9	279	1.8
Ceilings	1.5	2623	17.0
Floors	0.5	881	5.7
Infiltration	0.5	740	4.8
Ducts		724	4.7
Ventilation		982	6.3
Internal gains		3320	21.5
Blower		0	0
Adjustments		0	0
Total		15464	100.0



Latent Cooling Load = 3308 Btuh

Overall U-value = 0.059 Btuh/ft²-°F, Window / Floor Area = 8.9 %

Data entries checked.



Component Constructions
Entire House
CMH Manufacturing Appalachia

Job: 34M404-FDJ-TZ2
Date: June 30, 2026
By: BRIAN RIFFEY

1420 Mountain Road, Maryville, TN 37705 Phone: 865-494-7800 Ext 257 Fax: 865-494-0243 Web: www.claytonhomes.com

Project Information

For: 34M404-FDJ-TZ2

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Design Conditions

Location:			Indoor:		Heating	Cooling
TN 25			Indoor temperature (°F)		70	75
Elevation: 962 ft			Design TD (°F)		49	15
Latitude: 36°N			Relative humidity (%)		50	50
Outdoor:			Moisture difference (gr/lb)		43.6	33.6
	Heating	Cooling	Infiltration:			
Dry bulb (°F)	21	90	Method		Simplified	
Daily range (°F)	-	18 (M)	Construction quality		Average	
Wet bulb (°F)	-	73	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 - THP-502 DOE: Frm wall, vnl ext, 3/8" wood	n	212	0.082	13.0	4.02	852	1.89	401
shth, r-13 cav ins, 1/2" gypsum board int fnsh, 2"x4" wood frm, 16" o.c.	e	431	0.082	13.0	4.02	1730	1.89	814
stud	s	212	0.082	13.0	4.02	852	1.89	401
	w	402	0.082	13.0	4.02	1613	1.89	759
	all	1256	0.082	13.0	4.02	5047	1.89	2374

Partitions
(none)

Windows

Clayton - Theropanel Low-E DOE: Clayton - Therompane Low-E DOE;	e	8	0.300	0	14.7	121	21.3	176
50% blinds 45°, medium; 50% outdoor insect screen; 6.67 ft head ht	e	53	0.300	0	14.7	783	21.3	1137
	w	90	0.300	0	14.7	1323	21.3	1921
	all	152	0.300	0	14.7	2227	21.3	3234

Doors

CMH - Standard Door DOE: CMH - Standard Door -Solid no strom DOE	e	20	0.300	0	14.7	293	6.91	138
	w	20	0.300	0	14.7	301	6.92	142
	all	40	0.300	0	14.7	594	6.91	279

Ceilings

CMH - DW - 158 box R-38 - THP1255: Attic ceiling, asphalt shingles roof		1696	0.030	38.0	1.47	2493	1.55	2623
mat, r-38 ceil ins, 1/2" gypsum board int fnsh								

Floors

CHM - DW - R-22 FW THP-161: Flr floor, frm flr, 6" thkns, vinyl flr fnsh,		1696	0.045	22.0	1.10	1870	0.52	881
r-21 ext ins, amb ovr								



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Project Summary

Entire House

CMH Manufacturing Appalachia

Job: 34M404-FDJ-TZ2
Date: June 30, 2026
By: BRIAN RIFFEY

1420 Mountain Road, Maryville, TN 37705 Phone: 865-494-7800 Ext 257 Fax: 865-494-0243 Web: www.claytonhomes.com

Project Information

For: 34M404-FDJ-TZ2

Notes: Duct Capacity 26233 BTUH

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Design Information

Weather: TN 25

Winter Design Conditions

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

Ventilation Method MJ8

Heating Summary

Structure 16704 Btuh
Ducts (R-8.0) 1507 Btuh
Central vent (60 cfm) 3123 Btuh
Outside air
Humidification 0 Btuh
Piping 0 Btuh
Equipment load 21334 Btuh

Infiltration

Method Simplified
Construction quality Average
Fireplaces 0

	Heating	Cooling
Area (ft ²)	1696	1696
Volume (ft ³)	13568	13568
Air changes/hour	0.38	0.20
Equiv. AVF (cfm)	86	45

