

Air System Sizing Summary for AHU-4

Project Name: 6300 SW 98ST PINECREST (MARK REARDON)
Prepared by: AA

12/30/2025
10:56AM

Air System Information

Air System Name **AHU-4**
Equipment Class **SPLT AHU**
Air System Type **SZCAV**

Number of zones **1**
Floor Area **1391.0** ft²
Location **Miami IAP, Florida**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM **Sum of space airflow rates**
Space CFM **Individual peak space loads**

Calculation Months **Jan to Dec**
Sizing Data **Calculated**

Central Cooling Coil Sizing Data

Total coil load **2.7** Tons
Total coil load **31.9** MBH
Sensible coil load **27.9** MBH
Coil CFM at Jul 1600 **1465** CFM
Max block CFM **1465** CFM
Sum of peak zone CFM **1465** CFM
Sensible heat ratio **0.876**
ft²/Ton **523.4**
BTU/(hr-ft²) **22.9**
Water flow @ 10.0 °F rise **N/A**

Load occurs at **Jul 1600**
OA DB / WB **90.7 / 76.9** °F
Entering DB / WB **76.4 / 64.8** °F
Leaving DB / WB **58.7 / 57.6** °F
Coil ADP **56.7** °F
Bypass Factor **0.100**
Resulting RH **54** %
Design supply temp. **55.0** °F
Zone T-stat Check **1 of 1** OK
Max zone temperature deviation **0.0** °F

Central Heating Coil Sizing Data

Max coil load **14.1** MBH
Coil CFM at Des Htg **1465** CFM
Max coil CFM **1465** CFM
Water flow @ 20.0 °F drop **N/A**

Load occurs at **Des Htg**
BTU/(hr-ft²) **10.2**
Ent. DB / Lvg DB **69.2 / 78.1** °F

Supply Fan Sizing Data

Actual max CFM **1465** CFM
Standard CFM **1464** CFM
Actual max CFM/ft² **1.05** CFM/ft²

Fan motor BHP **0.00** BHP
Fan motor kW **0.00** kW
Fan static **0.00** in wg

Outdoor Ventilation Air Data

Design airflow CFM **30** CFM
CFM/ft² **0.02** CFM/ft²

CFM/person **15.00** CFM/person

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Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM **Sum of space airflow rates**
Space CFM **Individual peak space loads**

Calculation Months **Jan to Dec**
Sizing Data **Calculated**

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (MBH)	Design Air Flow (CFM)	Minimum Air Flow (CFM)	Time of Peak Load	Maximum Heating Load (MBH)	Zone Floor Area (ft ²)	Zone CFM/ft ²
Zone 1	28.6	1465	1465	Aug 1400	13.5	1391.0	1.05

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (MBH)	Time of Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (ft ²)	Space CFM/ft ²
Zone 1							
2-MASTER BATH	1	5.5	Jul 1500	257	3.7	282.0	0.91
2-MASTER BEDROOM	1	11.5	Nov 1400	534	3.9	394.0	1.36
2-MASTER CLOSET 1	1	3.5	Aug 1500	164	2.2	258.0	0.63
2-MASTER CLOSET 2	1	1.7	Jul 1500	79	1.1	146.0	0.54
2-MASTER SITTING	1	5.0	Jun 1600	233	2.0	187.0	1.25
2-SAUNA&HALL	1	4.3	Jul 1400	198	0.6	124.0	1.59

