

Dedicated Outdoor Air System (DOAS) Sizing Summary for VRF 3P

Project Name: EDUSESC TAGUATINGA
Prepared by: CBR ENGENHARIA SS LTDA

07/26/2023
09:47

Air System Information

Air System Name **VRF 3P**
Equipment Class **TERM**
Air System Type **VRF**

Number of zones **18**
Floor Area **632,3** m²
Location **Brasilia, 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 VRF 3P

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Air System Information

Air System Name VRF 3P
Equipment Class TERM
Air System Type VRF

Number of zones 18
Floor Area 632,3 m²
Location Brasilia, 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) |
|------------------------|----------------------|---------------------|----------------------------|---------------------------|--------------------------|------------------------|---------------|
| 3APOIO PEDAGÓGICOP - | 2,8 | 1,6 | 26,4 / 20,7 | 15,5 / 15,0 | - | Dec 1500 | 12,40 |
| 3P - COORD. PEDAGÓGICA | 6,2 | 4,1 | 25,7 / 19,8 | 15,6 / 15,1 | - | Dec 1600 | 13,90 |
| 3P - CPD | 1,5 | 1,4 | 24,7 / 18,1 | 15,4 / 14,8 | - | Jan 1600 | 35,43 |
| 3P - ESPAÇO MAKER | 19,3 | 10,5 | 27,5 / 21,6 | 15,4 / 14,9 | - | Feb 1500 | 10,57 |
| 3P - SALA A311 | 16,1 | 8,5 | 28,6 / 22,3 | 15,5 / 15,0 | - | Jan 1500 | 15,86 |
| 3P - SALA A312 | 14,1 | 6,6 | 30,2 / 23,9 | 15,4 / 14,9 | - | Feb 1500 | 11,01 |
| 3P - SALA A313 | 15,6 | 8,0 | 28,9 / 22,6 | 15,6 / 15,1 | - | Feb 1500 | 14,88 |
| 3P - SALA A314 | 14,1 | 6,6 | 30,2 / 23,9 | 15,4 / 14,9 | - | Feb 1500 | 11,01 |
| 3P - SALA A315 | 15,6 | 8,0 | 28,9 / 22,6 | 15,6 / 15,1 | - | Feb 1500 | 14,91 |
| 3P - SALA A316 | 16,3 | 8,5 | 28,5 / 22,3 | 15,3 / 14,8 | - | Feb 1500 | 15,89 |
| 3P - SALA B312 | 18,8 | 10,3 | 27,2 / 21,4 | 15,3 / 14,8 | - | Dec 1600 | 14,52 |
| 3P - SALA B313 | 14,1 | 6,6 | 30,2 / 23,9 | 15,4 / 14,9 | - | Feb 1500 | 11,01 |
| 3P - SALA B314 | 17,8 | 9,5 | 27,5 / 21,6 | 15,2 / 14,8 | - | Dec 1600 | 15,18 |
| 3P - SALA B315 | 14,0 | 6,5 | 30,0 / 23,9 | 15,3 / 14,9 | - | Jan 1600 | 11,05 |
| 3P - SALA B316 | 17,5 | 9,6 | 27,7 / 21,6 | 15,2 / 14,7 | - | Jan 1600 | 18,35 |
| 3P - SALA B317 | 14,6 | 7,0 | 29,5 / 23,3 | 15,3 / 14,8 | - | Feb 1600 | 12,11 |
| 3P - SALA DE RECURSOS | 2,1 | 1,4 | 25,1 / 19,4 | 15,5 / 15,0 | - | Dec 1500 | 11,09 |
| 3P - SOE | 2,4 | 1,5 | 25,5 / 19,8 | 15,7 / 15,2 | - | Jan 1600 | 11,08 |

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) |
|------------------------|------------------------|------------------------------|-----------------------------------|--------------------------|-----------------|----------------|------------------------------|
| 3APOIO PEDAGÓGICOP - | 1,1 | 18,2 / 25,7 | - | 139 | 0,000 | 0,000 | 30 |
| 3P - COORD. PEDAGÓGICA | 2,1 | 19,7 / 24,8 | - | 382 | 0,000 | 0,000 | 45 |
| 3P - CPD | 0,4 | 21,0 / 23,5 | - | 142 | 0,000 | 0,000 | 0 |
| 3P - ESPAÇO MAKER | 6,2 | 17,4 / 24,6 | - | 816 | 0,000 | 0,000 | 248 |
| 3P - SALA A311 | 5,5 | 16,0 / 24,5 | - | 611 | 0,000 | 0,000 | 248 |
| 3P - SALA A312 | 4,6 | 13,9 / 24,2 | - | 420 | 0,000 | 0,000 | 248 |
| 3P - SALA A313 | 5,0 | 15,6 / 23,9 | - | 567 | 0,000 | 0,000 | 248 |
| 3P - SALA A314 | 4,6 | 13,9 / 24,2 | - | 420 | 0,000 | 0,000 | 248 |
| 3P - SALA A315 | 5,0 | 15,6 / 23,9 | - | 567 | 0,000 | 0,000 | 248 |
| 3P - SALA A316 | 5,3 | 15,9 / 24,2 | - | 605 | 0,000 | 0,000 | 248 |
| 3P - SALA B312 | 5,8 | 17,4 / 24,1 | - | 812 | 0,000 | 0,000 | 248 |
| 3P - SALA B313 | 4,6 | 13,9 / 24,2 | - | 420 | 0,000 | 0,000 | 248 |
| 3P - SALA B314 | 5,2 | 16,9 / 23,6 | - | 730 | 0,000 | 0,000 | 248 |
| 3P - SALA B315 | 4,5 | 13,8 / 24,0 | - | 419 | 0,000 | 0,000 | 248 |
| 3P - SALA B316 | 5,7 | 16,7 / 24,1 | - | 720 | 0,000 | 0,000 | 248 |
| 3P - SALA B317 | 4,9 | 14,5 / 24,4 | - | 467 | 0,000 | 0,000 | 248 |
| 3P - SALA DE RECURSOS | 1,0 | 20,0 / 26,6 | - | 136 | 0,000 | 0,000 | 9 |
| 3P - SOE | 1,0 | 19,6 / 26,2 | - | 148 | 0,000 | 0,000 | 14 |