Heating Equipment Summary

Make Smart Comfort
Trade 15 SEER2 HP
Model R5H5S24*K*AAA*
AHRI ref 214277579

Efficiency 7.8 HSPF2
Heating input
Heating output 23200 Btuh @ 47°F
Temperature rise 28 °F
Actual air flow 787 cfm
Air flow factor 0.043 cfm/Btuh
Static pressure 0.30 in H2O
Space thermostat
Capacity balance point = 23 °F

Backup: Smart Comfort
Input = 10 kW, Output = 34121 Btuh, 100 AFUE

Summer Design Conditions

Outside db 90 °F
Inside db 75 °F
Design TD 15 °F
Daily range M
Relative humidity 50 %
Moisture difference 34 gr/lb

Sensible Cooling Equipment Load Sizing

Structure 13758 Btuh
Ducts (R-8.0) 724 Btuh
Central vent (60 cfm) 982 Btuh
Outside air
Blower 0 Btuh
Use manufacturer's data n
Rate/swing multiplier 0.95
Equipment sensible load 14753 Btuh

Latent Cooling Equipment Load Sizing

Structure 1798 Btuh
Ducts 185 Btuh
Central vent (60 cfm) 1325 Btuh
Outside air
Equipment latent load 3308 Btuh

Equipment Total Load (Sen+Lat) 18061 Btuh
Req. total capacity at 0.70 SHR 1.8 ton

Cooling Equipment Summary

Make Smart Comfort
Trade 15 SEER2 HP
Cond R5H5S24*K*AAA*
Coil FEVB0036***+NAVA53601CK
AHRI ref 214277579
Efficiency 12.0 EER2, 15.5 SEER2
Sensible cooling 16520 Btuh
Latent cooling 7080 Btuh
Total cooling 23600 Btuh
Actual air flow 787 cfm
Air flow factor 0.054 cfm/Btuh
Static pressure 0.30 in H2O
Load sensible heat ratio 0.82

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



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Duct System Summary

Entire House

CMH Manufacturing Appalachia

Job: 34M404-FDJ-TZ2
Date: June 30, 2026
By: BRIAN RIFFEY

1420 Mountain Road, Maryville, TN 37705 Phone: 865-494-7800 Ext 257 Fax: 865-494-0243 Web: www.claytonhomes.com

Project Information

For: 34M404-FDJ-TZ2

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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	0.186 in/100ft	0.186 in/100ft
Actual air flow	787 cfm	787 cfm
Total effective length (TEL)	161 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 499	22	12	0.462	5.0	0x0	VIFx	30.0	35.0	st1
BEDROOM 2	c 1256	63	68	0.211	4.3	5x5	ShMt	32.2	110.0	st5
BEDROOM 3	h 2063	89	77	0.186	6.0	0x0	VIFx	51.2	110.0	st5
DEN	h 1417	61	49	0.380	5.0	0x0	VIFx	44.0	35.0	st1
DEN-A	h 1417	61	49	0.444	3.6	5x5	ShMt	32.5	35.0	st1
KITCHEN	c 1009	45	55	0.632	5.0	0x0	VIFx	12.5	35.0	st1
KITCHEN-A	c 1009	45	55	0.550	5.0	0x0	VIFx	19.5	35.0	st1
KITCHEN-B	c 1009	45	55	0.789	5.0	0x0	VIFx	3.0	35.0	st1
LIVING ROOM-A	c 1429	59	78	0.223	4.5	5x5	ShMt	24.7	110.0	st5
LIVING ROOM-B	c 1429	59	78	0.228	4.5	5x5	ShMt	21.7	110.0	st4
PRIMARY BATH	h 2314	100	69	0.698	5.0	0x0	VIFx	8.0	35.0	st3
PRIMARY BEDROOM	c 1323	68	72	0.201	4.5	5x5	ShMt	39.2	110.0	st4
PRIMARY BEDROOM-A	c 1323	68	72	0.222	4.4	5x5	ShMt	25.2	110.0	st4

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st1	Peak AVF	280	274	0.380	576	6.2	5 x 14	ShtMetl	st2
st5	Peak AVF	211	223	0.186	458	9.9	5 x 14	ShtMetl	
st4	Peak AVF	196	221	0.201	455	6.9	5 x 14	ShtMetl	
st3	Peak AVF	100	69	0.698	206	4.4	5 x 14	ShtMetl	
st2	Peak AVF	407	444	0.186	1066	9.9	5 x 12	VinlFlx	

