

Project Information

For: Bruno Residence
 669 NW Bert Ave, Lake City, FL 32055

Notes:

Design Information

Weather: Gainesville Regional, FL, US

Winter Design Conditions

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

Summer Design Conditions

Outside db 92 °F
 Inside db 70 °F
 Design TD 22 °F
 Daily range M
 Relative humidity 50 %
 Moisture difference 54 gr/lb

Heating Summary

Structure 23916 Btuh
 Ducts 9387 Btuh
 Central vent (0 cfm)
 (none) 0 Btuh
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 33303 Btuh

Sensible Cooling Equipment Load Sizing

Structure 25565 Btuh
 Ducts 10188 Btuh
 Central vent (0 cfm)
 (none) 0 Btuh
 Blower 0 Btuh
 Use manufacturer's data n
 Rate/swing multiplier 0.97
 Equipment sensible load 34752 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 1 (Average)

Latent Cooling Equipment Load Sizing

Structure 2556 Btuh
 Ducts 2346 Btuh
 Central vent (0 cfm)
 (none) 0 Btuh
 Equipment latent load 4902 Btuh

	Heating	Cooling
Area (ft ²)	2005	2005
Volume (ft ³)	18000	18000
Air changes/hour	0.39	0.16
Equiv. AVF (cfm)	116	48

Equipment Total Load (Sen+Lat) 39654 Btuh
 Req. total capacity at 0.70 SHR 4.1 ton

Heating Equipment Summary

Make Trane
 Trade TRANE
 Model 4TWR5048H1
 AHRI ref 9207704

Efficiency 8.55 HSPF
 Heating input
 Heating output 42500 Btuh @ 47°F
 Temperature rise 25 °F
 Actual air flow 1550 cfm
 Air flow factor 0.047 cfm/Btuh
 Static pressure 0.53 in H2O
 Space thermostat
 Capacity balance point = 27 °F

Backup:
 Input = 8 kW, Output = 27117 Btuh, 100 AFUE

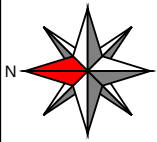
Cooling Equipment Summary

Make Trane
 Trade TRANE
 Cond 4TWR5048H1
 Coil TEM6A0C48H41
 AHRI ref 9207704

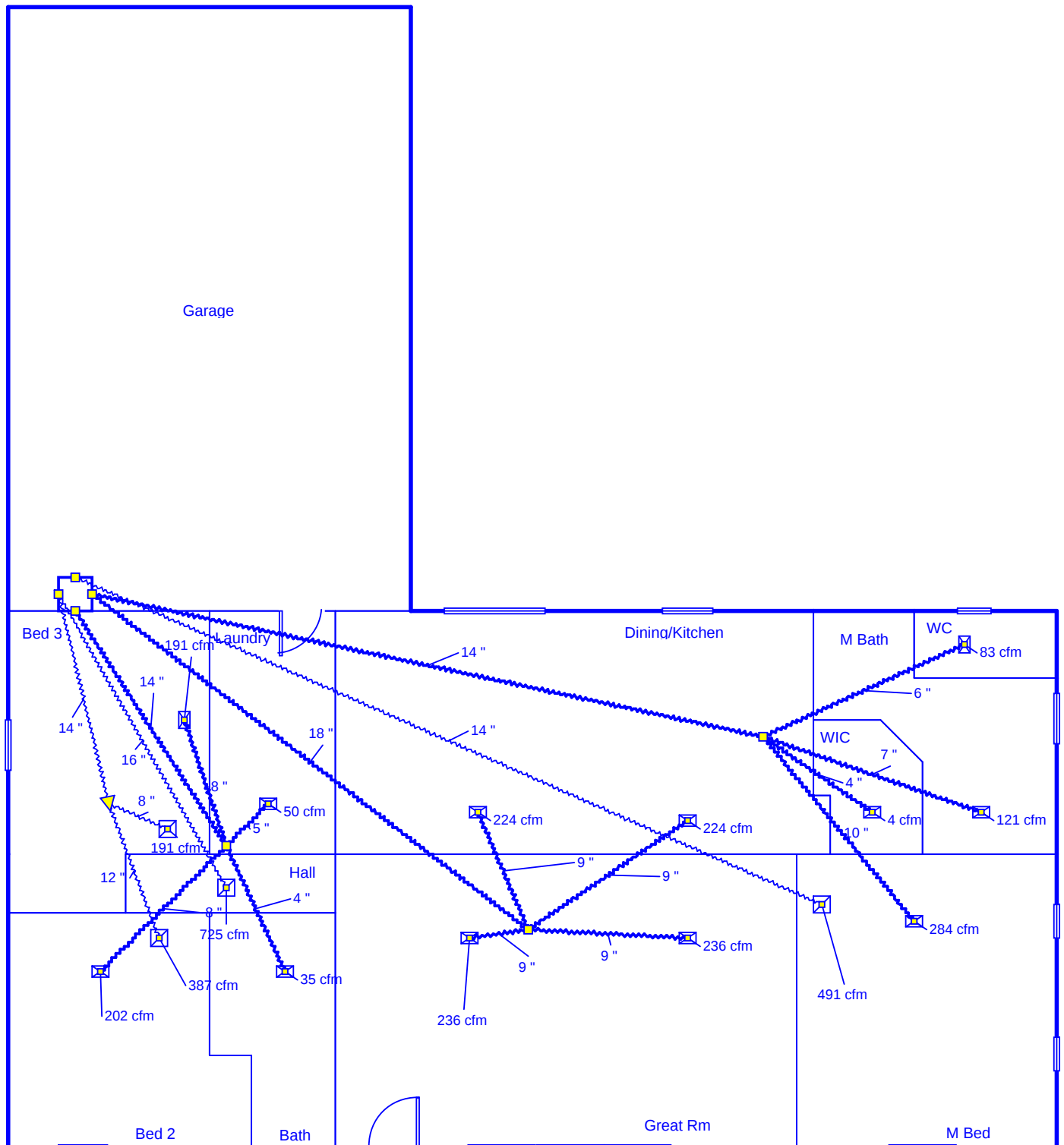
Efficiency 12.5 EER, 15 SEER
 Sensible cooling 32550 Btuh
 Latent cooling 13950 Btuh
 Total cooling 46500 Btuh
 Actual air flow 1550 cfm
 Air flow factor 0.043 cfm/Btuh
 Static pressure 0.53 in H2O
 Load sensible heat ratio 0.88

