



Manual S Compliance Report

Entire House

Akins Heat & Air, Inc

Job:
Date: Jun 22, 2022
By:

3248 W. Bryant Ave, Bell, fl 32619 Phone: 352-463-2380 Email: akinsheatandair@att.net Web: akinsheatingandair.com

Project Information

For: blackwell
978 SW Washington Ave, ft white, fl

Cooling Equipment

Design Conditions

Outdoor design DB:	96.5°F	Sensible gain:	23128	Btuh	Entering coil DB:	76.9°F
Outdoor design WB:	79.3°F	Latent gain:	3846	Btuh	Entering coil WB:	63.5°F
Indoor design DB:	75.0°F	Total gain:	26974	Btuh		
Indoor RH:	50%	Estimated airflow:	1350	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		Model:	ML14XP1-030-230A**+CBA27UHE-030-230-**	
Manufacturer:					
Actual airflow:	1350	cfm			
Sensible capacity:	28350	Btuh	123%	of load	
Latent capacity:	12150	Btuh	316%	of load	
Total capacity:	40500	Btuh	150%	of load	SHR: 70%

Heating Equipment

Design Conditions

Outdoor design DB:	30.8°F	Heat loss:	23650	Btuh	Entering coil DB:	69.1°F
Indoor design DB:	70.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP		Model:	ML14XP1-030-230A**+CBA27UHE-030-230-**	
Manufacturer:					
Actual airflow:	1350	cfm			
Output capacity:	39500	Btuh	167%	of load	Capacity balance: 16 °F
Supplemental heat required:	0	Btuh			Economic balance: -99 °F

Backup equipment type:	Elec strip		Model:		
Manufacturer:					
Actual airflow:	1350	cfm			
Output capacity:	8.5	kW	123%	of load	Temp. rise: 33 °F

Meets all requirements of ACCA Manual S.



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Load Short Form Entire House Akins Heat & Air, Inc

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Date: Jun 22, 2022
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Project Information

For: blackwell
978 SW Washington Ave, ft white, fl

Design Information

	Htg	Clg	Infiltration	Simplified
Outside db (°F)	31	97		
Inside db (°F)	70	75	Method	Tight
Design TD (°F)	39	22	Construction quality	
Daily range	-	M	Fireplaces	0
Inside humidity (%)	30	50		
Moisture difference (gr/lb)	13	60		

HEATING EQUIPMENT

Make
Trade LENNOX
Model ML14XP1-030-230A**
AHRI ref
Efficiency 8.2 HSPF
Heating input
Heating output 39500 Btuh @ 47°F
Temperature rise 27 °F
Actual air flow 1350 cfm
Air flow factor 0.057 cfm/Btuh
Static pressure 0 in H2O
Space thermostat
Capacity balance point = 16 °F

Backup:

Input = 9 kW, Output = 29109 Btuh, 100 AFUE

COOLING EQUIPMENT

Make
Trade LENNOX
Cond ML14XP1-030-230A**
Coil CBA27UHE-030-230-**
AHRI ref
Efficiency 12.0 EER, 14 SEER
Sensible cooling 28350 Btuh
Latent cooling 12150 Btuh
Total cooling 40500 Btuh
Actual air flow 1350 cfm
Air flow factor 0.058 cfm/Btuh
Static pressure 0 in H2O
Load sensible heat ratio 0.86

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
master bedroom	256	5833	8005	333	467
WIC	64	986	331	56	19
master bath	96	3145	2715	180	158
great room	352	2576	2745	147	160
bath	66	965	364	55	21
closet	28	0	0	0	0
bedroom2	121	4365	4448	249	260
laundry	77	1256	1677	72	98
kitchen	338	4524	2843	258	166

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



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Building Analysis Entire House Akins Heat & Air, Inc

Job:
Date: Jun 22, 2022
By:

3248 W. Bryant Ave, Bell, FL 32619 Phone: 352-463-2380 Email: akinsheatandair@att.net Web: akinsheatingandair.com

Project Information

For: blackwell
978 SW Washington Ave, ft white, fl

Design Conditions

Location:

Cross City AP, FL, US
Elevation: 43 ft
Latitude: 30°N

Outdoor:

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

Heating

31
-
-
15.0

Cooling

97
18 (M)
79
7.5

Indoor:

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

Heating

70
39
30
12.6

Cooling

75
22
50
59.6

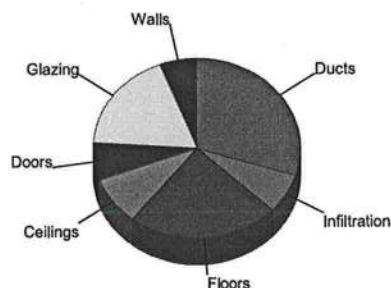
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Tight
0

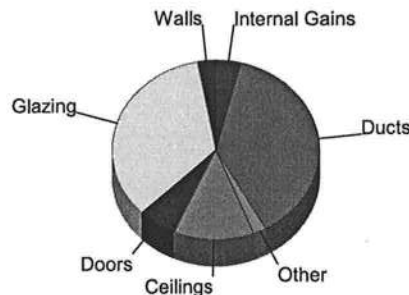
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	1.3	1423	6.0
Glazing	22.3	4240	17.9
Doors	15.3	1605	6.8
Ceilings	1.3	2000	8.5
Floors	4.0	5643	23.9
Infiltration	1.7	1669	7.1
Ducts		7070	29.9
Piping		0	0
Humidification		0	0
Ventilation		0	0
Adjustments		0	0
Total		23650	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	0.6	692	3.0
Glazing	41.7	7921	34.2
Doors	13.3	1398	6.0
Ceilings	1.8	2941	12.7
Floors	0	0	0
Infiltration	0.5	458	2.0
Ducts		8799	38.0
Ventilation		0	0
Internal gains		920	4.0
Blower		0	0
Adjustments		0	0
Total		23128	100.0



Latent Cooling Load = 3846 Btuh
Overall U-value = 0.087 Btuh/ft²-°F

ERROR: negative wall area in great room - check windows.



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Entire House	d	1398	23650	23128	1350	1350
Other equip loads			0	0		
Equip. @ 1.01 RSM				23474		
Latent cooling				3846		
TOTALS		1398	23650	27321	1350	1350

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



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Project Summary

Entire House

Akins Heat & Air, Inc

Job:
Date: Jun 22, 2022
By:

3248 W. Bryant Ave, Bell, FL 32619 Phone: 352-463-2380 Email: akinaheatandair@att.net Web: akinaheatingandair.com

Project Information

For: blackwell
978 SW Washington Ave, ft white, fl

Notes:

Design Information

Weather: Cross City AP, FL, US

Winter Design Conditions

Outside db	31 °F
Inside db	70 °F
Design TD	39 °F

Summer Design Conditions

Outside db	97 °F
Inside db	75 °F
Design TD	22 °F
Daily range	M
Relative humidity	50 %
Moisture difference	60 gr/lb

Heating Summary

Structure	16580 Btuh
Ducts	7070 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Humidification	0 Btuh
Piping	0 Btuh
Equipment load	23650 Btuh

Sensible Cooling Equipment Load Sizing

Structure	14329 Btuh
Ducts	8799 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Blower	0 Btuh
Use manufacturer's data	n
Rate/swing multiplier	1.01
Equipment sensible load	23474 Btuh

Infiltration

Method	Simplified
Construction quality	Tight
Fireplaces	0

Latent Cooling Equipment Load Sizing

Structure	1584 Btuh
Ducts	2262 Btuh
Central vent (0 cfm)	0 Btuh
(none)	
Equipment latent load	3846 Btuh

	Heating	Cooling
Area (ft ²)	1398	1398
Volume (ft ³)	14534	14534
Air changes/hour	0.16	0.08
Equiv. AVF (cfm)	39	19

Equipment Total Load (Sen+Lat)	27321 Btuh
Req. total capacity at 0.70 SHR	2.8 ton

Heating Equipment Summary

Make	LENNOX
Trade	ML14XP1-030-230A**
Model	
AHRI ref	
Efficiency	8.2 HSPF
Heating input	39500 Btuh @ 47°F
Heating output	27 °F
Temperature rise	1350 cfm
Actual air flow	0.057 cfm/Btuh
Air flow factor	0 in H2O
Static pressure	
Space thermostat	
Capacity balance point = 16 °F	
Backup:	
Input = 9 kW, Output = 29109 Btuh, 100 AFUE	

