

FPM ENGENHARIA

# CÂMARA MUNICIPAL DE GOIÂNIA

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## Memorial de Cálculo de Carga Térmica



**FPM Engenharia e Comércio Ltda.**  
**OUTUBRO / 2017**

**Programa utilizado: HAP (Hourly Analysis Program v. 5.0.0.108)**

**REV-01**



## Design Weather Parameters & MSHGs

CAMARA MUNICIPAL DE GOIANIA -2017  
FPM Engenharia e Comercio Ltda

10/31/2017  
09:05

### Design Parameters:

City Name .....	<b>Goiania</b>	
Location .....	<b>Brazil</b>	
Latitude .....	<b>-16,6</b>	Deg.
Longitude .....	<b>49,2</b>	Deg.
Elevation .....	<b>747,0</b>	m
Summer Design Dry-Bulb .....	<b>35,0</b>	°C
Summer Coincident Wet-Bulb .....	<b>20,3</b>	°C
Summer Daily Range .....	<b>11,7</b>	K
Winter Design Dry-Bulb .....	<b>11,9</b>	°C
Winter Design Wet-Bulb .....	<b>4,7</b>	°C
Atmospheric Clearness Number .....	<b>1,00</b>	
Average Ground Reflectance .....	<b>0,20</b>	
Soil Conductivity .....	<b>1,385</b>	W/(m K)
Local Time Zone (GMT +/- N hours) .....	<b>3,0</b>	hours
Consider Daylight Savings Time .....	<b>Sim</b>	
Daylight Savings Begins .....	<b>October, 17</b>	
Daylight Savings Ends .....	<b>February, 20</b>	
Simulation Weather Data .....	<b>N/A</b>	
Current Data is .....	<b>User Modified</b>	
Design Cooling Months .....	<b>January to December</b>	

### Design Day Maximum Solar Heat Gains

(The MSHG values are expressed in W/m<sup>2</sup> )

Month	N	NNE	NE	ENE	E	ESE	SE	SSE	S
January	150,4	167,6	410,1	631,2	753,6	764,3	661,1	457,9	184,4
February	175,9	287,9	517,8	687,9	758,9	715,1	564,9	319,7	140,3
March	311,7	444,1	620,8	731,6	738,6	632,8	428,9	164,9	117,4
April	476,1	568,1	679,5	722,5	663,9	503,3	254,8	98,7	98,7
May	568,0	628,4	701,6	689,2	592,3	402,1	149,4	85,5	85,5
June	596,8	649,6	705,4	663,0	557,1	361,7	102,7	79,2	79,2
July	566,9	628,2	699,3	672,2	580,6	396,9	137,1	82,4	82,4
August	473,9	563,9	675,1	715,3	655,9	494,6	243,8	92,0	92,0
September	294,3	431,3	614,1	724,0	723,1	611,6	421,8	167,4	107,0
October	163,0	279,9	522,6	682,5	739,6	690,7	550,1	318,4	127,4
November	142,6	164,1	410,3	624,1	738,0	743,1	642,2	449,2	178,1
December	146,7	148,1	362,0	599,5	738,4	768,9	685,4	499,4	233,6
Month	SSW	SW	WSW	W	WNW	NW	NNW	HOR	Mult
January	459,2	661,8	764,5	753,1	629,8	408,2	166,9	993,2	1,00
February	318,4	564,4	715,1	759,5	689,2	516,4	288,2	972,0	1,00
March	160,4	435,3	633,4	733,9	721,9	626,6	440,3	912,7	1,00
April	98,7	274,2	501,2	642,3	720,2	687,8	571,2	793,3	1,00
May	85,5	160,6	395,9	580,5	695,7	703,3	634,8	690,1	1,00
June	79,2	117,0	357,6	545,0	677,1	704,2	653,0	644,3	1,00
July	82,4	147,8	395,7	566,5	682,9	700,5	631,0	676,0	1,00
August	92,0	261,3	496,8	644,2	708,4	682,7	566,4	772,5	1,00
September	162,0	432,6	621,4	713,1	714,2	616,3	428,6	885,1	1,00
October	318,5	551,7	693,3	737,6	681,4	522,5	279,5	946,9	1,00
November	452,8	649,5	748,2	733,3	618,9	408,1	163,7	978,8	1,00
December	505,5	689,4	771,1	736,8	592,7	352,5	148,0	989,4	1,00

Mult. = User-defined solar multiplier factor.

# Cooling Design Temperature Profiles

CAMARA MUNICIPAL DE GOIANIA -2017  
FPM Engenharia e Comercio Ltda

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**Location: Goiania, Brazil**

( Dry and Wet Bulb temperatures are expressed in °C )

Hr	January		February		March		April		May		June	
	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB
0000	25,9	18,1	25,2	18,0	24,3	17,5	23,3	16,9	21,7	16,1	20,7	14,7
0100	25,2	17,8	24,7	17,6	23,7	17,1	22,7	16,5	21,1	15,8	20,0	14,3
0200	24,7	17,5	24,2	17,3	23,1	16,7	22,1	16,1	20,4	15,4	19,4	14,0
0300	24,2	17,2	23,7	17,0	22,7	16,4	21,6	15,8	19,9	15,1	18,8	13,8
0400	23,7	17,0	23,4	16,8	22,3	16,2	21,2	15,5	19,5	14,9	18,4	13,6
0500	23,4	16,9	23,3	16,7	22,2	16,1	21,1	15,4	19,4	14,8	18,3	13,5
0600	23,3	16,8	23,5	16,8	22,4	16,3	21,3	15,6	19,7	15,0	18,6	13,6
0700	23,5	16,9	24,1	17,2	23,0	16,6	21,9	16,0	20,3	15,3	19,2	14,0
0800	24,0	17,2	25,0	17,8	24,1	17,3	23,0	16,8	21,4	16,0	20,4	14,5
0900	25,0	17,7	26,4	18,7	25,6	18,3	24,6	17,8	23,1	16,9	22,2	15,4
1000	26,4	18,3	28,1	19,7	27,3	19,3	26,4	19,0	25,0	18,0	24,2	16,3
1100	28,0	19,1	29,9	20,7	29,3	20,5	28,5	20,3	27,2	19,1	26,4	17,3
1200	29,8	19,9	31,6	21,7	31,1	21,5	30,4	21,5	29,3	20,1	28,5	18,2
1300	31,5	20,7	32,9	22,4	32,5	22,2	31,9	22,3	30,8	20,8	30,1	18,8
1400	32,8	21,2	33,8	22,8	33,5	22,7	32,8	22,8	31,8	21,3	31,2	19,2
1500	33,7	21,6	34,1	23,0	33,8	22,9	33,2	23,0	32,2	21,5	31,6	19,4
1600	34,0	21,7	33,8	22,8	33,5	22,7	32,8	22,8	31,8	21,3	31,2	19,2
1700	33,7	21,6	33,0	22,4	32,6	22,3	32,0	22,3	30,9	20,9	30,3	18,9
1800	32,9	21,3	31,8	21,8	31,4	21,6	30,7	21,6	29,5	20,2	28,8	18,3
1900	31,8	20,7	30,4	21,0	29,9	20,8	29,1	20,7	27,8	19,4	27,1	17,5
2000	30,4	20,1	29,0	20,2	28,3	19,9	27,5	19,7	26,2	18,6	25,3	16,8
2100	29,0	19,5	27,8	19,5	27,1	19,2	26,2	18,9	24,8	17,8	23,9	16,1
2200	27,8	19,0	26,8	18,9	25,9	18,5	25,0	18,1	23,5	17,1	22,6	15,5
2300	26,7	18,5	25,9	18,4	25,0	17,9	24,0	17,4	22,5	16,6	21,5	15,0

Hr	July		August		September		October		November		December	
	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB
0000	20,3	13,9	21,8	14,6	23,4	15,8	26,6	16,5	24,9	17,5	25,3	18,3
0100	19,6	13,6	21,0	14,3	22,6	15,6	26,0	16,5	24,0	17,2	24,6	17,9
0200	18,9	13,3	20,2	14,0	21,8	15,3	25,4	16,2	23,4	16,9	24,1	17,6
0300	18,3	13,1	19,5	13,8	21,1	15,0	25,0	15,8	22,7	16,6	23,6	17,3
0400	17,8	12,9	19,1	13,6	20,7	14,9	24,6	15,8	22,1	16,3	23,1	17,1
0500	17,7	12,8	18,9	13,5	20,5	14,8	24,5	15,8	21,7	16,2	22,8	16,9
0600	18,0	12,9	19,2	13,6	20,8	14,9	24,7	15,8	21,6	16,1	22,7	16,8
0700	18,7	13,2	20,0	13,9	21,6	15,2	25,3	16,2	21,9	16,2	22,9	16,9
0800	20,0	13,8	21,5	14,5	23,1	15,7	26,4	16,5	22,6	16,5	23,4	17,3
0900	21,9	14,6	23,6	15,3	25,2	16,5	27,9	16,8	23,8	17,0	24,4	17,8
1000	24,1	15,5	26,0	16,2	27,6	17,3	29,6	17,5	25,5	17,8	25,8	18,6
1100	26,5	16,4	28,7	17,1	30,3	18,2	31,6	18,1	27,6	18,6	27,4	19,5
1200	28,9	17,3	31,3	18,0	32,9	19,0	33,5	18,7	29,9	19,5	29,2	20,5
1300	30,6	17,9	33,2	18,6	34,8	19,6	34,9	19,0	32,1	20,4	30,9	21,4
1400	31,8	18,3	34,5	19,0	36,1	20,0	35,8	19,3	33,7	21,0	32,2	22,0
1500	32,2	18,5	35,0	19,2	36,6	20,1	36,2	20,7	34,8	21,4	33,1	22,4
1600	31,8	18,3	34,5	19,0	36,1	20,0	35,8	19,3	35,2	21,5	33,4	22,6
1700	30,8	18,0	33,4	18,7	35,0	19,6	35,0	19,3	34,8	21,4	33,1	22,4
1800	29,2	17,4	31,6	18,1	33,2	19,1	33,7	18,7	33,8	21,0	32,3	22,1
1900	27,3	16,7	29,5	17,4	31,1	18,4	32,2	18,4	32,3	20,5	31,2	21,5
2000	25,4	16,0	27,4	16,7	29,0	17,7	30,7	17,8	30,6	19,8	29,8	20,8
2100	23,8	15,3	25,7	16,1	27,3	17,2	29,4	17,5	28,8	19,1	28,4	20,0
2200	22,3	14,8	24,1	15,5	25,7	16,6	28,2	17,2	27,3	18,5	27,2	19,4
2300	21,2	14,3	22,8	15,0	24,4	16,2	27,3	16,8	26,0	18,0	26,1	18,8

## Wall Constructions

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### Externa com insulacao (15cm)

#### Wall Details

Outside Surface Color ..... **Medium**  
Absorptivity ..... **0,675**  
Overall U-Value ..... **3,261** W/(m<sup>2</sup>·K)

#### Wall Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m <sup>3</sup>	Specific Ht. kJ / (kg K)	R-Value (m <sup>2</sup> ·K)/W	Weight kg/m <sup>2</sup>
Inside surface resistance	0,000	0,0	0,00	0,12270	0,0
Reboco 25mm	25,000	1858,1	0,84	0,03289	46,5
Tijolo comum 10cm	100,000	2002,3	0,92	0,07519	200,2
Reboco 25mm	25,000	1858,1	0,84	0,03289	46,5
Outside surface resistance	0,000	0,0	0,00	0,04301	0,0
<b>Totals</b>	<b>150,000</b>	<b>-</b>		<b>0,30668</b>	<b>293,1</b>

