Load Short Form
Entire House
High Springs Electric

Job:
Date: Apr 03, 2024
By: Donna Brackeen

Project Information

For: King Residence
Columbia County, FL

Review for Code Compliance
Universal Engineering Science

PX2707 07/15/2024
Examiner-License No.

Design Information

	Htg	Clg
Outside db (°F)	33	92
Inside db (°F)	68	75
Design TD (°F)	35	17
Daily range	-	M
Inside humidity (%)	50	50
Moisture difference (gr/lb)	29	43

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

HEATING EQUIPMENT

Make	Trane
Trade	TRANE
Model	4TWR5036H1
AHRI ref	211215791

Efficiency	7.8 HSPF2	
Heating input		
Heating output	32800	Btuh @ 47°F
Temperature rise	0	°F
Actual air flow	0	cfm
Air flow factor	0	cfm/Btuh
Static pressure	0.50	in H2O
Space thermostat		

Capacity balance point = 29 °F

COOLING EQUIPMENT

Make	Trane
Trade	TRANE
Cond	4TWR5036H1
Coil	TEM4B0C37M31++TDR
AHRI ref	211215791

Efficiency	12.0 EER2,14.3 SEER2	
Sensible cooling	24080	Btuh
Latent cooling	10320	Btuh
Total cooling	34400	Btuh
Actual air flow	1147	cfm
Air flow factor	0.053	cfm/Btuh
Static pressure	0.50	in H2O
Load sensible heat ratio	0.77	

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
bd1	166	3057	1791	0	95
hall	35	0	0	0	0
bath	59	726	578	0	31
bd2	163	3066	1995	0	106
common area	674	8685	10221	0	541
pwdr	38	869	567	0	30
m bd	187	2041	2770	0	147
m bath	126	2491	1557	0	82
wc	23	458	452	0	24
wic	88	936	330	0	17
laundry	96	2196	1225	0	65
pantry	34	252	165	0	9
ent	102	0	0	0	0

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

Entire House	1792	24776	21650	0	1147
Other equip loads		2765	1386		
Equip. @ 0.97 RSM			22437		
Latent cooling			7022		
TOTALS	1792	27541	29459	0	1147

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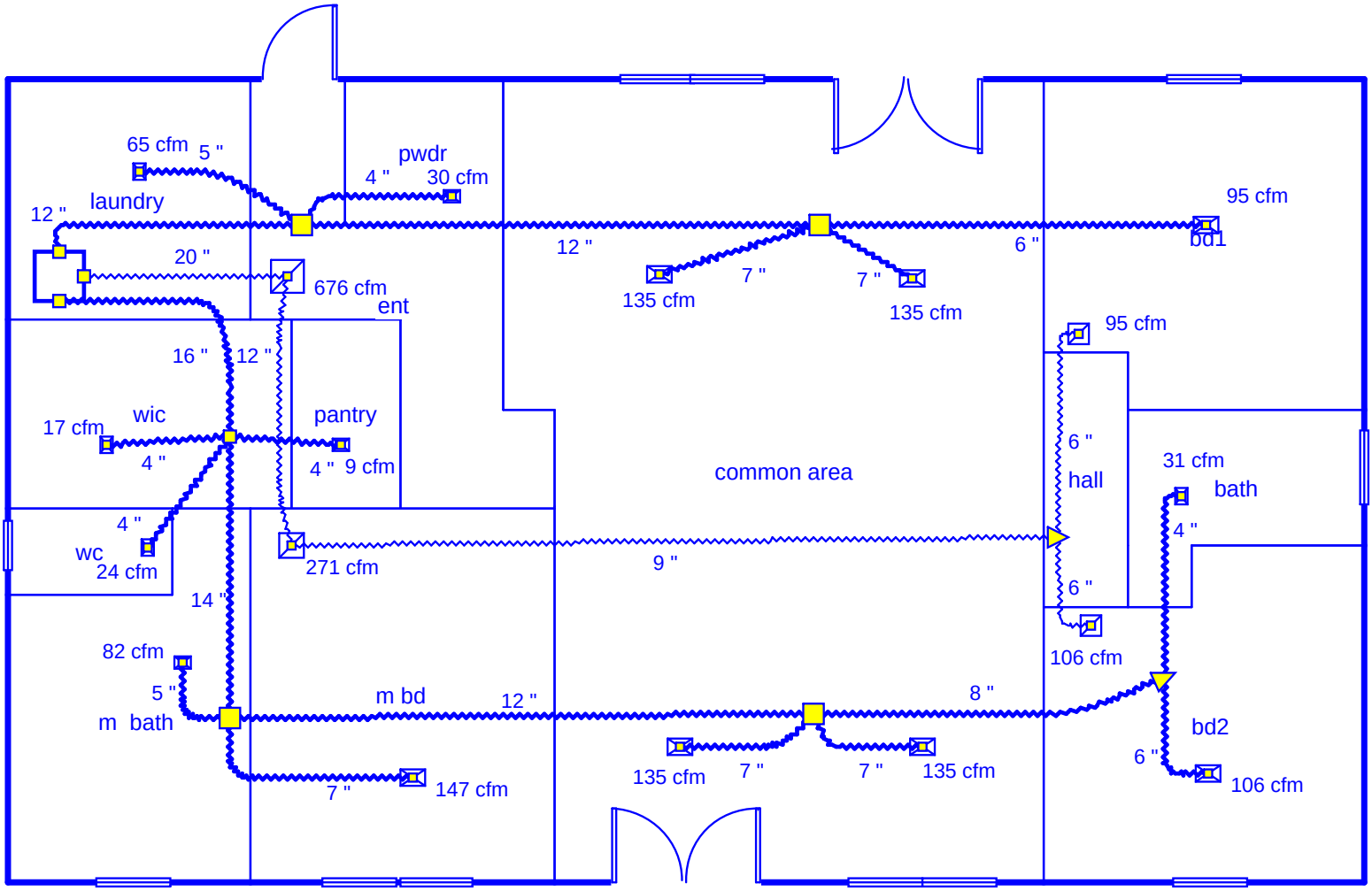

