

Rhvac Residential & Light Commercial HVAC Loads
North Central Florida A/C, Inc.
High Springs, FL 32643

Life Software Development, Inc.
Hopkins
Page 1

Project Report

General Project Information

Project Title Hopkins
Designed By Chuck Fischer
Project Date Friday, November 01 2013
Client Name House Craft Homes
Company Name North Central Florida Air Conditioning
Company Representative Chuck Fischer
Company Address P O Box 700
Company City High Springs FL 32643
Company Phone 386 454 4767
Company Fax 386 454 4854
Company Comment

Design Data

Reference City Gainesville, Florida
Building Orientation Front door faces North
Dry Temperature Range Medium
Latitude 29 Degrees
Elevation 152 ft
Altitude factor 0.995

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel Hum	Indoor Rel Hum	Indoor Dry Bulb	Grains Difference
Winter	33	30.0	80%	n/a	70	n/a
Summer	82	77	51%	50%	75	52

Heckel-Liedre

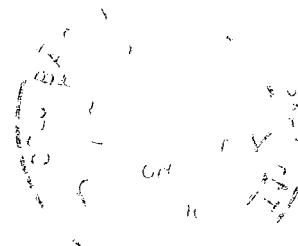
Total Building Supply CFM 1,030 CFM Per Square ft 0.617
Square ft of Room Area 1,668 Square ft Per Ton 620
Volume (ft³) of Cond. Space 16,336

Building Load

Total Heating Required Including Ventilation Air 36,018 Btuh 36,018 MBH
Total Sensible Gain 24,762 Btuh 77 %
Total Latent Gain 7,548 Btuh 23 %
Total Cooling Required Including Ventilation Air 32,310 Btuh 2.69 Ton (Based On Sensible + Latent)

Notes

Rhvac is an ACCA approved Manual J and Manual D computer program.
Calculations are performed per ACCA Manual J 8th Edition Version 2 and ACCA Manual D.
All computed results are estimates as building use and weather may vary.
Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.



Rhvac Residential & Light Commercial HVAC Loads
North Central Florida A/C, Inc
High Springs, FL 32643

Elite Software Development, Inc
Hopkins
Page 2

Miscellaneous Report

System / Variable	Outdoor Air Ratio	Outdoor Air Ratio	Outdoor Air Ratio	Indoor Air Ratio	Indoor Air Ratio	Grains
Input Data						
Winter	33	30.8	80%	n/a	70	n/a
Summer	92	77	51%	50%	75	51.69

Design Inputs	Main Trunk	Runouts
Calculate	Yes	Yes
Use Schedule	Yes	Yes
Roughness Factor	0.00300	0.01000
Pressure Drop	0.1000 in wg /100 ft	0.1000 in wg /100 ft
Minimum Velocity	650 ft/min	450 ft/min
Maximum Velocity	900 ft/min	750 ft/min
Minimum Height	14 in	0 in
Maximum Height	20 in	0 in

Outside Vents	Winter	Summer
Infiltration Specified	0.340 AC/hr 93 CFM	0.180 AC/hr 49 CFM
Infiltration Actual	0.000 AC/hr	0.000 AC/hr
Above Grade Volume	X 16.336 Cu ft 0 Cu ft/hr	Y 16.336 Cu ft 0 Cu ft/hr
	X 0.0167	X 0.0167
Total Building Infiltration	0 CFM	0 CFM
Total Building Ventilation	120 CFM	120 CFM

System 1

Infiltration & Ventilation Sensible Gain Multiplier	18.60	(1.10 X 0.995 X 17.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier	34.96	(0.68 X 0.995 X 51.69 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier	40.48	(1.10 X 0.995 X 37.00 Winter Temp. Difference)
Winter Infiltration Specified	0.340 AC/hr (93 CFM), Construction Semi Tight	
Summer Infiltration Specified	0.180 AC/hr (49 CFM), Construction Semi Tight	

No.	Type	Description	Location	Area (sq ft)	Flow (cfm)	Area (sq ft)	Flow (cfm)	Area (sq ft)	Flow (cfm)
1	Supply	Main	Attic	16B	0.12	6	450		No
1	Return	Main	Cond Space		0.24	6	83		No

Rhvac Residential & Light Commercial HVAC Loads
 North Central Florida A/C Inc
 High Springs, FL 32643