## Roof Constructions

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### Default Roof Assembly

#### Roof Details

Outside Surface Color ..... **Dark**  
Absorptivity ..... **0,900**  
Overall U-Value ..... **4,206** W/(m²·K)

#### Roof Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m³	Specific Ht. kJ / (kg K)	R-Value (m²·K)/W	Weight kg/m²
Inside surface resistance	0,000	0,0	0,00	0,12064	0,0
Built-up roofing	9,540	1121,3	1,47	0,10800	10,7
Outside surface resistance	0,000	0,0	0,00	0,05864	0,0
<b>Totals</b>	<b>9,540</b>	<b>-</b>		<b>0,28728</b>	<b>10,7</b>

### Fibroc + laje concreto (10cm)

#### Roof Details

Outside Surface Color ..... **Dark**  
Absorptivity ..... **0,900**  
Overall U-Value ..... **1,510** W/(m²·K)

#### Roof Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m³	Specific Ht. kJ / (kg K)	R-Value (m²·K)/W	Weight kg/m²
Inside surface resistance	0,000	0,0	0,00	0,17182	0,0
Concreto (10cm)	100,000	2242,6	0,84	0,06623	224,3
Filme interno	0,000	0,0	0,00	0,17182	0,0
Filme interno	0,000	0,0	0,00	0,17182	0,0
Telha fibrocimento (8mm)	8,000	0,0	0,00	0,01429	0,0
Outside surface resistance	0,000	0,0	0,00	0,06614	0,0
<b>Totals</b>	<b>108,000</b>	<b>-</b>		<b>0,66212</b>	<b>224,3</b>

### Fibroc + laje treliçada (20cm)

#### Roof Details

Outside Surface Color ..... **Dark**  
Absorptivity ..... **0,900**  
Overall U-Value ..... **0,163** W/(m²·K)

#### Roof Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m³	Specific Ht. kJ / (kg K)	R-Value (m²·K)/W	Weight kg/m²
Inside surface resistance	0,000	0,0	0,00	0,17182	0,0
Filme interno	0,000	0,0	0,00	0,17182	0,0
isopor (16cm)	160,000	0,0	0,00	5,33333	0,0
Concreto (4cm)	40,000	2242,6	0,84	0,02649	89,7
Filme interno	0,000	0,0	0,00	0,17182	0,0
Filme interno	0,000	0,0	0,00	0,17182	0,0
Telha fibrocimento (8mm)	8,000	0,0	0,00	0,01429	0,0
Outside surface resistance	0,000	0,0	0,00	0,06614	0,0
<b>Totals</b>	<b>208,000</b>	<b>-</b>		<b>6,12753</b>	<b>89,7</b>

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### Fibroc + laje treliçada (25cm)

#### Roof Details

Outside Surface Color ..... **Dark**  
Absorptivity ..... **0,900**  
Overall U-Value ..... **0,134** W/(m²·K)

#### Roof Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m³	Specific Ht. kJ / (kg K)	R-Value (m²·K)/W	Weight kg/m²
Inside surface resistance	0,000	0,0	0,00	0,17182	0,0
Filme interno	0,000	0,0	0,00	0,17182	0,0
isopor (20cm)	200,000	0,0	0,00	6,66666	0,0
Concreto (5cm)	50,000	2242,6	0,84	0,03311	112,1
Filme interno	0,000	0,0	0,00	0,17182	0,0
Filme interno	0,000	0,0	0,00	0,17182	0,0
Telha fibrocimento (8mm)	8,000	0,0	0,00	0,01429	0,0
Outside surface resistance	0,000	0,0	0,00	0,06614	0,0
<b>Totals</b>	<b>258,000</b>	<b>-</b>		<b>7,46748</b>	<b>112,1</b>

### Fibroc, e forro gesso

#### Roof Details

Outside Surface Color ..... **Dark**  
Absorptivity ..... **0,900**  
Overall U-Value ..... **1,648** W/(m²·K)

#### Roof Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m³	Specific Ht. kJ / (kg K)	R-Value (m²·K)/W	Weight kg/m²
Inside surface resistance	0,000	0,0	0,00	0,17182	0,0
Forro gesso (10mm)	10,000	800,9	1,09	0,01075	8,0
Filme interno	0,000	0,0	0,00	0,17182	0,0
Filme interno	0,000	0,0	0,00	0,17182	0,0
Telha fibrocimento (8mm)	8,000	1000,0	5,00	0,01429	8,0
Outside surface resistance	0,000	0,0	0,00	0,06614	0,0
<b>Totals</b>	<b>18,000</b>	<b>-</b>		<b>0,60664</b>	<b>16,0</b>

### Fibroc, laje concreto (10cm) e forro gesso

#### Roof Details

Outside Surface Color ..... **Dark**  
Absorptivity ..... **0,900**  
Overall U-Value ..... **0,984** W/(m²·K)

#### Roof Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m³	Specific Ht. kJ / (kg K)	R-Value (m²·K)/W	Weight kg/m²
Inside surface resistance	0,000	0,0	0,00	0,17182	0,0
Forro gesso (10mm)	10,000	800,9	1,09	0,01075	8,0
Filme interno	0,000	0,0	0,00	0,34364	0,0
Concreto (10cm)	100,000	2242,6	0,84	0,06623	224,3
Filme interno	0,000	0,0	0,00	0,17182	0,0
Filme interno	0,000	0,0	0,00	0,17182	0,0
Telha fibrocimento (8mm)	8,000	0,0	0,00	0,01429	0,0
Outside surface resistance	0,000	0,0	0,00	0,06614	0,0
<b>Totals</b>	<b>118,000</b>	<b>-</b>		<b>1,01651</b>	<b>232,3</b>

## Roof Constructions

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### ISOTELHA + FORRO

#### Roof Details

Outside Surface Color ..... **Dark**  
Absorptivity ..... **0,900**  
Overall U-Value ..... **0,440** W/(m²·K)

#### Roof Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m³	Specific Ht. kJ / (kg K)	R-Value (m²·K)/W	Weight kg/m²
Inside surface resistance	0,000	0,0	0,00	0,12064	0,0
Steel deck	0,853	7833,0	0,50	0,00002	6,7
Board insulation	50,000	38,0	0,92	1,85180	1,9
Steel deck	0,853	7833,0	0,50	0,00002	6,7
Air space	0,000	0,0	0,00	0,16026	0,0
13mm gypsum board	12,700	800,9	1,09	0,07890	10,2
Outside surface resistance	0,000	0,0	0,00	0,05864	0,0
<b>Totals</b>	<b>64,406</b>	<b>-</b>		<b>2,27028</b>	<b>25,4</b>

### laje impermeabilizada externa (c/ manta elast(1))

#### Roof Details

Outside Surface Color ..... **Dark**  
Absorptivity ..... **0,900**  
Overall U-Value ..... **1,455** W/(m²·K)

#### Roof Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m³	Specific Ht. kJ / (kg K)	R-Value (m²·K)/W	Weight kg/m²
Inside surface resistance	0,000	0,0	0,00	0,17182	0,0
13mm gypsum board	12,700	800,9	1,09	0,07890	10,2
Air space	0,000	0,0	0,00	0,16026	0,0
Concreto (15cm)	150,000	2242,6	0,84	0,09934	336,4
Papel Kraft	1,000	0,0	0,00	0,03333	0,0
Asfalto	10,000	0,0	0,00	0,01316	0,0
Manta elastomérica	2,000	0,0	0,00	0,01176	0,0
Asfalto	10,000	0,0	0,00	0,01316	0,0
Argamassa	30,000	0,0	0,00	0,03947	0,0
Outside surface resistance	0,000	0,0	0,00	0,06614	0,0
<b>Totals</b>	<b>215,700</b>	<b>-</b>		<b>0,68734</b>	<b>346,6</b>

### laje impermeabilizada externa (c/ manta elast(2))

#### Roof Details

Outside Surface Color ..... **Dark**  
Absorptivity ..... **0,900**  
Overall U-Value ..... **1,455** W/(m²·K)

#### Roof Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m³	Specific Ht. kJ / (kg K)	R-Value (m²·K)/W	Weight kg/m²
Inside surface resistance	0,000	0,0	0,00	0,17182	0,0
13mm gypsum board	12,700	800,9	1,09	0,07890	10,2
Air space	0,000	0,0	0,00	0,16026	0,0
Concreto (15cm)	150,000	2242,6	0,84	0,09934	336,4
Papel Kraft	1,000	0,0	0,00	0,03333	0,0
Asfalto	10,000	0,0	0,00	0,01316	0,0
Manta elastomérica	2,000	0,0	0,00	0,01176	0,0
Asfalto	10,000	0,0	0,00	0,01316	0,0
Argamassa	30,000	0,0	0,00	0,03947	0,0
Outside surface resistance	0,000	0,0	0,00	0,06614	0,0
<b>Totals</b>	<b>215,700</b>	<b>-</b>		<b>0,68734</b>	<b>346,6</b>



## Roof Constructions

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### laje impermeabilizada externa (c/ manta elastom)

#### Roof Details

Outside Surface Color ..... **Dark**  
Absorptivity ..... **0,900**  
Overall U-Value ..... **2,231** W/(m²·K)

#### Roof Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m³	Specific Ht. kJ / (kg K)	R-Value (m²·K)/W	Weight kg/m²
Inside surface resistance	0,000	0,0	0,00	0,17182	0,0
Concreto (15cm)	150,000	2242,6	0,84	0,09934	336,4
Papel Kraft	1,000	0,0	0,00	0,03333	0,0
Asfalto	10,000	0,0	0,00	0,01316	0,0
Manta elastomérica	2,000	0,0	0,00	0,01176	0,0
Asfalto	10,000	0,0	0,00	0,01316	0,0
Argamassa	30,000	0,0	0,00	0,03947	0,0
Outside surface resistance	0,000	0,0	0,00	0,06614	0,0
<b>Totals</b>	<b>203,000</b>	<b>-</b>		<b>0,44818</b>	<b>336,4</b>

### laje treliçada imperm externa (c/ manta elastom)

#### Roof Details

Outside Surface Color ..... **Dark**  
Absorptivity ..... **0,900**  
Overall U-Value ..... **0,175** W/(m²·K)

#### Roof Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m³	Specific Ht. kJ / (kg K)	R-Value (m²·K)/W	Weight kg/m²
Inside surface resistance	0,000	0,0	0,00	0,17182	0,0
Isopor (16cm)	160,000	0,0	0,00	5,33333	0,0
Concreto (4cm)	40,000	2242,6	0,84	0,02649	89,7
Papel Kraft	1,000	0,0	0,00	0,03333	0,0
Asfalto	10,000	0,0	0,00	0,01316	0,0
Manta elastomérica	2,000	0,0	0,00	0,01176	0,0
Asfalto	10,000	0,0	0,00	0,01316	0,0
Argamassa	30,000	0,0	0,00	0,03947	0,0
Outside surface resistance	0,000	0,0	0,00	0,06614	0,0
<b>Totals</b>	<b>253,000</b>	<b>-</b>		<b>5,70866</b>	<b>89,7</b>

