



Ministerio Público Fiscal de la Ciudad de Buenos Aires
Fiscalía General
Departamento de Infraestructura y Apoyo Operativo

Air System Design Load Summary for Zona 5

Project Name: Av. Cabildo 3067, 4° piso
 Prepared by: SS

02/13/2011
 12:20

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Dec 1600			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 34.0 °C / 23.7 °C			HEATING OA DB / WB -0.6 °C / -3.2 °C		
ZONE LOADS	Details	Sensible (W)	Latent (W)	Details	Sensible (W)	Latent (W)
Window & Skylight Solar Loads	0 m²	0	-	0 m²	-	-
Wall Transmission	0 m²	0	-	0 m²	0	-
Roof Transmission	89 m²	1196	-	89 m²	1105	-
Window Transmission	0 m²	0	-	0 m²	0	-
Skylight Transmission	0 m²	0	-	0 m²	0	-
Door Loads	0 m²	0	-	0 m²	0	-
Floor Transmission	89 m²	0	-	89 m²	0	-
Partitions	115 m²	0	-	115 m²	0	-
Ceiling	0 m²	0	-	0 m²	0	-
Overhead Lighting	1922 W	1799	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	1200 W	1166	-	0	0	-
People	19	1255	1142	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 5%	271	57	5%	55	0
>> Total Zone Loads	-	5686	1199	-	1160	0
Zone Conditioning	-	5160	1199	-	1028	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	454 L/s	0	-	454 L/s	0	-
Ventilation Load	135 L/s	1476	1010	135 L/s	3479	0
Supply Fan Load	545 L/s	10	-	545 L/s	-10	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	5%	284	-	5%	58	-
>> Total System Loads	-	6930	2209	-	4555	0
Central Cooling Coil	-	6930	2210	-	0	0
Central Heating Coil	-	0	-	-	4555	-
>> Total Conditioning	-	6930	2210	-	4555	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

