

*ACCA Manual DJS
HVAC Load Calculations*

for

Residence
Windy Hill
Water Mill, NY



RHVAC RESIDENTIAL
HVAC LOADS

Prepared By:

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Islip Terrace, NY 11752
631-566-8439
Monday, April 11, 2022

Rhvac is an ACCA approved Manual J, D and S computer program.
Calculations are performed per ACCA Manual J 8th Edition, Version 2.50, and ACCA Manual D.



Project Report

General Project Information

Project Title: ACCA Manual DJS
 Project Date: 04/11/2022
 Client Name: Residence
 Client Address: Windy Hill
 Client City: Water Mill, NY
 Company Name: Energy Rating Service, Inc
 Company Representative: Matt Wahl
 Company City: Islip Terrace, NY 11752
 Company Phone: 631-566-8439
 Company E-Mail Address: energyratingservice@yahoo.com

Design Data

Reference City: Suffolk County AFB, New York
 Building Orientation: Front door faces Southwest
 Daily Temperature Range: Medium
 Latitude: 40 Degrees
 Elevation: 67 ft.
 Altitude Factor: 0.998

	Outdoor <u>Dry Bulb</u>	Outdoor <u>Wet Bulb</u>	Outdoor <u>Rel.Hum</u>	Indoor <u>Rel.Hum</u>	Indoor <u>Dry Bulb</u>	Grains <u>Difference</u>
Winter:	10	9	n/a	n/a	70	n/a
Summer:	83	71	56%	50%	75	30

Check Figures

Total Building Supply CFM:	5,350	CFM Per Square ft.:	0.536
Square ft. of Room Area:	9,988	Square ft. Per Ton:	1,078
Volume (ft³):	120,502		

Building Loads

Total Heating Required Including Ventilation Air:	118,902 Btuh	118.902 MBH
Total Sensible Gain:	102,994 Btuh	93 %
Total Latent Gain:	8,161 Btuh	7 %
Total Cooling Required Including Ventilation Air:	111,155 Btuh	9.26 Tons (Based On Sensible + Latent)

Notes

Rhvac is an ACCA approved Manual J, D and S computer program.
 Calculations are performed per ACCA Manual J 8th Edition, Version 2.50, 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.



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	9.26	1,078	9,988	102,994	8,161	111,155	118,902	5,350	5,350	5,350	
System 1	0.94	1,423	1,339	10,620	675	11,295	13,774	600	600	600	9x14
Ventilation				132	307	439	988	15	15	15	
Zone 1			1,339	10,488	368	10,856	12,786	600	600	600	9x14
1-M Bed			804	5,800	173	5,973	6,867	322	332	332	4-6
2-Bed 4			331	2,965	107	3,072	3,340	157	170	170	2-6
3-M Bath			203	1,723	88	1,811	2,579	121	99	99	1-6
System 2	1.92	993	1,906	22,121	917	23,038	23,897	1,200	1,200	1,200	12x17
Ventilation				132	307	439	988	15	15	15	
Zone 1			1,906	21,989	610	22,599	22,909	1,200	1,200	1,200	12x17
4-Bed 3			447	4,930	151	5,081	5,813	304	269	269	3-6
5-Bed 2			337	3,448	133	3,581	3,722	195	188	188	2-6
6-Bed 1			344	3,660	130	3,790	3,980	208	200	200	2-6
7-Laundry			103	1,676	43	1,719	1,202	63	91	91	1-6
8-Loft			675	8,274	153	8,427	8,192	429	452	452	5-6
System 3	3.31	669	2,216	34,729	5,029	39,758	29,816	1,750	1,750	1,750	14x20
Ventilation				1,146	2,671	3,817	8,592	131	131	131	
Zone 1			2,216	33,583	2,358	35,941	21,224	1,750	1,750	1,750	14x20
9-Family, Dining			1,395	15,279	958	16,237	9,024	744	796	796	8-6
10-Great Room			440	12,338	800	13,138	9,115	752	643	643	6-6
11-Family			381	5,967	600	6,567	3,085	254	311	311	3-6
System 4	1.41	870	1,225	16,392	507	16,899	15,741	800	800	800	10x15
Ventilation				132	307	439	988	15	15	15	
Zone 1			1,225	16,261	200	16,461	14,753	800	800	800	10x15
12-Jr Bed			486	5,039	200	5,239	4,639	252	248	248	3-6
13-Jr Bath			137	1,513	0	1,513	1,773	96	74	74	1-6
14-Pwdr			44	823	0	823	1,088	59	41	41	1-5
15-Foyer			559	8,885	0	8,885	7,253	393	437	437	4-6
System 5	1.68	1,965	3,301	19,132	1,033	20,165	35,675	1,000	1,000	1,000	12x15
Ventilation				132	307	439	988	15	15	15	
Zone 1			3,301	19,001	726	19,727	34,687	1,000	1,000	1,000	12x15
16-Rec Area			2,371	10,368	452	10,820	17,887	516	546	546	5-6
17-Guest Bed 1			216	2,409	63	2,472	2,640	76	127	127	2-6
18-Guest Bed 2			221	2,701	61	2,762	8,860	255	142	142	2-6
19-Bath			78	201	41	242	1,029	30	11	11	1-4
20-Gym			349	3,127	72	3,199	3,371	97	165	165	2-6
21-Bath			66	194	37	231	900	26	10	10	1-4



