



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

Air System Design Load Summary for Zona 3

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

02/13/2011
11:37

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Feb 1500 COOLING OA DB / WB 34.9 °C / 23.8 °C			HEATING DATA AT DES HTG 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	10 m²	1166	-	10 m²	-	-
Wall Transmission	25 m²	485	-	25 m²	819	-
Roof Transmission	18 m²	183	-	18 m²	223	-
Window Transmission	10 m²	413	-	10 m²	1010	-
Skylight Transmission	0 m²	0	-	0 m²	0	-
Door Loads	0 m²	0	-	0 m²	0	-
Floor Transmission	17 m²	0	-	17 m²	0	-
Partitions	18 m²	0	-	18 m²	0	-
Ceiling	0 m²	0	-	0 m²	0	-
Overhead Lighting	367 W	342	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	800 W	775	-	0	0	-
People	6	394	360	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 5%	188	18	5%	103	0
>> Total Zone Loads	-	3946	379	-	2154	0
Zone Conditioning	-	3763	379	-	2109	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	362 L/s	0	-	362 L/s	0	-
Ventilation Load	42 L/s	526	406	42 L/s	1102	0
Supply Fan Load	369 L/s	7	-	369 L/s	-7	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	5%	197	-	5%	108	-
>> Total System Loads	-	4494	785	-	3312	0
Central Cooling Coil	-	4494	785	-	0	0
Central Heating Coil	-	0	-	-	3312	-
>> Total Conditioning	-	4494	785	-	3312	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		



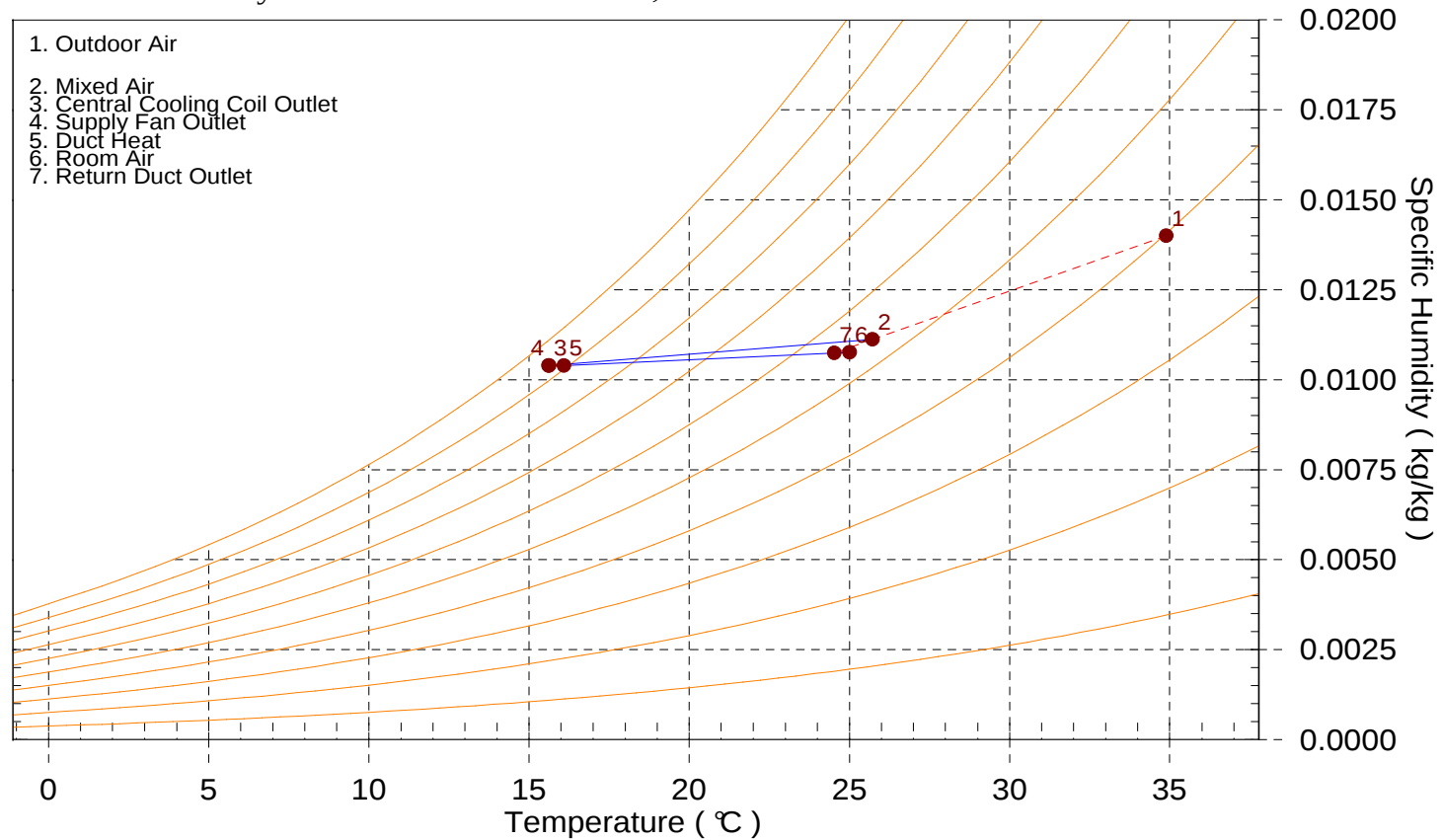
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Psychrometric Analysis for Zona 3