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	0x 0	787	787	0	0	0	0	0x 0		VIFx	





Manual S Compliance Report

Entire House

CMH Manufacturing Appalachia

Job: 34M404-FDJ-TZ2
Date: June 30, 2026
By: BRIAN RIFFEY

1420 Mountain Road, Maryville, TN 37705 Phone: 865-494-7800 Ext 257 Fax: 865-494-0243 Web: www.claytonhomes.com

Project Information

For: 34M404-FDJ-TZ2

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Cooling Equipment

Design Conditions

Outdoor design DB:	90.4°F	Sensible gain:	15464 Btuh	Entering coil DB:	76.2°F
Outdoor design WB:	73.3°F	Latent gain:	3308 Btuh	Entering coil WB:	63.3°F
Indoor design DB:	75.0°F	Total gain:	18772 Btuh		
Indoor RH:	50%	Estimated airflow:	787 cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Smart Comfort	Model:	R5H5S24*K*AAA*+FEVB0036**++NAVA53601CK
Actual airflow:	787 cfm		
Sensible capacity:	19303 Btuh	125% of load	
Latent capacity:	3872 Btuh	117% of load	
Total capacity:	23175 Btuh	123% of load	SHR: 83%

Heating Equipment

Design Conditions

Outdoor design DB:	21.0°F	Heat loss:	21334 Btuh	Entering coil DB:	66.2°F
Indoor design DB:	70.0°F				

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Smart Comfort	Model:	R5H5S24*K*AAA*+FEVB0036**++NAVA53601CK
Actual airflow:	787 cfm		
Output capacity:	16659 Btuh	78% of load	Capacity balance: 23 °F
Supplemental heat required:	4675 Btuh		Economic balance: -99 °F

Backup equipment type:	Elec strip		
Manufacturer:	Smart Comfort	Model:	
Actual airflow:	787 cfm		
Output capacity:	10.0 kW	160% of load	Temp. rise: 41 °F

Meets all requirements of ACCA Manual S.



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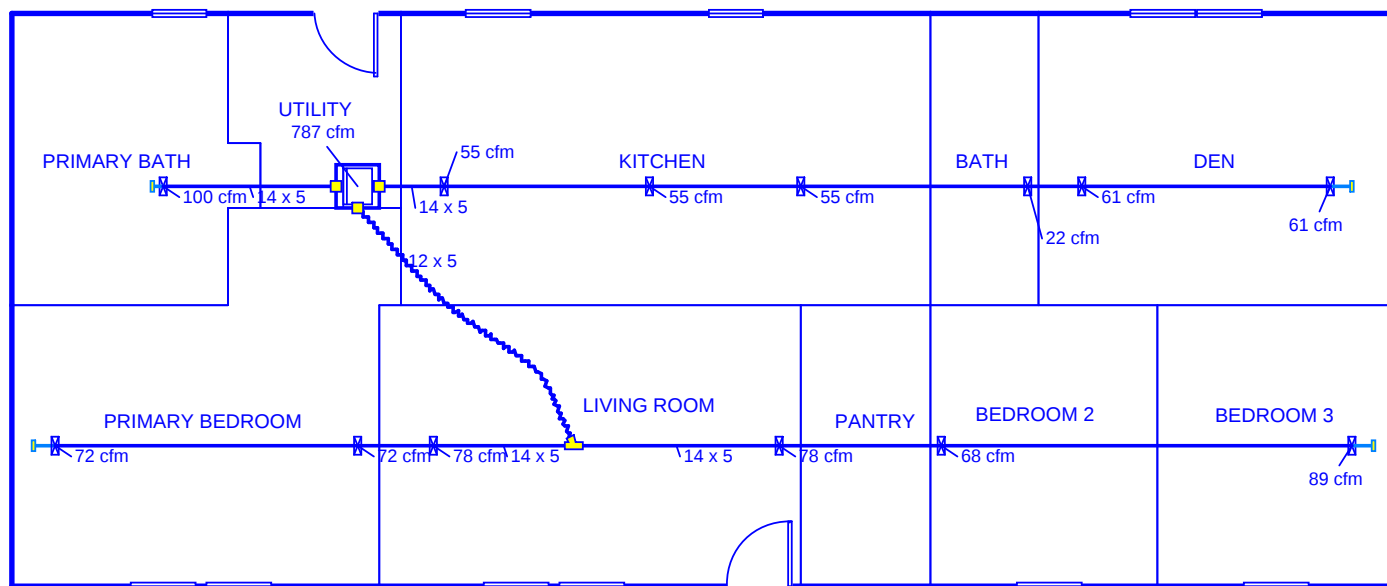
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Federal Manufactured
Home Construction 6
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Level 1