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	Clg Flow	Act. Flow	Duct Size	Reg Size
System 1													
Supply Runouts													
Zone 1													
1-M Bed	Built-In	0	750	0.01	0.1		422.5		322	332	332	4-6	
2-Bed 4	Built-In	0	750	0.01	0.1		432		157	170	170	2-6	
3-M Bath	Built-In	0	750	0.01	0.1		502		121	99	99	1-6	
Other Ducts in System 1													
Supply Main Trunk	Built-In	0	900	0.003	0.1		685.7		600	600	600	9x14	
System 2													
Supply Runouts													
Zone 1													
4-Bed 3	Built-In	0	750	0.01	0.1		456.8		304	269	269	3-6	
5-Bed 2	Built-In	0	750	0.01	0.1		479.2		195	188	188	2-6	
6-Bed 1	Built-In	0	750	0.01	0.1		508.7		208	200	200	2-6	
7-Laundry	Built-In	0	750	0.01	0.1		465.8		63	91	91	1-6	
8-Loft	Built-In	0	750	0.01	0.1		459.9		429	452	452	5-6	
Other Ducts in System 2													
Supply Main Trunk	Built-In	0	900	0.003	0.1		847.1		1,200	1,200	1,200	12x17	
System 3													
Supply Runouts													
Zone 1													
9-Family, Dining	Built-In	0	750	0.01	0.1		506.9		744	796	796	8-6	
10-Great Room	Built-In	0	750	0.01	0.1		545.7		752	643	643	6-6	
11-Family	Built-In	0	750	0.01	0.1		527.8		254	311	311	3-6	
Other Ducts in System 3													
Supply Main Trunk	Built-In	0	900	0.003	0.1		900		1,750	1,750	1,750	14x20	
System 4													
Supply Runouts													
Zone 1													
12-Jr Bed	Built-In	0	750	0.01	0.1		420.9		252	248	248	3-6	
13-Jr Bath	Built-In	0	750	0.01	0.1		379.2		96	74	74	1-6	
14-Pwdr	Built-In	0	750	0.01	0.1		297.1		59	41	41	1-5	
15-Foyer	Built-In	0	750	0.01	0.1		556.6		393	437	437	4-6	
Other Ducts in System 4													
Supply Main Trunk	Built-In	0	900	0.003	0.1		768		800	800	800	10x15	
System 5													
Supply Runouts													
Zone 1													
16-Rec Area	Built-In	0	750	0.01	0.1		555.8		516	546	546	5-6	
17-Guest Bed 1	Built-In	0	750	0.01	0.1		322.9		76	127	127	2-6	
18-Guest Bed 2	Built-In	0	750	0.01	0.1		362		255	142	142	2-6	
19-Bath	Built-In	0	750	0.01	0.1		121.5		30	11	11	1-4	
20-Gym	Built-In	0	750	0.01	0.1		419.1		97	165	165	2-6	
21-Bath	Built-In	0	750	0.01	0.1		117.2		26	10	10	1-4	
Other Ducts in System 5													
Supply Main Trunk	Built-In	0	900	0.003	0.1		800		1,000	1,000	1,000	12x15	

Summary

System 1	
Heating Flow:	600
Cooling Flow:	600
System 2	
Heating Flow:	1200
Cooling Flow:	1200



Duct Size Preview (cont'd)

Summary

System 3	
Heating Flow:	1750
Cooling Flow:	1750
System 4	
Heating Flow:	800
Cooling Flow:	800
System 5	
Heating Flow:	1000
Cooling Flow:	1000