Zone Peak Sensible Loads

| Zone | Zone | Zone |
|------|------|------|
|------|------|------|

Zone Sizing Summary for VRF 3P

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| Zone Name | Cooling Sensible (kW) | Time of Peak Sensible Cooling Load | Heating Load (kW) | Floor Area (m²) |
|------------------------|-----------------------------|--|-------------------------|-----------------------|
| 3APOIO PEDAGÓGICOP - | 1,4 | Jan 1600 | 0,8 | 11,2 |
| 3P - COORD. PEDAGÓGICA | 3,8 | Jan 1600 | 1,4 | 27,5 |
| 3P - CPD | 1,4 | Jan 1600 | 0,4 | 4,0 |
| 3P - ESPAÇO MAKER | 8,2 | Feb 1600 | 2,9 | 77,2 |
| 3P - SALA A311 | 6,1 | Jan 1500 | 2,4 | 38,5 |
| 3P - SALA A312 | 4,2 | Jan 1500 | 1,4 | 38,1 |
| 3P - SALA A313 | 5,7 | Feb 1500 | 1,9 | 38,1 |
| 3P - SALA A314 | 4,2 | Jan 1500 | 1,4 | 38,1 |
| 3P - SALA A315 | 5,7 | Feb 1500 | 1,9 | 38,0 |
| 3P - SALA A316 | 6,1 | Feb 1600 | 2,4 | 38,1 |
| 3P - SALA B312 | 8,2 | Jan 1700 | 2,4 | 55,9 |
| 3P - SALA B313 | 4,2 | Jan 1500 | 1,4 | 38,1 |
| 3P - SALA B314 | 7,3 | Jan 1700 | 2,1 | 48,1 |
| 3P - SALA B315 | 4,2 | Jan 1500 | 1,4 | 37,9 |
| 3P - SALA B316 | 7,2 | Jan 1700 | 2,7 | 39,2 |
| 3P - SALA B317 | 4,7 | Feb 1700 | 1,8 | 38,6 |
| 3P - SALA DE RECURSOS | 1,4 | Jan 1500 | 0,9 | 12,3 |
| 3P - SOE | 1,5 | Jan 1500 | 0,9 | 13,4 |

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) |
|-------------------------------|-------|-----------------------------|-------------------------------------|----------------------|-------------------------|-----------------------|-------------------|
| 3APOIO PEDAGÓGICOP - | | | | | | | |
| 3P - APOIO PED. | 1 | 1,4 | Jan 1600 | 139 | 0,8 | 11,2 | 12,40 |
| 3P - COORD. PEDAGÓGICA | | | | | | | |
| 3P - COORD. PEDAGÓGICA | 1 | 3,8 | Jan 1600 | 382 | 1,4 | 27,5 | 13,90 |
| 3P - CPD | | | | | | | |
| 3P - CPD | 1 | 1,4 | Jan 1600 | 142 | 0,4 | 4,0 | 35,43 |
| 3P - ESPAÇO MAKER | | | | | | | |
| 3P - ESPAÇO MAKER | 1 | 8,2 | Feb 1600 | 816 | 2,9 | 77,2 | 10,57 |
| 3P - SALA A311 | | | | | | | |
| 3P - SALA A311 | 1 | 6,1 | Jan 1500 | 611 | 2,4 | 38,5 | 15,86 |
| 3P - SALA A312 | | | | | | | |
| 3P - SALA A312 | 1 | 4,2 | Jan 1500 | 420 | 1,4 | 38,1 | 11,01 |
| 3P - SALA A313 | | | | | | | |
| 3P - SALA A313 | 1 | 5,7 | Feb 1500 | 567 | 1,9 | 38,1 | 14,88 |
| 3P - SALA A314 | | | | | | | |
| 3P - SALA A314 | 1 | 4,2 | Jan 1500 | 420 | 1,4 | 38,1 | 11,01 |
| 3P - SALA A315 | | | | | | | |
| 3P - SALA A315 | 1 | 5,7 | Feb 1500 | 567 | 1,9 | 38,0 | 14,91 |
| 3P - SALA A316 | | | | | | | |
| 3P - SALA A316 | 1 | 6,1 | Feb 1600 | 605 | 2,4 | 38,1 | 15,89 |
| 3P - SALA B312 | | | | | | | |
| 3P - SALA B312 | 1 | 8,2 | Jan 1700 | 812 | 2,4 | 55,9 | 14,52 |
| 3P - SALA B313 | | | | | | | |
| 3P - SALA B313 | 1 | 4,2 | Jan 1500 | 420 | 1,4 | 38,1 | 11,01 |
| 3P - SALA B314 | | | | | | | |
| 3P - SALA B314 | 1 | 7,3 | Jan 1700 | 730 | 2,1 | 48,1 | 15,18 |
| 3P - SALA B315 | | | | | | | |
| 3P - SALA B315 | 1 | 4,2 | Jan 1500 | 419 | 1,4 | 37,9 | 11,05 |
| 3P - SALA B316 | | | | | | | |
| 3P - SALA B316 | 1 | 7,2 | Jan 1700 | 720 | 2,7 | 39,2 | 18,35 |
| 3P - SALA B317 | | | | | | | |
| 3P - SALA B317 | 1 | 4,7 | Feb 1700 | 467 | 1,8 | 38,6 | 12,11 |
| 3P - SALA DE RECURSOS | | | | | | | |
| 3P - SALA DE RECURSO | 1 | 1,4 | Jan 1500 | 136 | 0,9 | 12,3 | 11,09 |
| 3P - SOE | | | | | | | |

Zone Sizing Summary for VRF 3P

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| Zone Name / Space Name | Mult. | Cooling Sensible (kW) | Time of Peak Sensible Load | Air Flow (L/s) | Heating Load (kW) | Floor Area (m ²) | Space L/(s·m ²) |
|---------------------------|-------|-----------------------------|-------------------------------------|----------------------|-------------------------|------------------------------------|--------------------------------|
| 3P - SOE | 1 | 1,5 | Jan 1500 | 148 | 0,9 | 13,4 | 11,08 |

Ventilation Sizing Summary for VRF 3P

Project Name: EDUSESC TAGUATINGA
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1. Summary

Ventilation Sizing Method Sum of Space OA Airflows

2. Space Ventilation Analysis

2.1 Zone: 3APOIO PEDAGÓGICOP -

| 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) |
|---|-------|-----------------|-------------------|--------------------------|-----------------------------------|---------------------------------|----------------------------|------------------------------------|-------------------------------|
| 3APOIO PEDAGÓGICOP - | | | | | | | | | |
| 3P - APOIO PED. | 1 | 11,2 | 4,0 | 138,8 | 7,50 | 0,00 | 0,0 | 0,0 | 30,0 |
| Totals (incl. Space Multipliers) | | | | 138,8 | | | | | 30,0 |

2.2 Zone: 3P - COORD. PEDAGÓGICA

| 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) |
|---|-------|-----------------|-------------------|--------------------------|-----------------------------------|---------------------------------|----------------------------|------------------------------------|-------------------------------|
| 3P - COORD. PEDAGÓGICA | | | | | | | | | |
| 3P - COORD. PEDAGÓGICA | 1 | 27,5 | 6,0 | 382,2 | 7,50 | 0,00 | 0,0 | 0,0 | 45,0 |
| Totals (incl. Space Multipliers) | | | | 382,2 | | | | | 45,0 |

