



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

Air System Design Load Summary for Zona 11

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

02/13/2011
 12:46

ZONE LOADS	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		
	Details	Sensible (W)	Latent (W)	Details	Sensible (W)	Latent (W)
Window & Skylight Solar Loads	8 m²	1464	-	8 m²	-	-
Wall Transmission	27 m²	567	-	27 m²	909	-
Roof Transmission	25 m²	363	-	25 m²	310	-
Window Transmission	8 m²	271	-	8 m²	757	-
Skylight Transmission	0 m²	0	-	0 m²	0	-
Door Loads	0 m²	0	-	0 m²	0	-
Floor Transmission	25 m²	0	-	25 m²	0	-
Partitions	15 m²	0	-	15 m²	0	-
Ceiling	0 m²	0	-	0 m²	0	-
Overhead Lighting	540 W	508	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	200 W	195	-	0	0	-
People	5	332	300	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 5%	185	15	5%	99	0
>> Total Zone Loads	-	3883	315	-	2075	0
Zone Conditioning	-	3693	315	-	2082	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	361 L/s	0	-	361 L/s	0	-
Ventilation Load	35 L/s	367	369	35 L/s	928	0
Supply Fan Load	361 L/s	7	-	361 L/s	-7	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	5%	194	-	5%	104	-
>> Total System Loads	-	4261	684	-	3107	0
Central Cooling Coil	-	4261	685	-	0	0
Central Heating Coil	-	0	-	-	3107	-
>> Total Conditioning	-	4261	685	-	3107	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

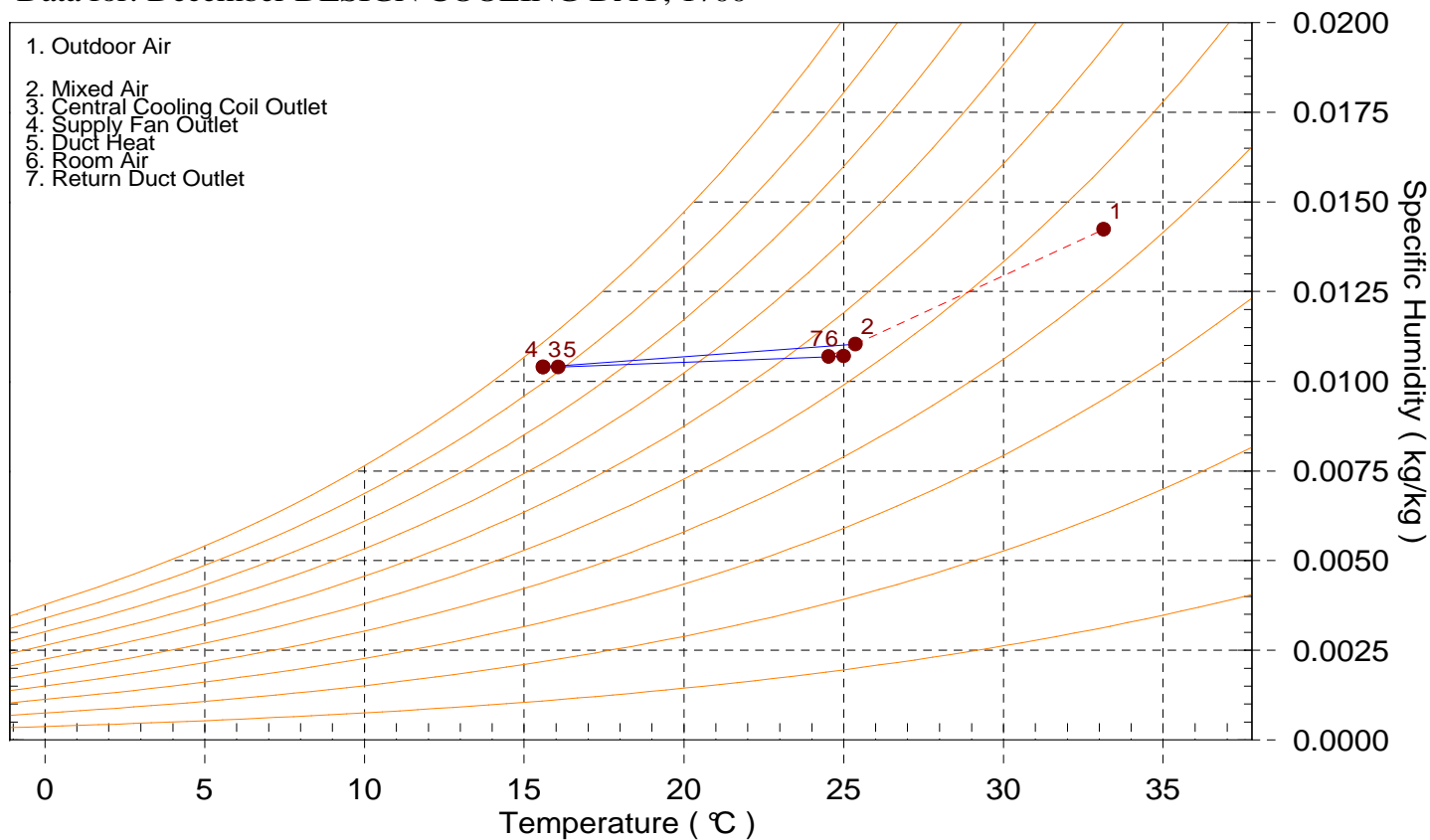


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Psychrometric Analysis for Zona 11

