



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

Air System Design Load Summary for Zona 10

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

02/13/2011
 12:43

| | DESIGN COOLING | | | DESIGN HEATING | | |
|------------------------------------|--|--------------|------------|--|--------------|------------|
| | COOLING DATA AT Jan 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 | | |
| ZONE LOADS | Details | Sensible (W) | Latent (W) | Details | Sensible (W) | Latent (W) |
| Window & Skylight Solar Loads | 20 m² | 3875 | - | 20 m² | - | - |
| Wall Transmission | 10 m² | 210 | - | 10 m² | 326 | - |
| Roof Transmission | 30 m² | 428 | - | 30 m² | 372 | - |
| Window Transmission | 20 m² | 774 | - | 20 m² | 2019 | - |
| Skylight Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Door Loads | 0 m² | 0 | - | 0 m² | 0 | - |
| Floor Transmission | 30 m² | 0 | - | 30 m² | 0 | - |
| Partitions | 9 m² | 0 | - | 9 m² | 0 | - |
| Ceiling | 0 m² | 0 | - | 0 m² | 0 | - |
| Overhead Lighting | 834 W | 784 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 400 W | 389 | - | 0 | 0 | - |
| People | 5 | 332 | 300 | 0 | 0 | 0 |
| Infiltration | - | 0 | 0 | - | 0 | 0 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 5% / 5% | 340 | 15 | 5% | 136 | 0 |
| >> Total Zone Loads | - | 7133 | 315 | - | 2854 | 0 |
| Zone Conditioning | - | 6814 | 315 | - | 2739 | 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 | 660 L/s | 0 | - | 660 L/s | 0 | - |
| Ventilation Load | 35 L/s | 386 | 358 | 35 L/s | 915 | 0 |
| Supply Fan Load | 660 L/s | 12 | - | 660 L/s | -12 | - |
| Space Fan Coil Fans | - | 0 | - | - | 0 | - |
| Duct Heat Gain / Loss | 5% | 357 | - | 5% | 143 | - |
| >> Total System Loads | - | 7568 | 674 | - | 3785 | 0 |
| Central Cooling Coil | - | 7568 | 674 | - | 0 | 0 |
| Central Heating Coil | - | 0 | - | - | 3785 | - |
| >> Total Conditioning | - | 7568 | 674 | - | 3785 | 0 |
| Key: | Positive values are cig loads Negative values are htg loads | | | Positive values are htg loads Negative values are cig loads | | |

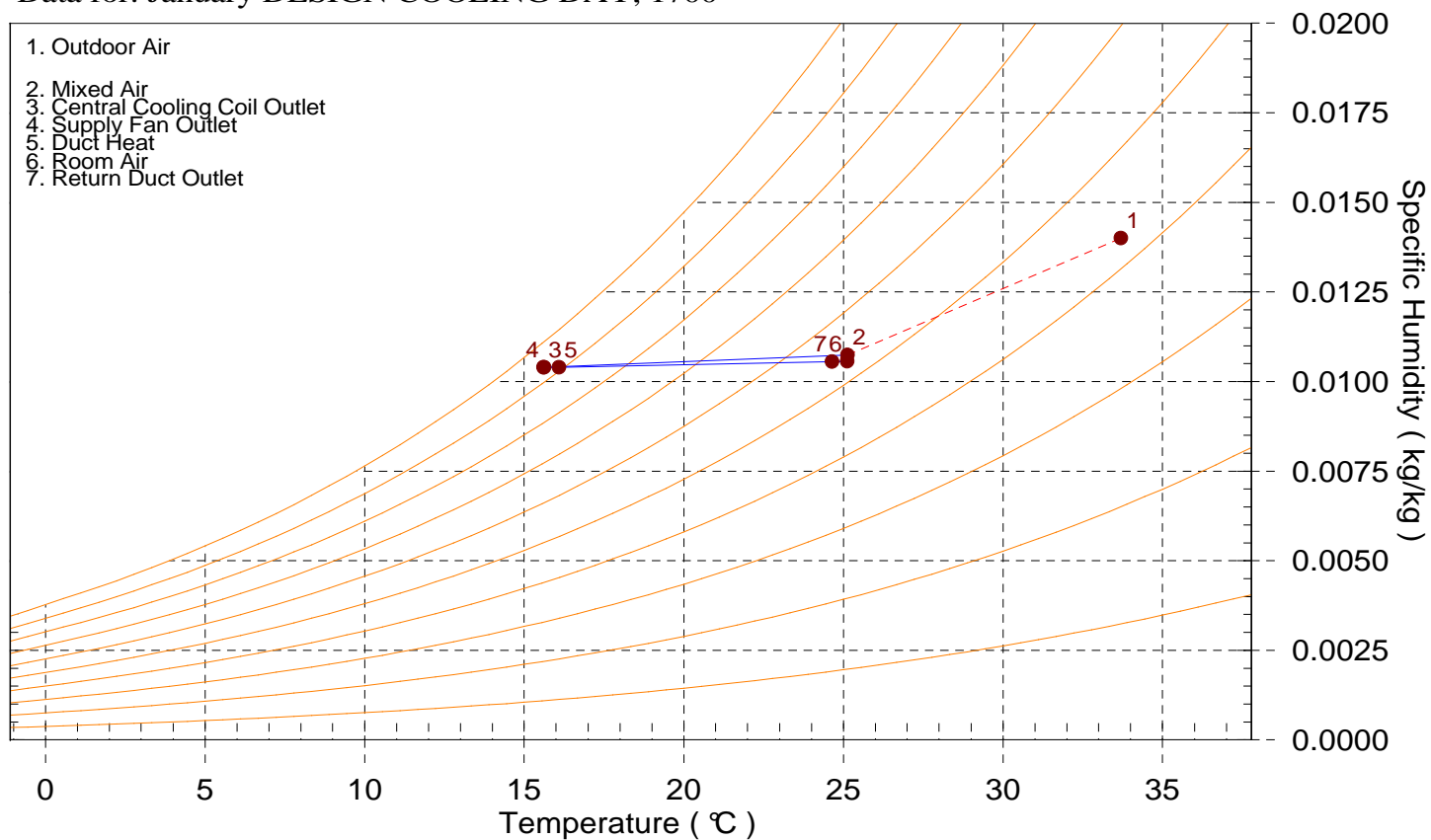


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Psychrometric Analysis for Zona 10