### Policarbonato externo

#### Roof Details

Outside Surface Color ..... **Medium**  
Absorptivity ..... **0,675**  
Overall U-Value ..... **3,982** W/(m²·K)

#### Roof Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m³	Specific Ht. kJ / (kg K)	R-Value (m²·K)/W	Weight kg/m²
Inside surface resistance	0,000	0,0	0,00	0,17182	0,0
artificio p/ criar telhado	1,000	2242,6	0,84	0,00001	2,2
Policarbonato	2,500	0,0	0,00	0,01316	0,0
Outside surface resistance	0,000	0,0	0,00	0,06614	0,0
<b>Totals</b>	<b>3,500</b>	<b>-</b>		<b>0,25113</b>	<b>2,2</b>

## Roof Constructions

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### Telha sanduiche

#### Roof Details

Outside Surface Color ..... **Dark**  
Absorptivity ..... **0,900**  
Overall U-Value ..... **0,836** W/(m²·K)

#### Roof Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m³	Specific Ht. kJ / (kg K)	R-Value (m²·K)/W	Weight kg/m²
Inside surface resistance	0,000	0,0	0,00	0,17182	0,0
Filme interno	0,000	0,0	0,00	0,17182	0,0
Filme interno	0,000	0,0	0,00	0,17182	0,0
Telha aço	1,000	0,0	1,21	0,00002	0,0
Therm jet	15,000	250,0	0,84	0,61475	3,8
Telha aço	1,000	0,0	0,00	0,00002	0,0
Outside surface resistance	0,000	0,0	0,00	0,06614	0,0
<b>Totals</b>	<b>17,000</b>	<b>-</b>		<b>1,19639</b>	<b>3,8</b>

### Telha sanduiche + forro gesso

#### Roof Details

Outside Surface Color ..... **Medium**  
Absorptivity ..... **0,675**  
Overall U-Value ..... **0,828** W/(m²·K)

#### Roof Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m³	Specific Ht. kJ / (kg K)	R-Value (m²·K)/W	Weight kg/m²
Inside surface resistance	0,000	0,0	0,00	0,17182	0,0
Forro gesso (10mm)	10,000	250,0	0,84	0,01075	2,5
Filme interno	0,000	0,0	0,00	0,17182	0,0
Filme interno	0,000	0,0	0,00	0,17182	0,0
Telha aço	1,000	0,0	1,21	0,00002	0,0
Therm jet	15,000	250,0	0,84	0,61475	3,8
Telha aço	1,000	0,0	0,00	0,00002	0,0
Outside surface resistance	0,000	0,0	0,00	0,06614	0,0
<b>Totals</b>	<b>27,000</b>	<b>-</b>		<b>1,20714</b>	<b>6,3</b>

### Telha sanduiche + forro pacote

#### Roof Details

Outside Surface Color ..... **Dark**  
Absorptivity ..... **0,900**  
Overall U-Value ..... **0,696** W/(m²·K)

#### Roof Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m³	Specific Ht. kJ / (kg K)	R-Value (m²·K)/W	Weight kg/m²
Inside surface resistance	0,000	0,0	0,00	0,17182	0,0
Forro pacote	12,000	250,0	0,84	0,24000	3,0
Filme interno	0,000	0,0	0,00	0,17182	0,0
Filme interno	0,000	0,0	0,00	0,17182	0,0
Telha aço	1,000	0,0	1,21	0,00002	0,0
Therm jet	15,000	0,0	0,00	0,61475	0,0
Telha aço	1,000	0,0	0,00	0,00002	0,0
Outside surface resistance	0,000	0,0	0,00	0,06614	0,0
<b>Totals</b>	<b>29,000</b>	<b>-</b>		<b>1,43639</b>	<b>3,0</b>

## Roof Constructions

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### Telha sanduiche + Laje + forro gesso

#### Roof Details

Outside Surface Color ..... **Dark**  
Absorptivity ..... **0,900**  
Overall U-Value ..... **0,785** W/(m<sup>2</sup>·K)

#### Roof Layers Details (Inside to Outside)

Layers	Thickness mm	Density kg/m <sup>3</sup>	Specific Ht. kJ / (kg K)	R-Value (m <sup>2</sup> ·K)/W	Weight kg/m <sup>2</sup>
Inside surface resistance	0,000	0,0	0,00	0,17182	0,0
Forro gesso (10mm)	10,000	250,0	0,84	0,01075	2,5
Concreto	100,000	2242,8	0,84	0,06623	224,3
Filme interno	0,000	0,0	0,00	0,17182	0,0
Filme interno	0,000	0,0	0,00	0,17182	0,0
Telha aco	1,000	0,0	1,21	0,00002	0,0
Therm jet	15,000	250,0	0,84	0,61475	3,8
Telha aco	1,000	0,0	0,00	0,00002	0,0
Outside surface resistance	0,000	0,0	0,00	0,06614	0,0
<b>Totals</b>	<b>127,000</b>	<b>-</b>		<b>1,27337</b>	<b>230,5</b>

## Window Constructions

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### J 1,5 X 1,0

#### Window Details:

Detailed Input ..... **Sim**  
Height ..... **1,00** m  
Width ..... **1,50** m  
Frame Type ..... **None**  
Internal Shade Type ..... **None**  
Overall U-Value ..... **6,195** W/(m<sup>2</sup>·K)  
Overall Shade Coefficient ..... **0,949**

#### Glass Details:

Gap Type ..... **6mm Air Space**

Glazing	Glass Type	Transmissivity	Reflectivity	Absorptivity
Outer Glazing	6mm clear	0,792	0,079	0,129
Glazing #2	not used	1,000	0,000	0,000
Glazing #3	Not Used	1,000	0,000	0,000

### J 1,5 X 3,0

#### Window Details:

Detailed Input ..... **Sim**  
Height ..... **3,00** m  
Width ..... **1,50** m  
Frame Type ..... **None**  
Internal Shade Type ..... **None**  
Overall U-Value ..... **6,195** W/(m<sup>2</sup>·K)  
Overall Shade Coefficient ..... **0,949**

#### Glass Details:

Gap Type ..... **6mm Air Space**

Glazing	Glass Type	Transmissivity	Reflectivity	Absorptivity
Outer Glazing	6mm clear	0,792	0,079	0,129
Glazing #2	not used	1,000	0,000	0,000
Glazing #3	Not Used	1,000	0,000	0,000

### J 5,2 X 3,0

#### Window Details:

Detailed Input ..... **Sim**  
Height ..... **1,52** m  
Width ..... **0,91** m  
Frame Type ..... **None**  
Internal Shade Type ..... **None**  
Overall U-Value ..... **6,195** W/(m<sup>2</sup>·K)  
Overall Shade Coefficient ..... **0,949**

#### Glass Details:

Gap Type ..... **6mm Air Space**

Glazing	Glass Type	Transmissivity	Reflectivity	Absorptivity
Outer Glazing	6mm clear	0,792	0,079	0,129
Glazing #2	not used	1,000	0,000	0,000
Glazing #3	Not Used	1,000	0,000	0,000

## Window Constructions

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### J 6,5 X 3,0

#### Window Details:

Detailed Input ..... **Sim**  
Height ..... **3,00** m  
Width ..... **6,50** m  
Frame Type ..... **None**  
Internal Shade Type ..... **None**  
Overall U-Value ..... **6,195** W/(m<sup>2</sup>·K)  
Overall Shade Coefficient ..... **0,949**

#### Glass Details:

Gap Type ..... **6mm Air Space**

Glazing	Glass Type	Transmissivity	Reflectivity	Absorptivity
Outer Glazing	6mm clear	0,792	0,079	0,129
Glazing #2	not used	1,000	0,000	0,000
Glazing #3	Not Used	1,000	0,000	0,000

### J1 -2,7 x 3,0

#### Window Details:

Detailed Input ..... **Sim**  
Height ..... **3,00** m  
Width ..... **2,70** m  
Frame Type ..... **None**  
Internal Shade Type ..... **None**  
Overall U-Value ..... **6,195** W/(m<sup>2</sup>·K)  
Overall Shade Coefficient ..... **0,630**

#### Glass Details:

Gap Type ..... **6mm Air Space**

Glazing	Glass Type	Transmissivity	Reflectivity	Absorptivity
Outer Glazing	6mm clear reflective	0,501	0,315	0,184
Glazing #2	not used	1,000	0,000	0,000
Glazing #3	not used	1,000	0,000	0,000

### J2 - 5,8 X 3,0

#### Window Details:

Detailed Input ..... **Sim**  
Height ..... **3,00** m  
Width ..... **5,80** m  
Frame Type ..... **None**  
Internal Shade Type ..... **None**  
Overall U-Value ..... **6,195** W/(m<sup>2</sup>·K)  
Overall Shade Coefficient ..... **0,630**

#### Glass Details:

Gap Type ..... **6mm Air Space**

Glazing	Glass Type	Transmissivity	Reflectivity	Absorptivity
Outer Glazing	6mm clear reflective	0,501	0,315	0,184
Glazing #2	not used	1,000	0,000	0,000
Glazing #3	not used	1,000	0,000	0,000

## Space Input Data

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### ST 2 - ARQUIVO

#### 1. General Details:

Floor Area ..... 14,7 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SE	8,4	1	0	0
NE	15,6	1	0	0

#### 3.1. Construction Types for Exposure SE

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J1 -2,7 x 3,0

#### 3.2. Construction Types for Exposure NE

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J 5,2 X 3,0

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 24,0 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 14,7 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

## Space Input Data

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### ST 2 - ASSES. ORÇAMENT.

#### 1. General Details:

Floor Area ..... 14,7 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

##### 2.4. People:

Occupancy ..... 3,68 m<sup>2</sup>/person  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

##### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SE	8,1	1	0	0

#### 3.1. Construction Types for Exposure SE

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J1 -2,7 x 3,0

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 40,0 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 14,7 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

## Space Input Data

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### ST 2 - ASSES. PLAN

#### 1. General Details:

Floor Area ..... 14,0 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NW	8,6	1	0	0

##### 3.1. Construction Types for Exposure NW

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J 1,5 X 1,0

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 38,7 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 15,7 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C



## Space Input Data

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### ST 2 - ASSES./ ESPERA

#### 1. General Details:

Floor Area ..... 17,8 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

##### 2.4. People:

Occupancy ..... 3,60 m<sup>2</sup>/person  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

##### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NW	10,0	1	0	0

##### 3.1. Construction Types for Exposure NW

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J 1,5 X 1,0

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 45,0 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 17,8 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

# Space Input Data

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## ST 2 - ASSESSOR

### 1. General Details:

Floor Area ..... 10,7 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

### 2. Internals:

#### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

#### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

#### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

### 3. Walls, Windows, Doors:

(No Wall, Window, Door data).

### 4. Roofs, Skylights:

(No Roof or Skylight data).

### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

### 7. Partitions:

#### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 40,0 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

### 2.4. People:

Occupancy ..... 3,68 m<sup>2</sup>/person  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

#### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 10,7 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

## Space Input Data

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### ST 2 - C.P.D.