Total Building Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
U:0.27, SHGC:0.30: Glazing-U:0.27, SHGC:0.30, U-value 0.27, SHGC 0.3	2906.8	47,088	0	65,882	65,882
8E05-swi: Glazing-Skylight, Flat double pane low-e (e = 0.05), small curb, wood sash, curb R-6 or more, light shaft R-6 or more, horizontal, U-value 0.5, SHGC 0.36	12	360	0	972	972
R26: Wall-Frame, Custom, R-26 closed cell 2 lb spray foam 2 inch insulation, 3.5 inch fiberglass batt r13 in 2x6 stud cavity, siding finish, U-value 0.051	4758.4	14,562	0	1,527	1,527
R15: Wall-Basement, Custom, R15 foam insulation to floor, U-value 0.054, above grade U-value 0.055	2562.4	8,456	0	621	621
R44: Roof/Ceiling-Roof Joists Between Roof Deck and Ceiling or Foam Encapsulated Roof Joists, Custom, R-44 open cell 1/2 lb. spray foam, in 2 x joist cavity,, U-value 0.031	4895.5	9,105	0	1,518	1,518
20P-30: Floor-Over open crawl space or garage, Passive, R-30 blanket insulation, any cover, U-value 0.035	446.6	938	0	47	47
19A-30p: Floor-Over enclosed crawl space, No insulation on exposed walls, sealed or vented space, passive, R-30 blanket, U-value 0.034	129.2	221	0	29	29
21A-20: Floor-Basement, Concrete slab, any thickness, 2 or more feet below grade, no insulation below floor, any floor cover, shortest side of floor slab is 20' wide, U-value 0.027	2809.9	4,553	0	0	0
22B-10pm: Floor-Slab on grade, Vertical board insulation covers slab edge and extends straight down to 3' below grade, any floor cover, R-10 insulation, passive, heavy dry or light wet soil, U-value 0.355	69	1,470	0	0	0
20P-0t: Floor-Over open crawl space or garage, Passive, no insulation, tile or vinyl, U-value 0.521	221.2	6,913	0	346	346
Subtotals for structure:		93,666	0	70,942	70,942
People:	11		2,200	2,530	4,730
Equipment:			358	21,935	22,293
Lighting:	680			2,319	2,319
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 193, Summer CFM: 83		12,693	1,704	733	2,437
Ventilation: Winter CFM: 191, Summer CFM: 191		12,543	3,899	1,672	5,572
AED Excursion:		0	0	2,863	2,863
Total Building Load Totals:		118,902	8,161	102,994	111,155

Check Figures

Total Building Supply CFM:	5,350	CFM Per Square ft.:	0.536
Square ft. of Room Area:	9,988	Square ft. Per Ton:	1,078
Volume (ft³):	120,502		

Building Loads

Total Heating Required Including Ventilation Air:	118,902 Btuh	118.902 MBH
Total Sensible Gain:	102,994 Btuh	93 %
Total Latent Gain:	8,161 Btuh	7 %
Total Cooling Required Including Ventilation Air:	111,155 Btuh	9.26 Tons (Based On Sensible + Latent)

Notes

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Equipment Data - System 1 - Master Bedroom

Cooling

System Type:	Standard Air Conditioner
Outdoor Model:	RA1618AJ1/RH1P2417STA
Indoor Model:	RA1618AJ1/RH1P2417STA
Outdoor Manufacturer:	RHEEM
Indoor Manufacturer:	RHEEM
Nominal Capacity:	24,000
Adjusted Capacity:	18000
Adjusted Sensible Capacity:	13500
Adjusted Latent Capacity:	4500
Efficiency:	14.5 SEER

Heating

System Type:	Propane Boiler
Model:	HYDR COIL IN AIR HANDLER
Manufacturer:	WEIL MCLAIN
Capacity:	24,000
Efficiency:	95 AFUE

This system's equipment was selected in accordance with ACCA Manual S.
Manual S equipment sizing data: SODB: 83F, SOWB: 71F, WODB: 10F, SIDB: 75F, SIRH: 50%, WIDB: 70F, Sen. gain: 10,620 Btuh, Lat. gain: 675 Btuh, Sen. loss: 13,774 Btuh, Entering clg. coil DB: 75.2F, Entering clg. coil WB: 62.7F, Entering htg. coil DB: 68.5F, Clg. coil TD: 20F, Htg. coil TD: 70F, Req. clg. airflow: 478 CFM, Req. htg. airflow: 166 CFM



Equipment Data - System 2 - 2nd Floor

Cooling

System Type:	Standard Air Conditioner
Outdoor Model:	RA1636AJ1/RH1P3617STA
Indoor Model:	RA1636AJ1/RH1P3617STA
Outdoor Manufacturer:	RHEEM
Indoor Manufacturer:	RHEEM
Nominal Capacity:	36,000
Adjusted Capacity:	36000
Adjusted Sensible Capacity:	25600
Adjusted Latent Capacity:	10400
Efficiency:	14.5 SEER

Heating

System Type:	Propane Boiler
Model:	HYDR COIL IN AIR HANDLER
Manufacturer:	WEIL MCLAIN
Capacity:	36,000
Efficiency:	95 AFUE

This system's equipment was selected in accordance with ACCA Manual S.
Manual S equipment sizing data: SODB: 83F, SOWB: 71F, WODB: 10F, SIDB: 75F, SIRH: 50%, WIDB: 70F, Sen. gain: 22,121 Btuh, Lat. gain: 917 Btuh, Sen. loss: 23,897 Btuh, Entering clg. coil DB: 75.1F, Entering clg. coil WB: 62.6F, Entering htg. coil DB: 69.2F, Clg. coil TD: 20F, Htg. coil TD: 70F, Req. clg. airflow: 1002 CFM, Req. htg. airflow: 298 CFM