Bold/italic values have been manually overridden

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



Duct Layout



Job #: 669 NW Bert Ave - Columbiua Count
Performed by DJM for:
Bruno Residence
669 NW Bert Ave
Lake City, FL 32055

Scale: 1 : 104
Page 1
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Project Information

For: Bruno Residence
 669 NW Bert Ave, Lake City, FL 32055

Cooling Equipment

Design Conditions

Outdoor design DB:	92.2°F	Sensible gain:	35753	Btuh	Entering coil DB:	72.0°F
Outdoor design WB:	75.8°F	Latent gain:	4902	Btuh	Entering coil WB:	59.5°F
Indoor design DB:	70.0°F	Total gain:	40655	Btuh		
Indoor RH:	50%	Estimated airflow:	1550	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Trane	Model:	4TWR5048H1+TEM6A0C48H41		
Actual airflow:	1550	cfm			
Sensible capacity:	32550	Btuh	91%	of load	
Latent capacity:	13950	Btuh	285%	of load	
Total capacity:	46500	Btuh	114%	of load	SHR: 70%

Heating Equipment

Design Conditions

Outdoor design DB:	33.2°F	Heat loss:	33303	Btuh	Entering coil DB:	68.9°F
Indoor design DB:	70.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP				
Manufacturer:	Trane	Model:	4TWR5048H1+TEM6A0C48H41		
Actual airflow:	1550	cfm			
Output capacity:	42500	Btuh	128%	of load	Capacity balance: 27 °F
Supplemental heat required:	0	Btuh			Economic balance: -99 °F

Backup equipment type:	Elec strip				
Manufacturer:		Model:			
Actual airflow:	1550	cfm			
Output capacity:	7.9	kW	81%	of load	Temp. rise: 50 °F

Meets all requirements of ACCA Manual S.



Duct System Summary

Entire House

Job: 669 NW Bert Ave - Colu...
 Date: Jul 23, 2021
 By: DJM
 Plan: J-6205

Project Information

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	Heating	Cooling
External static pressure	0.53 in H ₂ O	0.53 in H ₂ O
Pressure losses	0 in H ₂ O	0 in H ₂ O
Available static pressure	0.53 in H ₂ O	0.53 in H ₂ O
Supply / return available pressure	0.344 / 0.186 in H ₂ O	0.344 / 0.186 in H ₂ O
Lowest friction rate	0.237 in/100ft	0.237 in/100ft
Actual air flow	1550 cfm	1550 cfm
Total effective length (TEL)	224 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 743	35	15	0.299	4.0	0x0	VIFx	24.9	90.0	st3
Bed 2	h 4343	202	151	0.293	8.0	0x0	VIFx	27.2	90.0	st3
Bed 3	h 4099	191	103	0.300	8.0	0x0	VIFx	24.5	90.0	st3
Dining/Kitchen	c 5165	140	224	0.264	9.0	0x0	VIFx	40.4	90.0	st2
Dining/Kitchen-A	c 5165	140	224	0.256	9.0	0x0	VIFx	44.3	90.0	st2
Great Rm	c 5436	151	236	0.260	9.0	0x0	VIFx	42.3	90.0	st2
Great Rm-A	c 5436	151	236	0.272	9.0	0x0	VIFx	36.3	90.0	st2
Laundry	h 1082	50	27	0.312	5.0	0x0	VIFx	20.2	90.0	st3
M Bath	h 2606	121	47	0.238	7.0	0x0	VIFx	54.6	90.0	st1
M Bed	h 6097	284	247	0.237	10.0	0x0	VIFx	55.1	90.0	st1
WC	h 1780	83	37	0.239	6.0	0x0	VIFx	54.1	90.0	st1
WIC	c 87	3	4	0.248	4.0	0x0	VIFx	48.8	90.0	st1

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st1	Peak AVF	491	335	0.237	459	14.0	0 x 0	VinIFlx	
st2	Peak AVF	581	919	0.256	520	18.0	0 x 0	VinIFlx	
st3	Peak AVF	478	296	0.293	447	14.0	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	491	335	78.6	0.237	459	14.0	0x 0		VIFx	rt1
rb3	0x0	191	103	66.7	0.279	547	8.0	0x 0		VIFx	
rb4	0x0	353	387	71.4	0.261	492	12.0	0x 0		VIFx	
rb1	0x0	515	725	50.2	0.371	519	16.0	0x 0		VIFx	

Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rt1	Peak AVF	544	490	0.261	509	14.0	0 x 0	VinIFlx	

