



Project Summary

Entire House

Bounds Heating and Air

Job:
Date: Mar 04, 2025
By:

Email: jlegler@boundshvac.com

Project Information

For: Blackburn, Corey Amira Custom Homes



Review for Code Compliance
Universal Engineering Science

Notes:

Lawrence Pennell
Examiner-License No.

PX2707

03/07/2025

Design Information

Weather: Gainesville Regional, FL, US

Winter Design Conditions

Outside db	33 °F
Inside db	68 °F
Design TD	35 °F

Ventilation Method MJ8

Heating Summary

Structure	23171 Btuh
Ducts (R-6.0)	7336 Btuh
Central vent (0 cfm)	0 Btuh

Humidification	0 Btuh
Piping	0 Btuh
Equipment load	30507 Btuh

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

	Heating	Cooling
Area (ft ²)	2210	2210
Volume (ft ³)	23811	23811
Air changes/hour	0.32	0.16
Equiv. AVF (cfm)	127	63

Heating Equipment Summary

Make	Carrier
Trade	2-STAGE 18 SEER HP
Model	GH8TAN53600AA0
AHRI ref	215560680

Efficiency	8.1 HSPF2
Heating input	
Heating output	37600 Btuh @ 47°F
Temperature rise	30 °F
Actual air flow	1153 cfm
Air flow factor	0.038 cfm/Btuh
Static pressure	0.50 in H2O
Space thermostat	
Capacity balance point = 30 °F	

Backup: n/a n/a
Input = 8 kW, Output = 28659 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	44 gr/lb

Sensible Cooling Equipment Load Sizing

Structure	15749 Btuh
Ducts (R-6.0)	9112 Btuh
Central vent (0 cfm)	0 Btuh

Blower 0 Btuh

Use manufacturer's data	n
Rate/swing multiplier	0.97
Equipment sensible load	24165 Btuh

Latent Cooling Equipment Load Sizing

Structure	2683 Btuh
Ducts	1800 Btuh
Central vent (0 cfm)	0 Btuh

Equipment latent load 4483 Btuh

Equipment Total Load (Sen+Lat)	28647 Btuh
Req. total capacity at 0.70 SHR	2.9 ton

Cooling Equipment Summary

Make	Carrier
Trade	2-STAGE 18 SEER HP
Cond	GH8TAN53600AA0
Coil	FG5ANXC36L
AHRI ref	215560680

Efficiency	12.0 EER2, 15.2 SEER2
Sensible cooling	24220 Btuh
Latent cooling	10380 Btuh
Total cooling	34600 Btuh
Actual air flow	1153 cfm
Air flow factor	0.046 cfm/Btuh
Static pressure	0.50 in H2O
Load sensible heat ratio	0.85

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



Right-Suite® Universal 2024 24.0.04 RSU57217

...lans & J&D (2025)\Amira\Blackburn\Blackburn.rup Calc = MJ8 Front Door faces: W

2025-Mar-04 10:11:23

Page 1



Load Short Form

Entire House

Bounds Heating and Air

Job:
Date: Mar 04, 2025
By:

Email: jlegler@boundshvac.com

Project Information

For: Blackburn, Corey Amira Custom Home



Review for Code Compliance
Universal Engineering Science

Lawrence Parnell

PX2707

03/07/2025

Examiner-License No.

Design Information

	Htg	Clg	Infiltration	Simplified
Outside db (°F)	33	92	Method	Average
Inside db (°F)	68	75	Construction quality	0
Design TD (°F)	35	17	Fireplaces	
Daily range	-	M		
Inside humidity (%)	50	50		
Moisture difference (gr/lb)	29	44		

HEATING EQUIPMENT

Make Carrier
Trade 2-STAGE 18 SEER HP
Model GH8TAN53600AA0
AHRI ref 215560680

Efficiency 8.1 HSPF2
Heating input
Heating output 37600 Btuh @ 47°F
Temperature rise 30 °F
Actual air flow 1153 cfm
Air flow factor 0.038 cfm/Btuh
Static pressure 0.50 in H2O
Space thermostat
Capacity balance point = 30 °F