Equipment Data - System 3 - 1st Floor Left

Cooling

System Type:	Standard Air Conditioner
Outdoor Model:	RA1660AJ1/RH1P6024STA
Indoor Model:	RA1660AJ1/RH1P6024STA
Outdoor Manufacturer:	RHEEM
Indoor Manufacturer:	RHEEM
Nominal Capacity:	57,500
Adjusted Capacity:	57500
Adjusted Sensible Capacity:	41900
Adjusted Latent Capacity:	15600
Efficiency:	14.5 SEER

Heating

System Type:	Propane Boiler
Model:	HYDR COIL IN AIR HANDLER
Manufacturer:	WEIL MCLAIN
Capacity:	60,000
Efficiency:	95 AFUE

This system's equipment was selected in accordance with ACCA Manual S.
Manual S equipment sizing data: SODB: 83F, SOWB: 71F, WODB: 10F, SIDB: 75F, SIRH: 50%, WIDB: 70F, Sen. gain: 34,729 Btuh, Lat. gain: 5,029 Btuh, Sen. loss: 29,816 Btuh, Entering clg. coil DB: 75.6F, Entering clg. coil WB: 63.2F, Entering htg. coil DB: 65.5F, Clg. coil TD: 20F, Htg. coil TD: 70F, Req. clg. airflow: 1530 CFM, Req. htg. airflow: 276 CFM



Equipment Data - System 4 - 1st Floor Right

Cooling

System Type:	Standard Air Conditioner
Outdoor Model:	RA1624AJ1/RH1P2417STA
Indoor Model:	RA1624AJ1/RH1P2417STA
Outdoor Manufacturer:	RHEEM
Indoor Manufacturer:	RHEEM
Nominal Capacity:	24,000
Adjusted Capacity:	24000
Adjusted Sensible Capacity:	18500
Adjusted Latent Capacity:	5500
Efficiency:	14.5 SEER

Heating

System Type:	Propane Boiler
Model:	HYDR COIL IN AIR HANDLER
Manufacturer:	WEIL MCLAIN
Capacity:	30,000
Efficiency:	95 AFUE

This system's equipment was selected in accordance with ACCA Manual S.
Manual S equipment sizing data: SODB: 83F, SOWB: 71F, WODB: 10F, SIDB: 75F, SIRH: 50%, WIDB: 70F, Sen. gain: 16,392 Btuh, Lat. gain: 507 Btuh, Sen. loss: 15,741 Btuh, Entering clg. coil DB: 75.2F, Entering clg. coil WB: 62.7F, Entering htg. coil DB: 68.9F, Clg. coil TD: 20F, Htg. coil TD: 70F, Req. clg. airflow: 741 CFM, Req. htg. airflow: 192 CFM



Equipment Data - System 5 - Basement

Cooling

System Type:	Standard Air Conditioner
Outdoor Model:	RA1630AJ1/RH1P3017STA
Indoor Model:	RA1630AJ1/RH1P3017STA
Outdoor Manufacturer:	RHEEM
Indoor Manufacturer:	RHEEM
Nominal Capacity:	30,000
Adjusted Capacity:	30000
Adjusted Sensible Capacity:	22200
Adjusted Latent Capacity:	7800
Efficiency:	14.5 SEER

Heating

System Type:	Propane Boiler
Model:	HYDR COIL IN AIR HANDLER
Manufacturer:	WEIL MCLAIN
Capacity:	30,000
Efficiency:	95 AFUE

This system's equipment was selected in accordance with ACCA Manual S.
Manual S equipment sizing data: SODB: 83F, SOWB: 71F, WODB: 10F, SIDB: 75F, SIRH: 50%, WIDB: 70F, Sen. gain: 19,132 Btuh, Lat. gain: 1,033 Btuh, Sen. loss: 35,675 Btuh, Entering clg. coil DB: 75.1F, Entering clg. coil WB: 62.6F, Entering htg. coil DB: 69.1F, Clg. coil TD: 20F, Htg. coil TD: 70F, Req. clg. airflow: 866 CFM, Req. htg. airflow: 452 CFM



Manual S Performance Data - System 1 - Master Bedroom

Loads and Design Conditions

Cooling:

Outdoor Dry Bulb:	83	Sensible Gain:	10.620
Outdoor Wet Bulb:	71	Latent Gain:	0.675
Indoor Dry Bulb:	75	Total Gain:	11.295
Indoor RH:	50	Load SHR:	0.94
Supply Airflow:	600	Entering Dry Bulb:	75.2
		Entering Wet Bulb:	62.7

Heating:

Outdoor Dry Bulb:	10	Sensible Loss:	13.774
Indoor Dry Bulb:	70	Entering Dry Bulb:	68.5
Indoor RH:	30	Supply Airflow:	600

Equipment Performance Data at System Design Conditions

This system's equipment was selected in accordance with ACCA Manual S.

