

Air System Sizing Summary for AHU-2

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

12/30/2025
10:49AM

Air System Information

Air System Name **AHU-2**
Equipment Class **SPLT AHU**
Air System Type **SZCAV**

Number of zones **1**
Floor Area **2244.0** 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 **4.6** Tons
Total coil load **55.4** MBH
Sensible coil load **45.6** MBH
Coil CFM at Oct 1400 **2400** CFM
Max block CFM **2400** CFM
Sum of peak zone CFM **2400** CFM
Sensible heat ratio **0.823**
ft²/Ton **486.2**
BTU/(hr-ft²) **24.7**
Water flow @ 10.0 °F rise **N/A**

Load occurs at **Oct 1400**
OA DB / WB **86.7 / 74.9** °F
Entering DB / WB **76.4 / 65.4** °F
Leaving DB / WB **58.9 / 57.8** °F
Coil ADP **56.9** °F
Bypass Factor **0.100**
Resulting RH **55** %
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 **22.3** MBH
Coil CFM at Des Htg **2400** CFM
Max coil CFM **2400** CFM
Water flow @ 20.0 °F drop **N/A**

Load occurs at **Des Htg**
BTU/(hr-ft²) **12.6**
Ent. DB / Lvg DB **68.8 / 79.7** °F

Supply Fan Sizing Data

Actual max CFM **2400** CFM
Standard CFM **2399** CFM
Actual max CFM/ft² **1.07** 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 **75** CFM
CFM/ft² **0.03** 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	46.9	2400	2400	Oct 1400	26.6	2244.0	1.07

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							
1-BATH 4	1	0.9	Jun 1700	44	0.8	85.0	0.52
1-CABANA BATH	1	0.3	Jul 1500	12	0.1	66.0	0.18
1-CORRIDOR	1	1.3	Jul 1500	61	0.7	341.0	0.18
1-EXCERCISE OR OFFICE	1	9.0	Aug 1400	416	4.3	193.0	2.16
1-FOYER	1	2.7	Jun 1700	125	2.0	163.0	0.77
1-GUEST ROOM	1	5.0	Jun 1700	231	3.3	224.0	1.03
1-GUEST ROOM CLOSET	1	0.2	Jul 1500	8	0.1	44.0	0.18
1-SITTING ROOM	1	15.8	Nov 1400	732	6.7	536.0	1.37
1-STUDY	1	4.1	Jun 1700	188	2.6	244.0	0.77
1-THEATRE-PLAYR-BGYM	1	12.6	Oct 1400	583	5.9	348.0	1.67

Air System Design Load Summary for AHU-2

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	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Oct 1400 COOLING OA DB / WB 86.7 °F / 74.9 °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	628 ft²	18302	-	628 ft²	-	-
Wall Transmission	1392 ft²	3221	-	1392 ft²	4782	-
Roof Transmission	193 ft²	480	-	193 ft²	205	-
Window Transmission	628 ft²	6619	-	628 ft²	16567	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	30 ft²	1042	-	30 ft²	542	-
Floor Transmission	2097 ft²	0	-	2097 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	2092 W	7138	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	1600 W	5459	-	0	0	-
People	5	2700	4150	0	0	0
Infiltration	-	1894	3769	-	4457	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	46855	7919	-	26554	0
Zone Conditioning	-	44732	7919	-	26416	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	2400 CFM	0	-	2400 CFM	0	-
Ventilation Load	75 CFM	853	1878	75 CFM	1902	0
Supply Fan Load	2400 CFM	0	-	2400 CFM	0	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	45585	9796	-	28319	0
Central Cooling Coil	-	45585	9798	-	0	0
Central Heating Coil	-	0	-	-	28319	-
>> Total Conditioning	-	45585	9798	-	28319	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-2

Project Name: 6300 SW 98ST PINECREST (MARK REARDON)
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October 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	86.7	0.01593	75	400	853	1878
Vent - Return Mixing	Outlet	76.4	0.01082	2400	1089	-	-
Central Cooling Coil	Outlet	58.9	0.00995	2400	1089	45585	9798
Central Heating Coil	Outlet	58.9	0.00995	2400	1089	0	-
Supply Fan	Outlet	58.9	0.00995	2400	1089	0	-
Cold Supply Duct	Outlet	58.9	0.00995	2400	1089	-	-
Zone Air	-	76.1	0.01065	2400	1111	44732	7919
Return Plenum	Outlet	76.1	0.01065	2400	1111	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	46855	Cooling	44732	76.1	2400	1111	0	0

System Psychrometrics for AHU-2

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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	75	400	-1902	0
Vent - Return Mixing	Outlet	68.8	0.00325	2400	701	-	-
Central Cooling Coil	Outlet	68.8	0.00325	2400	701	0	0
Central Heating Coil	Outlet	79.7	0.00325	2400	701	28319	-
Supply Fan	Outlet	79.7	0.00325	2400	701	0	-
Cold Supply Duct	Outlet	79.7	0.00325	2400	701	-	-
Zone Air	-	69.5	0.00325	2400	710	-26416	0
Return Plenum	Outlet	69.5	0.00325	2400	710	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	-26554	Heating	-26416	69.5	2400	710	0	0

Psychrometric Analysis for AHU-2

Project Name: 6300 SW 98ST PINECREST (MARK REARDON)
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12/30/2025
10:49AM

Location: Miami IAP, Florida

Altitude: 13.0 ft.

Data for: October DESIGN COOLING DAY, 1400