Job #: 34M404-FDJ-TZ2
Performed by BRIAN RIFFEY for:
34M404-FDJ-TZ2

CMH Manufacturing Appalachia

1420 Mountain Road
Maryville, TN 37705
Phone: 865-494-7800 Ext 257 Fax: 865-494-0243
www.claytonhomes.com

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CLAYTON HOME BUILDING GROUP

Model Number	MTN28643B	Drawing Number	34M404 HEATLOSS-TZ2	Version 29
Serial Number	X	Model Name	MOUNTAINEER	

BOX SIZE: 26.33 ft. x 64 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

	UNHEATED FLOOR	WALL	FLAT ROOF
INSULATION VALUES	R-22 FW	R-13	R-38
DAPIA PAGE	THP-161	THP-502	THP-1255
U VALUE (BTUH/SQ.FT.-F)	0.0445	0.0817	0.0297

THIS INSULATION COMBINATION COMPLIES WITH
ZONE 1 PRESCRIPTIVE ZERH REQUIREMENTS

Overhead Duct	
Diameter	Length
4	0
5	0
6	0
7	0
8	0
9	0
10	0
12	0
14	0
Exterior Supply	Length
14	0
16	0
Exterior Return	Length
14	0
16	0

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Window Glass Area:

Doors:

	Area	U Value	UA
Front	21.63	0.300	6.49
Rear	19.37	0.300	5.81
Other Door	40.00	0.300	12.00
Other Door	0.00	0.330	0.00
OSB	0.00	0.000	0.00
Skylights	0.00	0.330	0.00
Standard	140.00	0.300	42.00
Option	0.00	0.300	0.00
Net: Floor	1685.33	0.045	75.00
Wall	1224.33	0.082	100.03
Ceiling	1685.33	0.0297	50.05
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	297.6
Th. Zone 2	147.5
Th. Zone 3	0.0

Thermal Zone	Outdoor Design Temp (F)	UA	Uo	ZERH / EStar 3.0 Compliant	Heatloss BTUH/F
1	11	310.36	0.063	OK	436.80
2	0	308.86	0.063	OK	435.30
3	-14	307.52	0.063	NG	434.00

Design Temperatures		
Furnace Heating Temp (F)	Economy Outdoor Temp (F)	
-8	15	10kW
-24	4	12kW
-47	-12	15kW
-22	6	40k Gas
-67	-26	60k Gas
-113	-58	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



Building Analysis

Entire House

CMH Manufacturing Appalachia

Job: 34M404-FDJ-TZ3
Date: June 30, 2026
By: BRIAN RIFFEY



1420 Mountain Road, Maryville, TN 37705 Phone: 865-494-7800 Ext 257 Fax: 865-494-0243 Web: www.claytonhomes.com

Project Information

For: 34M404-FDJ-TZ3

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Design Conditions

Location:

OH 22
Elevation: 744 ft
Latitude: 40°N

Outdoor:

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

Heating

10
-
-
15.0

Cooling

90
19 (M)
73
7.5

Indoor:

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

Heating

70
60
50
48.7

Cooling

75
15
50
33.4

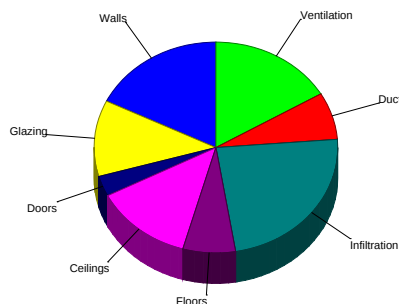
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Average
0