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

02/13/2011
12:43

Location: Buenos Aires, Argentina
Altitude: 19.8 m.
Data for: January DESIGN COOLING DAY, 1700





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System Psychrometrics for Zona 10

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

02/13/2011
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January 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 | 33.7 | 0.01400 | 35 | 386 | 358 |
| Vent - Return Mixing | Outlet | 25.1 | 0.01074 | 660 | - | - |
| Central Cooling Coil | Outlet | 15.6 | 0.01040 | 660 | 7568 | 674 |
| Central Heating Coil | Outlet | 15.6 | 0.01040 | 660 | 0 | - |
| Supply Fan | Outlet | 15.6 | 0.01040 | 660 | 12 | - |
| Cold Supply Duct | Outlet | 16.1 | 0.01040 | 627 | 357 | - |
| Zone Air | - | 25.1 | 0.01057 | 627 | 6814 | 315 |
| Return Plenum | Outlet | 25.1 | 0.01057 | 627 | 0 | - |
| Duct Leakage Air | Outlet | 15.6 | 0.01040 | 33 | - | - |
| Return Duct | Outlet | 24.6 | 0.01056 | 660 | - | - |
| Return Fan | Outlet | 24.6 | 0.01056 | 660 | 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 10 | 7133 | Cooling | 6814 | 25.1 | 627 | 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 | 35 | -915 | 0 |
| Vent - Return Mixing | Outlet | 19.8 | 0.00182 | 660 | - | - |
| Central Cooling Coil | Outlet | 19.8 | 0.00182 | 660 | 0 | 0 |
| Central Heating Coil | Outlet | 24.5 | 0.00182 | 660 | 3785 | - |
| Supply Fan | Outlet | 24.5 | 0.00182 | 660 | 12 | - |
| Cold Supply Duct | Outlet | 24.4 | 0.00182 | 627 | -143 | - |
| Zone Air | - | 20.7 | 0.00182 | 627 | -2739 | 0 |
| Return Plenum | Outlet | 20.7 | 0.00182 | 627 | 0 | - |
| Duct Leakage Air | Outlet | 24.5 | 0.00182 | 33 | - | - |
| Return Duct | Outlet | 20.9 | 0.00182 | 660 | - | - |
| Return Fan | Outlet | 20.9 | 0.00182 | 660 | 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 10 | -2854 | Heating | -2739 | 20.7 | 627 | 0 | 0 |



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Air System Sizing Summary for Zona 10

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Air System Information

| | | | |
|-----------------------|-----------------|-----------------------|---------------------------|
| Air System Name | Zona 10 | Number of zones | 1 |
| Equipment Class | SPLT AHU | Floor Area | 38.6 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 | 8.2 kW | Load occurs at | Jan 1700 |
| Sensible coil load | 7.6 kW | OA DB / WB | 33.7 / 23.5 °C |
| Coil L/s at Jan 1700 | 660 L/s | Entering DB / WB | 25.1 / 18.6 °C |
| Max block L/s | 660 L/s | Leaving DB / WB | 15.6 / 15.0 °C |
| Sum of peak zone L/s | 627 L/s | Coil ADP | 14.6 °C |
| Sensible heat ratio | 0.918 | Bypass Factor | 0.100 |
| m ² /kW | 4.7 | Resulting RH | 53 % |
| W/m ² | 213.5 | 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 | 660 L/s | W/m ² | 98.0 |
| Max coil L/s | 660 L/s | Ent. DB / Lvg DB | 19.8 / 24.5 °C |
| Water flow @ 11.1 K drop | N/A | | |

Supply Fan Sizing Data

| | | | |
|--|----------------------------------|---------------------|-----------------|
| Actual max L/s | 660 L/s | Fan motor BHP | 0.02 BHP |
| Standard L/s | 659 L/s | Fan motor kW | 0.01 kW |
| Actual max L/(s-m ²) | 17.10 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) | 0.92 L/(s-m²) | | |



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Zone Design Load Summary for Zona 10

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02/13/2011
 12:43

| Zone 10 | DESIGN COOLING | | | DESIGN HEATING | | |
|----------------------------------|--------------------------------------|-----------------|---------------|--------------------------------------|-----------------|---------------|
| | COOLING DATA AT Jan 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 | 20 m ² | 3875 | - | 20 m ² | - | - |
| Wall Transmission | 10 m ² | 210 | - | 10 m ² | 326 | - |
| Roof Transmission | 30 m ² | 428 | - | 30 m ² | 372 | - |
| Window Transmission | 20 m ² | 774 | - | 20 m ² | 2019 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 30 m ² | 0 | - | 30 m ² | 0 | - |
| Partitions | 9 m ² | 0 | - | 9 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 834 W | 784 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 400 W | 389 | - | 0 | 0 | - |
| People | 5 | 332 | 300 | 0 | 0 | 0 |
| Infiltration | - | 0 | 0 | - | 0 | 0 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 5% / 5% | 340 | 15 | 5% | 136 | 0 |
| >> Total Zone Loads | - | 7133 | 315 | - | 2854 | 0 |