HOLLY CASTAGNA
HVAC LOAD ANALYSIS

for

CASTAGNA CONSTRUCTION

Prepared By:

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11/18/21

Project Summary

Project:	HOLLY CASTAGNA	Company:	DAVID HALL'S INC.
Client:	CASTAGNA CONSTRUCTION	Representative:	DAVID HALL
Address:		Address:	PO BOX 244
City:		City:	LAKE CITY, FL 32056
Phone:		Phone:	386-755-9792
Fax:		Fax:	386-755-9100
		Comment:	

Design Data

Project Name:		HOLLY CASTAGNA
Reference City:		Jacksonville, Florida
Daily Temperature Range:		Medium
Latitude:	30	Degrees
Elevation:	26	Feet
Elevation Sensible Adj. Factor:	1.000	
Elevation Total Adj. Factor:	1.000	

	Outdoor Dry Bulb	Outdoor Wet Bulb	Indoor Rel.Hum.	Indoor Dry Bulb	Grains Difference
Winter:	27	N/A	N/A	72	N/A
Summer:	97	78	50%	75	50

Check Figures

Total Building Supply CFM:	1000	CFM per square foot:	0.63
Square feet of room area:	1,587	Square feet per ton:	614.915

Building Loads

Total heating required with outside air:	31,322 Btuh	31.322	MBH
Total sensible gain:	23,847 Btuh	82	%
Total latent gain:	5,333 Btuh	18	%
Total cooling required with outside air:	29,180 Btuh	2.432	Tons (based on sensible + latent)
		2.581	Tons (based on 77% sensible capacity)

Notes

Calculations are based on 7th edition of ACCA Manual J.
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.

Miscellaneous Project Data

Project File Name: CASTAGNA, HOLLY

System Input Data

---System 1---	Outdoor Dry Bulb	Outdoor Wet Bulb	Indoor Rel.Hum.	Indoor Dry Bulb	Grains Difference
Winter:	27	N/A	N/A	72	N/A
Summer:	97	78	50%	75	50

External Overhangs

No.	Projection	Offset	No.	Projection	Offset
1	3	1	6	0	0
2	5	0	7	0	0
3	4	0.5	8	0	0
4	0	0	9	0	0
5	0	0	10	0	0

Duct Sizing Inputs

	Runouts	Main Trunk
Duct Material:	Flexible Duct	Galvanized Steel
Roughness Factor:	0.010000	0.000300
Pressure Drop:	0.1000 In.wg/100 Ft.	0.1000 In.wg/100 Ft.
Minimum Velocity:	450.0 Ft./Minute	650.0 Ft./Minute
Maximum Velocity:	750.0 Ft./Minute	900.0 Ft./Minute
Minimum Height:	0 Inches	0 Inches
Maximum Height:	0 Inches	0 Inches

Outside Air Data

	Winter	Summer
Infiltration:	0.900 AC/Hr	0.400 AC/Hr
Volume of Conditioned Space:	X 14269 Cu.Ft.	X 14269 Cu.Ft.
	12,842 Cu.Ft./Hr	5,708 Cu.Ft./Hr
	X 0.0167	X 0.0167
Total Building Infiltration:	214.035 CFM	95.12667 CFM
Total Building Ventilation:	0 CFM	0 CFM

---System 1---

Infiltration & Ventilation Sensible Gain Multiplier: 24.20 = (1.10 X 22.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier: 33.75 = (0.68 X 49.64 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier: 49.50 = (1.10 X 45.00 Winter Temp. Difference)

Total Building Summary Loads

Component Description	Area Quan	Sen. Loss	Lat. Gain	Sen. Gain	Total Gain
3C Window Double Pane Clear Glass Metal Frame	112	3,653	0	5,067	5,067
9I French Door Double Clear Glass Metal Frame	42	1,425	0	1,000	1,000
10D Door Wood Solid Core	21	435	0	247	247
11C Door Metal Polystyrene Core	42	888	0	506	506
12G Wall R-13 + 3/4" ExtPoly Board(R-3.8)	1,376	4,026	0	2,291	2,291
16G Ceiling R-30 Insulation	1,587	2,356	0	2,410	2,410
22A Slab on Grade No Edge Insulation	177	6,453	0	0	0
Subtotals for structure:	3,357	19,236	0	11,521	11,521
Active People:	4	0	920	1,200	2,120
Inactive People:	0	0	0	0	0
Appliances:	0	0	1,200	1,200	2,400
Lighting:	0	0		5,456	
Ductwork:	0	1,492	0	2,168	2,168
Infiltration: Winter CFM: 214.0, Summer CFM: 95.1	217	10,594	3,213	2,302	5,515
Ventilation: Winter CFM: 0.0, Summer CFM: 0.0	0	0	0	0	0
Sensible Gain Total:				23,847	
Temperature Swing Multiplier:				X1.00	
Building Load Totals:		31,322	5,333	23,847	29,180