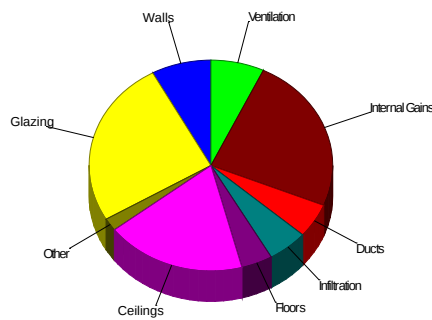
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	3.3	4138	17.8
Glazing	18.0	2722	11.7
Doors	18.0	726	3.1
Ceilings	1.8	3048	13.1
Floors	1.0	1625	7.0
Infiltration	3.8	5511	23.6
Ducts		1689	7.2
Piping		0	0
Humidification		0	0
Ventilation		3848	16.5
Adjustments		0	0
Total		23309	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	0.9	1095	7.9
Glazing	23.3	3524	25.6
Doors	6.6	267	1.9
Ceilings	1.5	2572	18.7
Floors	0.3	573	4.2
Infiltration	0.5	736	5.3
Ducts		724	5.2
Ventilation		977	7.1
Internal gains		3320	24.1
Blower		0	0
Adjustments		0	0
Total		13787	100.0



Latent Cooling Load = 3311 Btuh

Overall U-value = 0.048 Btuh/ft²-°F, Window / Floor Area = 8.9 %

Data entries checked.



Component Constructions
Entire House
CMH Manufacturing Appalachia

Job: 34M404-FDJ-TZ3
 Date: June 30, 2026
 By: BRIAN RIFFEY

1420 Mountain Road, Maryville, TN 37705 Phone: 865-494-7800 Ext 257 Fax: 865-494-0243 Web: www.claytonhomes.com

Project Information

For: 34M404-FDJ-TZ3



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Design Conditions

Location:

OH 22
 Elevation: 744 ft
 Latitude: 40°N

Outdoor:

Dry bulb (°F) 10
 Daily range (°F) -
 Wet bulb (°F) -
 Wind speed (mph) 15.0

Heating

10
 -
 -
 15.0

Cooling

90
 19 (M)
 73
 7.5

Indoor:

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

Heating

70
 60
 50
 48.7

Cooling

75
 15
 50
 33.4

Infiltration:

Method
 Construction quality
 Fireplaces

Simplified
 Average
 0

Construction descriptions

Walls

CMH - DW - R-21 Wall - THP-510: Frm wall, vnl ext, 5/8" wood shth,
 r-21 cav ins, 5/8" gypsum board int fnsh, 2"x4" wood frm, 16" o.c. stud

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
n	212	0.055	21.0	3.29	698	0.87	185
e	431	0.055	21.0	3.29	1419	0.87	375
s	212	0.055	21.0	3.29	698	0.87	185
w	402	0.055	21.0	3.29	1323	0.87	350
all	1256	0.055	21.0	3.29	4138	0.87	1095

Partitions

(none)

Windows

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

e	8	0.300	0	18.0	148	21.1	174
e	53	0.300	0	18.0	957	21.1	1126
w	90	0.300	0	18.0	1617	21.1	1902
all	152	0.300	0	18.0	2722	21.1	3202

Doors

CMH - Standard Door DOE: CMH - Standard Door -Solid no strom DOE

e	20	0.300	0	18.0	358	6.61	132
w	20	0.300	0	18.0	368	6.61	136
all	40	0.300	0	18.0	726	6.61	267

Ceilings

CMH - DW - 158 box R-38 - THP1255: Attic ceiling, asphalt shingles roof
 mat, r-38 ceil ins, 1/2" gypsum board int fnsh

	1696	0.030	38.0	1.80	3048	1.52	2572
--	------	-------	------	------	------	------	------

Floors

CHM - DW - R-33 FW THP-221: Flr floor, frm flr, 6" thkns, vinyl flr fnsh,
 r-30 ext ins, amb ovr

	1696	0.032	33.0	0.96	1625	0.34	573
--	------	-------	------	------	------	------	-----



