New Single Family Residence
HVAC Load Calculations

for

12700 Rolling Road Dr
Pinecrest, Florida

Elite Software

RHVAC Residential HVAC Loads

Ricardo Perez de Alejo

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Prepared By:

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Rhvac is an ACCA approved Manual J, D and S computer program.
Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.

System 1 AC-1 Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
Low E #2: Glazing-Clear, metal frame, with break, ground reflectance = 0.32, U-value 1.07, SHGC 0.24	420	10,336	0	19,449	19,449
13A-4ocs: Wall-Block, board insulation only, R-4 board insulation, open core, siding finish, U-value 0.143	264	869	0	918	918
22A-pl: Floor-Slab on grade, No edge insulation, no insulation below floor, any floor cover, passive, light dry soil, U-value 0.989	57	1,297	0	0	0
Subtotals for structure:		12,502	0	20,367	20,367
People:	5		1,000	1,150	2,150
Equipment:			200	600	800
Lighting:	300			1,023	1,023
Ductwork:		639	1,671	184	1,855
Infiltration: Winter CFM: 130, Summer CFM: 66		3,285	2,920	1,460	4,380
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
AED Excursion:		0	0	421	421
System 1 AC-1 Load Totals:		16,426	5,791	25,205	30,997

Check Figures

Supply CFM:	1,146	CFM Per Square ft.:	0.794
Square ft. of Room Area:	1,443	Square ft. Per Ton:	559
Volume (ft³):	17,316		

System Loads

Total Heating Required Including Ventilation Air:	16,426	Btuh	16.426	MBH
Total Sensible Gain:	25,205	Btuh	81	%
Total Latent Gain:	5,791	Btuh	19	%
Total Cooling Required Including Ventilation Air:	30,997	Btuh	2.58	Tons (Based On Sensible + Latent)

Notes

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Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.

System 2 AC-2 Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
Low E #2: Glazing-Clear, metal frame, with break, ground reflectance = 0.32, U-value 1.07, SHGC 0.24	452	11,124	0	13,461	13,461
13A-4ocs: Part-Block, board insulation only, R-4 board insulation, open core, siding finish, U-value 0.143	288	824	0	824	824
13A-4ocs: Wall-Block, board insulation only, R-4 board insulation, open core, siding finish, U-value 0.143	1168	3,842	0	4,393	4,393
22A-pl: Floor-Slab on grade, No edge insulation, no insulation below floor, any floor cover, passive, light dry soil, U-value 0.989	159	3,617	0	0	0
Subtotals for structure:		19,407	0	18,678	18,678
People:	5		1,000	1,150	2,150
Equipment:			1,000	4,000	5,000
Lighting:	500			1,705	1,705
Ductwork:		645	2,208	173	2,381
Infiltration: Winter CFM: 249, Summer CFM: 131		6,307	6,089	3,170	9,259
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
AED Excursion:		0	0	1,591	1,591
System 2 AC-2 Load Totals:		26,360	10,297	30,466	40,763

Check Figures

Supply CFM:	1,385	CFM Per Square ft.:	0.656
Square ft. of Room Area:	2,113	Square ft. Per Ton:	622
Volume (ft³):	25,356		

System Loads

Total Heating Required Including Ventilation Air:	26,360	Btuh	26.360	MBH
Total Sensible Gain:	30,466	Btuh	75	%
Total Latent Gain:	10,297	Btuh	25	%
Total Cooling Required Including Ventilation Air:	40,763	Btuh	3.40	Tons (Based On Sensible + Latent)

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System 3 AC-3 Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
Low E #2: Glazing-Clear, metal frame, with break, ground reflectance = 0.32, U-value 1.07, SHGC 0.24	332	8,170	0	18,099	18,099
13A-4ocs: Wall-Block, board insulation only, R-4 board insulation, open core, siding finish, U-value 0.143	1360	4,473	0	4,726	4,726
16A-19: 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-19 insulation, U-value 0.049	410	462	0	1,587	1,587
22A-pl: Floor-Slab on grade, No edge insulation, no insulation below floor, any floor cover, passive, light dry soil, U-value 0.989	141	3,207	0	0	0
Subtotals for structure:		16,312	0	24,412	24,412
People:	4		800	920	1,720
Equipment:			400	600	1,000
Lighting:	300			1,023	1,023
Ductwork:		1,816	523	929	1,453
Infiltration: Winter CFM: 139, Summer CFM: 0		3,505	0	0	0
Ventilation: Winter CFM: 200, Summer CFM: 200		5,059	8,799	4,399	13,198
System 3 AC-3 Load Totals:		26,692	10,523	32,283	42,806