Check Figures

Total Building Supply CFM:	1000	CFM per square foot:	0.63
Square feet of room area:	1,587	Square feet per ton:	614.915

Building Loads

Total heating required with outside air:	31,322 Btuh	31.322	MBH
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		2.581	Tons (based on 77% sensible capacity)

Notes

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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.

System #1 Summary Loads

Component Description	Area Quan	Sen. Loss	Lat. Gain	Sen. Gain	Total Gain
3C Window Double Pane Clear Glass Metal Frame	112	3,653	0	5,067	5,067
9I French Door Double Clear Glass Metal Frame	42	1,425	0	1,000	1,000
10D Door Wood Solid Core	21	435	0	247	247
11C Door Metal Polystyrene Core	42	888	0	506	506
12G Wall R-13 + 3/4" ExtPoly Board(R-3.8)	1,376	4,026	0	2,291	2,291
16G Ceiling R-30 Insulation	1,587	2,356	0	2,410	2,410
22A Slab on Grade No Edge Insulation	177	6,453	0	0	0
Subtotals for structure:	3,357	19,236	0	11,521	11,521
Active People:	4	0	920	1,200	2,120
Inactive People:	0	0	0	0	0
Appliances:	0	0	1,200	1,200	2,400
Lighting:	0	0		5,456	
Ductwork:	0	1,492	0	2,168	2,168
Infiltration: Winter CFM: 214.0, Summer CFM: 95.1	217	10,594	3,213	2,302	5,515
Ventilation: Winter CFM: 0.0, Summer CFM: 0.0	0	0	0	0	0
Sensible Gain Total:				23,847	
Temperature Swing Multiplier:				X1.00	
System Load Totals:		31,322	5,333	23,847	29,180

Check Figures

Supply CFM:	1,000	CFM per square foot:	0.63
Square feet of room area:	1,587	Square feet per ton:	614.915

System Loads

Total heating required with outside air:	31,322 Btuh	31.322	MBH
Total sensible gain:	23,847 Btuh	82	%
Total latent gain:	5,333 Btuh	18	%
Total cooling required with outside air:	29,180 Btuh	2.432	Tons (based on sensible + latent)
		2.581	Tons (based on 77% sensible capacity)

Notes

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Be sure to select a unit that meets both sensible and latent loads.

Room Load Summary Reports

System #1 Room Load Summary

No	Room Name	Area SF	Htg Sens Btuh	Htg Nom CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Clg Nom CFM	Zone Adj Fact	Clg Adj CFM	Air Sys CFM
	---Zone 1---											
1	Laundry Room	120	2,325	74	1-4	589	1,225	311	51	1.00	56	51
2	Master Bath	144	3,621	116	1-7	501	3,193	326	134	1.00	145	134
3	Master Closet	68	1,220	39	1-3	654	766	0	32	1.00	35	32
4	Master Bedroom	208	4,094	131	1-6	580	2,717	763	114	1.00	124	114
5	Kitchen	270	6,002	192	1-9	476	5,018	2,185	210	1.00	228	210
6	Living Room	307	5,686	182	1-8	477	3,967	985	166	1.17	211	166
7	Hall	46	109	3	1-3	386	452	0	19	1.00	21	19
8	Hall Bath	71	1,146	37	1-4	564	1,173	89	49	1.00	53	49
9	Bedroom #2	168	3,805	121	1-7	464	2,957	222	124	1.25	168	124
10	Bedroom #3	185	3,314	106	1-6	508	2,379	452	100	1.00	108	100
System 1 Totals		1587	31,322	1,000			23,847	5,333	1,000		1,148	1,000

Main Trunk Size: 16x12 in.

System #1 Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	2.432	82%/18%	23,847	5,333	29,180
Recommended:	2.581	77%/23%	23,847	7,123	30,970