2.3 Zone: 3P - CPD

| 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) |
|---|-------|-----------------|-------------------|--------------------------|-----------------------------------|---------------------------------|----------------------------|------------------------------------|-------------------------------|
| 3P - CPD | | | | | | | | | |
| 3P - CPD | 1 | 4,0 | 0,0 | 141,7 | 4,70 | 0,00 | 0,0 | 0,0 | 0,0 |
| Totals (incl. Space Multipliers) | | | | 141,7 | | | | | 0,0 |

2.4 Zone: 3P - ESPAÇO MAKER

| 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) |
|---|-------|-----------------|-------------------|--------------------------|-----------------------------------|---------------------------------|----------------------------|------------------------------------|-------------------------------|
| 3P - ESPAÇO MAKER | | | | | | | | | |
| 3P - ESPAÇO MAKER | 1 | 77,2 | 33,0 | 816,0 | 7,50 | 0,00 | 0,0 | 0,0 | 247,5 |
| Totals (incl. Space Multipliers) | | | | 816,0 | | | | | 247,5 |

2.5 Zone: 3P - SALA A311

| 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) |
|---|-------|-----------------|-------------------|--------------------------|-----------------------------------|---------------------------------|----------------------------|------------------------------------|-------------------------------|
| 3P - SALA A311 | | | | | | | | | |
| 3P - SALA A311 | 1 | 38,5 | 33,0 | 610,8 | 7,50 | 0,00 | 0,0 | 0,0 | 247,5 |
| Totals (incl. Space Multipliers) | | | | 610,8 | | | | | 247,5 |

2.6 Zone: 3P - SALA A312

Ventilation Sizing Summary for VRF 3P

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| 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) |
|---|-------|-----------------|-------------------|--------------------------|-----------------------------------|---------------------------------|----------------------------|------------------------------------|-------------------------------|
| 3P - SALA A312 | | | | | | | | | |
| 3P - SALA A312 | 1 | 38,1 | 33,0 | 419,6 | 7,50 | 0,00 | 0,0 | 0,0 | 247,5 |
| Totals (incl. Space Multipliers) | | | | 419,6 | | | | | 247,5 |

2.7 Zone: 3P - SALA A313

| 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) |
|---|-------|-----------------|-------------------|--------------------------|-----------------------------------|---------------------------------|----------------------------|------------------------------------|-------------------------------|
| 3P - SALA A313 | | | | | | | | | |
| 3P - SALA A313 | 1 | 38,1 | 33,0 | 567,0 | 7,50 | 0,00 | 0,0 | 0,0 | 247,5 |
| Totals (incl. Space Multipliers) | | | | 567,0 | | | | | 247,5 |

2.8 Zone: 3P - SALA A314

| 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) |
|---|-------|-----------------|-------------------|--------------------------|-----------------------------------|---------------------------------|----------------------------|------------------------------------|-------------------------------|
| 3P - SALA A314 | | | | | | | | | |
| 3P - SALA A314 | 1 | 38,1 | 33,0 | 419,6 | 7,50 | 0,00 | 0,0 | 0,0 | 247,5 |
| Totals (incl. Space Multipliers) | | | | 419,6 | | | | | 247,5 |

2.9 Zone: 3P - SALA A315

| 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) |
|---|-------|-----------------|-------------------|--------------------------|-----------------------------------|---------------------------------|----------------------------|------------------------------------|-------------------------------|
| 3P - SALA A315 | | | | | | | | | |
| 3P - SALA A315 | 1 | 38,0 | 33,0 | 566,6 | 7,50 | 0,00 | 0,0 | 0,0 | 247,5 |
| Totals (incl. Space Multipliers) | | | | 566,6 | | | | | 247,5 |

2.10 Zone: 3P - SALA A316

| 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) |
|---|-------|-----------------|-------------------|--------------------------|-----------------------------------|---------------------------------|----------------------------|------------------------------------|-------------------------------|
| 3P - SALA A316 | | | | | | | | | |
| 3P - SALA A316 | 1 | 38,1 | 33,0 | 605,3 | 7,50 | 0,00 | 0,0 | 0,0 | 247,5 |
| Totals (incl. Space Multipliers) | | | | 605,3 | | | | | 247,5 |

2.11 Zone: 3P - SALA B312

| 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) |
|---|-------|-----------------|-------------------|--------------------------|-----------------------------------|---------------------------------|----------------------------|------------------------------------|-------------------------------|
| 3P - SALA B312 | | | | | | | | | |
| 3P - SALA B312 | 1 | 55,9 | 33,0 | 811,9 | 7,50 | 0,00 | 0,0 | 0,0 | 247,5 |
| Totals (incl. Space Multipliers) | | | | 811,9 | | | | | 247,5 |

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2.12 Zone: 3P - SALA B313

| 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) |
|---|-------|-----------------|-------------------|--------------------------|-----------------------------------|---------------------------------|----------------------------|------------------------------------|-------------------------------|
| 3P - SALA B313 | | | | | | | | | |
| 3P - SALA B313 | 1 | 38,1 | 33,0 | 419,6 | 7,50 | 0,00 | 0,0 | 0,0 | 247,5 |
| Totals (incl. Space Multipliers) | | | | 419,6 | | | | | 247,5 |

2.13 Zone: 3P - SALA B314

| 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) |
|---|-------|-----------------|-------------------|--------------------------|-----------------------------------|---------------------------------|----------------------------|------------------------------------|-------------------------------|
| 3P - SALA B314 | | | | | | | | | |
| 3P - SALA B314 | 1 | 48,1 | 33,0 | 730,4 | 7,50 | 0,00 | 0,0 | 0,0 | 247,5 |
| Totals (incl. Space Multipliers) | | | | 730,4 | | | | | 247,5 |

2.14 Zone: 3P - SALA B315

| 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) |
|---|-------|-----------------|-------------------|--------------------------|-----------------------------------|---------------------------------|----------------------------|------------------------------------|-------------------------------|
| 3P - SALA B315 | | | | | | | | | |
| 3P - SALA B315 | 1 | 37,9 | 33,0 | 418,7 | 7,50 | 0,00 | 0,0 | 0,0 | 247,5 |
| Totals (incl. Space Multipliers) | | | | 418,7 | | | | | 247,5 |

2.15 Zone: 3P - SALA B316

| 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) |
|---|-------|-----------------|-------------------|--------------------------|-----------------------------------|---------------------------------|----------------------------|------------------------------------|-------------------------------|
| 3P - SALA B316 | | | | | | | | | |
| 3P - SALA B316 | 1 | 39,2 | 33,0 | 719,5 | 7,50 | 0,00 | 0,0 | 0,0 | 247,5 |
| Totals (incl. Space Multipliers) | | | | 719,5 | | | | | 247,5 |

2.16 Zone: 3P - SALA B317

| 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) |
|---|-------|-----------------|-------------------|--------------------------|-----------------------------------|---------------------------------|----------------------------|------------------------------------|-------------------------------|
| 3P - SALA B317 | | | | | | | | | |
| 3P - SALA B317 | 1 | 38,6 | 33,0 | 467,4 | 7,50 | 0,00 | 0,0 | 0,0 | 247,5 |
| Totals (incl. Space Multipliers) | | | | 467,4 | | | | | 247,5 |

