



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

Air System Design Load Summary for Zona 8

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

02/13/2011
 12:37

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Dec 1700			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 33.1 °C / 23.5 °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	15 m²	416	-	15 m²	497	-
Roof Transmission	69 m²	1001	-	69 m²	857	-
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	69 m²	0	-	69 m²	0	-
Partitions	104 m²	0	-	104 m²	0	-
Ceiling	0 m²	0	-	0 m²	0	-
Overhead Lighting	1490 W	1401	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	3600 W	3503	-	0	0	-
People	12	797	721	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 5%	356	36	5%	68	0
>> Total Zone Loads	-	7474	757	-	1421	0
Zone Conditioning	-	7000	757	-	1556	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	644 L/s	0	-	644 L/s	0	-
Ventilation Load	85 L/s	844	817	85 L/s	2229	0
Supply Fan Load	700 L/s	13	-	700 L/s	-13	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	5%	374	-	5%	71	-
>> Total System Loads	-	8230	1574	-	3844	0
Central Cooling Coil	-	8230	1575	-	0	0
Central Heating Coil	-	0	-	-	3844	-
>> Total Conditioning	-	8230	1575	-	3844	0
Key:	Positive values are cig loads Negative values are htg loads			Positive values are htg loads Negative values are cig loads		

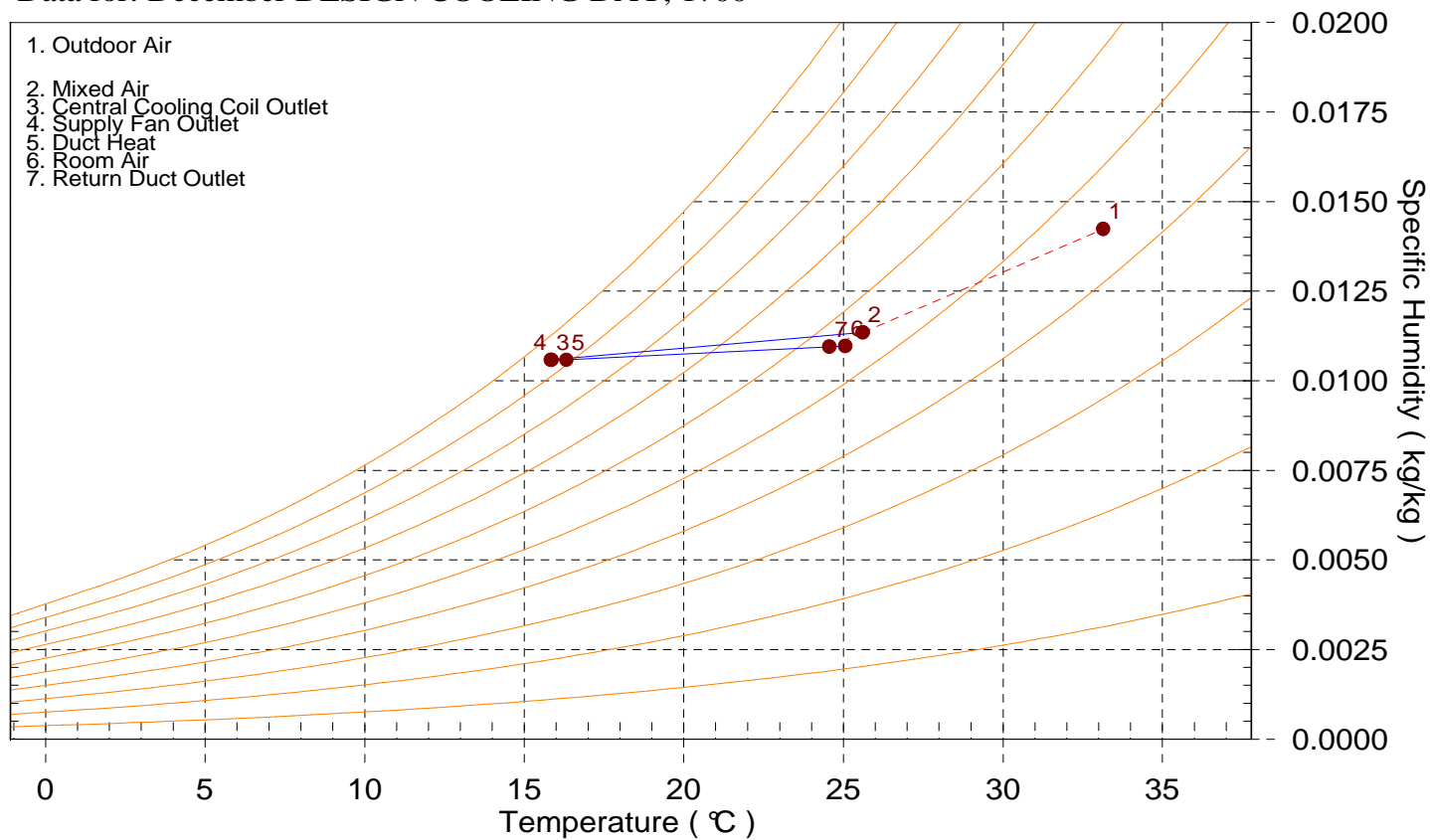


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Psychrometric Analysis for Zona 8