Check Figures

Supply CFM:	1,262	CFM Per Square ft.:	0.612
Square ft. of Room Area:	2,062	Square ft. Per Ton:	578
Volume (ft³):	24,744		

System Loads

Total Heating Required Including Ventilation Air:	26,692	Btuh	26.692	MBH
Total Sensible Gain:	32,283	Btuh	75	%
Total Latent Gain:	10,523	Btuh	25	%
Total Cooling Required Including Ventilation Air:	42,806	Btuh	3.57	Tons (Based On Sensible + Latent)

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Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.

System 4 AC-4 Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
Low E #2: Glazing-Clear, metal frame, with break, ground reflectance = 0.23, U-value 1.07, SHGC 0.24	28	689	0	742	742
Low E #2: Glazing-Clear, metal frame, with break, ground reflectance = 0.23, light color blinds at 45° with 50% coverage, U-value 1.07, SHGC 0.24	230	5,660	0	8,215	8,215
Low E #2: Glazing-Clear, metal frame, with break, ground reflectance = 0.32, light color blinds at 45° with 100% coverage, U-value 1.07, SHGC 0.24	160	3,938	0	6,209	6,209
13A-4ocs: Wall-Block, board insulation only, R-4 board insulation, open core, siding finish, U-value 0.143	854	2,809	0	2,967	2,967
Concrete Roof Dec: Roof/Ceiling-Roof Deck (roofing, wood, insulation) or SIP Panels Supported on Beams, Custom, 7" Concrete Roof Deck plus R-19 insulation, U-value 0.049	1563	1,762	0	2,527	2,527
Subtotals for structure:		14,858	0	20,660	20,660
People:	2		400	460	860
Equipment:			200	600	800
Lighting:	300			1,023	1,023
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 119, Summer CFM: 63		3,005	2,751	1,375	4,126
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
AED Excursion:		0	0	3,872	3,872
System 4 AC-4 Load Totals:		17,863	3,351	27,990	31,341

Check Figures

Supply CFM:	1,273	CFM Per Square ft.:	0.814
Square ft. of Room Area:	1,563	Square ft. Per Ton:	598
Volume (ft³):	18,756		

System Loads

Total Heating Required Including Ventilation Air:	17,863	Btuh	17.863	MBH
Total Sensible Gain:	27,990	Btuh	89	%
Total Latent Gain:	3,351	Btuh	11	%
Total Cooling Required Including Ventilation Air:	31,341	Btuh	2.61	Tons (Based On Sensible + Latent)

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Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.

System 5 AC-5 Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
Low E #2: Glazing-Clear, metal frame, with break, ground reflectance = 0.23, U-value 1.07, SHGC 0.24	122	3,003	0	4,332	4,332
Low E #2: Glazing-Clear, metal frame, with break, ground reflectance = 0.23, light color blinds at 45° with 50% coverage, U-value 1.07, SHGC 0.24	520	12,797	0	18,573	18,573
13A-4ocs: Wall-Block, board insulation only, R-4 board insulation, open core, siding finish, U-value 0.143	1050	3,454	0	3,649	3,649
Concrete Roof Dec: Roof/Ceiling-Roof Deck (roofing, wood, insulation) or SIP Panels Supported on Beams, Custom, 7" Concrete Roof Deck plus R-19 insulation, U-value 0.049	1943	2,190	0	3,142	3,142
Subtotals for structure:		21,444	0	29,696	29,696
People:	4		800	920	1,720
Equipment:			200	600	800
Lighting:	300			1,023	1,023
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 220, Summer CFM: 115		5,558	5,079	2,539	7,618
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
System 5 AC-5 Load Totals:		27,002	6,079	34,778	40,857