Cooling Equipment Summary

Make	LENNOX
Trade	ML14XP1-030-230A**
Cond	CBA27UHE-030-230-**
Coil	
AHRI ref	
Efficiency	12.0 EER, 14 SEER
Sensible cooling	28350 Btuh
Latent cooling	12150 Btuh
Total cooling	40500 Btuh
Actual air flow	1350 cfm
Air flow factor	0.058 cfm/Btuh
Static pressure	0 in H2O
Load sensible heat ratio	0.86

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



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AED Assessment Entire House Akins Heat & Air, Inc

Job:
Date: Jun 22, 2022
By:

3248 W. Bryant Ave, Bell, fl 32619 Phone: 352-463-2380 Email: akinsheatandair@att.net Web: akinsheatingandair.com

Project Information

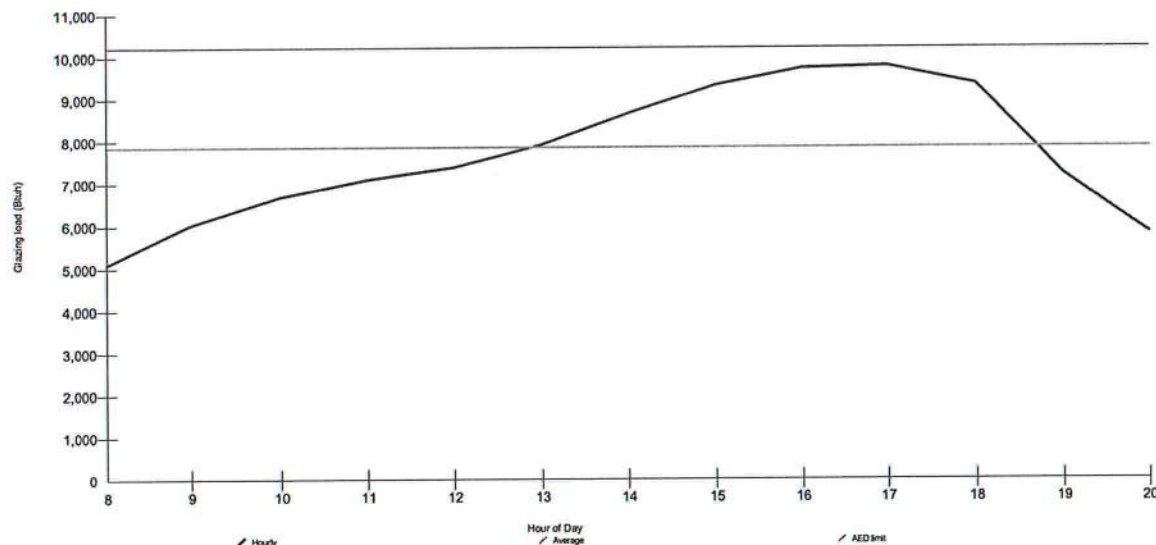
For: blackwell
978 SW Washington Ave, ft white, fl

Design Conditions

Location:		Indoor:		Heating	Cooling
Cross City AP, FL, US		Indoor temperature (°F)		70	75
Elevation: 43 ft		Design TD (°F)		39	22
Latitude: 30°N		Relative humidity (%)		30	50
		Moisture difference (gr/lb)		12.6	59.6
Outdoor:		Heating	Cooling	Infiltration:	
Dry bulb (°F)		31	97		
Daily range (°F)		-	18 (M)		
Wet bulb (°F)		-	79		
Wind speed (mph)		15.0	7.5		

Test for Adequate Exposure Diversity

Hourly Glazing Load



Maximum hourly glazing load exceeds average by 24.4%.

House has adequate exposure diversity (AED), based on AED limit of 30%.