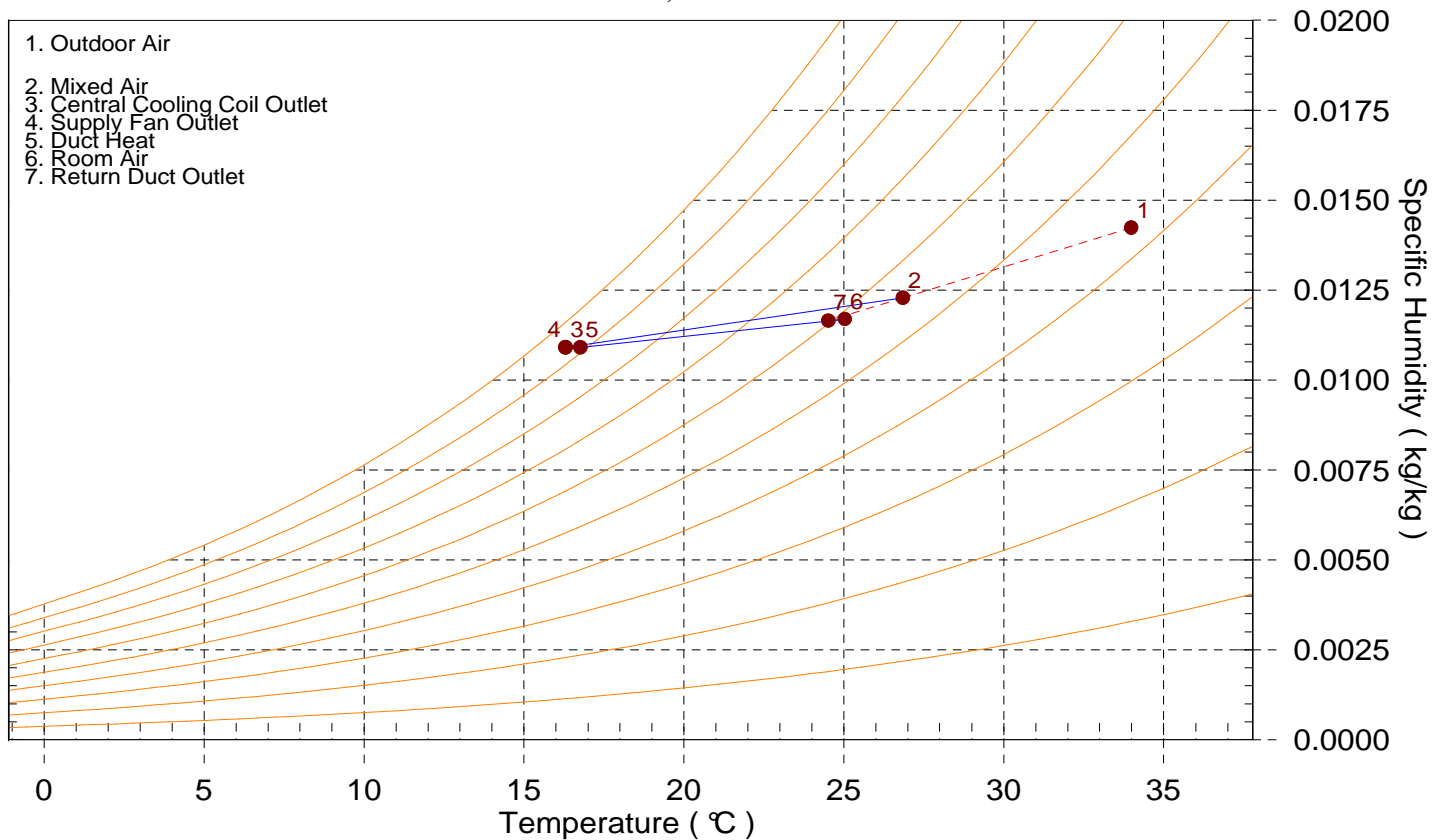


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Psychrometric Analysis for Zona 5

Project Name: Av. Cabildo 3067, 4° piso
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Location: Buenos Aires, Argentina
Altitude: 19.8 m.
Data for: December DESIGN COOLING DAY, 1600





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System Psychrometrics for Zona 5

Project Name: Av. Cabildo 3067, 4° piso
 Prepared by: SS

02/13/2011
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December DESIGN COOLING DAY, 1600

TABLE 1: SYSTEM DATA

Component	Location	Dry-Bulb Temp (°C)	Specific Humidity (kg/kg)	Airflow (L/s)	Sensible Heat (W)	Latent Heat (W)
Ventilation Air	Inlet	34.0	0.01423	135	1476	1010
Vent - Return Mixing	Outlet	26.9	0.01229	545	-	-
Central Cooling Coil	Outlet	16.3	0.01091	545	6930	2210
Central Heating Coil	Outlet	16.3	0.01091	545	0	-
Supply Fan	Outlet	16.3	0.01091	545	10	-
Cold Supply Duct	Outlet	16.8	0.01091	518	284	-
Zone Air	-	25.0	0.01169	427	5160	1199
Zone Direct Exhaust	Outlet	25.0	0.01169	91	-	-
Return Plenum	Outlet	25.0	0.01169	427	0	-
Duct Leakage Air	Outlet	16.3	0.01091	27	-	-
Return Duct	Outlet	24.5	0.01165	454	-	-
Return Fan	Outlet	24.5	0.01165	454	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.207; At site altitude = 1.204 W/(L/s-K)

Air Density x Heat of Vaporization x Conversion Factor: At sea level = 2947.6; At site altitude = 2940.6 W/(L/s)

Site Altitude = 19.8 m

TABLE 2: ZONE DATA

Zone Name	Zone Sensible Load (W)	T-stat Mode	Zone Cond (W)	Zone Temp (°C)	Zone Airflow (L/s)	Terminal Heating Coil (W)	Zone Heating Unit (W)
Zone 5	5686	Cooling	5160	25.0	518	0	0



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WINTER DESIGN HEATING

TABLE 1: SYSTEM DATA

Component	Location	Dry-Bulb Temp (°C)	Specific Humidity (kg/kg)	Airflow (L/s)	Sensible Heat (W)	Latent Heat (W)
Ventilation Air	Inlet	-0.6	0.00182	135	-3479	0
Vent - Return Mixing	Outlet	15.7	0.00182	545	-	-
Central Cooling Coil	Outlet	15.7	0.00182	545	0	0
Central Heating Coil	Outlet	22.6	0.00182	545	4555	-
Supply Fan	Outlet	22.6	0.00182	545	10	-
Cold Supply Duct	Outlet	22.5	0.00182	518	-58	-
Zone Air	-	20.9	0.00182	427	-1028	0
Zone Direct Exhaust	Outlet	20.9	0.00182	91	-	-
Return Plenum	Outlet	20.9	0.00182	427	0	-
Duct Leakage Air	Outlet	22.6	0.00182	27	-	-
Return Duct	Outlet	21.0	0.00182	454	-	-
Return Fan	Outlet	21.0	0.00182	454	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.207; At site altitude = 1.204 W/(L/s-K)