Air System Design Load Summary for AHU-4

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	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1600 COOLING OA DB / WB 90.7 °F / 76.9 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 46.0 °F / 38.6 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	240 ft²	3763	-	240 ft²	-	-
Wall Transmission	958 ft²	2921	-	958 ft²	3290	-
Roof Transmission	1391 ft²	3950	-	1391 ft²	1480	-
Window Transmission	240 ft²	3659	-	240 ft²	6336	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	1391 W	4746	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	1800 W	6142	-	0	0	-
People	2	560	540	0	0	0
Infiltration	-	1372	2495	-	2403	0
Miscellaneous	-	1000	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	28112	3035	-	13508	0
Zone Conditioning	-	27457	3035	-	13367	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	0%	0	-	0	0	-
Plenum Lighting Load	0%	0	-	0	0	-
Return Fan Load	1465 CFM	0	-	1465 CFM	0	-
Ventilation Load	30 CFM	473	923	30 CFM	766	0
Supply Fan Load	1465 CFM	0	-	1465 CFM	0	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	27930	3958	-	14133	0
Central Cooling Coil	-	27930	3959	-	0	0
Central Heating Coil	-	0	-	-	14133	-
>> Total Conditioning	-	27930	3959	-	14133	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

System Psychrometrics for AHU-4

Project Name: 6300 SW 98ST PINECREST (MARK REARDON)
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July DESIGN COOLING DAY, 1600

TABLE 1: SYSTEM DATA

Component	Location	Dry-Bulb Temp (°F)	Specific Humidity (lb/lb)	Airflow (CFM)	CO2 Level (ppm)	Sensible Heat (BTU/hr)	Latent Heat (BTU/hr)
Ventilation Air	Inlet	90.7	0.01678	30	400	473	923
Vent - Return Mixing	Outlet	76.4	0.01043	1465	780	-	-
Central Cooling Coil	Outlet	58.7	0.00986	1465	780	27930	3959
Central Heating Coil	Outlet	58.7	0.00986	1465	780	0	-
Supply Fan	Outlet	58.7	0.00986	1465	780	0	-
Cold Supply Duct	Outlet	58.7	0.00986	1465	780	-	-
Zone Air	-	76.1	0.01030	1465	788	27457	3035
Return Plenum	Outlet	76.1	0.01030	1465	788	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 1.079 BTU/(hr-CFM-F)

Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4744.4 BTU/(hr-CFM)

Site Altitude = 13.0 ft

TABLE 2: ZONE DATA

Zone Name	Zone Sensible Load (BTU/hr)	T-stat Mode	Zone Cond (BTU/hr)	Zone Temp (°F)	Zone Airflow (CFM)	CO2 Level (ppm)	Terminal Heating Coil (BTU/hr)	Zone Heating Unit (BTU/hr)
Zone 1	28112	Cooling	27457	76.1	1465	788	0	0

System Psychrometrics for AHU-4

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WINTER DESIGN HEATING

TABLE 1: SYSTEM DATA

Component	Location	Dry-Bulb Temp (°F)	Specific Humidity (lb/lb)	Airflow (CFM)	CO2 Level (ppm)	Sensible Heat (BTU/hr)	Latent Heat (BTU/hr)
Ventilation Air	Inlet	46.0	0.00325	30	400	-766	0
Vent - Return Mixing	Outlet	69.2	0.00325	1465	792	-	-
Central Cooling Coil	Outlet	69.2	0.00325	1465	792	0	0
Central Heating Coil	Outlet	78.1	0.00325	1465	792	14133	-
Supply Fan	Outlet	78.1	0.00325	1465	792	0	-
Cold Supply Duct	Outlet	78.1	0.00325	1465	792	-	-
Zone Air	-	69.7	0.00325	1465	800	-13367	0
Return Plenum	Outlet	69.7	0.00325	1465	800	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 1.079 BTU/(hr-CFM-F)

Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4744.4 BTU/(hr-CFM)

Site Altitude = 13.0 ft

TABLE 2: ZONE DATA

Zone Name	Zone Sensible Load (BTU/hr)	T-stat Mode	Zone Cond (BTU/hr)	Zone Temp (°F)	Zone Airflow (CFM)	CO2 Level (ppm)	Terminal Heating Coil (BTU/hr)	Zone Heating Unit (BTU/hr)
Zone 1	-13508	Heating	-13367	69.7	1465	800	0	0

Psychrometric Analysis for AHU-4

Project Name: 6300 SW 98ST PINECREST (MARK REARDON)
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12/30/2025
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Location: Miami IAP, Florida

Altitude: 13.0 ft.

Data for: July DESIGN COOLING DAY, 1600