2.17 Zone: 3P - SALA DE RECURSOS

| 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) |
|------------------------|-------|-----------------|-------------------|--------------------------|-----------------------------------|---------------------------------|----------------------------|------------------------------------|-------------------------------|
| 3P - SALA DE RECURSOS | | | | | | | | | |

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| | | | | | | | | | |
|---|---|------|-----|--------------|------|------|-----|-----|------------|
| 3P - SALA DE RECURSO | 1 | 12,3 | 2,0 | 136,4 | 4,70 | 0,00 | 0,0 | 0,0 | 9,4 |
| Totals (incl. Space Multipliers) | | | | 136,4 | | | | | 9,4 |

2.18 Zone: 3P - SOE

| 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) |
|---|-------|-----------------|-------------------|--------------------------|-----------------------------------|---------------------------------|----------------------------|------------------------------------|-------------------------------|
| 3P - SOE | | | | | | | | | |
| 3P - SOE | 1 | 13,4 | 3,0 | 148,5 | 4,70 | 0,00 | 0,0 | 0,0 | 14,1 |
| Totals (incl. Space Multipliers) | | | | 148,5 | | | | | 14,1 |

Air System Design Load Summary for VRF 3P

Project Name: EDUSESC TAGUATINGA
Prepared by: CBR ENGENHARIA SS LTDA

07/26/2023
09:47

| | DESIGN COOLING | | | DESIGN HEATING | | |
|-------------------------------|--|-----------------|---------------|--|-----------------|---------------|
| | COOLING DATA AT Jan 1600 COOLING OA DB / WB 33,8 °C / 26,8 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB 8,9 °C / 4,3 °C | | |
| ZONE LOADS | Details | Sensible (W) | Latent (W) | Details | Sensible (W) | Latent (W) |
| Window & Skylight Solar Loads | 50 m² | 10730 | - | 50 m² | - | - |
| Wall Transmission | 213 m² | 5590 | - | 213 m² | 6155 | - |
| Roof Transmission | 632 m² | 9046 | - | 632 m² | 4488 | - |
| Window Transmission | 50 m² | 2478 | - | 50 m² | 3768 | - |
| Skylight Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Door Loads | 0 m² | 0 | - | 0 m² | 0 | - |
| Floor Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Partitions | 550 m² | 3805 | - | 550 m² | 6154 | - |
| Ceiling | 634 m² | 4386 | - | 634 m² | 7094 | - |
| Overhead Lighting | 10926 W | 9150 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 7000 W | 6544 | - | 0 | 0 | - |
| People | 444 | 25415 | 19980 | 0 | 0 | 0 |
| Infiltration | - | 0 | 0 | - | 0 | 0 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 10% / 10% | 7714 | 1998 | 10% | 2766 | 0 |
| >> Total Zone Loads | - | 84857 | 21978 | - | 30426 | 0 |
| Zone Conditioning | - | 82494 | 21978 | - | 30106 | 0 |
| Plenum Wall Load | 0% | 0 | - | 0 | 0 | - |
| Plenum Roof Load | 0% | 0 | - | 0 | 0 | - |
| Plenum Lighting Load | 0% | 0 | - | 0 | 0 | - |
| Exhaust Fan Load | 0 L/s | 0 | - | 0 L/s | 0 | - |
| Ventilation Load | 3316 L/s | 32251 | 82576 | 3316 L/s | 42526 | 0 |
| Ventilation Fan Load | 0 L/s | 0 | - | 0 L/s | 0 | - |
| Space Fan Coil Fans | - | 0 | - | - | 0 | - |
| Duct Heat Gain / Loss | 0% | 0 | - | 0% | 0 | - |
| >> Total System Loads | - | 114745 | 104554 | - | 72632 | 0 |
| Terminal Unit Cooling | - | 114745 | 104596 | - | 0 | 0 |
| Terminal Unit Heating | - | 0 | - | - | 72632 | - |
| >> Total Conditioning | - | 114745 | 104596 | - | 72632 | 0 |
| Key: | Positive values are clg loads Negative values are htg loads | | | Positive values are htg loads Negative values are clg loads | | |

Zone Design Load Summary for VRF 3P

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| 3APOIO PEDAGÓGICOP - | DESIGN COOLING | | | DESIGN HEATING | | |
|-------------------------------|--------------------------------------|--------------|------------|------------------------------------|--------------|------------|
| | COOLING DATA AT Jan 1600 | | | HEATING DATA AT DES HTG | | |
| | COOLING OA DB / WB 33,8 °C / 26,8 °C | | | HEATING OA DB / WB 8,9 °C / 4,3 °C | | |
| | OCCUPIED T-STAT 23,9 °C | | | OCCUPIED T-STAT 21,1 °C | | |
| ZONE LOADS | Details | Sensible (W) | Latent (W) | Details | Sensible (W) | Latent (W) |
| Window & Skylight Solar Loads | 0 m² | 0 | - | 0 m² | - | - |
| Wall Transmission | 10 m² | 267 | - | 10 m² | 283 | - |
| Roof Transmission | 11 m² | 160 | - | 11 m² | 79 | - |
| Window Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Skylight Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Door Loads | 0 m² | 0 | - | 0 m² | 0 | - |
| Floor Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Partitions | 19 m² | 130 | - | 19 m² | 211 | - |
| Ceiling | 12 m² | 85 | - | 12 m² | 138 | - |
| Overhead Lighting | 194 W | 162 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 250 W | 234 | - | 0 | 0 | - |
| People | 4 | 229 | 180 | 0 | 0 | 0 |
| Infiltration | - | 0 | 0 | - | 0 | 0 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 10% / 10% | 127 | 18 | 10% | 71 | 0 |
| >> Total Zone Loads | - | 1394 | 198 | - | 782 | 0 |

| 3P - COORD. PEDAGÓGICA | DESIGN COOLING | | | DESIGN HEATING | | |
|-------------------------------|--------------------------------------|--------------|------------|------------------------------------|--------------|------------|
| | COOLING DATA AT Jan 1600 | | | HEATING DATA AT DES HTG | | |
| | COOLING OA DB / WB 33,8 °C / 26,8 °C | | | HEATING OA DB / WB 8,9 °C / 4,3 °C | | |
| | OCCUPIED T-STAT 23,9 °C | | | OCCUPIED T-STAT 21,1 °C | | |
| ZONE LOADS | Details | Sensible (W) | Latent (W) | Details | Sensible (W) | Latent (W) |
| Window & Skylight Solar Loads | 5 m² | 1343 | - | 5 m² | - | - |
| Wall Transmission | 5 m² | 170 | - | 5 m² | 150 | - |
| Roof Transmission | 28 m² | 393 | - | 28 m² | 195 | - |
| Window Transmission | 5 m² | 236 | - | 5 m² | 359 | - |
| Skylight Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Door Loads | 0 m² | 0 | - | 0 m² | 0 | - |
| Floor Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Partitions | 26 m² | 180 | - | 26 m² | 291 | - |
| Ceiling | 28 m² | 190 | - | 28 m² | 308 | - |
| Overhead Lighting | 475 W | 398 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 250 W | 234 | - | 0 | 0 | - |
| People | 6 | 343 | 270 | 0 | 0 | 0 |
| Infiltration | - | 0 | 0 | - | 0 | 0 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 10% / 10% | 349 | 27 | 10% | 130 | 0 |
| >> Total Zone Loads | - | 3837 | 297 | - | 1434 | 0 |