Elite Software Development, Inc.
 Hopkins
 Page 3

Load Preview Report

Scope	Net Ton	ft ² /ton	Area	Sen Gain	Lat Gain	Net Gain	Sen Loss	Sys Htg CFM	Sys Clg CFM	Sys Act CFM	Duct Size
Building	2.69	620	1 668	24 762	7 548	32 310	36 018	407	1 030	1 030	
System 1	69	620	1 668	24 762	7 548	32 310	36 018	407	1 030	1 030	12x15
Ventilation				2 237	4 195	6 427	4 857				
Duct Latent					1 756	1 755					
Zone 1			1 668	22 530	1 588	24 128	31 160	407	1 030	1 030	12x15
1 Study			140	2 457	230	2 687	4 697	61	112	112	1-6
2-Bedroom 2			156	2 125	230	2 353	3 804	50	97	97	1-6
3 Bath 2			115	772	0	772	1 541	20	35	35	1-4
4-Master Bedroom			204	2 770	460	3 230	4 345	57	147	127	1-7
5-Master Bath			204	1 005	0	1 005	2 063	27	46	46	1-4
6-Great Room			374	6 717	0	6 717	7 020	94	207	207	2-7
7 Kitchen Dining			374	5 504	678	6 182	4 564	60	252	252	2-7
8 Utility Room			101	1 182	0	1 182	3 176	41	54	54	1-4

Rhvar - Residential & Light Commercial HVAC Load
North Central Florida A/C Inc
High Springs, FL 32643

File Software Development, Inc.
Hopkins
Page 4

Duct Size Preview

Room or Duct Name	Source	Minimum Velocity	Maximum Velocity	Rough Factor	Design L/100	SP Loss	Duct Velocity	Duct Length	Htg Flow	Cly Flow	Act Flow	Duct Size
System 1												
Supply Runouts												
Zone 1												
1 Study	Built-In	450	750	0	0.1		572		61		112	1-6
2 Bedroom 2	Built In	450	750	0	0.1		494.1		50		97	1-6
3 Bath 2	Built In	450	750	0	0.1		404.5		20		35	1-4
4 Master Bedroom	Built In	450	750	0	0.1		473.7		57		127	1-7
5 Master Bath	Built In	450	750	0	0.1		526.3		27		46	1-4
6 Great Room	Built In	450	750	0	0.1		574.4		92		307	2-7
7 Kitchen / Dining	Built-In	450	750	0	0.1		470.7		60		252	2-7
8 Utility Room	Built-In	450	50	0	0.1		618.9		41		54	1-4
Other Ducts in System 1												
Supply Main Trunk	Built-In	650	900	0	0.1		623.8		407		1030	12x15

Summary

System 1
Heating Flow 407
Cooling Flow 1030

Rhvac - Residential & Light Commercial HVAC Loads
North Central Florida A/C Inc.
High Springs, FL 32643

Elite Software Development, Inc
Hopkins
Page 5

Total Building Summary Loads

Component Description	Area (Sq Ft)	Area (Sq Ft)	Latent Gain (Btu/h)	Sensible Gain (Btu/h)	Total Gain (Btu/h)
1D cb o Glazing Double pane operable window, clear, metal frame with break, ground reflectance = 0.23 outdoor insect screen with 50% coverage light color blinds at 45° with 25% coverage external shade screen coefficient of 0.45 and 50% coverage u-value 0.65 SHGC 0.67	86	2,071	0	2,032	2,032
10B m Glazing-French door double pane clear glass metal frame no break ground reflectance = 0.32 u-value 1.45 SHGC 0.47	20.4	1,094	0	703	703
10A m Glazing-French door single pane clear glass metal frame no break, ground reflectance = 0.32 light color blind at 45° with 25% coverage, u-value 1.67, SHGC 0.53	40.8	2,521	0	3,315	3,315
10B-b Glazing French door, double pane clear glass metal frame with break ground reflectance = 0.32 light color blinds at 45° with 25% coverage, u-value 0.75 SHGC 0.47	40.8	1,132	0	62	762
11P Door Polyurethane Core	20.4	219	0	166	166
13A 5oc5 Wall-Block board insulation only R-5 board insulation open core siding finish	1117.2	5,166	0	2,415	2,415
16A 30 Roof/Ceiling Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceiling) Unvented Attic No Radiant Barrier Any Roofing Material Any Roof Color R-30 insulation	1668	1,975	0	3,844	3,844
22A ph Floor-Slab on grade, No edge insulation no insulation below floor, any floor cover, passive, heavy moist soil	167	8,389	0	0	0
Subtotals for structure		22,567	0	13,237	13,237
People	5		1,150	1,500	2,650
Equipment			448	1,832	2,280
Lighting	0			0	0
Ductwork		8,593	1,755	4,812	6,567
Infiltration Winter CFM 0 Summer CFM 0		0	0	0	0
Ventilation Winter CFM 120 Summer CFM 120		4,857	4,195	2,252	6,427
AED Excursion		0	0	1,149	1,149
Total Building Load Totals		36,018	7,548	24,762	32,310

