

Project Information

For: Jaron Nagle, Redwood Contracting
351 NW Heritage Dr, Lake City, FL 32055

Notes:

Design Information

Weather: Gainesville, FL, US

Winter Design Conditions

Outside db	33 °F
Inside db	70 °F
Design TD	37 °F

Ventilation Method ASHRAE 62.2-2010

Heating Summary

Structure	28184 Btuh
Ducts (R-6.0)	2878 Btuh
Central vent (0 cfm)	0 Btuh
Humidification	0 Btuh
Piping	0 Btuh
Equipment load	31062 Btuh

Infiltration

Method	Blower door
Shielding / stories	3 (partial) / 2
Pressure / ACH / AVF	50 Pa / 6.0 / 2071 cfm

	Heating	Cooling
Area (ft²)	2168	2168
Volume (ft³)	20712	20712
Air changes/hour	0.57	0.34
Equiv. AVF (cfm)	198	117

Heating Equipment Summary

Make	Heil
Trade	PERFORMANCE 16 SEER2 HP
Model	N5H5S36*L*AAA*
AHRI ref	217033591
Efficiency	7.5 HSPF2
Heating input	
Heating output	34800 Btuh @ 47°F
Temperature rise	0 °F
Actual air flow	0 cfm
Air flow factor	0 cfm/Btuh
Static pressure	0.70 in H2O
Space thermostat	
Capacity balance point = 31 °F	
Backup: Heil	
Input = 8 kW, Output = 27297 Btuh, 100 AFUE	

Summer Design Conditions

Outside db	94 °F
Inside db	75 °F
Design TD	19 °F
Daily range	M
Relative humidity	50 %
Moisture difference	42 gr/lb

Sensible Cooling Equipment Load Sizing

Structure	20482 Btuh
Ducts (R-6.0)	5223 Btuh
Central vent (0 cfm)	0 Btuh
Blower	0 Btuh
Use manufacturer's data	y
Rate/swing multiplier	1.00
Equipment sensible load	25705 Btuh

Latent Cooling Equipment Load Sizing

Structure	4321 Btuh
Ducts	720 Btuh
Central vent (0 cfm)	0 Btuh
Equipment latent load	5042 Btuh
Equipment Total Load (Sen+Lat)	30746 Btuh
Req. total capacity at 0.82 SHR	2.6 ton

Cooling Equipment Summary

Make	Heil
Trade	PERFORMANCE 16 SEER2 HP
Cond	N5H5S36*L*AAA*
Coil	FHMA5*42L*C*
AHRI ref	217033591
Efficiency	12.0 EER2, 15.2 SEER2
Sensible cooling	26986 Btuh
Latent cooling	5924 Btuh
Total cooling	32910 Btuh
Actual air flow	1153 cfm
Air flow factor	0.045 cfm/Btuh
Static pressure	0.70 in H2O
Load sensible heat ratio	0.84

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



Manual S Compliance Report

System 1

MechaniCalcs LLC

Job:
Date: Jul 02, 2026
By: Jonathan Jacobs

122 Del Palma, Palm Coast, FL 32137 Phone: 386-503-0449 Email: MechaniCalcs@gmail.com Web: ineedHVACcalcs.com or MechaniCalcsLLC.com

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Cooling Equipment

Design Conditions

Outdoor design DB:	94.0°F	Sensible gain:	25705	Btuh	Entering coil DB:	75.7°F
Outdoor design WB:	76.0°F	Latent gain:	5042	Btuh	Entering coil WB:	62.8°F
Indoor design DB:	75.0°F	Total gain:	30746	Btuh		
Indoor RH:	50%	Estimated airflow:	1153	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Heil	Model:	N5H5S36*L*AAA*+FHMA5*42L*C*	
Actual airflow:	1153	cfm		
Sensible capacity:	27008	Btuh	105% of load	
Latent capacity:	5902	Btuh	117% of load	
Total capacity:	32910	Btuh	107% of load	SHR: 82%

Heating Equipment

Design Conditions

Outdoor design DB:	33.3°F	Heat loss:	31062	Btuh	Entering coil DB:	70.0°F
Indoor design DB:	70.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP			
Manufacturer:	Heil	Model:	N5H5S36*L*AAA*+FHMA5*42L*C*	
Actual airflow:	0	cfm		
Output capacity:	34800	Btuh	112% of load	Capacity balance: 31 °F
Supplemental heat required:	0	Btuh		Economic balance: -99 °F

Backup equipment type:	Elec strip			
Manufacturer:	Heil	Model:		
Actual airflow:	0	cfm		
Output capacity:	8.0	kW	88% of load	Temp. rise: 26 °F

Meets all requirements of ACCA Manual S.