Zone Design Load Summary for VRF 3P

Project Name: EDUSESC TAGUATINGA
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| 3P - CPD | DESIGN COOLING | | | DESIGN HEATING | | |
|-------------------------------|--------------------------------------|--------------|------------|------------------------------------|--------------|------------|
| | COOLING DATA AT Jan 1600 | | | HEATING DATA AT DES HTG | | |
| | COOLING OA DB / WB 33,8 °C / 26,8 °C | | | HEATING OA DB / WB 8,9 °C / 4,3 °C | | |
| | OCCUPIED T-STAT 23,9 °C | | | OCCUPIED T-STAT 21,1 °C | | |
| ZONE LOADS | Details | Sensible (W) | Latent (W) | Details | Sensible (W) | Latent (W) |
| Window & Skylight Solar Loads | 0 m² | 0 | - | 0 m² | - | - |
| Wall Transmission | 5 m² | 136 | - | 5 m² | 145 | - |
| Roof Transmission | 4 m² | 57 | - | 4 m² | 28 | - |
| Window Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Skylight Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Door Loads | 0 m² | 0 | - | 0 m² | 0 | - |
| Floor Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Partitions | 12 m² | 80 | - | 12 m² | 129 | - |
| Ceiling | 4 m² | 28 | - | 4 m² | 45 | - |
| Overhead Lighting | 69 W | 58 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 1000 W | 935 | - | 0 | 0 | - |
| People | 0 | 0 | 0 | 0 | 0 | 0 |
| Infiltration | - | 0 | 0 | - | 0 | 0 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 10% / 10% | 129 | 0 | 10% | 35 | 0 |
| >> Total Zone Loads | - | 1423 | 0 | - | 381 | 0 |

| 3P - ESPAÇO MAKER | DESIGN COOLING | | | DESIGN HEATING | | |
|-------------------------------|--------------------------------------|--------------|------------|------------------------------------|--------------|------------|
| | COOLING DATA AT Feb 1600 | | | HEATING DATA AT DES HTG | | |
| | COOLING OA DB / WB 33,8 °C / 26,8 °C | | | HEATING OA DB / WB 8,9 °C / 4,3 °C | | |
| | OCCUPIED T-STAT 23,9 °C | | | OCCUPIED T-STAT 21,1 °C | | |
| ZONE LOADS | Details | Sensible (W) | Latent (W) | Details | Sensible (W) | Latent (W) |
| Window & Skylight Solar Loads | 0 m² | 0 | - | 0 m² | - | - |
| Wall Transmission | 22 m² | 577 | - | 22 m² | 636 | - |
| Roof Transmission | 77 m² | 1076 | - | 77 m² | 548 | - |
| Window Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Skylight Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Door Loads | 0 m² | 0 | - | 0 m² | 0 | - |
| Floor Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Partitions | 55 m² | 382 | - | 55 m² | 618 | - |
| Ceiling | 77 m² | 534 | - | 77 m² | 864 | - |
| Overhead Lighting | 1334 W | 1117 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 2000 W | 1870 | - | 0 | 0 | - |
| People | 33 | 1889 | 1485 | 0 | 0 | 0 |
| Infiltration | - | 0 | 0 | - | 0 | 0 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 10% / 10% | 745 | 149 | 10% | 267 | 0 |
| >> Total Zone Loads | - | 8191 | 1634 | - | 2933 | 0 |

Zone Design Load Summary for VRF 3P

Project Name: EDUSESC TAGUATINGA
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| 3P - SALA A311 | DESIGN COOLING | | | DESIGN HEATING | | |
|-------------------------------|--------------------------------------|--------------|------------|------------------------------------|--------------|------------|
| | COOLING DATA AT Jan 1500 | | | HEATING DATA AT DES HTG | | |
| | COOLING OA DB / WB 34,2 °C / 26,9 °C | | | HEATING OA DB / WB 8,9 °C / 4,3 °C | | |
| | OCCUPIED T-STAT 23,9 °C | | | OCCUPIED T-STAT 21,1 °C | | |
| ZONE LOADS | Details | Sensible (W) | Latent (W) | Details | Sensible (W) | Latent (W) |
| Window & Skylight Solar Loads | 6 m² | 892 | - | 6 m² | - | - |
| Wall Transmission | 30 m² | 790 | - | 30 m² | 853 | - |
| Roof Transmission | 39 m² | 604 | - | 39 m² | 273 | - |
| Window Transmission | 6 m² | 298 | - | 6 m² | 449 | - |
| Skylight Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Door Loads | 0 m² | 0 | - | 0 m² | 0 | - |
| Floor Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Partitions | 13 m² | 94 | - | 13 m² | 150 | - |
| Ceiling | 39 m² | 270 | - | 39 m² | 431 | - |
| Overhead Lighting | 665 W | 547 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 250 W | 232 | - | 0 | 0 | - |
| People | 33 | 1849 | 1485 | 0 | 0 | 0 |
| Infiltration | - | 0 | 0 | - | 0 | 0 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 10% / 10% | 557 | 149 | 10% | 216 | 0 |
| >> Total Zone Loads | - | 6131 | 1634 | - | 2372 | 0 |

| 3P - SALA A312 | DESIGN COOLING | | | DESIGN HEATING | | |
|-------------------------------|--------------------------------------|--------------|------------|------------------------------------|--------------|------------|
| | COOLING DATA AT Jan 1500 | | | HEATING DATA AT DES HTG | | |
| | COOLING OA DB / WB 34,2 °C / 26,9 °C | | | HEATING OA DB / WB 8,9 °C / 4,3 °C | | |
| | OCCUPIED T-STAT 23,9 °C | | | OCCUPIED T-STAT 21,1 °C | | |
| ZONE LOADS | Details | Sensible (W) | Latent (W) | Details | Sensible (W) | Latent (W) |
| Window & Skylight Solar Loads | 0 m² | 0 | - | 0 m² | - | - |
| Wall Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Roof Transmission | 38 m² | 597 | - | 38 m² | 270 | - |
| Window Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Skylight Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Door Loads | 0 m² | 0 | - | 0 m² | 0 | - |
| Floor Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Partitions | 49 m² | 343 | - | 49 m² | 549 | - |
| Ceiling | 38 m² | 267 | - | 38 m² | 427 | - |
| Overhead Lighting | 658 W | 541 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 250 W | 232 | - | 0 | 0 | - |
| People | 33 | 1849 | 1485 | 0 | 0 | 0 |
| Infiltration | - | 0 | 0 | - | 0 | 0 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 10% / 10% | 383 | 149 | 10% | 125 | 0 |
| >> Total Zone Loads | - | 4212 | 1634 | - | 1370 | 0 |

