

Air System Sizing Summary for AHU-5

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

12/30/2025
10:49AM

Air System Information

Air System Name **AHU-5**
Equipment Class **SPLT AHU**
Air System Type **SZCAV**

Number of zones **1**
Floor Area **570.0** 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 **1.8** Tons
Total coil load **21.7** MBH
Sensible coil load **19.2** MBH
Coil CFM at Jul 1400 **927** CFM
Max block CFM **927** CFM
Sum of peak zone CFM **927** CFM
Sensible heat ratio **0.882**
ft²/Ton **314.8**
BTU/(hr-ft²) **38.1**
Water flow @ 10.0 °F rise **N/A**

Load occurs at **Jul 1400**
OA DB / WB **90.7 / 76.9** °F
Entering DB / WB **76.8 / 64.3** °F
Leaving DB / WB **57.6 / 56.5** °F
Coil ADP **55.5** °F
Bypass Factor **0.100**
Resulting RH **51** %
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 **11.9** MBH
Coil CFM at Des Htg **927** CFM
Max coil CFM **927** CFM
Water flow @ 20.0 °F drop **N/A**

Load occurs at **Des Htg**
BTU/(hr-ft²) **20.9**
Ent. DB / Lvg DB **68.7 / 80.6** °F

Supply Fan Sizing Data

Actual max CFM **927** CFM
Standard CFM **927** CFM
Actual max CFM/ft² **1.63** 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 **0.05** CFM/ft²

CFM/person **15.00** CFM/person

Zone Sizing Summary for AHU-5

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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	19.7	927	927	Jul 1500	11.2	570.0	1.63

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							
0-GUEST BATH	1	1.9	Aug 1700	87	1.2	53.0	1.64
0-GUEST BED	1	4.7	Jun 1700	216	2.7	203.0	1.06
0-GUEST LIVING	1	13.5	Jul 1400	625	7.3	314.0	1.99

Air System Design Load Summary for AHU-5

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	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1400 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	225 ft²	5286	-	225 ft²	-	-
Wall Transmission	1023 ft²	2434	-	1023 ft²	3513	-
Roof Transmission	570 ft²	1815	-	570 ft²	606	-
Window Transmission	225 ft²	3363	-	225 ft²	5940	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	313 ft²	0	-	313 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	570 W	1945	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	800 W	2730	-	0	0	-
People	2	460	240	0	0	0
Infiltration	-	674	1323	-	1181	0
Miscellaneous	-	800	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	19507	1563	-	11241	0
Zone Conditioning	-	18705	1563	-	11142	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	927 CFM	0	-	927 CFM	0	-
Ventilation Load	30 CFM	464	995	30 CFM	761	0
Supply Fan Load	927 CFM	0	-	927 CFM	0	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	19169	2558	-	11902	0
Central Cooling Coil	-	19169	2561	-	0	0
Central Heating Coil	-	0	-	-	11902	-
>> Total Conditioning	-	19169	2561	-	11902	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-5

Project Name: 6300 SW 98ST PINECREST (MARK REARDON)
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July DESIGN COOLING DAY, 1400

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	464	995
Vent - Return Mixing	Outlet	76.8	0.01002	927	780	-	-
Central Cooling Coil	Outlet	57.6	0.00943	927	780	19169	2561
Central Heating Coil	Outlet	57.6	0.00943	927	780	0	-
Supply Fan	Outlet	57.6	0.00943	927	780	0	-
Cold Supply Duct	Outlet	57.6	0.00943	927	780	-	-
Zone Air	-	76.3	0.00979	927	793	18705	1563
Return Plenum	Outlet	76.3	0.00979	927	793	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	19507	Cooling	18705	76.3	927	793	0	0

System Psychrometrics for AHU-5

Project Name: 6300 SW 98ST PINECREST (MARK REARDON)
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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	-761	0
Vent - Return Mixing	Outlet	68.7	0.00325	927	698	-	-
Central Cooling Coil	Outlet	68.7	0.00325	927	698	0	0
Central Heating Coil	Outlet	80.6	0.00325	927	698	11902	-
Supply Fan	Outlet	80.6	0.00325	927	698	0	-
Cold Supply Duct	Outlet	80.6	0.00325	927	698	-	-
Zone Air	-	69.5	0.00325	927	707	-11142	0
Return Plenum	Outlet	69.5	0.00325	927	707	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	-11241	Heating	-11142	69.5	927	707	0	0

Psychrometric Analysis for AHU-5

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, 1400