Total Building Supply CFM	1,030	CFM Per Square ft	0.617
Square ft of Room Area	1,668	Square ft Per Ton	620
Volume (ft³) of Cond. Space	16,336		

Total Heating Required Including Ventilation Air	36,018 Btu/h	36,018 MBH
Total Sensible Gain	24,762 Btu/h	77 %
Total Latent Gain	7,548 Btu/h	23 %
Total Cooling Required Including Ventilation Air	32,310 Btu/h	2.69 Tons (Based On Sensible + Latent)

Notes:
Rhvac is an ACCA approved Manual J and Manual D computer program
Calculations are performed per ACCA Manual J 8th Edition Version 2, and ACCA Manual D
All computed results are estimates as building use and weather may vary
Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions

Rhvac Residential & Light Commercial HVAC Loads
North Central Florida A/C Inc
High Springs, FL 32643

Elite Software Development, Inc
Hopkins
Page 6

System 1 Main Floor Summary Loads

Component Description	Area (sq ft)	Sensible Load (Btu/h)	Latent Load (lb/h)	Sensible Gain (Btu/h)	Total Gain (Btu/h)
1D cb-o Glazing Double pane operable window, clear, metal frame with break, ground reflectance = 0.23 outdoor insect screen with 50% coverage, light color blinds at 45° with 25% coverage external shade screen coefficient of 0.45 and 50% coverage, u value 0.65 SHGC 0.67	86	2,071	0	2,032	2,032
10B m Glazing French door double pane clear glass metal frame no break, ground reflectance = 0.32 u-value 1.46 SHGC 0.47	20.4	1,094	0	703	703
10A-m Glazing-French door, single pane clear glass metal frame no break, ground reflectance = 0.32, light color blinds at 45° with 25% coverage u value 1.67, SHGC 0.53	40.8	2,521	0	3,315	3,315
10B-b Glazing-French door double pane clear glass metal frame with break ground reflectance = 0.32 light color blinds at 45° with 25% coverage, u value 0.75 SHGC 0.47	40.8	1,132	0	762	762
11P Door-Polyurethane Core	20.4	219	0	166	166
13A 5occs Wall-Block, board insulation only R-5 board insulation, open core siding finish	1117.2	5,166	0	2,415	2,415
16A 30 Roof/Ceiling Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings) Unvented Attic No Radiant Barrier Any Roofing Material, Any Roof Color R-30 insulation	1668	1,975	0	3,844	3,844
22A-ph, Floor-Slab on grade No edge insulation, no insulation below floor, any floor cover, passive, heavy moist soil	167	8,389	0	0	0
Subtotals for structure		22,567	0	13,237	13,237
People	5		1,150	1,500	2,650
Equipment			448	1,832	2,280
Lighting	0			0	0
Ductwork		8,593	1,755	4,812	6,567
Infiltration Winter CFM 0 Summer CFM 0		0	0	0	0
Ventilation Winter CFM 120 Summer CFM 120		4,857	4,195	2,232	6,427
AFD Excurion		0	0	1,149	1,149
System 1 Main Floor Load Totals		36,018	7,548	24,762	32,310

Check Figures

Supply CFM	1,030	CFM Per Square ft	0.617
Square ft. of Room Area	1,668	Square ft. Per Ton	620
Volume (ft³) of Cond. Space	16,336		

System Data

Total Heating Required Including Ventilation Air	36,018 Btuh	36,018 MBH
Total Sensible Gain	24,762 Btuh	77 %
Total Latent Gain	7,548 Btuh	23 %
Total Cooling Required Including Ventilation Air	32,310 Btuh	2.69 Tons (Based On Sensible + Latent)

Notes

Rhvac is an ACCA approved Manual J and Manual D computer program
Calculations are performed per ACCA Manual J 8th Edition Version 2 and ACCA Manual D
All computed results are estimates as building use and weather may vary
Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions

Rhvac - Residential & Light Commercial HVAC Loads
North Central Florida A/C Inc
High Springs, FL 32643