Project Summary

Entire House

CMH Manufacturing Appalachia

Job: 34M404-FDJ-TZ3
Date: June 30, 2026
By: BRIAN RIFFEY

1420 Mountain Road, Maryville, TN 37705 Phone: 865-494-7800 Ext 257 Fax: 865-494-0243 Web: www.claytonhomes.com

Project Information

For: 34M404-FDJ-TZ3

Notes: Duct Capacity 25100 BTUH

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Design Information

Weather: OH 22

Winter Design Conditions

Outside db 10 °F
Inside db 70 °F
Design TD 60 °F

Ventilation Method MJ8

Heating Summary

Structure 17771 Btuh
Ducts (R-8.0) 1689 Btuh
Central vent (60 cfm) 3848 Btuh
Outside air
Humidification 0 Btuh
Piping 0 Btuh
Equipment load 23309 Btuh

Infiltration

Method Simplified
Construction quality Average
Fireplaces 0

	Heating	Cooling
Area (ft ²)	1696	1696
Volume (ft ³)	13568	13568
Air changes/hour	0.38	0.20
Equiv. AVF (cfm)	86	45

Heating Equipment Summary

Make Smart Comfort
Trade 15 SEER2 HP
Model R5H5S24*K*AAA*
AHRI ref 214277535

Efficiency 7.5 HSPF2
Heating input
Heating output 22800 Btuh @ 47°F
Temperature rise 28 °F
Actual air flow 753 cfm
Air flow factor 0.039 cfm/Btuh
Static pressure 0.30 in H2O
Space thermostat
Capacity balance point = 20 °F

Backup: Smart Comfort
Input = 10 kW, Output = 34121 Btuh, 100 AFUE

Summer Design Conditions

Outside db 90 °F
Inside db 75 °F
Design TD 15 °F
Daily range M
Relative humidity 50 %
Moisture difference 33 gr/lb

Sensible Cooling Equipment Load Sizing

Structure 12087 Btuh
Ducts (R-8.0) 724 Btuh
Central vent (60 cfm) 977 Btuh
Outside air
Blower 0 Btuh
Use manufacturer's data n
Rate/swing multiplier 0.95
Equipment sensible load 13125 Btuh

Latent Cooling Equipment Load Sizing

Structure 1801 Btuh
Ducts 182 Btuh
Central vent (60 cfm) 1328 Btuh
Outside air
Equipment latent load 3311 Btuh

Equipment Total Load (Sen+Lat) 16436 Btuh
Req. total capacity at 0.70 SHR 1.6 ton

Cooling Equipment Summary

Make Smart Comfort
Trade 15 SEER2 HP
Cond R5H5S24*K*AAA*
Coil FEVB0024****NAVA53601CK
AHRI ref 214277535
Efficiency 12.0 EER2, 15.5 SEER2
Sensible cooling 15820 Btuh
Latent cooling 6780 Btuh
Total cooling 22600 Btuh
Actual air flow 753 cfm
Air flow factor 0.059 cfm/Btuh
Static pressure 0.30 in H2O
Load sensible heat ratio 0.81

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



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Duct System Summary

Entire House

CMH Manufacturing Appalachia

Job: 34M404-FDJ-TZ3
Date: June 30, 2026
By: BRIAN RIFFEY

1420 Mountain Road, Maryville, TN 37705 Phone: 865-494-7800 Ext 257 Fax: 865-494-0243 Web: www.claytonhomes.com

Project Information

For: 34M404-FDJ-TZ3

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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	0.186 in/100ft	0.186 in/100ft
Actual air flow	753 cfm	753 cfm
Total effective length (TEL)	161 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 515	20	10	0.462	5.0	0x0	VIFx	30.0	35.0	st1
BEDROOM 2	c 1128	60	66	0.211	4.3	5x5	ShMt	32.2	110.0	st5
BEDROOM 3	h 2165	84	71	0.186	6.0	0x0	VIFx	51.2	110.0	st5
DEN	h 1510	58	45	0.380	5.0	0x0	VIFx	44.0	35.0	st1
DEN-A	h 1510	58	45	0.444	3.5	5x5	ShMt	32.5	35.0	st1
KITCHEN	c 913	43	54	0.632	5.0	0x0	VIFx	12.5	35.0	st1
KITCHEN-A	c 913	43	54	0.550	5.0	0x0	VIFx	19.5	35.0	st1
KITCHEN-B	c 913	43	54	0.789	5.0	0x0	VIFx	3.0	35.0	st1
LIVING ROOM-A	c 1329	59	78	0.223	4.5	5x5	ShMt	24.7	110.0	st5
LIVING ROOM-B	c 1329	59	78	0.228	4.5	5x5	ShMt	21.7	110.0	st4
PRIMARY BATH	h 2428	94	61	0.698	5.0	0x0	VIFx	8.0	35.0	st3
PRIMARY BEDROOM	c 1179	65	69	0.201	4.4	5x5	ShMt	39.2	110.0	st4
PRIMARY BEDROOM-A	c 1179	65	69	0.222	4.3	5x5	ShMt	25.2	110.0	st4