#### 1. General Details:

Floor Area ..... 30,0 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... User-Defined  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults **ASHRAE Standard 62.1-2007**

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 300,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

##### 2.4. People:

Occupancy ..... 0,0 Person  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... None

##### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NE	9,0	1	0	0

#### 3.1. Construction Types for Exposure NE

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J1 -2,7 x 3,0

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 58,8 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 30,0 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

## Space Input Data

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### ST 2 - COPA GERAL

#### 1. General Details:

Floor Area ..... 11,4 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NW	6,6	1	0	0

#### 3.1. Construction Types for Exposure NW

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J 1,5 X 3,0

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 38,0 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 11,4 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

## Space Input Data

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### ST 2 - DEPOSITO

#### 1. General Details:

Floor Area ..... 16,3 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

##### 2.4. People:

Occupancy ..... 3,68 m<sup>2</sup>/person  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

##### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NE	6,0	1	0	0

#### 3.1. Construction Types for Exposure NE

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J 1,5 X 3,0

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 45,3 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 16,3 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

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### ST 2 - DEPOSITO 02

#### 1. General Details:

Floor Area ..... 14,9 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NW	8,6	1	0	0
NE	15,8	0	0	0

#### 3.1. Construction Types for Exposure NW

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J 1,5 X 3,0

#### 3.2. Construction Types for Exposure NE

Wall Type ..... Externa com insolacao (15cm)

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 24,3 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 14,9 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

## Space Input Data

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### ST 2 - DIC. COMPRAS

#### 1. General Details:

Floor Area ..... 27,7 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

##### 2.4. People:

Occupancy ..... 3,60 m<sup>2</sup>/person  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

##### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NW	16,0	2	0	0

#### 3.1. Construction Types for Exposure NW

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J 1,5 X 1,0

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 47,1 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 27,7 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

## Space Input Data

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### ST 2 - DIR. ADM

#### 1. General Details:

Floor Area ..... 14,2 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

##### 2.4. People:

Occupancy ..... 3,68 m<sup>2</sup>/person  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

##### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SE	8,1	1	0	0

#### 3.1. Construction Types for Exposure SE

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J1 -2,7 x 3,0

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 40,0 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 14,3 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C



## Space Input Data

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### ST 2 - DIV. PESSOAL

#### 1. General Details:

Floor Area ..... 30,7 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SE	17,4	1	0	0

#### 3.1. Construction Types for Exposure SE

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J2 - 5,8 X 3,0

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 50,0 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 30,7 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

## Space Input Data

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### ST 2 - DIVISAO FINANC

#### 1. General Details:

Floor Area ..... 14,3 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NW	8,1	1	0	0

#### 3.1. Construction Types for Exposure NW

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J 1,5 X 1,0

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 40,0 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 14,3 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

## Space Input Data

CAMARA MUNICIPAL DE GOIANIA -2017  
FPM Engenharia e Comercio Ltda

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09:07

### ST 2 - ESPERA/ASSES

#### 1. General Details:

Floor Area ..... 14,6 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

##### 2.4. People:

Occupancy ..... 3,68 m<sup>2</sup>/person  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

##### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SE	8,4	1	0	0

#### 3.1. Construction Types for Exposure SE

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J1 -2,7 x 3,0

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 40,0 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 14,6 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

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### ST 2 - MANUTENCAO

#### 1. General Details:

Floor Area ..... 30,6 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

##### 2.4. People:

Occupancy ..... 3,68 m<sup>2</sup>/person  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

##### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NW	17,5	2	0	0

#### 3.1. Construction Types for Exposure NW

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J 1,5 X 3,0

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 49,0 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 30,6 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

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### ST 2 - PABX

#### 1. General Details:

Floor Area ..... 14,7 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SE	8,6	1	0	0

#### 3.1. Construction Types for Exposure SE

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J 1,5 X 1,0

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 40,0 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 14,8 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

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### ST 2 - PATRIMONIO

#### 1. General Details:

Floor Area ..... 14,7 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

##### 2.4. People:

Occupancy ..... 3,60 m<sup>2</sup>/person  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

##### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SE	8,6	1	0	0

##### 3.1. Construction Types for Exposure SE

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J 1,5 X 1,0

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 40,0 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 14,8 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

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### ST 2 - PESSOAL PLENARIO

#### 1. General Details:

Floor Area ..... 14,8 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

##### 2.4. People:

Occupancy ..... 3,60 m<sup>2</sup>/person  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

##### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SE	8,6	1	0	0

##### 3.1. Construction Types for Exposure SE

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J 1,5 X 1,0

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 40,0 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 14,8 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

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### ST 2 - PROCURADOR GERAL

#### 1. General Details:

Floor Area ..... 11,0 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NE	12,0	1	0	0

#### 3.1. Construction Types for Exposure NE

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J 1,5 X 1,0

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 24,0 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 14,7 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C



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### ST 2 - PROCURADORIA

#### 1. General Details:

Floor Area ..... 38,5 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

##### 2.4. People:

Occupancy ..... 3,68 m<sup>2</sup>/person  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

##### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NE	20,1	1	0	0

#### 3.1. Construction Types for Exposure NE

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J 6,5 X 3,0

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 54,8 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 38,5 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

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### ST 2 - PROTOCOLO

#### 1. General Details:

Floor Area ..... 13,6 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

##### 2.4. People:

Occupancy ..... 3,60 m<sup>2</sup>/person  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

##### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SE	8,2	1	0	0

#### 3.1. Construction Types for Exposure SE

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J 1,5 X 1,0

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 38,2 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 13,6 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

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## ST 2 - SALA 01

### 1. General Details:

Floor Area ..... 24,9 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

### 2. Internals:

#### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

#### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

#### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

### 3. Walls, Windows, Doors:

(No Wall, Window, Door data).

### 4. Roofs, Skylights:

(No Roof or Skylight data).

### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

### 7. Partitions:

#### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 60,0 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

#### 2.4. People:

Occupancy ..... 3,68 m<sup>2</sup>/person  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

#### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

#### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 24,9 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

## Space Input Data

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### ST 2 - SALA 02

#### 1. General Details:

Floor Area ..... 14,7 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

##### 2.4. People:

Occupancy ..... 3,60 m<sup>2</sup>/person  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

##### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SE	8,6	1	0	0

#### 3.1. Construction Types for Exposure SE

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J 1,5 X 1,0

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 40,0 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

Partition Type ..... Ceiling Partition  
Area ..... 14,8 m<sup>2</sup>  
U-Value ..... 2,420 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

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### ST 3 - APOIO DIR. LEGIS

#### 1. General Details:

Floor Area ..... 27,8 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.4. People:

Occupancy ..... 7,6 People  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	9,0	0	0	0
N	16,2	2	0	0

##### 3.1. Construction Types for Exposure E

Wall Type ..... Externa com insolacao (15cm)

##### 3.2. Construction Types for Exposure N

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J 1,5 X 1,0

#### 4. Roofs, Skylights:

Exp.	Roof Gross Area (m <sup>2</sup> )	Roof Slope (deg.)	Skylight Qty.
H	27,7	0	0

##### 4.1. Construction Types for Exposure H

Roof Type ..... Telha sandwich + forro gesso

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Unconditioned Space  
Floor Area ..... 27,8 m<sup>2</sup>  
Total Floor U-Value ..... 2,160 W/(m<sup>2</sup>·K)  
Unconditioned Space Max Temp. .... 28,0 °C  
Ambient at Space Max Temp. .... 35,0 °C  
Unconditioned Space Min Temp. .... 23,9 °C  
Ambient at Space Min Temp. .... 12,8 °C

#### 7. Partitions:

(No partition data).

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### ST 3 - APOIO LEGISLATIVO

#### 1. General Details:

Floor Area ..... 27,3 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.4. People:

Occupancy ..... 3,68 m<sup>2</sup>/person  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	15,6	1	0	0

##### 3.1. Construction Types for Exposure N

Wall Type ..... Externa com insulacao (15cm)  
1st Window Type ..... J 1,5 X 1,0

#### 4. Roofs, Skylights:

Exp.	Roof Gross Area (m <sup>2</sup> )	Roof Slope (deg.)	Skylight Qty.
H	27,3	0	0

##### 4.1. Construction Types for Exposure H

Roof Type ..... Telha sandwich + forro gesso

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Unconditioned Space  
Floor Area ..... 27,3 m<sup>2</sup>  
Total Floor U-Value ..... 2,160 W/(m<sup>2</sup>·K)  
Unconditioned Space Max Temp. .... 28,0 °C  
Ambient at Space Max Temp. .... 35,0 °C  
Unconditioned Space Min Temp. .... 23,9 °C  
Ambient at Space Min Temp. .... 12,8 °C

#### 7. Partitions:

(No partition data).

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### ST 3 - CIRCULAÇÃO

#### 1. General Details:

Floor Area ..... 127,0 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 0,0 Watts  
Schedule ..... None

#### 3. Walls, Windows, Doors:

(No Wall, Window, Door data).

#### 4. Roofs, Skylights:

Exp.	Roof Gross Area (m <sup>2</sup> )	Roof Slope (deg.)	Skylight Qty.
H	127,0	0	0

#### 4.1. Construction Types for Exposure H

Roof Type ..... Telha sandwich + forro gesso

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s

Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Unconditioned Space  
Floor Area ..... 127,0 m<sup>2</sup>  
Total Floor U-Value ..... 2,160 W/(m<sup>2</sup>·K)  
Unconditioned Space Max Temp. .... 28,0 °C  
Ambient at Space Max Temp. .... 35,0 °C  
Unconditioned Space Min Temp. .... 23,9 °C  
Ambient at Space Min Temp. .... 12,8 °C

#### 7. Partitions:

(No partition data).

#### 2.4. People:

Occupancy ..... 10,0 People  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

#### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

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### ST 3 - CPD

#### 1. General Details:

Floor Area ..... 11,5 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... User-Defined  
OA Requirement 1 ..... 0,0 L/s/person  
OA Requirement 2 ..... 0,00 L/(s·m<sup>2</sup>)  
Space Usage Defaults **ASHRAE Standard 62.1-2007**

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 300,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

#### 3. Walls, Windows, Doors:

(No Wall, Window, Door data).

#### 4. Roofs, Skylights:

Exp.	Roof Gross Area (m <sup>2</sup> )	Roof Slope (deg.)	Skylight Qty.
H	11,5	0	0

#### 4.1. Construction Types for Exposure H

Roof Type ..... Telha sandwich + forro gesso

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Unconditioned Space  
Floor Area ..... 11,5 m<sup>2</sup>  
Total Floor U-Value ..... 2,150 W/(m<sup>2</sup>·K)  
Unconditioned Space Max Temp. .... 28,0 °C  
Ambient at Space Max Temp. .... 35,0 °C  
Unconditioned Space Min Temp. .... 23,9 °C  
Ambient at Space Min Temp. .... 12,8 °C

#### 7. Partitions:

(No partition data).

#### 2.4. People:

Occupancy ..... 0,0 Person  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... None

#### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None



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### ST 3 - DIR. LEGISL

#### 1. General Details:

Floor Area ..... 14,5 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.4. People:

Occupancy ..... 4,0 People  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 300,0 Watts  
Schedule ..... equipamentos (02 TURNOS)

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	8,7	1	0	0

#### 3.1. Construction Types for Exposure E

Wall Type ..... Externa com insulacao (15cm)  
1st Window Type ..... J 1,5 X 1,0

#### 4. Roofs, Skylights:

Exp.	Roof Gross Area (m <sup>2</sup> )	Roof Slope (deg.)	Skylight Qty.
H	14,4	0	0

#### 4.1. Construction Types for Exposure H

Roof Type ..... Telha sandwich + forro gesso

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Unconditioned Space  
Floor Area ..... 14,5 m<sup>2</sup>  
Total Floor U-Value ..... 2,160 W/(m<sup>2</sup>·K)  
Unconditioned Space Max Temp. .... 28,0 °C  
Ambient at Space Max Temp. .... 35,0 °C  
Unconditioned Space Min Temp. .... 23,9 °C  
Ambient at Space Min Temp. .... 12,8 °C

#### 7. Partitions:

(No partition data).