Backup: n/a n/a

Input = 8 kW, Output = 28659 Btuh, 100 AFUE

COOLING EQUIPMENT

Make Carrier
Trade 2-STAGE 18 SEER HP
Cond GH8TAN53600AA0
Coil FG5ANXC36L
AHRI ref 215560680

Efficiency 12.0 EER2, 15.2 SEER2
Sensible cooling 24220 Btuh
Latent cooling 10380 Btuh
Total cooling 34600 Btuh
Actual air flow 1153 cfm
Air flow factor 0.046 cfm/Btuh
Static pressure 0.50 in H2O
Load sensible heat ratio 0.85

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
laundry	124	2927	1999	111	93
wic	87	616	344	23	16
wc	25	760	249	29	12
master bath	145	3144	2194	119	102
master suite	245	2485	3118	94	145
drop zone	89	1563	729	59	34
hall 1	48	0	0	0	0
ah	23	0	0	0	0
powder	30	216	127	8	6
pantry	23	43	77	2	4
kitchen/living	858	9476	10479	358	486
bedroom 3	156	3252	1906	123	88
bedroom 2	160	2668	2353	101	109
hall 2	33	0	0	0	0

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



Right-Suite® Universal 2024 24.0.04 RSU57217

...lans & J&D (2025)\Amira\Blackburn\Blackburn.rup Calc = MJ8 Front Door faces: W

2025-Mar-04 10:11:23

Page 1

bath 1 a	57	81	148	3	7
wic 2	28	1264	389	48	18
bath 1 b	40	777	352	29	16
wic 3	37	1235	397	47	18
Entire House	2210	30507	24861	1153	1153
Other equip loads		0	0		
Equip. @ 0.97 RSM			24165		
Latent cooling			4483		
TOTALS	2210	30507	28647	1153	1153



Review for Code Compliance
Universal Engineering Science

Lawrence Parnell

PX2707

03/07/2025

Examiner-License No.

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



Right-Suite® Universal 2024 24.0.04 RSU57217

...lans & J&D (2025)\Amira\Blackburn\Blackburn.rup Calc = MJ8 Front Door faces: W

2025-Mar-04 10:11:23

Page 2



Manual S Compliance Report

Entire House

Bounds Heating and Air

Job:
Date: Mar 04, 2025
By:

Email: jlegler@boundshvac.com

Project Information

For: Blackburn, Corey Amira Custom



Review for Code Compliance
Universal Engineering Science

Lawrence Parnell

PX2707

03/07/2025

Examiner-License No.

Cooling Equipment

Design Conditions

Outdoor design DB:	92.2°F	Sensible gain:	24861	Btuh	Entering coil DB:	77.4°F
Outdoor design WB:	75.8°F	Latent gain:	4483	Btuh	Entering coil WB:	63.6°F
Indoor design DB:	75.0°F	Total gain:	29344	Btuh		
Indoor RH:	50%	Estimated airflow:	1153	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Carrier	Model:	GH8TAN53600AA0+FG5ANXC36L
Actual airflow:	1153	cfm	
Sensible capacity:	26222	Btuh	105% of load
Latent capacity:	5798	Btuh	129% of load
Total capacity:	32020	Btuh	109% of load SHR: 82%

Heating Equipment

Design Conditions

Outdoor design DB:	33.2°F	Heat loss:	30507	Btuh	Entering coil DB:	66.9°F
Indoor design DB:	68.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		
Manufacturer:	Carrier	Model:	GH8TAN53600AA0+FG5ANXC36L
Actual airflow:	1153	cfm	
Output capacity:	37600	Btuh	123% of load
Supplemental heat required:	0	Btuh	
			Capacity balance: 30 °F
			Economic balance: -99 °F

Backup equipment type:	Elec strip		
Manufacturer:	n/a	Model:	n/a+n/a
Actual airflow:	1153	cfm	
Output capacity:	8.4	kW	94% of load Temp. rise: 32 °F

Meets all requirements of ACCA Manual S.