AED excursion: 0 Btuh



Duct System Summary

Entire House

Akins Heat & Air, Inc

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Project Information

For: blackwell
978 SW Washington Ave, ft white, fl

	Heating	Cooling
External static pressure	0 in H2O	0 in H2O
Pressure losses	0 in H2O	0 in H2O
Available static pressure	0 in H2O	0 in H2O
Supply / return available pressure	0.000 / 0.000 in H2O	0.000 / 0.000 in H2O
Lowest friction rate	0 in/100ft	0 in/100ft
Actual air flow	1350 cfm	1350 cfm
Total effective length (TEL)	302 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
WIC	h 331	56	19	0	0	0x0	VIFx	33.6	250.0	st2
bath	h 364	55	21	0	0	0x0	VIFx	11.2	150.0	st2
bedroom2-A	c 4448	249	260	0	0	0x0	VIFx	14.1	110.0	st2
great room	c 1373	74	80	0	0	0x0	VIFx	25.8	210.0	st2
great room-A	c 1373	74	80	0	0	0x0	VIFx	23.4	190.0	st2
kitchen	h 1421	129	83	0	0	0x0	VIFx	15.3	130.0	st2
kitchen-A	h 1421	129	83	0	0	0x0	VIFx	9.8	170.0	st2
laundry	c 1677	72	98	0	0	0x0	VIFx	6.8	90.0	st1
master bath	h 2715	180	158	0	0	0x0	VIFx	36.7	230.0	st2
master bedroom	c 8005	333	467	0	0	0x0	VIFx	32.1	270.0	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
st2	Peak AVF	1278	1252	0	0	0	0 x 0	ViniFlx	st1
st1	Peak AVF	1350	1350	0	0	0	0 x 0	ViniFlx	



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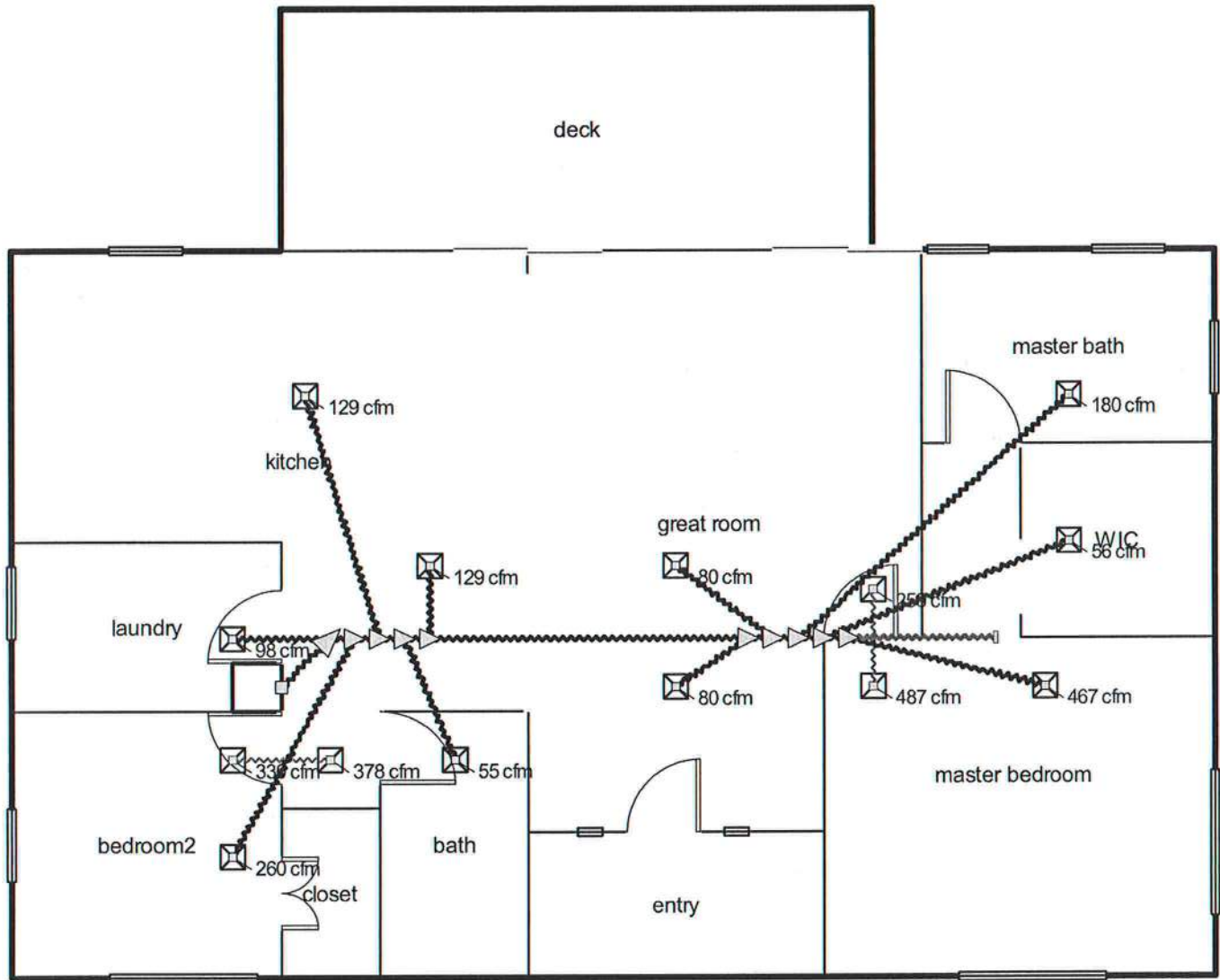
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Job #:
Performed for:
blackwell
978 SW Washington Ave
ft white, fl