Zone Design Load Summary for VRF 3P

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| 3P - SALA A313 | DESIGN COOLING | | | DESIGN HEATING | | |
|-------------------------------|--------------------------------------|--------------|------------|------------------------------------|--------------|------------|
| | COOLING DATA AT Feb 1500 | | | HEATING DATA AT DES HTG | | |
| | COOLING OA DB / WB 34,2 °C / 26,9 °C | | | HEATING OA DB / WB 8,9 °C / 4,3 °C | | |
| | OCCUPIED T-STAT 23,9 °C | | | OCCUPIED T-STAT 21,1 °C | | |
| ZONE LOADS | Details | Sensible (W) | Latent (W) | Details | Sensible (W) | Latent (W) |
| Window & Skylight Solar Loads | 6 m² | 931 | - | 6 m² | - | - |
| Wall Transmission | 8 m² | 223 | - | 8 m² | 220 | - |
| Roof Transmission | 38 m² | 584 | - | 38 m² | 270 | - |
| Window Transmission | 6 m² | 298 | - | 6 m² | 449 | - |
| Skylight Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Door Loads | 0 m² | 0 | - | 0 m² | 0 | - |
| Floor Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Partitions | 36 m² | 249 | - | 36 m² | 399 | - |
| Ceiling | 38 m² | 267 | - | 38 m² | 427 | - |
| Overhead Lighting | 658 W | 541 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 250 W | 232 | - | 0 | 0 | - |
| People | 33 | 1849 | 1485 | 0 | 0 | 0 |
| Infiltration | - | 0 | 0 | - | 0 | 0 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 10% / 10% | 517 | 149 | 10% | 176 | 0 |
| >> Total Zone Loads | - | 5692 | 1634 | - | 1941 | 0 |

| 3P - SALA A314 | DESIGN COOLING | | | DESIGN HEATING | | |
|-------------------------------|--------------------------------------|--------------|------------|------------------------------------|--------------|------------|
| | COOLING DATA AT Jan 1500 | | | HEATING DATA AT DES HTG | | |
| | COOLING OA DB / WB 34,2 °C / 26,9 °C | | | HEATING OA DB / WB 8,9 °C / 4,3 °C | | |
| | OCCUPIED T-STAT 23,9 °C | | | OCCUPIED T-STAT 21,1 °C | | |
| ZONE LOADS | Details | Sensible (W) | Latent (W) | Details | Sensible (W) | Latent (W) |
| Window & Skylight Solar Loads | 0 m² | 0 | - | 0 m² | - | - |
| Wall Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Roof Transmission | 38 m² | 597 | - | 38 m² | 270 | - |
| Window Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Skylight Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Door Loads | 0 m² | 0 | - | 0 m² | 0 | - |
| Floor Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Partitions | 49 m² | 343 | - | 49 m² | 549 | - |
| Ceiling | 38 m² | 267 | - | 38 m² | 427 | - |
| Overhead Lighting | 658 W | 541 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 250 W | 232 | - | 0 | 0 | - |
| People | 33 | 1849 | 1485 | 0 | 0 | 0 |
| Infiltration | - | 0 | 0 | - | 0 | 0 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 10% / 10% | 383 | 149 | 10% | 125 | 0 |
| >> Total Zone Loads | - | 4212 | 1634 | - | 1370 | 0 |

Zone Design Load Summary for VRF 3P

Project Name: EDUSESC TAGUATINGA
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| 3P - SALA A315 | DESIGN COOLING | | | DESIGN HEATING | | |
|-------------------------------|--------------------------------------|--------------|------------|------------------------------------|--------------|------------|
| | COOLING DATA AT Feb 1500 | | | HEATING DATA AT DES HTG | | |
| | COOLING OA DB / WB 34,2 °C / 26,9 °C | | | HEATING OA DB / WB 8,9 °C / 4,3 °C | | |
| | OCCUPIED T-STAT 23,9 °C | | | OCCUPIED T-STAT 21,1 °C | | |
| ZONE LOADS | Details | Sensible (W) | Latent (W) | Details | Sensible (W) | Latent (W) |
| Window & Skylight Solar Loads | 6 m² | 931 | - | 6 m² | - | - |
| Wall Transmission | 8 m² | 223 | - | 8 m² | 220 | - |
| Roof Transmission | 38 m² | 583 | - | 38 m² | 270 | - |
| Window Transmission | 6 m² | 298 | - | 6 m² | 449 | - |
| Skylight Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Door Loads | 0 m² | 0 | - | 0 m² | 0 | - |
| Floor Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Partitions | 36 m² | 249 | - | 36 m² | 399 | - |
| Ceiling | 38 m² | 266 | - | 38 m² | 426 | - |
| Overhead Lighting | 657 W | 540 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 250 W | 232 | - | 0 | 0 | - |
| People | 33 | 1849 | 1485 | 0 | 0 | 0 |
| Infiltration | - | 0 | 0 | - | 0 | 0 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 10% / 10% | 517 | 149 | 10% | 176 | 0 |
| >> Total Zone Loads | - | 5688 | 1634 | - | 1938 | 0 |

| 3P - SALA A316 | DESIGN COOLING | | | DESIGN HEATING | | |
|-------------------------------|--------------------------------------|--------------|------------|------------------------------------|--------------|------------|
| | COOLING DATA AT Feb 1600 | | | HEATING DATA AT DES HTG | | |
| | COOLING OA DB / WB 33,8 °C / 26,8 °C | | | HEATING OA DB / WB 8,9 °C / 4,3 °C | | |
| | OCCUPIED T-STAT 23,9 °C | | | OCCUPIED T-STAT 21,1 °C | | |
| ZONE LOADS | Details | Sensible (W) | Latent (W) | Details | Sensible (W) | Latent (W) |
| Window & Skylight Solar Loads | 6 m² | 869 | - | 6 m² | - | - |
| Wall Transmission | 30 m² | 798 | - | 30 m² | 853 | - |
| Roof Transmission | 38 m² | 531 | - | 38 m² | 270 | - |
| Window Transmission | 6 m² | 295 | - | 6 m² | 449 | - |
| Skylight Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Door Loads | 0 m² | 0 | - | 0 m² | 0 | - |
| Floor Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Partitions | 13 m² | 93 | - | 13 m² | 150 | - |
| Ceiling | 38 m² | 264 | - | 38 m² | 427 | - |
| Overhead Lighting | 658 W | 551 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 250 W | 234 | - | 0 | 0 | - |
| People | 33 | 1889 | 1485 | 0 | 0 | 0 |
| Infiltration | - | 0 | 0 | - | 0 | 0 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 10% / 10% | 552 | 149 | 10% | 215 | 0 |
| >> Total Zone Loads | - | 6076 | 1634 | - | 2364 | 0 |