Plata Software Development, Inc
Hopkins
Page 7

Equipment Data System 1 - Main Floor

Cooling

System Type	Air Source Heat Pump
Outdoor Model	GSZ130361E*
Indoor Model	ARUF36C14A*
Tradename	GOODMAN JANITROL, AMANA DISTINCTIONS EVERREST, ONE HOUR AIR CONDITIONING AND HEATING ENERGI AIR
Outdoor Manufacturer	GOODMAN MANUFACTURING CO LP
Description	Air Source Heat Pump
AHRI Reference No	5368272
Nominal Capacity	33000
Efficiency	13 SEER

Heating

System Type	Air Source Heat Pump
Model	GSZ130361B
Tradename	GOODMAN JANITROL, AMANA DISTINCTIONS, EVERREST, ONE HOUR AIR CONDITIONING AND HEATING ENERGI AIR
Manufacturer	GOODMAN MANUFACTURING CO LP
Description	Air Source Heat Pump
Capacity	33000
Efficiency	8 HSPF

Hvac - Residential & Light Commercial HVAC Loads
North Central Florida A/C Inc.
High Springs, FL 32643

File Software Development, Inc.
Hopkins
Page 8

Equipment Data System 2

Cooling

System Type	Air Source Heat Pump
Outdoor Model	4TWX5042A1
Indoor Model	GAM5A0C42M31
Tradename	XL151 WEATHERTRON
Outdoor Manufacturer	TRANE
Description	Air Source Heat Pump
AHRI Reference No	4151234
Nominal Capacity	44000
Efficiency	15.25 SEER

Heating

System Type	Air Source Heat Pump
Model	4TWX5042A1
Tradename	XL151 WEATHERTRON
Manufacturer	TRANE
Description	Air Source Heat Pump
Capacity	43000
Efficiency	8.5 HSPF

Rhvac - Residential & Light Commercial HVAC Loads
North Central Florida A/C Inc
High Springs, FL 32643

Elite Software Development, Inc.
Hopkins
Page 9

System 1 Room Load Summary

Room No. Name	Area SF	Area Btuh	Min. Ht. CFM	Room Btuh Sens	Room Btuh Lat	Room Btuh Tot	Min. Ht. CFM	Room Btuh Tot
---Zone 1---								
1 Study	140	4,607	61	1-6	572	2,457	230	112
2 Bedroom 2	156	3,804	50	1-6	494	2,123	230	97
3 Bath 2	115	1,541	20	1-4	405	772	0	35
4 Master Bedroom	204	4,345	57	1-7	474	2,770	460	127
5 Master Bath	204	2,063	27	1-4	526	1,005	0	46
6 Great Room	374	7,020	92	2-7	574	6,717	0	307
7 Kitchen / Dining	374	4,564	60	2-7	471	5,504	678	252
8 Utility Room	101	3,126	41	1-4	619	1,182	0	54
Ventilation		4,857				2,232	4,195	
Duct Latent							1,755	
System 1 total	1,668	36,018	407			24,762	7,548	1,030
System 1 Main Trunk Size			12x15 in					
Velocity:			824 ft/min					
Loss per 100 ft			0.104 in wg					

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required	2.69	77% / 23%	24,762	7,548	32,310
Actual	2.75	75% / 25%	24,750	8,250	33,000

Equipment Data

	Heating System	Cooling System
Type	Air Source Heat Pump	Air Source Heat Pump
Model	GSZ130361B	GSZ130361B
Indoor Model		ARUF36C14A"
Brand	GOODMAN, JANITROL, AMANA DISTINCTIONS, EVERREST ONE HOUR AIR CONDITIONING AND HEATING ENERGIAIR	GOODMAN, JANITROL, AMANA DISTINCTIONS, EVERREST ONE HOUR AIR CONDITIONING AND HEATING ENERGIAIR
Description	Air Source Heat Pump	Air Source Heat Pump
Efficiency	8 HSPF	13 SEER
Sound	0	0
Capacity	33,000 Btuh	33,000 Btuh
Sensible Capacity	n/a	24,750 Btuh
Latent Capacity	n/a	8,250 Btuh
AHRI Reference No	n/a	5358272

Permit #
User ID

1312-10

PRODUCT APPROVAL SPECIFICATION SHEET

As required by Florida Statute 553.842 and Florida Administrative Code 9B-72, please provide the information and approval numbers on the building components listed below if they will be utilized on the construction project for which you are applying for a building permit. We recommend you contact your local product supplier should you not know the product approval number for any of the applicable listed products. Statewide approved products are listed online @ www.floridabuilding.org