Akins Heat & Air, Inc
3248 W. Bryant Ave
Bell, fl 32619
Phone: 352-463-2380
akinsheatingandair.com akinsheatandair@attnet

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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
rb3	0x 0	253	239	0	0	0	0	0x 0		VIFx	
rb4	0x 0	330	264	0	0	0	0	0x 0		VIFx	
rb1	0x 0	378	361	0	0	0	0	0x 0		VIFx	
rb2	0x 0	389	487	0	0	0	0	0x 0		VIFx	



SUBCONTRACTOR VERIFICATION

APPLICATION/PERMIT # _____ JOB NAME _____

THIS FORM MUST BE SUBMITTED BEFORE A PERMIT WILL BE ISSUED

Columbia County issues combination permits. One permit will cover all trades doing work at the permitted site. It is **REQUIRED** that we have records of the subcontractors who actually did the trade specific work under the general contractors permit.

NOTE: It shall be the responsibility of the general contractor to make sure that all of the subcontractors are licensed with the Columbia County Building Department.

Use website to confirm licenses: <http://www.columbiacountyfla.com/PermitSearch/ContractorSearch.aspx>

NOTE: If this should change prior to completion of the project, it is your responsibility to have a corrected form submitted to our office, before that work has begun.

Violations will result in stop work orders and/or fines.

ELECTRICAL ☐ CC# _____	Print Name _____ Signature _____ Company Name: _____ License #: _____ Phone #: _____	Need ☐ Lic ☐ Liab ☐ W/C ☐ EX ☐ DE
MECHANICAL/ A/C ☐ CC# _____	Print Name _____ Signature _____ Company Name: _____ License #: _____ Phone #: _____	Need ☐ Lic ☐ Liab ☐ W/C ☐ EX ☐ DE
PLUMBING/ GAS ☐ CC# _____	Print Name _____ Signature _____ Company Name: _____ License #: _____ Phone #: _____	Need ☐ Lic ☐ Liab ☐ W/C ☐ EX ☐ DE
ROOFING ☐ CC# _____	Print Name _____ Signature _____ Company Name: _____ License #: _____ Phone #: _____	Need ☐ Lic ☐ Liab ☐ W/C ☐ EX ☐ DE
SHEET METAL ☐ CC# _____	Print Name _____ Signature _____ Company Name: _____ License #: _____ Phone #: _____	Need ☐ Lic ☐ Liab ☐ W/C ☐ EX ☐ DE
FIRE SYSTEM/ SPRINKLER ☐ CC# _____	Print Name _____ Signature _____ Company Name: _____ License #: _____ Phone #: _____	Need ☐ Lic ☐ Liab ☐ W/C ☐ EX ☐ DE
SOLAR ☐ CC# _____	Print Name _____ Signature _____ Company Name: _____ License #: _____ Phone #: _____	Need ☐ Lic ☐ Liab ☐ W/C ☐ EX ☐ DE
STATE SPECIALTY ☐ CC# _____	Print Name _____ Signature _____ Company Name: _____ License #: _____ Phone #: _____	Need ☐ Lic ☐ Liab ☐ W/C ☐ EX ☐ DE