Zone Design Load Summary for VRF 3P

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| 3P - SALA B312 | DESIGN COOLING | | | DESIGN HEATING | | |
|-------------------------------|--------------------------------------|--------------|------------|------------------------------------|--------------|------------|
| | COOLING DATA AT Jan 1700 | | | HEATING DATA AT DES HTG | | |
| | COOLING OA DB / WB 32,9 °C / 26,6 °C | | | HEATING OA DB / WB 8,9 °C / 4,3 °C | | |
| | OCCUPIED T-STAT 23,9 °C | | | OCCUPIED T-STAT 21,1 °C | | |
| ZONE LOADS | Details | Sensible (W) | Latent (W) | Details | Sensible (W) | Latent (W) |
| Window & Skylight Solar Loads | 8 m² | 2405 | - | 8 m² | - | - |
| Wall Transmission | 12 m² | 471 | - | 12 m² | 335 | - |
| Roof Transmission | 56 m² | 672 | - | 56 m² | 397 | - |
| Window Transmission | 8 m² | 389 | - | 8 m² | 628 | - |
| Skylight Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Door Loads | 0 m² | 0 | - | 0 m² | 0 | - |
| Floor Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Partitions | 20 m² | 129 | - | 20 m² | 224 | - |
| Ceiling | 56 m² | 361 | - | 56 m² | 627 | - |
| Overhead Lighting | 966 W | 823 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 250 W | 235 | - | 0 | 0 | - |
| People | 33 | 1926 | 1485 | 0 | 0 | 0 |
| Infiltration | - | 0 | 0 | - | 0 | 0 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 10% / 10% | 741 | 149 | 10% | 221 | 0 |
| >> Total Zone Loads | - | 8150 | 1634 | - | 2433 | 0 |

| 3P - SALA B313 | DESIGN COOLING | | | DESIGN HEATING | | |
|-------------------------------|--------------------------------------|--------------|------------|------------------------------------|--------------|------------|
| | COOLING DATA AT Jan 1500 | | | HEATING DATA AT DES HTG | | |
| | COOLING OA DB / WB 34,2 °C / 26,9 °C | | | HEATING OA DB / WB 8,9 °C / 4,3 °C | | |
| | OCCUPIED T-STAT 23,9 °C | | | OCCUPIED T-STAT 21,1 °C | | |
| ZONE LOADS | Details | Sensible (W) | Latent (W) | Details | Sensible (W) | Latent (W) |
| Window & Skylight Solar Loads | 0 m² | 0 | - | 0 m² | - | - |
| Wall Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Roof Transmission | 38 m² | 597 | - | 38 m² | 270 | - |
| Window Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Skylight Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Door Loads | 0 m² | 0 | - | 0 m² | 0 | - |
| Floor Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Partitions | 49 m² | 343 | - | 49 m² | 549 | - |
| Ceiling | 38 m² | 267 | - | 38 m² | 427 | - |
| Overhead Lighting | 658 W | 541 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 250 W | 232 | - | 0 | 0 | - |
| People | 33 | 1849 | 1485 | 0 | 0 | 0 |
| Infiltration | - | 0 | 0 | - | 0 | 0 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 10% / 10% | 383 | 149 | 10% | 125 | 0 |
| >> Total Zone Loads | - | 4212 | 1634 | - | 1370 | 0 |

Zone Design Load Summary for VRF 3P

Project Name: EDUSESC TAGUATINGA
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| 3P - SALA B314 | DESIGN COOLING | | | DESIGN HEATING | | |
|-------------------------------|--------------------------------------|--------------|------------|------------------------------------|--------------|------------|
| | COOLING DATA AT Jan 1700 | | | HEATING DATA AT DES HTG | | |
| | COOLING OA DB / WB 32,9 °C / 26,6 °C | | | HEATING OA DB / WB 8,9 °C / 4,3 °C | | |
| | OCCUPIED T-STAT 23,9 °C | | | OCCUPIED T-STAT 21,1 °C | | |
| ZONE LOADS | Details | Sensible (W) | Latent (W) | Details | Sensible (W) | Latent (W) |
| Window & Skylight Solar Loads | 7 m² | 2061 | - | 7 m² | - | - |
| Wall Transmission | 10 m² | 406 | - | 10 m² | 289 | - |
| Roof Transmission | 48 m² | 577 | - | 48 m² | 341 | - |
| Window Transmission | 7 m² | 333 | - | 7 m² | 538 | - |
| Skylight Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Door Loads | 0 m² | 0 | - | 0 m² | 0 | - |
| Floor Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Partitions | 17 m² | 110 | - | 17 m² | 190 | - |
| Ceiling | 48 m² | 310 | - | 48 m² | 539 | - |
| Overhead Lighting | 831 W | 708 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 250 W | 235 | - | 0 | 0 | - |
| People | 33 | 1926 | 1485 | 0 | 0 | 0 |
| Infiltration | - | 0 | 0 | - | 0 | 0 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 10% / 10% | 667 | 149 | 10% | 190 | 0 |
| >> Total Zone Loads | - | 7332 | 1634 | - | 2088 | 0 |

| 3P - SALA B315 | DESIGN COOLING | | | DESIGN HEATING | | |
|-------------------------------|--------------------------------------|--------------|------------|------------------------------------|--------------|------------|
| | COOLING DATA AT Jan 1500 | | | HEATING DATA AT DES HTG | | |
| | COOLING OA DB / WB 34,2 °C / 26,9 °C | | | HEATING OA DB / WB 8,9 °C / 4,3 °C | | |
| | OCCUPIED T-STAT 23,9 °C | | | OCCUPIED T-STAT 21,1 °C | | |
| ZONE LOADS | Details | Sensible (W) | Latent (W) | Details | Sensible (W) | Latent (W) |
| Window & Skylight Solar Loads | 0 m² | 0 | - | 0 m² | - | - |
| Wall Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Roof Transmission | 38 m² | 594 | - | 38 m² | 269 | - |
| Window Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Skylight Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Door Loads | 0 m² | 0 | - | 0 m² | 0 | - |
| Floor Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Partitions | 49 m² | 343 | - | 49 m² | 548 | - |
| Ceiling | 38 m² | 265 | - | 38 m² | 424 | - |
| Overhead Lighting | 655 W | 538 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 250 W | 232 | - | 0 | 0 | - |
| People | 33 | 1849 | 1485 | 0 | 0 | 0 |
| Infiltration | - | 0 | 0 | - | 0 | 0 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 10% / 10% | 382 | 149 | 10% | 124 | 0 |
| >> Total Zone Loads | - | 4203 | 1634 | - | 1365 | 0 |