Air Density x Heat of Vaporization x Conversion Factor: At sea level = 2947.6; At site altitude = 2940.6 W/(L/s)

Site Altitude = 19.8 m

TABLE 2: ZONE DATA

Zone Name	Zone Sensible Load (W)	T-stat Mode	Zone Cond (W)	Zone Temp (°C)	Zone Airflow (L/s)	Terminal Heating Coil (W)	Zone Heating Unit (W)
Zone 5	-1160	Heating	-1028	20.9	518	0	0



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Air System Sizing Summary for Zona 5

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 12:20

Air System Information

Air System Name	Zona 5	Number of zones	1
Equipment Class	SPLT AHU	Floor Area	89.0 m²
Air System Type	SZCAV		

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s	Sum of space airflow rates	Calculation Months	Jan to Dec
Space L/s	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	9.1 kW	Load occurs at	Dec 1600
Sensible coil load	6.9 kW	OA DB / WB	34.0 / 23.7 °C
Coil L/s at Dec 1600	545 L/s	Entering DB / WB	26.9 / 20.3 °C
Max block L/s	545 L/s	Leaving DB / WB	16.3 / 15.7 °C
Sum of peak zone L/s	518 L/s	Coil ADP	15.1 °C
Sensible heat ratio	0.758	Bypass Factor	0.100
m ² /kW	9.7	Resulting RH	59 %
W/m ²	102.7	Design supply temp.	14.4 °C
Water flow @ 5.6 K rise	N/A	Zone T-stat Check	1 of 1 OK
		Max zone temperature deviation	0.0 K

Central Heating Coil Sizing Data

Max coil load	4.6 kW	Load occurs at	Des Htg
Coil L/s at Des Htg	545 L/s	W/m ²	51.2
Max coil L/s	545 L/s	Ent. DB / Lvg DB	15.7 / 22.6 °C
Water flow @ 11.1 K drop	N/A		

Supply Fan Sizing Data

Actual max L/s	545 L/s	Fan motor BHP	0.01 BHP
Standard L/s	544 L/s	Fan motor kW	0.01 kW
Actual max L/(s-m ²)	6.13 L/(s-m²)	Fan static	10 Pa

Outdoor Ventilation Air Data

Design airflow L/s	135 L/s	l/s/person	7.08 l/s/person
L/(s-m ²)	1.51 L/(s-m²)		



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Zone Design Load Summary for Zona 5

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Zone 5	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Dec 1900			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 30.3 °C / 22.7 °C			HEATING OA DB / WB -0.6 °C / -3.2 °C		
	OCCUPIED T-STAT 23.9 °C			OCCUPIED T-STAT 21.1 °C		
ZONE LOADS	Details	Sensible (W)	Latent (W)	Details	Sensible (W)	Latent (W)
Window & Skylight Solar Loads	0 m²	0	-	0 m²	-	-
Wall Transmission	0 m²	0	-	0 m²	0	-
Roof Transmission	89 m²	1342	-	89 m²	1105	-
Window Transmission	0 m²	0	-	0 m²	0	-
Skylight Transmission	0 m²	0	-	0 m²	0	-
Door Loads	0 m²	0	-	0 m²	0	-
Floor Transmission	89 m²	0	-	89 m²	0	-
Partitions	115 m²	0	-	115 m²	0	-
Ceiling	0 m²	0	-	0 m²	0	-
Overhead Lighting	1922 W	1822	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	1200 W	1172	-	0	0	-
People	19	1275	1142	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 5%	281	57	5%	55	0
>> Total Zone Loads	-	5891	1199	-	1160	0



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Zone Sizing Summary for Zona 5

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Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Sum of space airflow rates**
 Space L/s **Individual peak space loads**

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

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Air Flow (L/s)	Minimum Air Flow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m²)	Zone L/(s-m²)
Zone 5	5.9	518	518	Dec 1900	1.2	89.0	5.82

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s-m²)
Zone 5							
Zona 5	1	5.9	Dec 1900	518	1.2	89.0	5.82