Check Figures

Supply CFM:	1,581	CFM Per Square ft.:	0.814
Square ft. of Room Area:	1,943	Square ft. Per Ton:	571
Volume (ft³):	22,345		

System Loads

Total Heating Required Including Ventilation Air:	27,002	Btuh	27.002	MBH
Total Sensible Gain:	34,778	Btuh	85	%
Total Latent Gain:	6,079	Btuh	15	%
Total Cooling Required Including Ventilation Air:	40,857	Btuh	3.40	Tons (Based On Sensible + Latent)

Notes

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Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.

System 6 AC-6 Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
Low E #2: Glazing-Clear, metal frame, with break, ground reflectance = 0.23, light color blinds at 45° with 50% coverage, U-value 1.07, SHGC 0.24	240	5,906	0	8,572	8,572
Low E #2: Glazing-Clear, metal frame, with break, ground reflectance = 0.23, U-value 1.07, SHGC 0.24	24	590	0	636	636
13A-4ocs: Wall-Block, board insulation only, R-4 board insulation, open core, siding finish, U-value 0.143	408	1,341	0	1,418	1,418
Concrete Roof Dec: Roof/Ceiling-Roof Deck (roofing, wood, insulation) or SIP Panels Supported on Beams, Custom, 7" Concrete Roof Deck plus R-19 insulation, U-value 0.049	862	971	0	1,394	1,394
Subtotals for structure:		8,808	0	12,020	12,020
People:	3		600	690	1,290
Equipment:			100	500	600
Lighting:	200			682	682
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 105, Summer CFM: 55		2,660	2,427	1,213	3,640
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
AED Excursion:		0	0	3,413	3,413
System 6 AC-6 Load Totals:		11,468	3,127	18,518	21,645

Check Figures

Supply CFM:	842	CFM Per Square ft.:	0.977
Square ft. of Room Area:	862	Square ft. Per Ton:	478
Volume (ft³):	10,344		

System Loads

Total Heating Required Including Ventilation Air:	11,468	Btuh	11.468	MBH
Total Sensible Gain:	18,518	Btuh	86	%
Total Latent Gain:	3,127	Btuh	14	%
Total Cooling Required Including Ventilation Air:	21,645	Btuh	1.80	Tons (Based On Sensible + Latent)

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System 7 AC-7 Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
Low E #2: Glazing-Clear, metal frame, with break, ground reflectance = 0.32, light color blinds at 45° with 100% coverage, U-value 1.07, SHGC 0.24	42	1,033	0	1,406	1,406
Low E #2: Glazing-Clear, metal frame, with break, ground reflectance = 0.32, U-value 1.07, SHGC 0.24	340	8,367	0	11,648	11,648
13A-4ocs: Wall-Block, board insulation only, R-4 board insulation, open core, siding finish, U-value 0.143	794	2,612	0	2,419	2,419
16A-19: 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-19 insulation, U-value 0.049	586	660	0	2,182	2,182
22A-pl: Floor-Slab on grade, No edge insulation, no insulation below floor, any floor cover, passive, light dry soil, U-value 0.989	98	2,229	0	0	0
Subtotals for structure:		14,901	0	17,655	17,655
People:	2		400	460	860
Equipment:			100	500	600
Lighting:	200			682	682
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 71, Summer CFM: 38		1,808	1,499	701	2,200
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
System 7 AC-7 Load Totals:		16,709	1,999	19,998	21,997

Check Figures

Supply CFM:	909	CFM Per Square ft.:	1.552
Square ft. of Room Area:	586	Square ft. Per Ton:	320
Volume (ft³):	7,032		

System Loads

Total Heating Required Including Ventilation Air:	16,709	Btuh	16.709	MBH
Total Sensible Gain:	19,998	Btuh	91	%
Total Latent Gain:	1,999	Btuh	9	%
Total Cooling Required Including Ventilation Air:	21,997	Btuh	1.83	Tons (Based On Sensible + Latent)

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