

Air System Sizing Summary for Sistema N0 SS

Project Name: Tribunales San Lorenzo

02/21/2022

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Air System Information

Air System Name:Sistema N0 SS
Air System Type:..... Fan Coils/WSHPs

Number of zones:8
Floor Area:.....150.9 sqm
Location:..... San Lorenzo, Argentina

Sizing Calculation Information

Calculation Months:.....Jan to Dec

Calculation method: Transfer Function Method

Zone Sizing Data

Zone Name	Maximum Cooling Sensible kW	Design Airflow L/s	Time of Peak Load	Maximum Heating Load kW	Zone Floor Area sqm	Zone L/(s-sqm)
SS01 Mantenimiento	1.4	101	Jan 1500	1.4	15.3	6.59
SS02 Economato	1.3	95	Jan 1500	1.2	12.4	7.69
SS03 Cocina	1.8	130	Dec 1500	1.6	19.2	6.76
SS04 Paso	3.7	272	Jan 1400	4.5	32.9	8.27
SS05 Sala Reconocimiento	1.1	79	Jan 1700	1.4	19.6	4.01
SS06 Forense	1.3	93	Jan 1500	1.2	12.1	7.65
SS07 Celdas	1.9	140	Jan 1700	3.2	32.1	4.37
SS08 Control Acceso	0.6	45	Jan 1700	1.0	7.3	6.18

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Loads kW	Sensible Coil Load kW	Coil Entering DB/WB C	Coil Leaving DB/WB C	Time of Peak Load
SS01 Mantenimiento	1.9	1.5	25.4 / 18.4	13.2 / 12.5	Feb 1500
SS02 Economato	1.8	1.4	25.4 / 18.3	13.2 / 12.5	Dec 1500
SS03 Cocina	2.5	1.9	25.5 / 18.4	13.2 / 12.6	Dec 1500
SS04 Paso	5.2	4.0	25.4 / 18.3	13.1 / 12.5	Jan 1500
SS05 Sala Reconocimiento	1.6	1.2	25.4 / 18.6	13.2 / 12.6	Jan 1700
SS06 Forense	1.8	1.4	25.5 / 18.4	13.3 / 12.6	Jan 1500
SS07 Celdas	3.4	2.3	26.8 / 19.9	13.4 / 12.8	Jan 1500
SS08 Control Acceso	0.9	0.7	25.4 / 18.5	13.3 / 12.6	Feb 1600

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load kW	Heating Coil Ent/Lvg DB C	Fan Design Airflow L/s	Fan Motor BHP	Fan Motor kW	Vent Design Airflow L/s
SS01 Mantenimiento	1.6	19.2 / 32.8	101	0.00	0.00	10
SS02 Economato	1.5	19.3 / 32.4	95	0.00	0.00	10
SS03 Cocina	2.0	19.3 / 31.8	130	0.00	0.00	13
SS04 Paso	5.2	19.2 / 35.1	272	0.00	0.00	27
SS05 Sala Reconocimiento	1.6	19.2 / 36.1	79	0.00	0.00	8
SS06 Forense	1.5	19.3 / 32.4	93	0.00	0.00	9
SS07 Celdas	3.9	16.9 / 40.0	140	0.00	0.00	28
SS08 Control Acceso	1.2	19.1 / 40.3	45	0.00	0.00	5

System Design Load Summary for Sistema N0 SS

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	DESIGN COOLING			DESIGN HEATING		
	Jan 1500 OA DB / WB 37 C / 28 C			Design Heating Day OA DB / WB -0.6 C / -3.2 C		
Zone Loads based on TFM	Details	Sensible W	Latent W	Details	Sensible W	Latent W
Window and Skylight Solar Loads	21 sqm	2642	-	21 sqm	-	-
Wall Transmission	66 sqm	1517	-	66 sqm	2493	-
Roof Transmission	0 sqm	0	-	0 sqm	0	-
Window Transmission	21 sqm	1079	-	21 sqm	2193	-
Skylight Transmission	0 sqm	0	-	0 sqm	0	-
Door Loads	2 sqm	112	-	2 sqm	88	-
Floor Transmission	131 sqm	0	-	131 sqm	589	-
Partitions/Ceilings	465 sqm	2350	-	465 sqm	10131	-
Overhead Lighting	1207 W	1207	-	0 W	0	-
Electric Equipment	2004 W	2003	-	0 W	0	-
People	27	1889	1262	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>>Total Zone Loads	-	12800	1262	-	15495	0
Thermostat and Pulldown Adjustment	-	-233	0	-	39	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	0%	0	-	0	0	-
Plenum Lighting Load	0%	0	-	0	0	-
Ventilation Load	109 L/s	1687	3516	109 L/s	2899	0
Supply Fan Load	- L/s	0	-	- L/s	0	-
>> Total System Loads	-	14254	4778	-	18433	0
Terminal Unit Cooling	-	14254	4778	-	0	0
Terminal Unit Heating	-	0	-	-	18433	-
>> Total Coil Loads	-	14254	4778	-	18433	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Zone Design Load Summary for Sistema N0 SS