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, 1700





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System Psychrometrics for Zona 8

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

02/13/2011
 12:37

December DESIGN COOLING DAY, 1700

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	33.1	0.01423	85	844	817
Vent - Return Mixing	Outlet	25.6	0.01135	700	-	-
Central Cooling Coil	Outlet	15.8	0.01058	700	8230	1575
Central Heating Coil	Outlet	15.8	0.01058	700	0	-
Supply Fan	Outlet	15.9	0.01058	700	13	-
Cold Supply Duct	Outlet	16.3	0.01058	665	374	-
Zone Air	-	25.1	0.01097	609	7000	757
Zone Direct Exhaust	Outlet	25.1	0.01097	56	-	-
Return Plenum	Outlet	25.1	0.01097	609	0	-
Duct Leakage Air	Outlet	15.9	0.01058	35	-	-
Return Duct	Outlet	24.6	0.01095	644	-	-
Return Fan	Outlet	24.6	0.01095	644	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 8	7474	Cooling	7000	25.1	665	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	85	-2229	0
Vent - Return Mixing	Outlet	18.7	0.00182	700	-	-
Central Cooling Coil	Outlet	18.7	0.00182	700	0	0
Central Heating Coil	Outlet	23.2	0.00182	700	3844	-
Supply Fan	Outlet	23.2	0.00182	700	13	-
Cold Supply Duct	Outlet	23.1	0.00182	665	-71	-
Zone Air	-	21.2	0.00182	609	-1556	0
Zone Direct Exhaust	Outlet	21.2	0.00182	56	-	-
Return Plenum	Outlet	21.2	0.00182	609	0	-
Duct Leakage Air	Outlet	23.2	0.00182	35	-	-
Return Duct	Outlet	21.3	0.00182	644	-	-
Return Fan	Outlet	21.3	0.00182	644	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 8	-1421	Deadband	-1556	21.2	665	0	0



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Air System Sizing Summary for Zona 8

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Air System Information

Air System Name	Zona 8	Number of zones	1
Equipment Class	SPLT AHU	Floor Area	69.0 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	9.8 kW	Load occurs at	Dec 1700
Sensible coil load	8.2 kW	OA DB / WB	33.1 / 23.5 °C
Coil L/s at Dec 1700	700 L/s	Entering DB / WB	25.6 / 19.2 °C
Max block L/s	700 L/s	Leaving DB / WB	15.8 / 15.2 °C
Sum of peak zone L/s	665 L/s	Coil ADP	14.8 °C
Sensible heat ratio	0.839	Bypass Factor	0.100
m²/kW	7.0	Resulting RH	55 %
W/m²	142.1	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	700 L/s	W/m²	55.7
Max coil L/s	700 L/s	Ent. DB / Lvg DB	18.7 / 23.2 °C
Water flow @ 11.1 K drop	N/A		

Supply Fan Sizing Data

Actual max L/s	700 L/s	Fan motor BHP	0.02 BHP
Standard L/s	698 L/s	Fan motor kW	0.01 kW
Actual max L/(s-m²)	10.14 L/(s-m²)	Fan static	10 Pa

Outdoor Ventilation Air Data

Design airflow L/s	85 L/s	l/s/person	7.08 l/s/person
L/(s-m²)	1.23 L/(s-m²)		



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Zone Design Load Summary for Zona 8

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Zone 8	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jan 1900 COOLING OA DB / WB 30.8 °C / 22.7 °C			HEATING DATA AT DES HTG 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	15 m²	431	-	15 m²	497	-
Roof Transmission	69 m²	1035	-	69 m²	857	-
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	69 m²	0	-	69 m²	0	-
Partitions	104 m²	0	-	104 m²	0	-
Ceiling	0 m²	0	-	0 m²	0	-
Overhead Lighting	1490 W	1412	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	3600 W	3516	-	0	0	-
People	12	805	721	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 5%	360	36	5%	68	0
>> Total Zone Loads	-	7560	757	-	1421	0



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Zone Sizing Summary for Zona 8

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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 (m ²)	Zone L/(s-m ²)
Zone 8	7.6	665	665	Jan 1900	1.4	69.0	9.63

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m ²)	Space L/(s-m ²)
Zone 8							
Zona 8	1	7.6	Jan 1900	665	1.4	69.0	9.63