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### ST 3 - PLENARIA

#### 1. General Details:

Floor Area ..... **545,0** m<sup>2</sup>  
Avg. Ceiling Height ..... **7,0** m  
Building Weight ..... **341,8** kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... **PUBLIC ASSEMBLY: Auditorium**  
OA Requirement 1 ..... **2,5** L/s/person  
OA Requirement 2 ..... **0,30** L/(s·m<sup>2</sup>)  
Space Usage Defaults **ASHRAE Standard 62.1-2007**

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**  
Wattage ..... **16,00** W/m<sup>2</sup>  
Ballast Multiplier ..... **1,15**  
Schedule ..... **iluminacao (02 TURNOS)**

##### 2.4. People:

Occupancy ..... **250,0** People  
Activity Level ..... **Office Work**  
Sensible ..... **71,8** W/person  
Latent ..... **60,1** W/person  
Schedule ..... **pessoas (02 TURNOS)**

##### 2.2. Task Lighting:

Wattage ..... **0,00** W/m<sup>2</sup>  
Schedule ..... **None**

##### 2.5. Miscellaneous Loads:

Sensible ..... **0** W  
Schedule ..... **None**  
Latent ..... **0** W  
Schedule ..... **None**

##### 2.3. Electrical Equipment:

Wattage ..... **2000,0** Watts  
Schedule ..... **equipamentos (02 TURNOS)**

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NE	74,0	0	0	0
SE	35,0	0	0	0
NW	35,0	0	0	0

##### 3.1. Construction Types for Exposure NE

Wall Type ..... **Externa com insolacao (15cm)**

##### 3.2. Construction Types for Exposure SE

Wall Type ..... **Externa com insolacao (15cm)**

##### 3.3. Construction Types for Exposure NW

Wall Type ..... **Externa com insolacao (15cm)**

#### 4. Roofs, Skylights:

Exp.	Roof Gross Area (m <sup>2</sup> )	Roof Slope (deg.)	Skylight Qty.
H	545,0	0	0

##### 4.1. Construction Types for Exposure H

Roof Type ..... **Telha sandwich + forro gesso**

#### 5. Infiltration:

Design Cooling ..... **0,00** L/s  
Design Heating ..... **0,00** L/s  
Energy Analysis ..... **0,00** L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... **Floor Above Conditioned Space**  
**(No additional input required for this floor type).**

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**  
Area ..... **225,0** m<sup>2</sup>  
U-Value ..... **2,540** W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... **28,0** °C  
Ambient at Space Max Temp ..... **35,0** °C  
Uncondit. Space Min Temp ..... **23,9** °C  
Ambient at Space Min Temp ..... **12,8** °C

##### 7.2. 2nd Partition Details:

**(No partition data).**

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### ST 3 - RECEPÇÃO SL IMP

#### 1. General Details:

Floor Area ..... 20,1 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
NW	17,1	0	0	0

##### 3.1. Construction Types for Exposure NW

Wall Type ..... Externa com insolacao (15cm)

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s

Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

(No partition data).

#### 2.4. People:

Occupancy ..... 3,60 m<sup>2</sup>/person  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

#### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

## Space Input Data

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### ST 3 - REUNIÃO

#### 1. General Details:

Floor Area ..... 53,0 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.4. People:

Occupancy ..... 20,0 People  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

#### 2.3. Electrical Equipment:

Wattage ..... 2000,0 Watts  
Schedule ..... equipamentos (02 TURNOS)

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	30,3	3	0	0

#### 3.1. Construction Types for Exposure E

Wall Type ..... Externa com insulacao (15cm)  
1st Window Type ..... J 1,5 X 1,0

#### 4. Roofs, Skylights:

Exp.	Roof Gross Area (m <sup>2</sup> )	Roof Slope (deg.)	Skylight Qty.
H	53,0	0	0

#### 4.1. Construction Types for Exposure H

Roof Type ..... Telha sandwich + forro gesso

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Unconditioned Space  
Floor Area ..... 53,0 m<sup>2</sup>  
Total Floor U-Value ..... 2,160 W/(m<sup>2</sup>·K)  
Unconditioned Space Max Temp. .... 28,0 °C  
Ambient at Space Max Temp. .... 35,0 °C  
Unconditioned Space Min Temp. .... 23,9 °C  
Ambient at Space Min Temp. .... 12,8 °C

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 40,0 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp. .... 28,0 °C  
Ambient at Space Max Temp. .... 35,0 °C  
Uncondit. Space Min Temp. .... 23,9 °C  
Ambient at Space Min Temp. .... 12,8 °C

##### 7.2. 2nd Partition Details:

(No partition data).

## Space Input Data

CAMARA MUNICIPAL DE GOIANIA -2017  
FPM Engenharia e Comercio Ltda

10/31/2017  
09:07

### ST 3 - REUNIÃO 02

#### 1. General Details:

Floor Area ..... 53,0 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.4. People:

Occupancy ..... 20,0 People  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

#### 2.3. Electrical Equipment:

Wattage ..... 2000,0 Watts  
Schedule ..... equipamentos (02 TURNOS)

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	30,3	3	0	0

#### 3.1. Construction Types for Exposure W

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J 1,5 X 1,0

#### 4. Roofs, Skylights:

Exp.	Roof Gross Area (m <sup>2</sup> )	Roof Slope (deg.)	Skylight Qty.
H	53,0	0	0

#### 4.1. Construction Types for Exposure H

Roof Type ..... Telha sandwich + forro gesso

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Unconditioned Space  
Floor Area ..... 53,0 m<sup>2</sup>  
Total Floor U-Value ..... 2,160 W/(m<sup>2</sup>·K)  
Unconditioned Space Max Temp. .... 28,0 °C  
Ambient at Space Max Temp. .... 35,0 °C  
Unconditioned Space Min Temp. .... 23,9 °C  
Ambient at Space Min Temp. .... 12,8 °C

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 40,0 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp. .... 28,0 °C  
Ambient at Space Max Temp. .... 35,0 °C  
Uncondit. Space Min Temp. .... 23,9 °C  
Ambient at Space Min Temp. .... 12,8 °C

##### 7.2. 2nd Partition Details:

(No partition data).

## Space Input Data

CAMARA MUNICIPAL DE GOIANIA -2017  
FPM Engenharia e Comercio Ltda

10/31/2017  
09:07

### ST 3 - REVISÃO

#### 1. General Details:

Floor Area ..... 11,5 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.4. People:

Occupancy ..... 3,68 m<sup>2</sup>/person  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	13,5	1	0	0

##### 3.1. Construction Types for Exposure N

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J 1,5 X 1,0

#### 4. Roofs, Skylights:

Exp.	Roof Gross Area (m <sup>2</sup> )	Roof Slope (deg.)	Skylight Qty.
H	11,5	0	0

##### 4.1. Construction Types for Exposure H

Roof Type ..... Telha sandwich + forro gesso

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Unconditioned Space  
Floor Area ..... 11,5 m<sup>2</sup>  
Total Floor U-Value ..... 2,160 W/(m<sup>2</sup>·K)  
Unconditioned Space Max Temp. .... 28,0 °C  
Ambient at Space Max Temp. .... 35,0 °C  
Unconditioned Space Min Temp. .... 23,9 °C  
Ambient at Space Min Temp. .... 12,8 °C

#### 7. Partitions:

(No partition data).

## Space Input Data

CAMARA MUNICIPAL DE GOIANIA -2017  
FPM Engenharia e Comercio Ltda

10/31/2017  
09:07

### ST 3 - SALA 01

#### 1. General Details:

Floor Area ..... 13,2 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.4. People:

Occupancy ..... 3,68 m<sup>2</sup>/person  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	7,5	1	0	0

##### 3.1. Construction Types for Exposure N

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J 1,5 X 1,0

#### 4. Roofs, Skylights:

Exp.	Roof Gross Area (m <sup>2</sup> )	Roof Slope (deg.)	Skylight Qty.
H	13,2	0	0

##### 4.1. Construction Types for Exposure H

Roof Type ..... Telha sandwich + forro gesso

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Unconditioned Space  
Floor Area ..... 13,2 m<sup>2</sup>  
Total Floor U-Value ..... 2,160 W/(m<sup>2</sup>·K)  
Unconditioned Space Max Temp. .... 28,0 °C  
Ambient at Space Max Temp. .... 35,0 °C  
Unconditioned Space Min Temp. .... 23,9 °C  
Ambient at Space Min Temp. .... 12,8 °C

#### 7. Partitions:

(No partition data).

## Space Input Data

CAMARA MUNICIPAL DE GOIANIA -2017  
FPM Engenharia e Comercio Ltda

10/31/2017  
09:07

### ST 3 - SALA 02

#### 1. General Details:

Floor Area ..... 14,5 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.4. People:

Occupancy ..... 4,0 People  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 300,0 Watts  
Schedule ..... equipamentos (02 TURNOS)

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	8,7	1	0	0

##### 3.1. Construction Types for Exposure W

Wall Type ..... Externa com insulacao (15cm)  
1st Window Type ..... J 1,5 X 1,0

#### 4. Roofs, Skylights:

Exp.	Roof Gross Area (m <sup>2</sup> )	Roof Slope (deg.)	Skylight Qty.
H	14,4	0	0

##### 4.1. Construction Types for Exposure H

Roof Type ..... Telha sandwich + forro gesso

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Unconditioned Space  
Floor Area ..... 14,5 m<sup>2</sup>  
Total Floor U-Value ..... 2,160 W/(m<sup>2</sup>·K)  
Unconditioned Space Max Temp. .... 28,0 °C  
Ambient at Space Max Temp. .... 35,0 °C  
Unconditioned Space Min Temp. .... 23,9 °C  
Ambient at Space Min Temp. .... 12,8 °C

#### 7. Partitions:

(No partition data).



## Space Input Data

CAMARA MUNICIPAL DE GOIANIA -2017  
FPM Engenharia e Comercio Ltda

10/31/2017  
09:07

### ST 3 - SALA VIP

#### 1. General Details:

Floor Area ..... 28,2 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

#### 3. Walls, Windows, Doors:

(No Wall, Window, Door data).

#### 4. Roofs, Skylights:

(No Roof or Skylight data).

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

(No partition data).

#### 2.4. People:

Occupancy ..... 15,0 People  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

#### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

## Space Input Data

CAMARA MUNICIPAL DE GOIANIA -2017  
FPM Engenharia e Comercio Ltda

10/31/2017  
09:07

### ST 3 - TAQUIGRAFIA

#### 1. General Details:

Floor Area ..... 27,8 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.4. People:

Occupancy ..... 3,68 m<sup>2</sup>/person  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 20,00 W/m<sup>2</sup>  
Schedule ..... equipamentos (02 TURNOS)

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	9,0	0	0	0
N	16,2	2	0	0

##### 3.1. Construction Types for Exposure W

Wall Type ..... Externa com insolacao (15cm)

##### 3.2. Construction Types for Exposure N

Wall Type ..... Externa com insolacao (15cm)  
1st Window Type ..... J 1,5 X 1,0

#### 4. Roofs, Skylights:

Exp.	Roof Gross Area (m <sup>2</sup> )	Roof Slope (deg.)	Skylight Qty.
H	27,7	0	0

##### 4.1. Construction Types for Exposure H

Roof Type ..... Telha sandwich + forro gesso

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Unconditioned Space  
Floor Area ..... 27,8 m<sup>2</sup>  
Total Floor U-Value ..... 2,160 W/(m<sup>2</sup>·K)  
Unconditioned Space Max Temp. .... 28,0 °C  
Ambient at Space Max Temp. .... 35,0 °C  
Unconditioned Space Min Temp. .... 23,9 °C  
Ambient at Space Min Temp. .... 12,8 °C

#### 7. Partitions:

(No partition data).