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SS01 Mantenimiento	DESIGN COOLING			DESIGN HEATING		
	Jan 1500			Design Heating Day		
	OA DB / WB 37 C / 28 C			OA DB / WB -0.6 C / -3.2 C		
	Thermostat Setpoint 24.0 C			Thermostat Setpoint 21.5 C		
Zone Loads based on TFM	Details	Sensible W	Latent W	Details	Sensible W	Latent W
Window and Skylight Solar Loads	2 sqm	369	-	2 sqm	-	-
Wall Transmission	2 sqm	38	-	2 sqm	71	-
Roof Transmission	0 sqm	0	-	0 sqm	0	-
Window Transmission	2 sqm	97	-	2 sqm	197	-
Skylight Transmission	0 sqm	0	-	0 sqm	0	-
Door Loads	0 sqm	0	-	0 sqm	0	-
Floor Transmission	15 sqm	0	-	15 sqm	66	-
Partitions/Ceilings	49 sqm	265	-	49 sqm	1038	-
Overhead Lighting	122 W	123	-	0 W	0	-
Electric Equipment	306 W	306	-	0 W	0	-
People	2	164	158	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	1361	158	-	1372	0

SS02 Economato	DESIGN COOLING			DESIGN HEATING		
	Jan 1500			Design Heating Day		
	OA DB / WB 37 C / 28 C			OA DB / WB -0.6 C / -3.2 C		
	Thermostat Setpoint 24.0 C			Thermostat Setpoint 21.5 C		
Zone Loads based on TFM	Details	Sensible W	Latent W	Details	Sensible W	Latent W
Window and Skylight Solar Loads	1 sqm	316	-	1 sqm	-	-
Wall Transmission	1 sqm	29	-	1 sqm	54	-
Roof Transmission	0 sqm	0	-	0 sqm	0	-
Window Transmission	1 sqm	83	-	1 sqm	169	-
Skylight Transmission	0 sqm	0	-	0 sqm	0	-
Door Loads	0 sqm	0	-	0 sqm	0	-
Floor Transmission	12 sqm	0	-	12 sqm	53	-
Partitions/Ceilings	44 sqm	245	-	44 sqm	959	-
Overhead Lighting	99 W	99	-	0 W	0	-
Electric Equipment	372 W	372	-	0 W	0	-
People	2	144	120	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	1287	120	-	1235	0

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SS03 Cocina	DESIGN COOLING			DESIGN HEATING		
	Dec 1500			Design Heating Day		
	OA DB / WB 36.4 C / 28 C			OA DB / WB -0.6 C / -3.2 C		
	Thermostat Setpoint 24.0 C			Thermostat Setpoint 21.5 C		
Zone Loads based on TFM	Details	Sensible W	Latent W	Details	Sensible W	Latent W
Window and Skylight Solar Loads	3 sqm	419	-	3 sqm	-	-
Wall Transmission	8 sqm	125	-	8 sqm	290	-
Roof Transmission	0 sqm	0	-	0 sqm	0	-
Window Transmission	3 sqm	148	-	3 sqm	317	-
Skylight Transmission	0 sqm	0	-	0 sqm	0	-
Door Loads	0 sqm	0	-	0 sqm	0	-
Floor Transmission	19 sqm	0	-	19 sqm	125	-
Partitions/Ceilings	45 sqm	211	-	45 sqm	857	-
Overhead Lighting	154 W	154	-	0 W	0	-
Electric Equipment	480 W	480	-	0 W	0	-
People	3	215	180	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	1752	180	-	1590	0

SS04 Paso	DESIGN COOLING			DESIGN HEATING		
	Jan 1400			Design Heating Day		
	OA DB / WB 36.6 C / 27.9 C			OA DB / WB -0.6 C / -3.2 C		
	Thermostat Setpoint 24.0 C			Thermostat Setpoint 21.5 C		
Zone Loads based on TFM	Details	Sensible W	Latent W	Details	Sensible W	Latent W
Window and Skylight Solar Loads	13 sqm	1134	-	13 sqm	-	-
Wall Transmission	26 sqm	621	-	26 sqm	1007	-
Roof Transmission	0 sqm	0	-	0 sqm	0	-
Window Transmission	13 sqm	556	-	13 sqm	1173	-
Skylight Transmission	0 sqm	0	-	0 sqm	0	-
Door Loads	2 sqm	116	-	2 sqm	88	-
Floor Transmission	33 sqm	0	-	33 sqm	151	-
Partitions/Ceilings	101 sqm	417	-	101 sqm	2087	-
Overhead Lighting	263 W	263	-	0 W	0	-
Electric Equipment	165 W	164	-	0 W	0	-
People	6	404	211	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	3676	211	-	4505	0