Right-Suite® Universal 2024 24.0.04 RSU57217

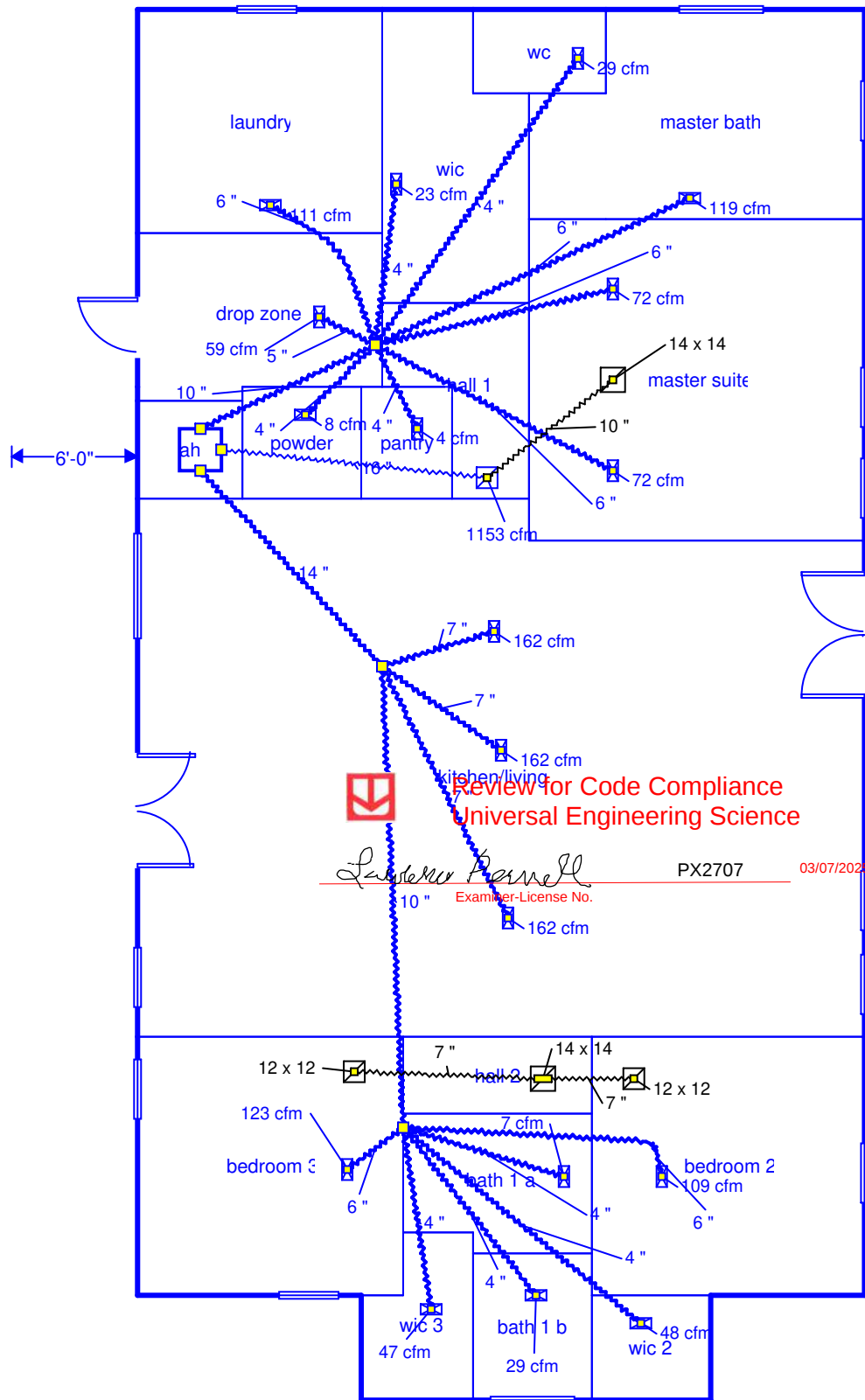
2025-Mar-04 10:11:23

Page 1

...lans & J&D (2025)\Amira\Blackburn\Blackburn.rup Calc = MJ8 Front Door faces: W



Level 1



Review for Code Compliance
Universal Engineering Science

Lawrence Perrell
Examiner-License No.