## Space Input Data

CAMARA MUNICIPAL DE GOIANIA -2017  
FPM Engenharia e Comercio Ltda

10/31/2017  
09:07

### ST 4 - AUD. JAIME CAM.

#### 1. General Details:

Floor Area ..... 336,0 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage .... **PUBLIC ASSEMBLY: Auditorium**  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults **ASHRAE Standard 62.1-2007**

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... **Free Hanging**  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... **iluminacao (02 TURNOS)**

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... **None**

##### 2.3. Electrical Equipment:

Wattage ..... 2000,0 Watts  
Schedule ..... **equipamentos (02 TURNOS)**

#### 3. Walls, Windows, Doors:

**(No Wall, Window, Door data).**

#### 4. Roofs, Skylights:

Exp.	Roof Gross Area (m <sup>2</sup> )	Roof Slope (deg.)	Skylight Qty.
H	397,0	0	0

#### 4.1. Construction Types for Exposure H

Roof Type ..... **Telha sandwich + forro gesso**

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s

*Infiltration occurs only when the fan is off.*

#### 6. Floors:

Type ..... **Floor Above Conditioned Space**  
**(No additional input required for this floor type).**

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... **Wall Partition**  
Area ..... 468,0 m<sup>2</sup>  
U-Value ..... 2,540 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

**(No partition data).**

## Space Input Data

CAMARA MUNICIPAL DE GOIANIA -2017  
FPM Engenharia e Comercio Ltda

10/31/2017  
09:07

### ST 4 - FOYER AUD.

#### 1. General Details:

Floor Area ..... 72,0 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... PUBLIC ASSEMBLY: Lobby  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

#### 3. Walls, Windows, Doors:

Exp.	Wall Gross Area (m <sup>2</sup> )	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
SE	17,8	0	0	0
NE	17,8	0	0	0
NW	38,4	0	0	0

#### 3.1. Construction Types for Exposure SE

Wall Type ..... Externa com insolacao (15cm)

#### 3.2. Construction Types for Exposure NE

Wall Type ..... Externa com insolacao (15cm)

#### 3.3. Construction Types for Exposure NW

Wall Type ..... Externa com insolacao (15cm)

#### 4. Roofs, Skylights:

Exp.	Roof Gross Area (m <sup>2</sup> )	Roof Slope (deg.)	Skylight Qty.
H	72,0	0	0

#### 4.1. Construction Types for Exposure H

Roof Type ..... Telha sandwich + forro gesso

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s  
Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

##### 7.1. 1st Partition Details:

Partition Type ..... Wall Partition  
Area ..... 93,0 m<sup>2</sup>  
U-Value ..... 2,580 W/(m<sup>2</sup>·K)  
Uncondit. Space Max Temp ..... 28,0 °C  
Ambient at Space Max Temp ..... 35,0 °C  
Uncondit. Space Min Temp ..... 23,9 °C  
Ambient at Space Min Temp ..... 12,8 °C

##### 7.2. 2nd Partition Details:

(No partition data).

## Space Input Data

CAMARA MUNICIPAL DE GOIANIA -2017  
FPM Engenharia e Comercio Ltda

10/31/2017  
09:07

### ST 4 - SL SOM AUD.

#### 1. General Details:

Floor Area ..... 10,7 m<sup>2</sup>  
Avg. Ceiling Height ..... 3,0 m  
Building Weight ..... 341,8 kg/m<sup>2</sup>

#### 1.1. OA Ventilation Requirements:

Space Usage ..... OFFICE: Office space  
OA Requirement 1 ..... 2,5 L/s/person  
OA Requirement 2 ..... 0,30 L/(s·m<sup>2</sup>)  
Space Usage Defaults ASHRAE Standard 62.1-2007

#### 2. Internals:

##### 2.1. Overhead Lighting:

Fixture Type ..... Free Hanging  
Wattage ..... 16,00 W/m<sup>2</sup>  
Ballast Multiplier ..... 1,15  
Schedule ..... iluminacao (02 TURNOS)

##### 2.2. Task Lighting:

Wattage ..... 0,00 W/m<sup>2</sup>  
Schedule ..... None

##### 2.3. Electrical Equipment:

Wattage ..... 1500,0 Watts  
Schedule ..... equipamentos (02 TURNOS)

#### 3. Walls, Windows, Doors:

(No Wall, Window, Door data).

#### 4. Roofs, Skylights:

Exp.	Roof Gross Area (m <sup>2</sup> )	Roof Slope (deg.)	Skylight Qty.
H	10,7	0	0

#### 4.1. Construction Types for Exposure H

Roof Type ..... Telha sandwich + forro gesso

#### 5. Infiltration:

Design Cooling ..... 0,00 L/s  
Design Heating ..... 0,00 L/s  
Energy Analysis ..... 0,00 L/s

Infiltration occurs only when the fan is off.

#### 6. Floors:

Type ..... Floor Above Conditioned Space  
(No additional input required for this floor type).

#### 7. Partitions:

(No partition data).

#### 2.4. People:

Occupancy ..... 2,0 People  
Activity Level ..... Office Work  
Sensible ..... 71,8 W/person  
Latent ..... 60,1 W/person  
Schedule ..... pessoas (02 TURNOS)

#### 2.5. Miscellaneous Loads:

Sensible ..... 0 W  
Schedule ..... None  
Latent ..... 0 W  
Schedule ..... None

## Air System Sizing Summary for 01 - ADM - BLOCO 2

Project Name: CAMARA MUNICIPAL DE GOIANIA -2017  
Prepared by: FPM Engenharia e Comercio Ltda

10/31/2017  
09:39

### Air System Information

Air System Name ..... **01 - ADM - BLOCO 2**  
Equipment Class ..... **PKG VERT**  
Air System Type ..... **SZCAV**

Number of zones ..... **1**  
Floor Area ..... **423,5** m<sup>2</sup>  
Location ..... **Goiania, Brazil**

### Sizing Calculation Information

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

Zone L/s Sizing ..... **Sum of space airflow rates**  
Space L/s Sizing ..... **Individual peak space loads**

### Central Cooling Coil Sizing Data

Total coil load ..... **104,4** kW  
Sensible coil load ..... **91,9** kW  
Coil L/s at Feb 1600 ..... **7181** L/s  
Max block L/s ..... **7181** L/s  
Sum of peak zone L/s ..... **7181** L/s  
Sensible heat ratio ..... **0,880**  
m<sup>2</sup>/kW ..... **4,1**  
W/m<sup>2</sup> ..... **246,4**  
Water flow @ 5,6 K rise ..... **N/A**

Load occurs at ..... **Feb 1600**  
OA DB / WB ..... **33,8 / 22,8** °C  
Entering DB / WB ..... **24,4 / 16,8** °C  
Leaving DB / WB ..... **12,8 / 12,1** °C  
Coil ADP ..... **11,5** °C  
Bypass Factor ..... **0,100**  
Resulting RH ..... **48** %  
Design supply temp. .... **12,0** °C  
Zone T-stat Check ..... **1 of 1** OK  
Max zone temperature deviation ..... **0,0** K

### Supply Fan Sizing Data

Actual max L/s ..... **7181** L/s  
Standard L/s ..... **6568** L/s  
Actual max L/(s·m<sup>2</sup>) ..... **16,96** L/(s·m<sup>2</sup>)

Fan motor BHP ..... **5,03** BHP  
Fan motor kW ..... **3,99** kW  
Fan static ..... **300** Pa

### Outdoor Ventilation Air Data

Design airflow L/s ..... **399** L/s  
L/(s·m<sup>2</sup>) ..... **0,94** L/(s·m<sup>2</sup>)

L/s/person ..... **3,67** L/s/person

## Zone Sizing Summary for 01 - ADM - BLOCO 2

Project Name: CAMARA MUNICIPAL DE GOIANIA -2017  
Prepared by: FPM Engenharia e Comercio Ltda

10/31/2017  
09:39

### Air System Information

Air System Name ..... **01 - ADM - BLOCO 2**  
Equipment Class ..... **PKG VERT**  
Air System Type ..... **SZCAV**

Number of zones ..... **1**  
Floor Area ..... **423,5** m<sup>2</sup>  
Location ..... **Goiania, Brazil**

### Sizing Calculation Information

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

Zone L/s Sizing ..... **Sum of space airflow rates**  
Space L/s Sizing ..... **Individual peak space loads**

### Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m <sup>2</sup> )	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11,1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11,1 K	Mixing Box Fan Airflow (L/s)
Zone 01	7181	7181	16,96	0,0	-	0,0	-	0

### Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m <sup>2</sup> )
Zone 01	83,7	Oct 1600	11,6	423,5

### Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m <sup>2</sup> )	Space L/(s·m <sup>2</sup> )
<b>Zone 01</b>							
ST 2 - ARQUIVO	1	3,9	Oct 1500	320	1,1	14,7	21,79
ST 2 - ASSES. ORÇAMENT.	1	3,1	Nov 1500	253	0,5	14,7	17,20
ST 2 - ASSES. PLAN	1	2,5	Sep 1700	203	0,3	14,0	14,51
ST 2 - ASSES./ ESPERA	1	2,9	Sep 1700	238	0,4	17,8	13,39
ST 2 - ASSESSOR	1	1,3	Oct 1700	108	0,0	10,7	10,07
ST 2 - C.P.D.	1	12,7	Sep 1500	1049	0,5	30,0	34,98
ST 2 - COPA GERAL	1	3,1	Aug 1600	257	0,4	11,4	22,55
ST 2 - DEPOSITO	1	3,0	Aug 1200	246	0,3	16,3	15,06
ST 2 - DEPOSITO 02	1	4,0	Aug 1600	330	0,9	14,9	22,17
ST 2 - DIC. COMPRAS	1	4,4	Sep 1700	362	0,6	27,7	13,08
ST 2 - DIR. ADM	1	3,0	Nov 1500	250	0,5	14,2	17,60
ST 2 - DIV. PESSOAL	1	6,1	Dec 1100	502	1,1	30,7	16,34
ST 2 - DIVISAO FINANC	1	2,5	Sep 1700	202	0,3	14,3	14,12
ST 2 - ESPERA/ASSES	1	3,1	Nov 1500	253	0,5	14,6	17,35
ST 2 - MANUTENCAO	1	6,6	Aug 1600	541	0,8	30,6	17,69
ST 2 - PABX	1	2,3	Oct 1600	189	0,3	14,7	12,85
ST 2 - PATRIMONIO	1	2,3	Oct 1600	189	0,3	14,7	12,85
ST 2 - PESSOAL PLENARIO	1	2,3	Oct 1600	189	0,3	14,8	12,80
ST 2 - PROCURADOR GERAL	1	2,1	Oct 1500	170	0,4	11,0	15,49
ST 2 - PROCURADORIA	1	9,1	May 1100	746	1,2	38,5	19,38
ST 2 - PROTOCOLO	1	2,2	Oct 1600	179	0,3	13,6	13,13
ST 2 - SALA 01	1	2,6	Oct 1700	215	0,0	24,9	8,63
ST 2 - SALA 02	1	2,3	Oct 1600	189	0,3	14,7	12,85