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SS05 Sala Reconocimiento	DESIGN COOLING			DESIGN HEATING		
	Jan 1700			Design Heating Day		
	OA DB / WB 35.8 C / 27.7 C			OA DB / WB -0.6 C / -3.2 C		
	Thermostat Setpoint 24.0 C			Thermostat Setpoint 21.5 C		
Zone Loads based on TFM	Details	Sensible W	Latent W	Details	Sensible W	Latent W
Window and Skylight Solar Loads	0 sqm	0	-	0 sqm	-	-
Wall Transmission	4 sqm	103	-	4 sqm	163	-
Roof Transmission	0 sqm	0	-	0 sqm	0	-
Window Transmission	0 sqm	0	-	0 sqm	0	-
Skylight Transmission	0 sqm	0	-	0 sqm	0	-
Door Loads	0 sqm	0	-	0 sqm	0	-
Floor Transmission	20 sqm	0	-	20 sqm	77	-
Partitions/Ceilings	57 sqm	201	-	57 sqm	1162	-
Overhead Lighting	157 W	157	-	0 W	0	-
Electric Equipment	196 W	196	-	0 W	0	-
People	6	404	211	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	1061	211	-	1402	0

SS06 Forense	DESIGN COOLING			DESIGN HEATING		
	Jan 1500			Design Heating Day		
	OA DB / WB 37 C / 28 C			OA DB / WB -0.6 C / -3.2 C		
	Thermostat Setpoint 24.0 C			Thermostat Setpoint 21.5 C		
Zone Loads based on TFM	Details	Sensible W	Latent W	Details	Sensible W	Latent W
Window and Skylight Solar Loads	2 sqm	369	-	2 sqm	-	-
Wall Transmission	6 sqm	127	-	6 sqm	238	-
Roof Transmission	0 sqm	0	-	0 sqm	0	-
Window Transmission	2 sqm	97	-	2 sqm	197	-
Skylight Transmission	0 sqm	0	-	0 sqm	0	-
Door Loads	0 sqm	0	-	0 sqm	0	-
Floor Transmission	12 sqm	0	-	12 sqm	34	-
Partitions/Ceilings	35 sqm	115	-	35 sqm	716	-
Overhead Lighting	97 W	97	-	0 W	0	-
Electric Equipment	303 W	302	-	0 W	0	-
People	2	144	120	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	1250	120	-	1185	0

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SS07 Celdas	DESIGN COOLING			DESIGN HEATING		
	Jan 1700			Design Heating Day		
	OA DB / WB 35.8 C / 27.7 C			OA DB / WB -0.6 C / -3.2 C		
	Thermostat Setpoint 24.0 C			Thermostat Setpoint 21.5 C		
Zone Loads based on TFM	Details	Sensible W	Latent W	Details	Sensible W	Latent W
Window and Skylight Solar Loads	1 sqm	111	-	1 sqm	-	-
Wall Transmission	18 sqm	483	-	18 sqm	669	-
Roof Transmission	0 sqm	0	-	0 sqm	0	-
Window Transmission	1 sqm	66	-	1 sqm	141	-
Skylight Transmission	0 sqm	0	-	0 sqm	0	-
Door Loads	0 sqm	0	-	0 sqm	0	-
Floor Transmission	12 sqm	0	-	12 sqm	55	-
Partitions/Ceilings	96 sqm	709	-	96 sqm	2298	-
Overhead Lighting	257 W	257	-	0 W	0	-
Electric Equipment	0 W	0	-	0 W	0	-
People	4	270	141	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	1895	141	-	3163	0

SS08 Control Acceso	DESIGN COOLING			DESIGN HEATING		
	Jan 1700			Design Heating Day		
	OA DB / WB 35.8 C / 27.7 C			OA DB / WB -0.6 C / -3.2 C		
	Thermostat Setpoint 24.0 C			Thermostat Setpoint 21.5 C		
Zone Loads based on TFM	Details	Sensible W	Latent W	Details	Sensible W	Latent W
Window and Skylight Solar Loads	0 sqm	0	-	0 sqm	-	-
Wall Transmission	0 sqm	0	-	0 sqm	0	-
Roof Transmission	0 sqm	0	-	0 sqm	0	-
Window Transmission	0 sqm	0	-	0 sqm	0	-
Skylight Transmission	0 sqm	0	-	0 sqm	0	-
Door Loads	0 sqm	0	-	0 sqm	0	-
Floor Transmission	7 sqm	0	-	7 sqm	28	-
Partitions/Ceilings	38 sqm	225	-	38 sqm	1015	-
Overhead Lighting	58 W	58	-	0 W	0	-
Electric Equipment	183 W	183	-	0 W	0	-
People	2	144	120	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	609	120	-	1043	0