

# Air System Sizing Summary for SAMPLE BUILDING AHU-01

Project Name: DB-78 SAMPLE BUILDING  
Prepared by: IDAP

03-01-2018  
04:09PM

## Air System Information

Air System Name .....	<b>SAMPLE BUILDING AHU-01</b>	Number of zones .....	<b>1</b>
Equipment Class .....	<b>CW AHU</b>	Floor Area .....	<b>3516.6</b> ft <sup>2</sup>
Air System Type .....	<b>SZCAV</b>	Location .....	<b>LAHORE, Pakistan</b>

## Sizing Calculation Information

Calculation Months .....	<b>Jan to Dec</b>	Zone CFM Sizing .....	<b>Sum of space airflow rates</b>
Sizing Data .....	<b>Calculated</b>	Space CFM Sizing .....	<b>Individual peak space loads</b>

## Central Cooling Coil Sizing Data

Total coil load .....	<b>19.9</b> Tons	Load occurs at .....	<b>Jul 1500</b>
Total coil load .....	<b>238.3</b> MBH	OA DB / WB .....	<b>107.2 / 73.4</b> °F
Sensible coil load .....	<b>200.2</b> MBH	Entering DB / WB .....	<b>101.4 / 71.5</b> °F
Coil CFM at Jul 1500 .....	<b>4130</b> CFM	Leaving DB / WB .....	<b>55.3 / 52.8</b> °F
Max block CFM .....	<b>4130</b> CFM	Coil ADP .....	<b>50.2</b> °F
Sum of peak zone CFM .....	<b>4130</b> CFM	Bypass Factor .....	<b>0.100</b>
Sensible heat ratio .....	<b>0.840</b>	Resulting RH .....	<b>53</b> %
ft <sup>2</sup> /Ton .....	<b>177.1</b>	Design supply temp. ....	<b>55.4</b> °F
BTU/(hr-ft <sup>2</sup> ) .....	<b>67.8</b>	Zone T-stat Check .....	<b>1 of 1</b> OK
Water flow @ 16.0 °F rise .....	<b>29.77</b> gpm	Max zone temperature deviation .....	<b>0.0</b> °F

## Central Heating Coil Sizing Data

Max coil load .....	<b>134.3</b> MBH	Load occurs at .....	<b>Des Htg</b>
Coil CFM at Des Htg .....	<b>4130</b> CFM	BTU/(hr-ft <sup>2</sup> ) .....	<b>38.2</b>
Max coil CFM .....	<b>4130</b> CFM	Ent. DB / Lvg DB .....	<b>42.7 / 73.5</b> °F
Water flow @ 20.0 °F drop .....	<b>13.45</b> gpm		

## Supply Fan Sizing Data

Actual max CFM .....	<b>4130</b> CFM	Fan motor BHP .....	<b>3.64</b> BHP
Standard CFM .....	<b>4027</b> CFM	Fan motor kW .....	<b>2.89</b> kW
Actual max CFM/ft <sup>2</sup> .....	<b>1.17</b> CFM/ft <sup>2</sup>	Fan static .....	<b>3.22</b> in wg

## Outdoor Ventilation Air Data

Design airflow CFM .....	<b>3461</b> CFM	CFM/person .....	<b>93.55</b> CFM/person
CFM/ft <sup>2</sup> .....	<b>0.98</b> CFM/ft <sup>2</sup>		

## Zone Sizing Summary for SAMPLE BUILDING AHU-01

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### Air System Information

Air System Name ..... **SAMPLE BUILDING AHU-01**  
Equipment Class ..... **CW AHU**  
Air System Type ..... **SZCAV**

Number of zones ..... **1**  
Floor Area ..... **3516.6** ft<sup>2</sup>  
Location ..... **LAHORE, Pakistan**

### Sizing Calculation Information

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

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

### Zone Sizing Data

Zone Name	Maximum Cooling Sensible (MBH)	Design Airflow (CFM)	Minimum Airflow (CFM)	Time of Peak Load	Maximum Heating Load (MBH)	Zone Floor Area (ft <sup>2</sup> )	Zone CFM/ft <sup>2</sup>
Zone 1	56.1	3923	3923	Jul 0800	25.9	3516.6	1.12

### 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 <sup>2</sup> )	Space CFM/ft <sup>2</sup>
<b>Zone 1</b>							
*SB-.01 SAMPLE DROP OFF	1	1.9	Jul 1500	225	0.4	228.2	0.98
*SB-.02 FORM COMP RACK	1	12.9	Aug 1500	764	4.7	495.1	1.54
*SB-.03 FORM COMP RAC(1)	1	11.4	Aug 1500	673	4.7	495.1	1.36
*SB-.06/07 AG SAMP HLD	1	5.6	Jul 0800	403	2.3	409.0	0.98
*SB-.09/10 FOOD SAMP HLD	1	5.7	Jul 0800	424	2.3	430.6	0.98
*SB-.12/13 PH SAMP HLD	1	5.3	Sep 0100	403	2.3	409.0	0.98
*SB-0.04/05 M/F TOILET	1	4.3	Sep 0200	297	2.0	301.4	0.98
*SB-SAMP DK & EQ ST	1	11.5	Jul 0100	736	7.3	748.1	0.98