Duct System Summary

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	Heating	Cooling
External static pressure	0.70 in H2O	0.70 in H2O
Pressure losses	0.31 in H2O	0.31 in H2O
Available static pressure	0.39 in H2O	0.39 in H2O
Supply / return available pressure	0.178 / 0.212 in H2O	0.178 / 0.212 in H2O
Lowest friction rate	0.148 in/100ft	0.148 in/100ft
Actual air flow	0 cfm	1153 cfm
Total effective length (TEL)	264 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
B2C	c 192	0	9	0.168	4.0	0x0	VIFx	61.6	44.2	st7
B4C	c 132	0	6	0.250	4.0	0x0	VIFx	43.6	27.6	st5
Bath 2	c 252	0	11	0.165	4.0	0x0	VIFx	63.1	44.7	st7
Bed 2	c 3541	0	159	0.148	8.0	0x0	VIFx	62.8	57.8	st7
Bed 3	c 2587	0	116	0.188	7.0	0x0	VIFx	48.5	46.2	st6
Bed 4	c 2537	0	114	0.205	7.0	0x0	VIFx	43.5	43.3	st5
Dining_Foyer	c 2690	0	121	0.272	6.0	0x0	VIFx	36.3	29.2	st3
Great	c 1782	0	80	0.265	6.0	0x0	VIFx	39.5	27.6	st3
Great-A	c 1782	0	80	0.274	6.0	0x0	VIFx	43.0	22.0	st3
Kitchen	c 2583	0	116	0.306	6.0	0x0	VIFx	31.3	26.9	st3
Laundry	c 299	0	13	0.821	4.0	0x0	VIFx	13.8	7.9	st1
M Bath	c 1114	0	50	0.238	4.0	0x0	VIFx	38.8	35.9	st4
M Tlt	c 32	0	1	0.289	4.0	0x0	VIFx	40.5	21.0	st4
MWIC	c 30	0	1	0.305	4.0	0x0	VIFx	37.3	21.0	st4
Master Bed	c 3297	0	148	0.253	7.0	0x0	VIFx	37.5	33.0	st4
Pwdr	c 99	0	4	0.633	4.0	0x0	VIFx	20.5	7.6	st1
Stairs_Hall 2	c 2754	0	124	0.181	7.0	0x0	VIFx	50.0	48.5	st6

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	0	414	0.265	527	12.0	0 x 0	VinIFlx	st2 st1 st6 st5 st2
st2	Peak AVF	0	739	0.148	691	14.0	0 x 0	VinIFlx	
st4	Peak AVF	0	201	0.238	575	8.0	0 x 0	VinIFlx	
st3	Peak AVF	0	396	0.265	505	12.0	0 x 0	VinIFlx	
st7	Peak AVF	0	179	0.148	512	8.0	0 x 0	VinIFlx	
st6	Peak AVF	0	418	0.148	533	12.0	0 x 0	VinIFlx	
st5	Peak AVF	0	538	0.148	685	12.0	0 x 0	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
rb2	0x0	0	167	103.4	0.205	480	8.0	0x 0		VIFx	rt4
rb3	0x0	0	240	143.7	0.148	542	9.0	0x 0		VIFx	rt4
rb4	0x0	0	114	112.5	0.189	426	7.0	0x 0		VIFx	rt2
rb1	0x0	0	432	47.7	0.444	549	12.0	0x 0		VIFx	rt1
rb6	0x0	0	201	39.7	0.534	575	8.0	0x 0		VIFx	rt2

Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rt2	Peak AVF	0	314	0.189	577	10.0	0 x 0	VinIFlx	rt1
rt4	Peak AVF	0	407	0.148	518	12.0	0 x 0	VinIFlx	rt1
rt1	Peak AVF	0	1153	0.148	575	14.0	17 x 17	RectFbg	





Static Pressure and Friction Rate System 1

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Available Static Pressure

	Heating (in H2O)	Cooling (in H2O)
External static pressure	0.70	0.70
Pressure losses		
Coil	0	0
Heat exchanger	0	0
Supply diffusers	0.05	0.05
Return grilles	0.03	0.03
Filter	0.23	0.23
Humidifier	0	0
Balancing damper	0	0
Other device	0	0
Available static pressure	0.39	0.39

Total Effective Length

	Supply (ft)	Return (ft)
Measured length of run-out	6	38
Measured length of trunk	56	30
Equivalent length of fittings	58	76
Total length	121	144
Total effective length		264

Friction Rate

	Heating (in/100ft)		Cooling (in/100ft)	
Supply Ducts	0.148	OK	0.148	OK
Return Ducts	0.148	OK	0.148	OK

Fitting Equivalent Length Details

Supply	4AE=55, 11C=40, 11G=5, 11C=40, 11C=40, 11H=7, 11C=40, 1A=35, 11G=5, 11G=5, VelAdj=-214: TotalEL=58
Return	6L=20, 11C=40, 11G=5, 11G=5, 11G=5, 11G=5, 11C=40, 8D3=65, 11G=5, 11G=5, 5B=40, VelAdj=-159: TotalEL=76