Cooling:

Model Type: Standard Air Conditioner, Outdoor Model: RA1618AJ1/RH1P2417STA, Indoor Model: RA1618AJ1/RH1P2417STA
 Nominal Capacity: 24.000, Manufacturer: RHEEM

Entered Interpolation Data:

EWB °F	Air Flow CFM	ODB °F	Total Capacity MBtuh	Power Input kW	EDB 75.2 °F	
					S/T	Sensible Capacity MBtuh
62.7	600	83	18	1.27	0.75	13.5

Interpolation Results:

		<u>Load</u>	<u>Percent of Load</u>
Sensible Capacity:	13.500	10.620	127%
Latent Capacity:	4.500	0.675	667%
Total Capacity:	18.000	11.295	159%
Power Input:	1.27		

Heating:

Model Type: Propane Boiler, Model: HYDR COIL IN AIR HANDLER, Nominal Capacity: 24.000, Manufacturer: WEIL MCLAIN

Results:

		<u>Load</u>	<u>Percent of Load</u>
Heating Capacity:	24.000	13.774	174%



Manual S Performance Data - System 2 - 2nd Floor

Loads and Design Conditions

Cooling:

Outdoor Dry Bulb:	83	Sensible Gain:	22.121
Outdoor Wet Bulb:	71	Latent Gain:	0.917
Indoor Dry Bulb:	75	Total Gain:	23.038
Indoor RH:	50	Load SHR:	0.96
Supply Airflow:	1,200	Entering Dry Bulb:	75.1
		Entering Wet Bulb:	62.6

Heating:

Outdoor Dry Bulb:	10	Sensible Loss:	23.897
Indoor Dry Bulb:	70	Entering Dry Bulb:	69.3
Indoor RH:	30	Supply Airflow:	1,200

Equipment Performance Data at System Design Conditions

This system's equipment was selected in accordance with ACCA Manual S.

Cooling:

Model Type: Standard Air Conditioner, Outdoor Model: RA1636AJ1/RH1P3617STA, Indoor Model: RA1636AJ1/RH1P3617STA
 Nominal Capacity: 36.000, Manufacturer: RHEEM

Entered Interpolation Data:

EWB °F	Air Flow CFM	ODB °F	Total Capacity MBtuh	Power Input kW	EDB 75.1 °F	
					S/T	Sensible Capacity MBtuh
62.6	1200	83	36	2.63	0.711	25.6

Interpolation Results:

		<u>Load</u>	<u>Percent of Load</u>
Sensible Capacity:	25.600	22.121	116%
Latent Capacity:	10.400	0.917	1134%
Total Capacity:	36.000	23.038	156%
Power Input:	2.63		

Heating:

Model Type: Propane Boiler, Model: HYDR COIL IN AIR HANDLER, Nominal Capacity: 36.000, Manufacturer: WEIL MCLAIN

Results:

		<u>Load</u>	<u>Percent of Load</u>
Heating Capacity:	36.000	23.897	151%



Manual S Performance Data - System 3 - 1st Floor Left

Loads and Design Conditions

Cooling:

Outdoor Dry Bulb:	83	Sensible Gain:	34.729
Outdoor Wet Bulb:	71	Latent Gain:	5.029
Indoor Dry Bulb:	75	Total Gain:	39.758
Indoor RH:	50	Load SHR:	0.87
Supply Airflow:	1,750	Entering Dry Bulb:	75.6
		Entering Wet Bulb:	63.2

Heating:

Outdoor Dry Bulb:	10	Sensible Loss:	29.816
Indoor Dry Bulb:	70	Entering Dry Bulb:	65.5
Indoor RH:	30	Supply Airflow:	1,750

Equipment Performance Data at System Design Conditions

This system's equipment was selected in accordance with ACCA Manual S.

Cooling:

Model Type: Standard Air Conditioner, Outdoor Model: RA1660AJ1/RH1P6024STA, Indoor Model: RA1660AJ1/RH1P6024STA
 Nominal Capacity: 57.500, Manufacturer: RHEEM

Entered Interpolation Data:

EWB °F	Air Flow CFM	ODB °F	Total Capacity MBtuh	Power Input kW	EDB 75.6 °F	
					S/T	Sensible Capacity MBtuh
63.2	1750	83	57.5	5.63	0.729	41.9

Interpolation Results:

		<u>Load</u>	<u>Percent of Load</u>
Sensible Capacity:	41.900	34.729	121%
Latent Capacity:	15.600	5.029	310%
Total Capacity:	57.500	39.758	145%
Power Input:	5.63		

Heating:

Model Type: Propane Boiler, Model: HYDR COIL IN AIR HANDLER, Nominal Capacity: 60.000, Manufacturer: WEIL MCLAIN

Results:

		<u>Load</u>	<u>Percent of Load</u>
Heating Capacity:	60.000	29.816	201%



Manual S Performance Data - System 4 - 1st Floor Right

Loads and Design Conditions

Cooling:

Outdoor Dry Bulb:	83	Sensible Gain:	16.392
Outdoor Wet Bulb:	71	Latent Gain:	0.507
Indoor Dry Bulb:	75	Total Gain:	16.899
Indoor RH:	50	Load SHR:	0.97
Supply Airflow:	800	Entering Dry Bulb:	75.2
		Entering Wet Bulb:	62.7

Heating:

Outdoor Dry Bulb:	10	Sensible Loss:	15.741
Indoor Dry Bulb:	70	Entering Dry Bulb:	68.9
Indoor RH:	30	Supply Airflow:	800

Equipment Performance Data at System Design Conditions

This system's equipment was selected in accordance with ACCA Manual S.

Cooling:

Model Type: Standard Air Conditioner, Outdoor Model: RA1624AJ1/RH1P2417STA, Indoor Model: RA1624AJ1/RH1P2417STA
 Nominal Capacity: 24.000, Manufacturer: RHEEM

Interpolation Results:

		<u>Load</u>	<u>Percent of Load</u>
Sensible Capacity:	18.500	16.392	113%
Latent Capacity:	5.500	0.507	1085%
Total Capacity:	24.000	16.899	142%
Power Input:	1.37		

Heating:

Model Type: Propane Boiler, Model: HYDR COIL IN AIR HANDLER, Nominal Capacity: 30.000, Manufacturer: WEIL MCLAIN

Results:

		<u>Load</u>	<u>Percent of Load</u>
Heating Capacity:	30.000	15.741	191%



Manual S Performance Data - System 5 - Basement

Loads and Design Conditions

Cooling:

Outdoor Dry Bulb:	83	Sensible Gain:	19.132
Outdoor Wet Bulb:	71	Latent Gain:	1.033
Indoor Dry Bulb:	75	Total Gain:	20.165
Indoor RH:	50	Load SHR:	0.95
Supply Airflow:	1,000	Entering Dry Bulb:	75.1
		Entering Wet Bulb:	62.6

Heating:

Outdoor Dry Bulb:	10	Sensible Loss:	35.675
Indoor Dry Bulb:	70	Entering Dry Bulb:	69.1
Indoor RH:	30	Supply Airflow:	1,000

Equipment Performance Data at System Design Conditions

This system's equipment was selected in accordance with ACCA Manual S.

Cooling:

Model Type: Standard Air Conditioner, Outdoor Model: RA1630AJ1/RH1P3017STA, Indoor Model: RA1630AJ1/RH1P3017STA
 Nominal Capacity: 30.000, Manufacturer: RHEEM

Entered Interpolation Data:

EWB °F	Air Flow CFM	ODB °F	Total Capacity MBtuh	Power Input kW	EDB 75.1 °F	
					S/T	Sensible Capacity MBtuh
62.6	1000	83	30	2.22	0.74	22.2

Interpolation Results:

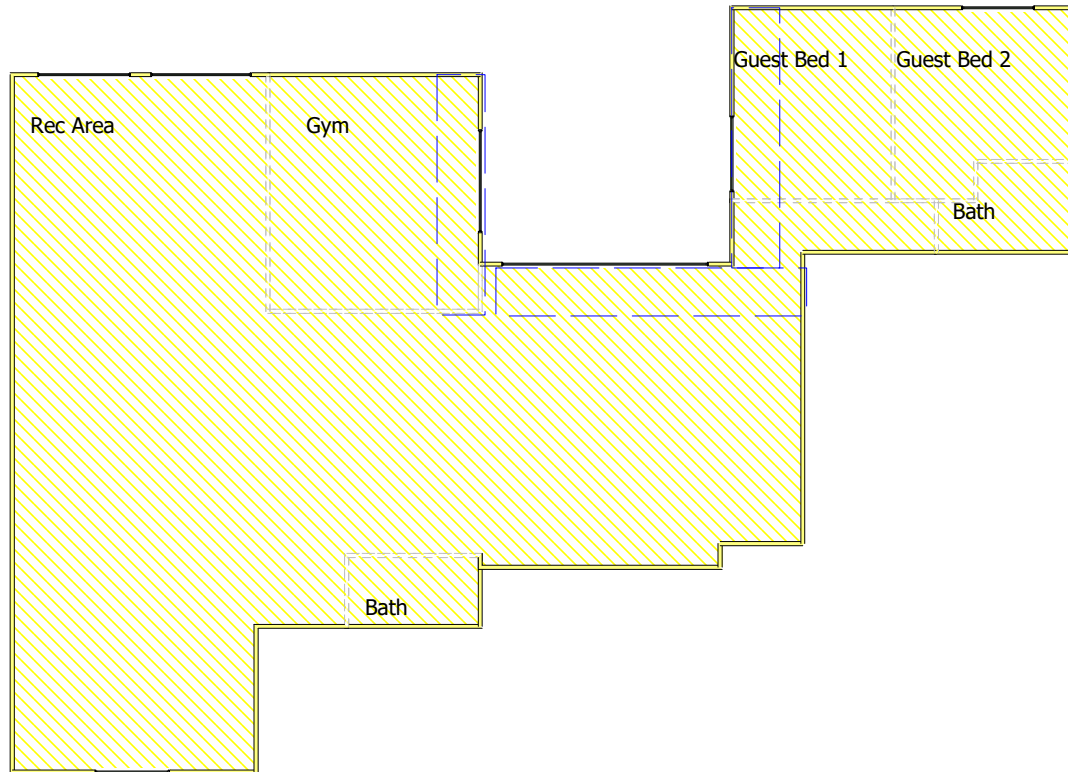
		<u>Load</u>	<u>Percent of Load</u>
Sensible Capacity:	22.200	19.132	116%
Latent Capacity:	7.800	1.033	755%
Total Capacity:	30.000	20.165	149%
Power Input:	2.22		