Project Name: Av. Cabildo 3067, 4° piso
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Location: Buenos Aires, Argentina
Altitude: 19.8 m.
Data for: February DESIGN COOLING DAY, 1500





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System Psychrometrics for Zona 3

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

02/13/2011
11:37

February DESIGN COOLING DAY, 1500

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	34.9	0.01400	42	526	406
Vent - Return Mixing	Outlet	25.7	0.01112	369	-	-
Central Cooling Coil	Outlet	15.6	0.01040	369	4494	785
Central Heating Coil	Outlet	15.6	0.01040	369	0	-
Supply Fan	Outlet	15.6	0.01040	369	7	-
Cold Supply Duct	Outlet	16.1	0.01040	351	197	-
Zone Air	-	25.0	0.01076	344	3763	379
Zone Direct Exhaust	Outlet	25.0	0.01076	7	-	-
Return Plenum	Outlet	25.0	0.01076	344	0	-
Duct Leakage Air	Outlet	15.6	0.01040	18	-	-
Return Duct	Outlet	24.5	0.01074	362	-	-
Return Fan	Outlet	24.5	0.01074	362	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 3	3946	Cooling	3763	25.0	351	0	0



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System Psychrometrics for Zona 3

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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	42	-1102	0
Vent - Return Mixing	Outlet	18.6	0.00182	369	-	-
Central Cooling Coil	Outlet	18.6	0.00182	369	0	0
Central Heating Coil	Outlet	26.0	0.00182	369	3312	-
Supply Fan	Outlet	26.0	0.00182	369	7	-
Cold Supply Duct	Outlet	25.8	0.00182	351	-108	-
Zone Air	-	20.8	0.00182	344	-2109	0
Zone Direct Exhaust	Outlet	20.8	0.00182	7	-	-
Return Plenum	Outlet	20.8	0.00182	344	0	-
Duct Leakage Air	Outlet	26.0	0.00182	18	-	-
Return Duct	Outlet	21.0	0.00182	362	-	-
Return Fan	Outlet	21.0	0.00182	362	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 3	-2154	Heating	-2109	20.8	351	0	0



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Air System Sizing Summary for Zona 3

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Air System Information

Air System Name **Zona 3**
Equipment Class **SPLT AHU**
Air System Type **SZCAV**

Number of zones **1**
Floor Area **17.0** m²

Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s **Peak zone sensible load**
Space L/s **Individual peak space loads**

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

Central Cooling Coil Sizing Data

Total coil load **5.3** kW
Sensible coil load **4.5** kW
Coil L/s at Feb 1500 **369** L/s
Max block L/s at Jan 1600 **369** L/s
Sum of peak zone L/s **351** L/s
Sensible heat ratio **0.851**
m²/kW **3.2**
W/m² **310.5**
Water flow @ 5.6 °K rise **N/A**

Load occurs at **Feb 1500**
OA DB / WB **34.9 / 23.8** °C
Entering DB / WB **25.7 / 19.1** °C
Leaving DB / WB **15.6 / 15.0** °C
Coil ADP **14.5** °C
Bypass Factor **0.100**
Resulting RH **54** %
Design supply temp. **14.4** °C
Zone T-stat Check **1 of 1** OK
Max zone temperature deviation **0.0** °K

Central Heating Coil Sizing Data

Max coil load **3.3** kW
Coil L/s at Des Htg **369** L/s
Max coil L/s **369** L/s
Water flow @ 11.1 °K drop **N/A**

Load occurs at **Des Htg**
W/m² **194.8**
Ent. DB / Lvg DB **18.6 / 26.0** °C

Supply Fan Sizing Data

Actual max L/s at Jan 1600 **369** L/s
Standard L/s **368** L/s
Actual max L/(s-m²) **21.70** L/(s-m²)

Fan motor BHP **0.01** BHP
Fan motor kW **0.01** kW
Fan static **10** Pa

Outdoor Ventilation Air Data

Design airflow L/s **42** L/s
L/(s-m²) **2.50** L/(s-m²)

l/s/person **7.08** l/s/person



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Zone Design Load Summary for Zona 3

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Zone 3	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jan 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		
	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	10 m²	1113	-	10 m²	-	-
Wall Transmission	25 m²	523	-	25 m²	819	-
Roof Transmission	18 m²	236	-	18 m²	223	-
Window Transmission	10 m²	408	-	10 m²	1010	-
Skylight Transmission	0 m²	0	-	0 m²	0	-
Door Loads	0 m²	0	-	0 m²	0	-
Floor Transmission	17 m²	0	-	17 m²	0	-
Partitions	18 m²	0	-	18 m²	0	-
Ceiling	0 m²	0	-	0 m²	0	-
Overhead Lighting	367 W	344	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	800 W	777	-	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%	103	0
>> Total Zone Loads	-	3987	379	-	2154	0



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Zone Sizing Summary for Zona 3

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Sizing Calculation Information

Zone and Space Sizing Method:

Zone L/s Peak zone sensible load
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 3	4.0	351	351	Jan 1600	2.2	17.0	20.62

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 3							
Zona 3	2	2.0	Jan 1600	175	1.1	8.5	20.62