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

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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 11

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

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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	35	367	369
Vent - Return Mixing	Outlet	25.4	0.01104	361	-	-
Central Cooling Coil	Outlet	15.6	0.01039	361	4261	685
Central Heating Coil	Outlet	15.6	0.01039	361	0	-
Supply Fan	Outlet	15.6	0.01039	361	7	-
Cold Supply Duct	Outlet	16.1	0.01039	343	194	-
Zone Air	-	25.0	0.01070	343	3693	315
Return Plenum	Outlet	25.0	0.01070	343	0	-
Duct Leakage Air	Outlet	15.6	0.01039	18	-	-
Return Duct	Outlet	24.5	0.01069	361	-	-
Return Fan	Outlet	24.5	0.01069	361	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 11	3883	Cooling	3693	25.0	343	0	0



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System Psychrometrics for Zona 11

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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	35	-928	0
Vent - Return Mixing	Outlet	19.1	0.00182	361	-	-
Central Cooling Coil	Outlet	19.1	0.00182	361	0	0
Central Heating Coil	Outlet	26.2	0.00182	361	3107	-
Supply Fan	Outlet	26.2	0.00182	361	7	-
Cold Supply Duct	Outlet	26.0	0.00182	343	-104	-
Zone Air	-	21.0	0.00182	343	-2082	0
Return Plenum	Outlet	21.0	0.00182	343	0	-
Duct Leakage Air	Outlet	26.2	0.00182	18	-	-
Return Duct	Outlet	21.2	0.00182	361	-	-
Return Fan	Outlet	21.2	0.00182	361	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 11	-2075	Heating	-2082	21.0	343	0	0



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Air System Sizing Summary for Zona 11

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Air System Information

Air System Name	Zona 11	Number of zones	1
Equipment Class	SPLT AHU	Floor Area	25.0 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	4.9 kW	Load occurs at	Dec 1700
Sensible coil load	4.3 kW	OA DB / WB	33.1 / 23.5 °C
Coil L/s at Dec 1700	361 L/s	Entering DB / WB	25.4 / 18.9 °C
Max block L/s	361 L/s	Leaving DB / WB	15.6 / 15.0 °C
Sum of peak zone L/s	343 L/s	Coil ADP	14.5 °C
Sensible heat ratio	0.862	Bypass Factor	0.100
m ² /kW	5.1	Resulting RH	54 %
W/m ²	197.8	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	3.1 kW	Load occurs at	Des Htg
Coil L/s at Des Htg	361 L/s	W/m ²	124.3
Max coil L/s	361 L/s	Ent. DB / Lvg DB	19.1 / 26.2 °C
Water flow @ 11.1 K drop	N/A		

Supply Fan Sizing Data

Actual max L/s	361 L/s	Fan motor BHP	0.01 BHP
Standard L/s	361 L/s	Fan motor kW	0.01 kW
Actual max L/(s-m ²)	14.46 L/(s-m²)	Fan static	10 Pa

Outdoor Ventilation Air Data

Design airflow L/s	35 L/s	l/s/person	7.08 l/s/person
L/(s-m ²)	1.42 L/(s-m²)		



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Zone Design Load Summary for Zona 11

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Zone 11	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jan 1700 COOLING OA DB / WB 33.7 °C / 23.5 °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	8 m²	1453	-	8 m²	-	-
Wall Transmission	27 m²	585	-	27 m²	909	-
Roof Transmission	25 m²	357	-	25 m²	310	-
Window Transmission	8 m²	290	-	8 m²	757	-
Skylight Transmission	0 m²	0	-	0 m²	0	-
Door Loads	0 m²	0	-	0 m²	0	-
Floor Transmission	25 m²	0	-	25 m²	0	-
Partitions	15 m²	0	-	15 m²	0	-
Ceiling	0 m²	0	-	0 m²	0	-
Overhead Lighting	540 W	508	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	200 W	195	-	0	0	-
People	5	332	300	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 5%	186	15	5%	99	0
>> Total Zone Loads	-	3906	315	-	2075	0



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Zone Sizing Summary for Zona 11

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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 11	3.9	343	343	Jan 1700	2.1	25.0	13.73

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 11							
Zona 11	1	3.9	Jan 1700	343	2.1	25.0	13.73