## Ventilation Sizing Summary for 01 - ADM - BLOCO 2

Project Name: CAMARA MUNICIPAL DE GOIANIA -2017  
Prepared by: FPM Engenharia e Comercio Ltda

10/31/2017  
09:39

### 1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**  
Design Ventilation Airflow Rate ..... **399** L/s

### 2. Space Ventilation Analysis

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s·m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
<b>Zone 01</b>									
ST 2 - ARQUIVO	1	14,7	4,0	320,3	2,50	0,30	0,0	0,0	14,4
ST 2 - ASSES. ORÇAMENT.	1	14,7	4,0	252,8	2,50	0,30	0,0	0,0	14,4
ST 2 - ASSES. PLAN	1	14,0	3,9	203,1	2,50	0,30	0,0	0,0	13,9
ST 2 - ASSES./ ESPERA	1	17,8	4,9	238,4	2,50	0,30	0,0	0,0	17,7
ST 2 - ASSESSOR	1	10,7	2,9	107,8	2,50	0,30	0,0	0,0	10,5
ST 2 - C.P.D.	1	30,0	0,0	1049,3	2,50	0,30	0,0	0,0	9,0
ST 2 - COPA GERAL	1	11,4	4,0	257,1	2,50	0,30	0,0	0,0	13,4
ST 2 - DEPOSITO	1	16,3	4,4	245,6	2,50	0,30	0,0	0,0	16,0
ST 2 - DEPOSITO 02	1	14,9	4,0	330,4	2,50	0,30	0,0	0,0	14,6
ST 2 - DIC. COMPRAS	1	27,7	7,7	362,4	2,50	0,30	0,0	0,0	27,5
ST 2 - DIR. ADM	1	14,2	3,9	249,9	2,50	0,30	0,0	0,0	13,9
ST 2 - DIV. PESSOAL	1	30,7	8,3	501,5	2,50	0,30	0,0	0,0	30,1
ST 2 - DIVISAO FINANC	1	14,3	4,0	201,9	2,50	0,30	0,0	0,0	14,2
ST 2 - ESPERA/ASSES	1	14,6	4,0	253,4	2,50	0,30	0,0	0,0	14,3
ST 2 - MANUTENCAO	1	30,6	8,3	541,3	2,50	0,30	0,0	0,0	30,0
ST 2 - PABX	1	14,7	4,1	188,9	2,50	0,30	0,0	0,0	14,6
ST 2 - PATRIMONIO	1	14,7	4,1	188,9	2,50	0,30	0,0	0,0	14,6
ST 2 - PESSOAL PLENARIO	1	14,8	4,1	189,4	2,50	0,30	0,0	0,0	14,7
ST 2 - PROCURADOR GERAL	1	11,0	3,0	170,4	2,50	0,30	0,0	0,0	10,8
ST 2 - PROCURADORIA	1	38,5	10,5	746,0	2,50	0,30	0,0	0,0	37,7
ST 2 - PROTOCOLO	1	13,6	3,8	178,5	2,50	0,30	0,0	0,0	13,5
ST 2 - SALA 01	1	24,9	6,8	214,9	2,50	0,30	0,0	0,0	24,4
ST 2 - SALA 02	1	14,7	4,1	188,9	2,50	0,30	0,0	0,0	14,6
<b>Totals (incl. Space Multipliers)</b>				<b>7181,2</b>					<b>398,8</b>



## Air System Sizing Summary for 01 - ADM PLENARIA

Project Name: CAMARA MUNICIPAL DE GOIANIA -2017  
Prepared by: FPM Engenharia e Comercio Ltda

10/31/2017  
09:39

### Air System Information

Air System Name ..... **01 - ADM PLENARIA**  
Equipment Class ..... **PKG VERT**  
Air System Type ..... **SZCAV**

Number of zones ..... **1**  
Floor Area ..... **381,1** m<sup>2</sup>  
Location ..... **Goiania, Brazil**

### Sizing Calculation Information

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

Zone L/s Sizing ..... **Sum of space airflow rates**  
Space L/s Sizing ..... **Individual peak space loads**

### Central Cooling Coil Sizing Data

Total coil load ..... **75,2** kW  
Sensible coil load ..... **64,7** kW  
Coil L/s at Feb 1400 ..... **4714** L/s  
Max block L/s ..... **4714** L/s  
Sum of peak zone L/s ..... **4714** L/s  
Sensible heat ratio ..... **0,860**  
m<sup>2</sup>/kW ..... **5,1**  
W/m<sup>2</sup> ..... **197,3**  
Water flow @ 5,6 K rise ..... **N/A**

Load occurs at ..... **Feb 1400**  
OA DB / WB ..... **33,8 / 22,8** °C  
Entering DB / WB ..... **24,5 / 16,6** °C  
Leaving DB / WB ..... **12,0 / 11,3** °C  
Coil ADP ..... **10,7** °C  
Bypass Factor ..... **0,100**  
Resulting RH ..... **46** %  
Design supply temp. .... **12,0** °C  
Zone T-stat Check ..... **1 of 1** OK  
Max zone temperature deviation ..... **0,0** K

### Supply Fan Sizing Data

Actual max L/s ..... **4714** L/s  
Standard L/s ..... **4311** L/s  
Actual max L/(s·m<sup>2</sup>) ..... **12,37** L/(s·m<sup>2</sup>)

Fan motor BHP ..... **3,30** BHP  
Fan motor kW ..... **2,62** kW  
Fan static ..... **300** Pa

### Outdoor Ventilation Air Data

Design airflow L/s ..... **329** L/s  
L/(s·m<sup>2</sup>) ..... **0,86** L/(s·m<sup>2</sup>)

L/s/person ..... **3,77** L/s/person

## Zone Sizing Summary for 01 - ADM PLENARIA

Project Name: CAMARA MUNICIPAL DE GOIANIA -2017  
Prepared by: FPM Engenharia e Comercio Ltda

10/31/2017  
09:39

### Air System Information

Air System Name ..... **01 - ADM PLENARIA**  
Equipment Class ..... **PKG VERT**  
Air System Type ..... **SZCAV**

Number of zones ..... **1**  
Floor Area ..... **381,1 m²**  
Location ..... **Goiania, Brazil**

### Sizing Calculation Information

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

Zone L/s Sizing ..... **Sum of space airflow rates**  
Space L/s Sizing ..... **Individual peak space loads**

### Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m²)	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11,1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11,1 K	Mixing Box Fan Airflow (L/s)
Zone 01	4714	4714	12,37	0,0	-	0,0	-	0

### Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
Zone 01	55,7	Oct 1500	7,4	381,1

### Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
<b>Zone 01</b>							
ST 3 - APOIO DIR. LEGIS	1	4,6	Aug 1500	381	0,9	27,8	13,71
ST 3 - APOIO LEGISLATIVO	1	3,8	Aug 1500	315	0,6	27,3	11,52
ST 3 - CIRCULAÇÃO	1	9,6	Oct 1400	789	0,9	127,0	6,21
ST 3 - CPD	1	4,4	Oct 1400	366	0,1	11,5	31,79
ST 3 - DIR. LEGISL	1	2,5	Oct 1400	202	0,4	14,5	13,92
ST 3 - REUNIÃO	1	10,5	Oct 1400	867	1,3	53,0	16,36
ST 3 - REUNIÃO 02	1	10,5	Oct 1700	865	1,3	53,0	16,32
ST 3 - REVISÃO	1	2,2	May 1500	182	0,5	11,5	15,84
ST 3 - SALA 01	1	2,0	May 1400	169	0,3	13,2	12,77
ST 3 - SALA 02	1	2,5	Oct 1700	203	0,4	14,5	14,03
ST 3 - TAQUIGRAFIA	1	4,6	Aug 1500	377	0,9	27,8	13,54

## Ventilation Sizing Summary for 01 - ADM PLENARIA

Project Name: CAMARA MUNICIPAL DE GOIANIA -2017  
Prepared by: FPM Engenharia e Comercio Ltda

10/31/2017  
09:39

### 1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**  
Design Ventilation Airflow Rate ..... **329 L/s**

### 2. Space Ventilation Analysis

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s·m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
<b>Zone 01</b>									
ST 3 - APOIO DIR. LEGIS	1	27,8	7,6	381,0	2,50	0,30	0,0	0,0	27,2
ST 3 - APOIO LEGISLATIVO	1	27,3	7,4	314,6	2,50	0,30	0,0	0,0	26,7
ST 3 - CIRCULAÇÃO	1	127,0	10,0	788,6	2,50	0,30	0,0	0,0	63,1
ST 3 - CPD	1	11,5	0,0	365,5	0,00	0,00	0,0	0,0	0,0
ST 3 - DIR. LEGISL	1	14,5	4,0	201,8	2,50	0,30	0,0	0,0	14,4
ST 3 - REUNIÃO	1	53,0	20,0	866,8	2,50	0,30	0,0	0,0	65,9
ST 3 - REUNIÃO 02	1	53,0	20,0	864,8	2,50	0,30	0,0	0,0	65,9
ST 3 - REVISÃO	1	11,5	3,1	182,1	2,50	0,30	0,0	0,0	11,3
ST 3 - SALA 01	1	13,2	3,6	168,5	2,50	0,30	0,0	0,0	12,9
ST 3 - SALA 02	1	14,5	4,0	203,5	2,50	0,30	0,0	0,0	14,4
ST 3 - TAQUIGRAFIA	1	27,8	7,6	376,5	2,50	0,30	0,0	0,0	27,2
<b>Totals (incl. Space Multipliers)</b>				<b>4714,0</b>					<b>329,0</b>

## Air System Sizing Summary for 02 - AUDITORIO JC -BLOCO 4

Project Name: CAMARA MUNICIPAL DE GOIANIA -2017  
Prepared by: FPM Engenharia e Comercio Ltda

10/31/2017  
09:39

### Air System Information

Air System Name ... **02 - AUDITORIO JC -BLOCO 4**  
Equipment Class ..... **PKG VERT**  
Air System Type ..... **SZCAV**

Number of zones ..... **1**  
Floor Area ..... **418,7** m<sup>2</sup>  
Location ..... **Goiania, Brazil**

### Sizing Calculation Information

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

Zone L/s Sizing ..... **Sum of space airflow rates**  
Space L/s Sizing ..... **Individual peak space loads**

### Central Cooling Coil Sizing Data

Total coil load ..... **144,2** kW  
Sensible coil load ..... **103,3** kW  
Coil L/s at Feb 1500 ..... **7026** L/s  
Max block L/s ..... **7026** L/s  
Sum of peak zone L/s ..... **7026** L/s  
Sensible heat ratio ..... **0,716**  
m<sup>2</sup>/kW ..... **2,9**  
W/m<sup>2</sup> ..... **344,5**  
Water flow @ 5,6 K rise ..... **N/A**