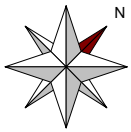


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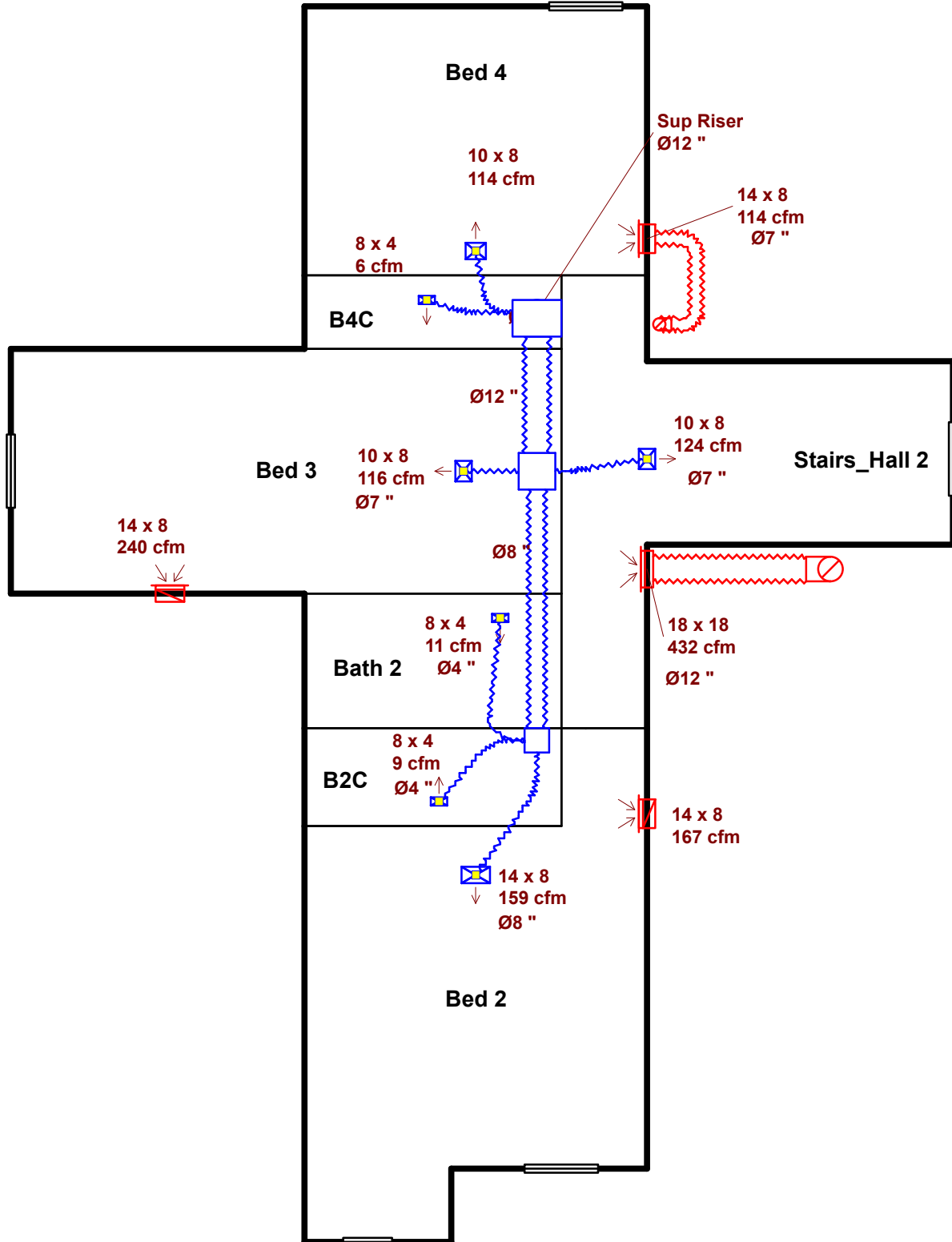
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Second Floor



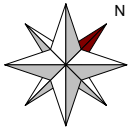
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Notes

MechaniCalcs DESIGN DETAIL SUMMARY

MechaniCalcs responsibility is solely for design of the HVAC system based upon the design information and conditions specified in the drawing and accompanying ACCA Manual J, S, D and T reports. The HVAC design is based only upon the design information and conditions shown, which have not been verified. For future use, the building designer must verify the applicability of the design information and conditions, and properly incorporate this HVAC design into the overall building design. The HVAC design shown is only valid for the building layout, elevations, orientation, interior floor plan, construction materials, equipment, and weather bin data specified in the drawing.

Any change to the design information and conditions, or deviation from this design will require a related HVAC design. MechaniCalcs has no responsibility for deviations from its HVAC design, or for use of designs for purpose other than as intended by MechaniCalcs, or for the improper construction or installation of HVAC systems based on its designs.

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