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st1	Peak AVF	267	260	0.380	549	6.2	5 x 14	ShtMetl	st2
st5	Peak AVF	203	215	0.186	442	9.9	5 x 14	ShtMetl	
st4	Peak AVF	189	217	0.201	446	6.9	5 x 14	ShtMetl	
st3	Peak AVF	94	61	0.698	193	4.4	5 x 14	ShtMetl	
st2	Peak AVF	392	432	0.186	1036	9.9	5 x 12	VinIFlx	

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	0x 0	753	753	0	0	0	0	0x 0		VIFx	





Manual S Compliance Report

Entire House

CMH Manufacturing Appalachia

Job: 34M404-FDJ-TZ3
Date: June 30, 2026
By: BRIAN RIFFEY

1420 Mountain Road, Maryville, TN 37705 Phone: 865-494-7800 Ext 257 Fax: 865-494-0243 Web: www.claytonhomes.com

Project Information

For: 34M404-FDJ-TZ3



Cooling Equipment

Design Conditions

Outdoor design DB:	90.2°F	Sensible gain:	13787	Btuh	Entering coil DB:	76.2°F
Outdoor design WB:	73.3°F	Latent gain:	3311	Btuh	Entering coil WB:	63.4°F
Indoor design DB:	75.0°F	Total gain:	17098	Btuh		
Indoor RH:	50%	Estimated airflow:	753	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Smart Comfort	Model:	R5H5S24*K*AAA*+FEVB0024**++NAVA53601CK
Actual airflow:	753	cfm	
Sensible capacity:	18543	Btuh	134% of load
Latent capacity:	3829	Btuh	116% of load
Total capacity:	22373	Btuh	131% of load SHR: 83%

Heating Equipment

Design Conditions

Outdoor design DB:	10.1°F	Heat loss:	23309	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:	R5H5S24*K*AAA*+FEVB0024**++NAVA53601CK
Actual airflow:	753	cfm	
Output capacity:	11754	Btuh	50% of load
Supplemental heat required:	11554	Btuh	
			Capacity balance: 20 °F
			Economic balance: -99 °F

Backup equipment type:	Elec strip		
Manufacturer:	Smart Comfort	Model:	
Actual airflow:	753	cfm	
Output capacity:	10.0	kW	146% of load Temp. rise: 41 °F

Meets all requirements of ACCA Manual S.