Load occurs at ..... **Feb 1500**  
OA DB / WB ..... **34,1 / 23,0** °C  
Entering DB / WB ..... **25,1 / 17,8** °C  
Leaving DB / WB ..... **11,8 / 11,1** °C  
Coil ADP ..... **10,3** °C  
Bypass Factor ..... **0,100**  
Resulting RH ..... **52** %  
Design supply temp. .... **12,0** °C  
Zone T-stat Check ..... **1 of 1** OK  
Max zone temperature deviation ..... **0,0** K

### Supply Fan Sizing Data

Actual max L/s ..... **7026** L/s  
Standard L/s ..... **6426** L/s  
Actual max L/(s·m<sup>2</sup>) ..... **16,78** L/(s·m<sup>2</sup>)

Fan motor BHP ..... **4,92** BHP  
Fan motor kW ..... **3,90** kW  
Fan static ..... **300** Pa

### Outdoor Ventilation Air Data

Design airflow L/s ..... **1366** L/s  
L/(s·m<sup>2</sup>) ..... **3,26** L/(s·m<sup>2</sup>)

L/s/person ..... **2,75** L/s/person

## Zone Sizing Summary for 02 - AUDITORIO JC -BLOCO 4

Project Name: CAMARA MUNICIPAL DE GOIANIA -2017  
Prepared by: FPM Engenharia e Comercio Ltda

10/31/2017  
09:39

### Air System Information

Air System Name ... **02 - AUDITORIO JC -BLOCO 4**  
Equipment Class ..... **PKG VERT**  
Air System Type ..... **SZCAV**

Number of zones ..... **1**  
Floor Area ..... **418,7** m<sup>2</sup>  
Location ..... **Goiania, Brazil**

### Sizing Calculation Information

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

Zone L/s Sizing ..... **Sum of space airflow rates**  
Space L/s Sizing ..... **Individual peak space loads**

### Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m <sup>2</sup> )	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11,1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11,1 K	Mixing Box Fan Airflow (L/s)
AUDITORIO	7026	7026	16,78	0,0	-	0,0	-	0

### Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m <sup>2</sup> )
AUDITORIO	77,3	Oct 1400	5,2	418,7

### Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m <sup>2</sup> )	Space L/(s·m <sup>2</sup> )
<b>AUDITORIO</b>							
ST 4 - AUD. JAIME CAM.	1	55,0	Oct 1400	4979	2,7	336,0	14,82
ST 4 - FOYER AUD.	1	20,2	Oct 1600	1834	2,4	72,0	25,47
ST 4 - SL SOM AUD.	1	2,4	Oct 1400	214	0,1	10,7	19,99

## Ventilation Sizing Summary for 02 - AUDITORIO JC -BLOCO 4

Project Name: CAMARA MUNICIPAL DE GOIANIA -2017

10/31/2017

Prepared by: FPM Engenharia e Comercio Ltda

09:39

### 1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**  
 Design Ventilation Airflow Rate ..... **1366** L/s

### 2. Space Ventilation Analysis

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s·m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
<b>AUDITORIO</b>									
ST 4 - AUD. JAIME CAM.	1	336,0	344,0	4978,6	2,50	0,30	0,0	0,0	960,8
ST 4 - FOYER AUD.	1	72,0	150,0	1833,6	2,50	0,30	0,0	0,0	396,6
ST 4 - SL SOM AUD.	1	10,7	2,0	213,9	2,50	0,30	0,0	0,0	8,2
<b>Totals (incl. Space Multipliers)</b>				<b>7026,2</b>					<b>1365,6</b>

## Air System Sizing Summary for 03 - PLENARIA

Project Name: CAMARA MUNICIPAL DE GOIANIA -2017  
Prepared by: FPM Engenharia e Comercio Ltda

10/31/2017  
09:39

### Air System Information

Air System Name ..... **03 - PLENARIA**  
Equipment Class ..... **PKG VERT**  
Air System Type ..... **SZCAV**

Number of zones ..... **1**  
Floor Area ..... **545,0** m<sup>2</sup>  
Location ..... **Goiania, Brazil**

### Sizing Calculation Information

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

Zone L/s Sizing ..... **Sum of space airflow rates**  
Space L/s Sizing ..... **Individual peak space loads**

### Central Cooling Coil Sizing Data

Total coil load ..... **107,7** kW  
Sensible coil load ..... **80,9** kW  
Coil L/s at Feb 1400 ..... **5745** L/s  
Max block L/s ..... **5745** L/s  
Sum of peak zone L/s ..... **5745** L/s  
Sensible heat ratio ..... **0,751**  
m<sup>2</sup>/kW ..... **5,1**  
W/m<sup>2</sup> ..... **197,6**  
Water flow @ 5,6 K rise ..... **N/A**

Load occurs at ..... **Feb 1400**  
OA DB / WB ..... **33,8 / 22,8** °C  
Entering DB / WB ..... **24,5 / 17,2** °C  
Leaving DB / WB ..... **11,8 / 11,1** °C  
Coil ADP ..... **10,3** °C  
Bypass Factor ..... **0,100**  
Resulting RH ..... **51** %  
Design supply temp. .... **12,0** °C  
Zone T-stat Check ..... **0 of 1** OK  
Max zone temperature deviation ..... **0,0** K

### Supply Fan Sizing Data

Actual max L/s ..... **5745** L/s  
Standard L/s ..... **5254** L/s  
Actual max L/(s·m<sup>2</sup>) ..... **10,54** L/(s·m<sup>2</sup>)

Fan motor BHP ..... **5,36** BHP  
Fan motor kW ..... **4,26** kW  
Fan static ..... **400** Pa

### Outdoor Ventilation Air Data

Design airflow L/s ..... **789** L/s  
L/(s·m<sup>2</sup>) ..... **1,45** L/(s·m<sup>2</sup>)

L/s/person ..... **3,15** L/s/person

## Zone Sizing Summary for 03 - PLENARIA

Project Name: CAMARA MUNICIPAL DE GOIANIA -2017  
Prepared by: FPM Engenharia e Comercio Ltda

10/31/2017  
09:39

### Air System Information

Air System Name ..... **03 - PLENARIA**  
Equipment Class ..... **PKG VERT**  
Air System Type ..... **SZCAV**

Number of zones ..... **1**  
Floor Area ..... **545,0** m<sup>2</sup>  
Location ..... **Goiania, Brazil**

### Sizing Calculation Information

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

Zone L/s Sizing ..... **Sum of space airflow rates**  
Space L/s Sizing ..... **Individual peak space loads**

### Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (L/s)	Minimum Supply Airflow (L/s)	Zone L/(s·m <sup>2</sup> )	Reheat Coil Load (kW)	Reheat Coil Water L/s @ 11,1 K	Zone Htg Unit Coil Load (kW)	Zone Htg Unit Water L/s @ 11,1 K	Mixing Box Fan Airflow (L/s)
PLENARIA	5745	5745	10,54	0,0	-	0,0	-	0

### Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m <sup>2</sup> )
PLENARIA	63,4	Oct 1400	7,5	545,0

### Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m <sup>2</sup> )	Space L/(s·m <sup>2</sup> )
<b>PLENARIA</b>							
ST 3 - PLENARIA	1	63,4	Oct 1400	5745	7,5	545,0	10,54



## Ventilation Sizing Summary for 03 - PLENARIA

Project Name: CAMARA MUNICIPAL DE GOIANIA -2017

10/31/2017

Prepared by: FPM Engenharia e Comercio Ltda

09:39

### 1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**

Design Ventilation Airflow Rate ..... **789** L/s

### 2. Space Ventilation Analysis

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s·m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
<b>PLENARIA</b>									
ST 3 - PLENARIA	1	545,0	250,0	5744,8	2,50	0,30	0,0	0,0	788,5
<b>Totals (incl. Space Multipliers)</b>				<b>5744,8</b>					<b>788,5</b>

## Dedicated Outdoor Air System (DOAS) Sizing Summary for SPLIT

Project Name: CAMARA MUNICIPAL DE GOIANIA -2017  
Prepared by: FPM Engenharia e Comercio Ltda

10/31/2017  
09:39

### Air System Information

Air System Name ..... **SPLIT**  
Equipment Class ..... **TERM**  
Air System Type ..... **SPLT-FC**

Number of zones ..... **2**  
Floor Area ..... **48,3** m<sup>2</sup>  
Location ..... **Goiania, Brazil**

### Sizing Calculation Information

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

Zone L/s Sizing ..... **Sum of space airflow rates**  
Space L/s Sizing ..... **Individual peak space loads**

**NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).**

## Zone Sizing Summary for SPLIT

Project Name: CAMARA MUNICIPAL DE GOIANIA -2017  
Prepared by: FPM Engenharia e Comercio Ltda

10/31/2017  
09:39

### Air System Information

Air System Name ..... **SPLIT**  
Equipment Class ..... **TERM**  
Air System Type ..... **SPLT-FC**

Number of zones ..... **2**  
Floor Area ..... **48,3** m<sup>2</sup>  
Location ..... **Goiania, Brazil**

### Sizing Calculation Information

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

Zone L/s Sizing ..... **Sum of space airflow rates**  
Space L/s Sizing ..... **Individual peak space loads**

### Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (kW)	Sens Coil Load (kW)	Coil Entering DB / WB (°C)	Coil Leaving DB / WB (°C)	Water Flow @ 5,6 K (L/s)	Time of Peak Coil Load	Zone L/(s·m²)
Zone 1	4,5	3,2	28,7 / 19,4	12,0 / 11,2	-	Feb 1500	6,15
Zone 2	2,8	2,1	25,5 / 18,0	12,5 / 11,9	-	Mar 1800	7,26

### Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (kW)	Heating Coil Ent/Lvg DB (°C)	Htg Coil Water Flow @11,1 K (L/s)	Fan Design Airflow (L/s)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (L/s)
Zone 1	0,5	18,7 / 21,1	-	174	0,000	0,000	46
Zone 2	0,7	19,7 / 24,2	-	146	0,000	0,000	20

### Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (kW)	Time of Peak Sensible Cooling Load	Zone Heating Load (kW)	Zone Floor Area (m²)
Zone 1	2,3	Jan 2200	0,0	28,2
Zone 2	1,9	Sep 1800	0,5	20,1

### Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Peak Sensible Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s·m²)
<b>Zone 1</b>							
ST 3 - SALA VIP	1	2,3	Jan 2200	174	0,0	28,2	6,15
<b>Zone 2</b>							
ST 3 - RECEPÇÃO SL IMP	1	1,9	Sep 1800	146	0,5	20,1	7,26

## Ventilation Sizing Summary for SPLIT

Project Name: CAMARA MUNICIPAL DE GOIANIA -2017  
Prepared by: FPM Engenharia e Comercio Ltda

10/31/2017  
09:39

### 1. Summary

Ventilation Sizing Method ..... Sum of Space OA Airflows

### 2. Space Ventilation Analysis

#### 2.1 Zone: Zone 1

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s·m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
<b>Zone 1</b>									
ST 3 - SALA VIP	1	28,2	15,0	173,5	2,50	0,30	0,0	0,0	46,0
<b>Totals (incl. Space Multipliers)</b>				<b>173,5</b>					<b>46,0</b>

#### 2.2 Zone: Zone 2

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s·m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
<b>Zone 2</b>									
ST 3 - RECEPÇÃO SL IMP	1	20,1	5,6	145,9	2,50	0,30	0,0	0,0	20,0
<b>Totals (incl. Space Multipliers)</b>				<b>145,9</b>					<b>20,0</b>