Heating:

Model Type: Propane Boiler, Model: HYDR COIL IN AIR HANDLER, Nominal Capacity: 30.000, Manufacturer: WEIL MCLAIN

Results:

		<u>Load</u>	<u>Percent of Load</u>
Heating Capacity:	30.000	35.675	84%



R403.3.8 Duct system sizing. Ducts shall be sized in accordance with ACCA Manual D based on calculations made in accordance with Sections R403.7 and R403.8. (NYStretch Energy Code 2020)

R403.6 Mechanical ventilation, The Building and dwelling units shall be provided with ventilation that complies with the requirements of the Residential Code of New York State or Mechanical Code of New York State or New York City Construction Code, as applicable, or with other approved means of ventilation. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not

R403.6.2 Whole dwelling mechanical ventilation system fan efficacy. Fans used to provide whole-house mechanical ventilation shall meet the efficacy requirements of Table R403.6.2

- HRV, ERV 1.2 cfm/watt
- In-line supply or exhaust fan 2.8 cfm/watt
- Other exhaust fan 2.8 cfm/watt (Under 90 cfm)
- Other exhaust fan 3.5 cfm/watt (Over 90 cfm)



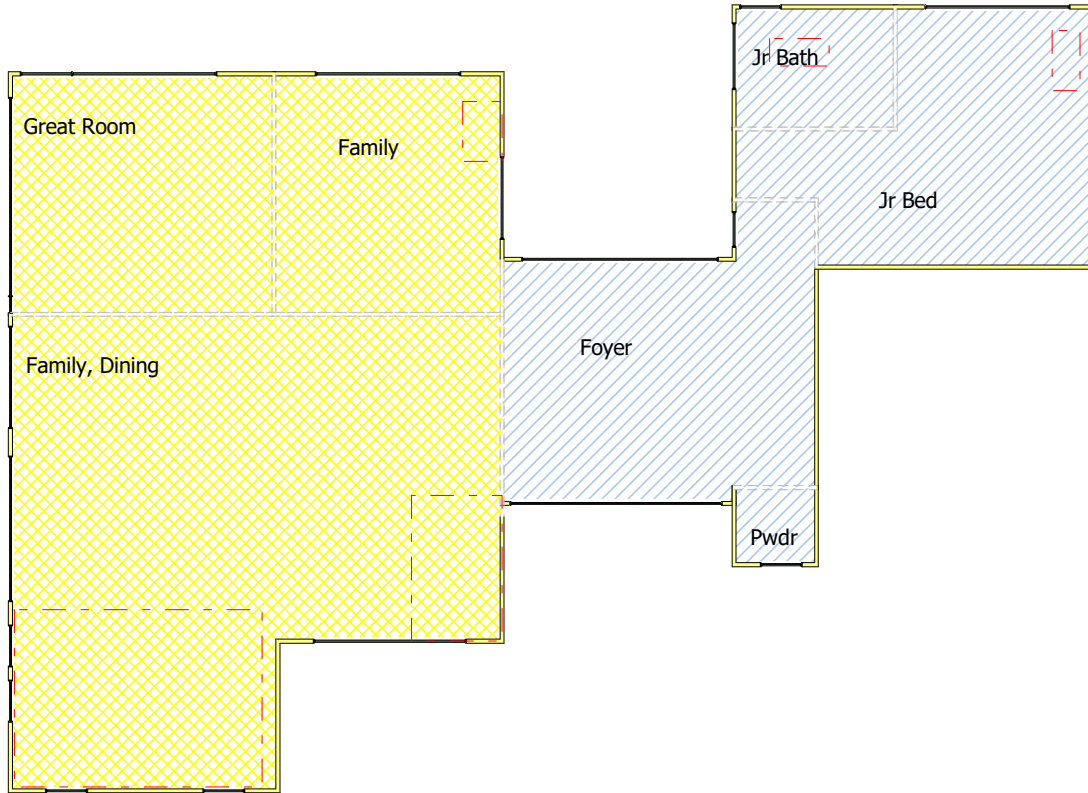
BASEMENT
SCALE: 1/16" = 1'-0"