11'-0"

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Manual S Compliance Report

Entire House

High Springs Electric

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Columbia County, FL

Cooling Equipment

Design Conditions

Outdoor design DB:	92.4°F	Sensible gain:	23036	Btuh	Entering coil DB:	76.3°F
Outdoor design WB:	75.8°F	Latent gain:	7022	Btuh	Entering coil WB:	63.8°F
Indoor design DB:	75.0°F	Total gain:	30058	Btuh		
Indoor RH:	50%	Estimated airflow:	1147	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type: Split ASHP
Manufacturer: Trane Model: 4TWR5036H1+TEM4B0C37M31++TDR

Actual airflow:	1147	cfm		
Sensible capacity:	24080	Btuh	105% of load	
Latent capacity:	10320	Btuh	147% of load	
Total capacity:	34400	Btuh	114% of load	SHR: 70%

Heating Equipment

Design Conditions

Outdoor design DB:	33.3°F	Heat loss:	27541	Btuh	Entering coil DB:	68.0°F
Indoor design DB:	68.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type: Split ASHP
Manufacturer: Trane Model: 4TWR5036H1+TEM4B0C37M31++TDR

Actual airflow:	0	cfm			
Output capacity:	32800	Btuh	119% of load	Capacity balance:	29 °F
Supplemental heat required:	0	Btuh		Economic balance:	-99 °F

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Lawrence Pennell PX2707 07/15/2024
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Meets all requirements of ACCA Manual S.

Duct System Summary
Entire House
High Springs Electric

Job:
Date: Apr 03, 2024
By: Donna Brackeen

Project Information

For: King Residence
Columbia County, FL

	Heating	Cooling
External static pressure	0.50 in H2O	0.50 in H2O
Pressure losses	0.18 in H2O	0.18 in H2O
Available static pressure	0.32 in H2O	0.32 in H2O
Supply / return available pressure	0.211 / 0.109 in H2O	0.211 / 0.109 in H2O
Lowest friction rate	0.088 in/100ft	0.088 in/100ft
Actual air flow	0 cfm	1147 cfm
Total effective length (TEL)	364 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	c 578	0	31	0.088	4.0	0x 0	VlFx	69.5	170.0	st6
bd1	c 1791	0	95	0.129	6.0	0x 0	VlFx	47.9	115.0	st3
bd2	c 1995	0	106	0.089	6.0	0x 0	VlFx	67.2	170.0	st6
common area	c 2555	0	135	0.106	7.0	0x 0	VlFx	52.9	145.0	st5
common area-A	c 2555	0	135	0.137	7.0	0x 0	VlFx	39.0	115.0	st3
common area-B	c 2555	0	135	0.139	7.0	0x 0	VlFx	36.5	115.0	st3
common area-C	c 2555	0	135	0.107	7.0	0x 0	VlFx	52.3	145.0	st5
laundry	c 1225	0	65	0.178	5.0	0x 0	VlFx	18.4	100.0	st1
m bath	c 1557	0	82	0.138	5.0	0x 0	VlFx	27.5	125.0	st4
m bd	c 2770	0	147	0.133	7.0	0x 0	VlFx	33.2	125.0	st4
pantry	c 165	0	9	0.181	4.0	0x 0	VlFx	16.4	100.0	st2
pwdr	c 567	0	30	0.179	4.0	0x 0	VlFx	17.9	100.0	st1
wc	c 452	0	24	0.179	4.0	0x 0	VlFx	17.5	100.0	st2
wic	c 330	0	17	0.180	4.0	0x 0	VlFx	16.9	100.0	st2

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st6	Peak AVF	0	136	0.088	390	8.0	0 x 0	VinlFlx	st5
st5	Peak AVF	0	407	0.088	518	12.0	0 x 0	VinlFlx	st4
st4	Peak AVF	0	636	0.088	595	14.0	0 x 0	VinlFlx	st2
st2	Peak AVF	0	686	0.088	492	16.0	0 x 0	VinlFlx	
st3	Peak AVF	0	366	0.129	466	12.0	0 x 0	VinlFlx	st1
st1	Peak AVF	0	461	0.129	586	12.0	0 x 0	VinlFlx	

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Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb2	0x 0	0	95	124.3	0.088	483	6.0	0x 0		VlFx	rt3
rb3	0x 0	0	106	120.2	0.091	538	6.0	0x 0		VlFx	rt3
rb1	0x 0	0	676	48.3	0.227	484	16.0	0x 0		VlFx	rt1
rb4	0x 0	0	271	69.3	0.158	613	9.0	0x 0		VlFx	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
rt3	Peak AVF	0	201	0.088	454	9.0	0 x 0	VinlFlx	rt2
rt2	Peak AVF	0	471	0.088	600	12.0	0 x 0	VinlFlx	rt1
rt1	Peak AVF	0	1147	0.088	526	20.0	0 x 0	VinlFlx	

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