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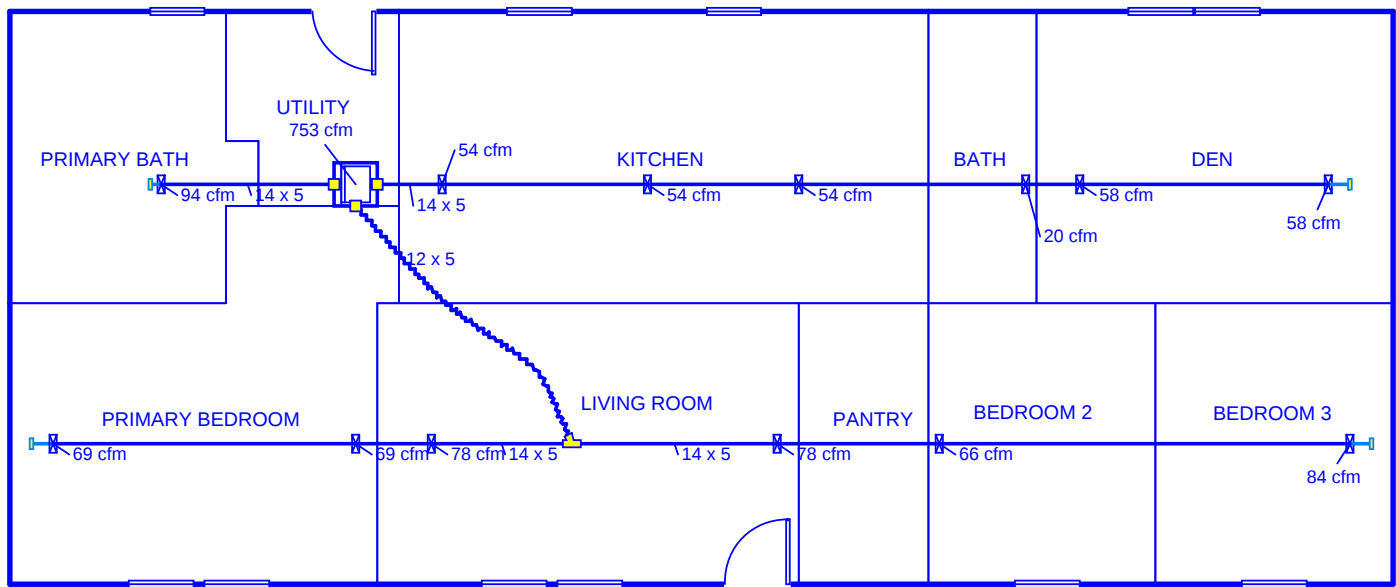
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Level 1



Job #: 34M404-FDJ-TZ3
Performed by BRIAN RIFFEY for:
34M404-FDJ-TZ3

CMH Manufacturing Appalachia

1420 Mountain Road
Maryville, TN 37705
Phone: 865-494-7800 Ext 257 Fax: 865-494-0243
www.claytonhomes.com

Scale: 1 : 107

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...RGY STANDARDS\34M404-FDJ-TZ3.r

CLAYTON HOME BUILDING GROUP

Model Number	MTN28643B	Drawing Number	34M404 HEATLOSS-TZ3	Version 29
Serial Number	X	Model Name	MOUNTAINEER	

BOX SIZE: 26.33 ft. x 64 ft.

AVG. SIDEWALL HEIGHT = 8 FEET

PERCENTAGE OF CEILING THAT IS VAULTED = 0%

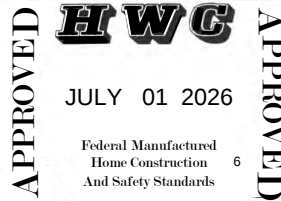
12 INCH DIAMETER XOVER DUCT AREA = 78.5 SQ.FT. MAX. WITH R-8 INSULATION

IN-FLOOR DUCT SYSTEM

	UNHEATED FLOOR	WALL	FLAT ROOF
INSULATION VALUES	R-33 FW	R-21	R-38
DAPIA PAGE	THP-221	THP-510	THP-1255
U VALUE (BTUH/SQ.FT.-F)	0.0320	0.0546	0.0297

THIS INSULATION COMBINATION COMPLIES WITH
ZONE 3 PRESCRIPTIVE ZERH REQUIREMENTS

Overhead Duct	
Diameter	Length
4	0
5	0
6	0
7	0
8	0
9	0
10	0
12	0
14	0
Exterior Supply	Length
14	0
16	0
Exterior Return	Length
14	0
16	0



Window Glass Area:

Doors:

	Area	U Value	UA
Front	21.63	0.300	6.49
Rear	19.37	0.300	5.81
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	140.00	0.300	42.00
Option	0.00	0.300	0.00
Net: Floor	1685.33	0.032	53.93
Wall	1264.33	0.055	69.03
Ceiling	1685.33	0.0297	50.05
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	541.2
Th. Zone 2	407.8
Th. Zone 3	225.0

Thermal Zone	Outdoor Design Temp (F)	UA	Uo	ZERH / EStar 3.0 Compliant	Heatloss BTUH/F
1	11	246.30	0.050	OK	372.80
2	0	244.80	0.050	OK	371.30
3	-14	243.45	0.050	OK	369.90

Design Temperatures		
Furnace Heating Temp (F)	Economy Outdoor Temp (F)	
-22	6	10kW
-40	-7	12kW
-67	-26	15kW
-37	-5	40k Gas
-91	-43	60k Gas
-145	-80	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