ENERGY
Rating Service
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Islip Terrace, NY 11752
631-566-8439
energyratingservice@yahoo.com

HERS Rater:
MATTHEW WAHL
RESNET Certification:
#2572845
Approved:
Date: 04/11/2022
Job Number:

MANUAL D M1



R403.3.8 Duct system sizing. Ducts shall be sized in accordance with ACCA Manual D based on calculations made in accordance with Sections R403.7 and R403.8. (NYStretch Energy Code 2020)

R403.6 Mechanical ventilation, The Building and dwelling units shall be provided with ventilation that complies with the requirements of the Residential Code of New York State or Mechanical Code of New York State or New York City Construction Code, as applicable, or with other approved means of ventilation. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not

R403.6.2 Whole dwelling mechanical ventilation system fan efficacy. Fans used to provide whole-house mechanical ventilation shall meet the efficacy requirements of Table R403.6.2

- HRV, ERV 1.2 cfm/watt
- In-line supply or exhaust fan 2.8 cfm/watt
- Other exhaust fan 2.8 cfm/watt (Under 90 cfm)
- Other exhaust fan 3.5 cfm/watt (Over 90 cfm)

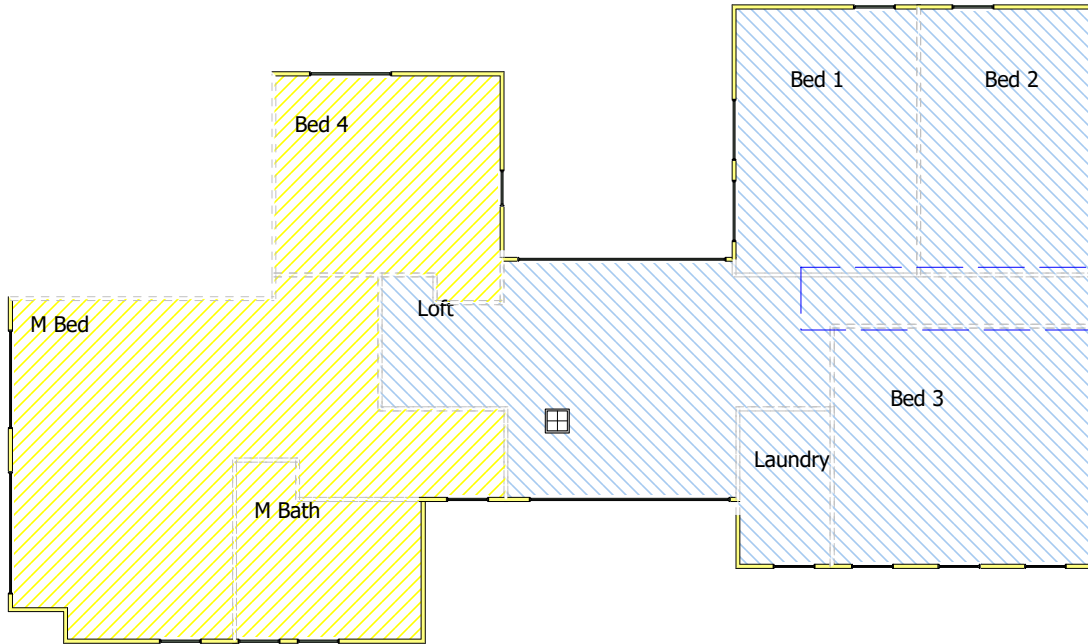


1ST FLOOR
SCALE: 1/16" = 1'-0"



HERS Rater:
 MATTHEW WAHL
 RESNET Certification:
 #2572845
 Approved:
 Date: 04/11/2022
 Job Number:

MANUAL D M2



R403.3.8 Duct system sizing. Ducts shall be sized in accordance with ACCA Manual D based on calculations made in accordance with Sections R403.7 and R403.8. (NYStretch Energy Code 2020)

R403.6 Mechanical ventilation, The Building and dwelling units shall be provided with ventilation that complies with the requirements of the Residential Code of New York State or Mechanical Code of New York State or New York City Construction Code, as applicable, or with other approved means of ventilation. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not

R403.6.2 Whole dwelling mechanical ventilation system fan efficacy. Fans used to provide whole-house mechanical ventilation shall meet the efficacy requirements of Table R403.6.2

- HRV, ERV 1.2 cfm/watt
- In-line supply or exhaust fan 2.8 cfm/watt
- Other exhaust fan 2.8 cfm/watt (Under 90 cfm)
- Other exhaust fan 3.5 cfm/watt (Over 90 cfm)



2ND FLOOR
SCALE: 1/16" = 1'-0"



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MANUAL D M3