Category/Subcategory	Manufacturer	Product Description	Approval Number(s)	X
1. EXTERIOR DOORS				
A. SWINGING	Masonite	Entry Door	FL 8228	
B. SLIDING	Silverline vinyl	Glass Door	FL 15227.5-85	
C. SECTIONAL/ROLL UP				
D. OTHER				
2. WINDOWS				
A. SINGLE/DOUBLE HUNG	Gen alum	single window	FL 15606	
B. HORIZONTAL SLIDER				
C. CASEMENT	Gen alum	twin windows	FL 12250.1	
D. FIXED	Gen alum	fixed glass	FL 15278.14	
E. MULLION	HR			
F. SKYLIGHTS				
G. OTHER / GLASS BLOCK		dow		
3. PANEL WALL				
A. SIDING				
B. SOFFITS	Kaycan	Aluminum soffits	FL 16503	
C. STOREFRONTS				
D. GLASS BLOCK				
F. OTHER				
4. ROOFING PRODUCTS				
A. ASPHALT SHINGLES	IKO	Heritage 38-R Astm D 3161	FL 17006	
B. NON-STRUCT METAL				
C. ROOFING TILES				
D. SINGLE PLY ROOF				
E. OTHER				
5. STRUCT COMPONENTS				
A. WOOD CONNECTORS				
B. WOOD ANCHORS	Simpson	Truss anchors	FL 11473.18	
C. TRUSS PLATES				
D. INSULATION FORMS				
E. LINTELS	Cement Precast	Concrete lintels	FL 15148	
F. TRUSSES	Julius Lee	engineer	34869	
6. NEW EXTERIOR ENVELOPE PRODUCTS				
A.				

The products listed below did not demonstrate product approval at plan review. I understand that at the time of inspection of these products, the following information must be available to the inspector on the jobsite: 1) copy of the product approval, 2) performance characteristics which the product was tested and certified to comply with, 3) copy of the applicable manufacturers installation requirements. Further, I understand these products may have to be removed if approval cannot be demonstrated during inspection.

APPLICANT SIGNATURE

DATE

*New
Sheet
Attached*

Permit # _____
User ID _____

PRODUCT APPROVAL SPECIFICATION SHEET

As required by Florida Statute 553 842 and Florida Administrative Code 9B-72, please provide the information and approval numbers on the building components listed below if they will be utilized on the construction project for which you are applying for a building permit. We recommend you contact your local product supplier should you not know the product approval number for any of the applicable listed products. Statewide approved products are listed online @ www.floridabuilding.org

Category/Subcategory	Manufacturer	Product Description	Approval Number(s)	X
1. EXTERIOR DOORS				
A. SWINGING	Masonite	Entry Door	FL 19.1	
B. SLIDING	Silverline vinyl	Glass Door	FL14998.2	
C. SECTIONAL/ROLL UP	Overhead Door	Garage door	FL 674	
D. OTHER				
2. WINDOWS				
A. SINGLE/DOUBLE HUNG	Gen alum	single window	FL15217.16	
B. HORIZONTAL SLIDER				
C. CASEMENT	Gen alum	twin windows	FL15217.18	
D. FIXED	Gen alum	fixed glass	FL15278.14	
E. MULLION	HR		340 FL 5872	
F. SKYLIGHTS				
G. OTHER / GLASS BLOCK	Hy-Lite	Glass Block window	FL 1956.3	
3. PANEL WALL				
A. SIDING				
B. SOFFITS	Kaycan	Aluminum soffits	FL 1146.5	
C. STOREFRONTS				
D. GLASS BLOCK				
F. OTHER				
4. ROOFING PRODUCTS				
A. ASPHALT SHINGLES	Tamko	Heritage 38-R	FL 1956.3	
B. NON-STRUCT METAL				
C. ROOFING TILES				
D. SINGLE PLY ROOF				
E. OTHER				
5. STRUCT COMPONENTS				
A. WOOD CONNECTORS				
B. WOOD ANCHORS	Simpson	Truss anchors	1901.17 1901.45	
C. TRUSS PLATES			1901.25 1901.21	
D. INSULATION FORMS				
E. LINTELS	Cenemt Precast	Concrete lintels	FI 3048	
F. TRUSSES	Julius Lee	engineer	34869	
6. NEW EXTERIOR ENVELOPE PRODUCTS				
A.				

The products listed below did not demonstrate product approval at plan review. I understand that at the time of inspection of these products, the following information must be available to the inspector on the jobsite: 1) copy of the product approval, 2) performance characteristics which the product was tested and certified to comply with, 3) copy of the applicable manufacturers installation requirements. Further, I understand these products may have to be removed if approval cannot be demonstrated during inspection.


APPLICANT SIGNATURE

12-9-13
DATE