



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

Air System Design Load Summary for Zona 6

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

02/13/2011
 12:24

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Feb 1600			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 34.5 °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	5 m²	866	-	5 m²	-	-
Wall Transmission	25 m²	615	-	25 m²	827	-
Roof Transmission	45 m²	523	-	45 m²	559	-
Window Transmission	5 m²	204	-	5 m²	505	-
Skylight Transmission	0 m²	0	-	0 m²	0	-
Door Loads	0 m²	0	-	0 m²	0	-
Floor Transmission	45 m²	0	-	45 m²	0	-
Partitions	54 m²	0	-	54 m²	0	-
Ceiling	0 m²	0	-	0 m²	0	-
Overhead Lighting	972 W	910	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	300 W	291	-	0	0	-
People	6	396	360	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 5%	190	18	5%	95	0
>> Total Zone Loads	-	3995	379	-	1985	0
Zone Conditioning	-	3639	379	-	1866	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	300 L/s	0	-	300 L/s	0	-
Ventilation Load	70 L/s	799	615	70 L/s	1796	0
Supply Fan Load	370 L/s	7	-	370 L/s	-7	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	5%	200	-	5%	99	-
>> Total System Loads	-	4645	993	-	3754	0
Central Cooling Coil	-	4645	993	-	0	0
Central Heating Coil	-	0	-	-	3754	-
>> Total Conditioning	-	4645	993	-	3754	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

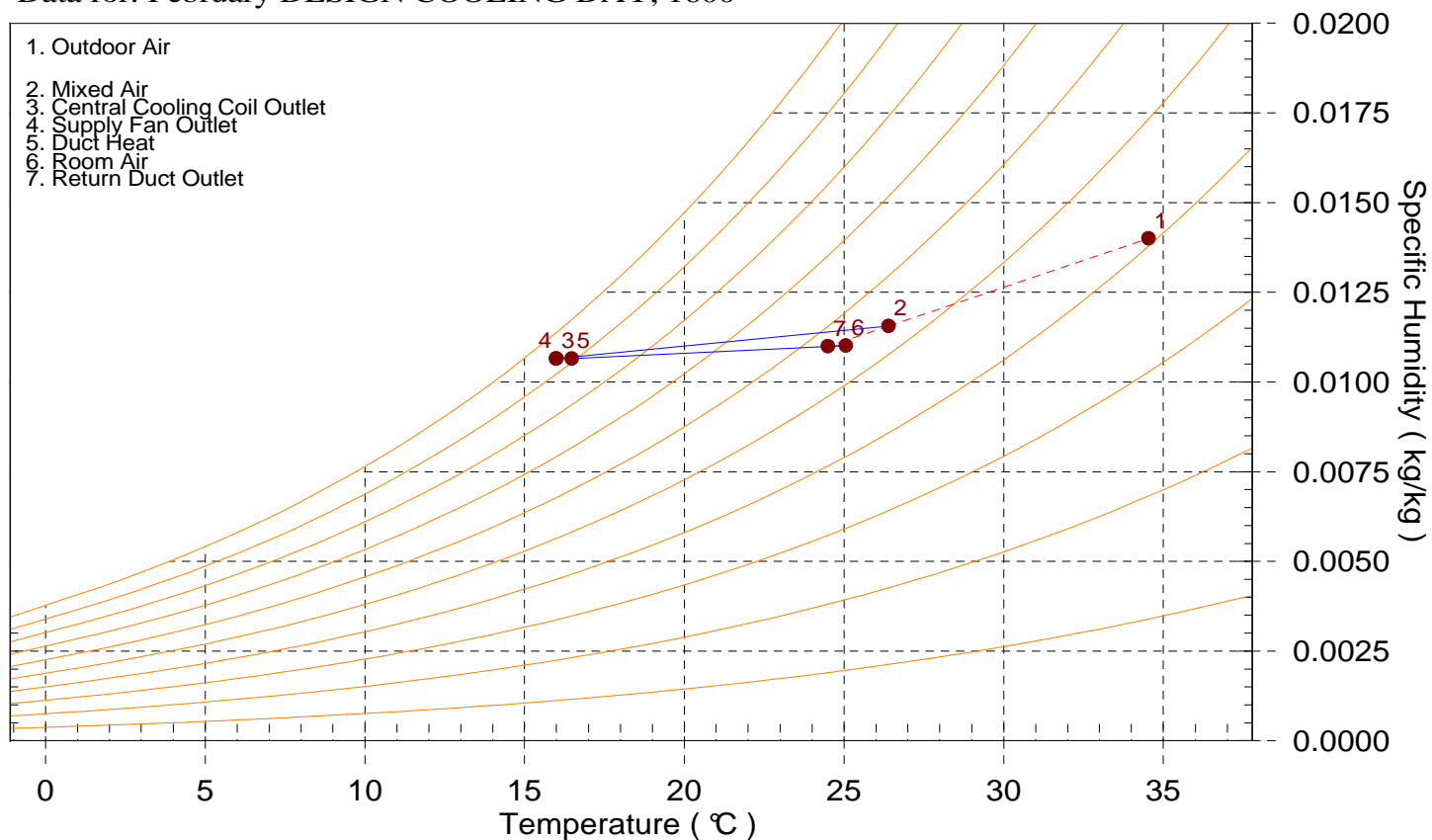


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Psychrometric Analysis for Zona 6