PX2707

03/07/2025

Job #:
Performed for:
Blackburn

Bounds Heating and Air

jlegler@boundshvac.com

Scale: 1 : 96

Page 1
Right-Suite© Universal 2024
24.0.04 RSU57217
2025-Mar-04 10:11:45
...5)\Amira\Blackburn\Blackburn.rup



Duct System Summary

Entire House

Bounds Heating and Air

Job:
Date: Mar 04, 2025
By:

Email: jlegler@boundshvac.com

Project Information

For: Blackburn, Corey Amira Custom



Review for Code Compliance
Universal Engineering Science

Lawrence Parnell
Examiner-License No.

PX2707

03/07/2025

	Heating	Cooling
External static pressure	0.50 in H ₂ O	0.50 in H ₂ O
Pressure losses	0 in H ₂ O	0 in H ₂ O
Available static pressure	0.50 in H ₂ O	0.50 in H ₂ O
Supply / return available pressure	0.378 / 0.122 in H ₂ O	0.378 / 0.122 in H ₂ O
Lowest friction rate	0.231 in/100ft	0.231 in/100ft
Actual air flow	1153 cfm	1153 cfm
Total effective length (TEL)	216 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 1 a	c 148	3	7	0.247	4.0	0x 0	VIFx	42.8	110.0	st3
bath 1 b	h 777	29	16	0.244	4.0	0x 0	VIFx	45.0	110.0	st3
bedroom 2	c 2353	101	109	0.231	6.0	0x 0	VIFx	48.5	115.0	st3
bedroom 3	h 3252	123	88	0.255	6.0	0x 0	VIFx	38.1	110.0	st3
drop zone	h 1563	59	34	0.370	5.0	0x 0	VIFx	12.2	90.0	st1
kitchen/living	c 3493	119	162	0.349	7.0	0x 0	VIFx	18.3	90.0	st2
kitchen/living-A	c 3493	119	162	0.345	7.0	0x 0	VIFx	19.7	90.0	st2
kitchen/living-B	c 3493	119	162	0.325	7.0	0x 0	VIFx	26.2	90.0	st2
laundry	h 2927	111	93	0.334	6.0	0x 0	VIFx	18.1	95.0	st1
master bath	h 3144	119	102	0.326	6.0	0x 0	VIFx	25.8	90.0	st1
master suite	c 1559	47	72	0.341	6.0	0x 0	VIFx	20.9	90.0	st1
master suite-A	c 1559	47	72	0.337	6.0	0x 0	VIFx	22.1	90.0	st1
pantry	c 77	2	4	0.365	4.0	0x 0	VIFx	13.7	90.0	st1
powder	h 216	8	6	0.364	4.0	0x 0	VIFx	14.0	90.0	st1
wc	h 760	29	12	0.326	4.0	0x 0	VIFx	26.0	90.0	st1
wic	h 616	23	16	0.353	4.0	0x 0	VIFx	17.0	90.0	st1
wic 2	h 1264	48	18	0.237	4.0	0x 0	VIFx	49.4	110.0	st3
wic 3	h 1235	47	18	0.246	4.0	0x 0	VIFx	43.5	110.0	st3

Bold/italic values have been manually overridden

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	351	257	0.231	643	10.0	0 x 0	VinIFlx	st2
st2	Peak AVF	709	743	0.231	695	14.0	0 x 0	VinIFlx	
st1	Peak AVF	444	410	0.326	815	10.0	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
rb1	0x 0	1153	1153	52.7	0.231	529	20.0	0x 0		VIFx	rst2

Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rst2	Peak AVF	1153	1153	0.231	826	16.0	0 x 0	VinIFlx	



Review for Code Compliance
Universal Engineering Science

Laurence Parnell

PX2707

03/07/2025

Examiner-License No.

Bold/italic values have been manually overridden



Right-Suite® Universal 2024 24.0.04 RSU57217

...lans & J&D (2025)\Amira\Blackburn\Blackburn.rup Calc = MJ8 Front Door faces: W

2025-Mar-04 10:11:23

Page 2