Zone Design Load Summary for VRF 3P

Project Name: EDUSESC TAGUATINGA
Prepared by: CBR ENGENHARIA SS LTDA

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09:47

| 3P - SALA B316 | DESIGN COOLING | | | DESIGN HEATING | | |
|-------------------------------|--------------------------------------|--------------|------------|------------------------------------|--------------|------------|
| | COOLING DATA AT Jan 1700 | | | HEATING DATA AT DES HTG | | |
| | COOLING OA DB / WB 32,9 °C / 26,6 °C | | | HEATING OA DB / WB 8,9 °C / 4,3 °C | | |
| | OCCUPIED T-STAT 23,9 °C | | | OCCUPIED T-STAT 21,1 °C | | |
| ZONE LOADS | Details | Sensible (W) | Latent (W) | Details | Sensible (W) | Latent (W) |
| Window & Skylight Solar Loads | 6 m² | 1718 | - | 6 m² | - | - |
| Wall Transmission | 30 m² | 878 | - | 30 m² | 868 | - |
| Roof Transmission | 39 m² | 470 | - | 39 m² | 278 | - |
| Window Transmission | 6 m² | 278 | - | 6 m² | 449 | - |
| Skylight Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Door Loads | 0 m² | 0 | - | 0 m² | 0 | - |
| Floor Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Partitions | 36 m² | 232 | - | 36 m² | 403 | - |
| Ceiling | 39 m² | 253 | - | 39 m² | 439 | - |
| Overhead Lighting | 677 W | 577 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 250 W | 235 | - | 0 | 0 | - |
| People | 33 | 1926 | 1485 | 0 | 0 | 0 |
| Infiltration | - | 0 | 0 | - | 0 | 0 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 10% / 10% | 657 | 149 | 10% | 244 | 0 |
| >> Total Zone Loads | - | 7223 | 1634 | - | 2680 | 0 |

| 3P - SALA B317 | DESIGN COOLING | | | DESIGN HEATING | | |
|-------------------------------|--------------------------------------|--------------|------------|------------------------------------|--------------|------------|
| | COOLING DATA AT Feb 1700 | | | HEATING DATA AT DES HTG | | |
| | COOLING OA DB / WB 32,9 °C / 26,6 °C | | | HEATING OA DB / WB 8,9 °C / 4,3 °C | | |
| | OCCUPIED T-STAT 23,9 °C | | | OCCUPIED T-STAT 21,1 °C | | |
| ZONE LOADS | Details | Sensible (W) | Latent (W) | Details | Sensible (W) | Latent (W) |
| Window & Skylight Solar Loads | 0 m² | 0 | - | 0 m² | - | - |
| Wall Transmission | 22 m² | 660 | - | 22 m² | 636 | - |
| Roof Transmission | 39 m² | 447 | - | 39 m² | 274 | - |
| Window Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Skylight Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Door Loads | 0 m² | 0 | - | 0 m² | 0 | - |
| Floor Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Partitions | 28 m² | 180 | - | 28 m² | 314 | - |
| Ceiling | 39 m² | 249 | - | 39 m² | 432 | - |
| Overhead Lighting | 667 W | 568 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 250 W | 235 | - | 0 | 0 | - |
| People | 33 | 1926 | 1485 | 0 | 0 | 0 |
| Infiltration | - | 0 | 0 | - | 0 | 0 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 10% / 10% | 427 | 149 | 10% | 166 | 0 |
| >> Total Zone Loads | - | 4692 | 1634 | - | 1822 | 0 |

Zone Design Load Summary for VRF 3P

Project Name: EDUSESC TAGUATINGA
Prepared by: CBR ENGENHARIA SS LTDA

07/26/2023
09:47

| 3P - SALA DE RECURSOS | DESIGN COOLING | | | DESIGN HEATING | | |
|-------------------------------|--------------------------------------|--------------|------------|------------------------------------|--------------|------------|
| | COOLING DATA AT Jan 1500 | | | HEATING DATA AT DES HTG | | |
| | COOLING OA DB / WB 34,2 °C / 26,9 °C | | | HEATING OA DB / WB 8,9 °C / 4,3 °C | | |
| | OCCUPIED T-STAT 23,9 °C | | | OCCUPIED T-STAT 21,1 °C | | |
| ZONE LOADS | Details | Sensible (W) | Latent (W) | Details | Sensible (W) | Latent (W) |
| Window & Skylight Solar Loads | 0 m² | 0 | - | 0 m² | - | - |
| Wall Transmission | 11 m² | 289 | - | 11 m² | 318 | - |
| Roof Transmission | 12 m² | 193 | - | 12 m² | 87 | - |
| Window Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Skylight Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Door Loads | 0 m² | 0 | - | 0 m² | 0 | - |
| Floor Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Partitions | 23 m² | 158 | - | 23 m² | 252 | - |
| Ceiling | 12 m² | 86 | - | 12 m² | 138 | - |
| Overhead Lighting | 213 W | 175 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 250 W | 232 | - | 0 | 0 | - |
| People | 2 | 112 | 90 | 0 | 0 | 0 |
| Infiltration | - | 0 | 0 | - | 0 | 0 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 10% / 10% | 124 | 9 | 10% | 80 | 0 |
| >> Total Zone Loads | - | 1369 | 99 | - | 875 | 0 |

| 3P - SOE | DESIGN COOLING | | | DESIGN HEATING | | |
|-------------------------------|--------------------------------------|--------------|------------|------------------------------------|--------------|------------|
| | COOLING DATA AT Jan 1500 | | | HEATING DATA AT DES HTG | | |
| | COOLING OA DB / WB 34,2 °C / 26,9 °C | | | HEATING OA DB / WB 8,9 °C / 4,3 °C | | |
| | OCCUPIED T-STAT 23,9 °C | | | OCCUPIED T-STAT 21,1 °C | | |
| ZONE LOADS | Details | Sensible (W) | Latent (W) | Details | Sensible (W) | Latent (W) |
| Window & Skylight Solar Loads | 0 m² | 0 | - | 0 m² | - | - |
| Wall Transmission | 12 m² | 316 | - | 12 m² | 347 | - |
| Roof Transmission | 13 m² | 210 | - | 13 m² | 95 | - |
| Window Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Skylight Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Door Loads | 0 m² | 0 | - | 0 m² | 0 | - |
| Floor Transmission | 0 m² | 0 | - | 0 m² | 0 | - |
| Partitions | 21 m² | 145 | - | 21 m² | 232 | - |
| Ceiling | 13 m² | 94 | - | 13 m² | 150 | - |
| Overhead Lighting | 232 W | 190 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 250 W | 232 | - | 0 | 0 | - |
| People | 3 | 168 | 135 | 0 | 0 | 0 |
| Infiltration | - | 0 | 0 | - | 0 | 0 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 10% / 10% | 136 | 14 | 10% | 82 | 0 |
| >> Total Zone Loads | - | 1491 | 149 | - | 906 | 0 |