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Location: Buenos Aires, Argentina
Altitude: 19.8 m.
Data for: February DESIGN COOLING DAY, 1600





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System Psychrometrics for Zona 6

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

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February 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	34.5	0.01400	70	799	615
Vent - Return Mixing	Outlet	26.4	0.01156	370	-	-
Central Cooling Coil	Outlet	16.0	0.01065	370	4645	993
Central Heating Coil	Outlet	16.0	0.01065	370	0	-
Supply Fan	Outlet	16.0	0.01065	370	7	-
Cold Supply Duct	Outlet	16.5	0.01065	352	200	-
Zone Air	-	25.1	0.01102	282	3639	379
Zone Direct Exhaust	Outlet	25.1	0.01102	70	-	-
Return Plenum	Outlet	25.1	0.01102	282	0	-
Duct Leakage Air	Outlet	16.0	0.01065	19	-	-
Return Duct	Outlet	24.5	0.01099	300	-	-
Return Fan	Outlet	24.5	0.01099	300	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 6	3995	Cooling	3639	25.1	352	0	0



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System Psychrometrics for Zona 6

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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	70	-1796	0
Vent - Return Mixing	Outlet	17.0	0.00182	370	-	-
Central Cooling Coil	Outlet	17.0	0.00182	370	0	0
Central Heating Coil	Outlet	25.4	0.00182	370	3754	-
Supply Fan	Outlet	25.4	0.00182	370	7	-
Cold Supply Duct	Outlet	25.2	0.00182	352	-99	-
Zone Air	-	20.7	0.00182	282	-1866	0
Zone Direct Exhaust	Outlet	20.7	0.00182	70	-	-
Return Plenum	Outlet	20.7	0.00182	282	0	-
Duct Leakage Air	Outlet	25.4	0.00182	19	-	-
Return Duct	Outlet	21.0	0.00182	300	-	-
Return Fan	Outlet	21.0	0.00182	300	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 6	-1985	Heating	-1866	20.7	352	0	0



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Air System Sizing Summary for Zona 6

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Air System Information

Air System Name	Zona 6	Number of zones	1
Equipment Class	SPLT AHU	Floor Area	45.0 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	5.6 kW	Load occurs at	Feb 1600
Sensible coil load	4.6 kW	OA DB / WB	34.5 / 23.7 °C
Coil L/s at Feb 1600	370 L/s	Entering DB / WB	26.4 / 19.6 °C
Max block L/s	370 L/s	Leaving DB / WB	16.0 / 15.4 °C
Sum of peak zone L/s	352 L/s	Coil ADP	14.8 °C
Sensible heat ratio	0.824	Bypass Factor	0.100
m ² /kW	8.0	Resulting RH	55 %
W/m ²	125.3	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	3.8 kW	Load occurs at	Des Htg
Coil L/s at Des Htg	370 L/s	W/m ²	83.4
Max coil L/s	370 L/s	Ent. DB / Lvg DB	17.0 / 25.4 °C
Water flow @ 11.1 K drop	N/A		

Supply Fan Sizing Data

Actual max L/s	370 L/s	Fan motor BHP	0.01 BHP
Standard L/s	370 L/s	Fan motor kW	0.01 kW
Actual max L/(s-m ²)	8.23 L/(s-m²)	Fan static	10 Pa

Outdoor Ventilation Air Data

Design airflow L/s	70 L/s	l/s/person	11.67 l/s/person
L/(s-m ²)	1.56 L/(s-m²)		



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Zone Design Load Summary for Zona 6

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Zone 6	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Feb 1700			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 33.7 °C / 23.5 °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	5 m²	790	-	5 m²	-	-
Wall Transmission	25 m²	653	-	25 m²	827	-
Roof Transmission	45 m²	572	-	45 m²	559	-
Window Transmission	5 m²	194	-	5 m²	505	-
Skylight Transmission	0 m²	0	-	0 m²	0	-
Door Loads	0 m²	0	-	0 m²	0	-
Floor Transmission	45 m²	0	-	45 m²	0	-
Partitions	54 m²	0	-	54 m²	0	-
Ceiling	0 m²	0	-	0 m²	0	-
Overhead Lighting	972 W	914	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	300 W	292	-	0	0	-
People	6	399	360	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 5%	191	18	5%	95	0
>> Total Zone Loads	-	4003	379	-	1985	0



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Zone Sizing Summary for Zona 6

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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 6	4.0	352	352	Feb 1700	2.0	45.0	7.82

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 6							
Zona 6	1	4.0	Feb 1700	352	2.0	45.0	7.82