

Project

Heating, Ventilation, and Air Conditioning

Dr. Saleh

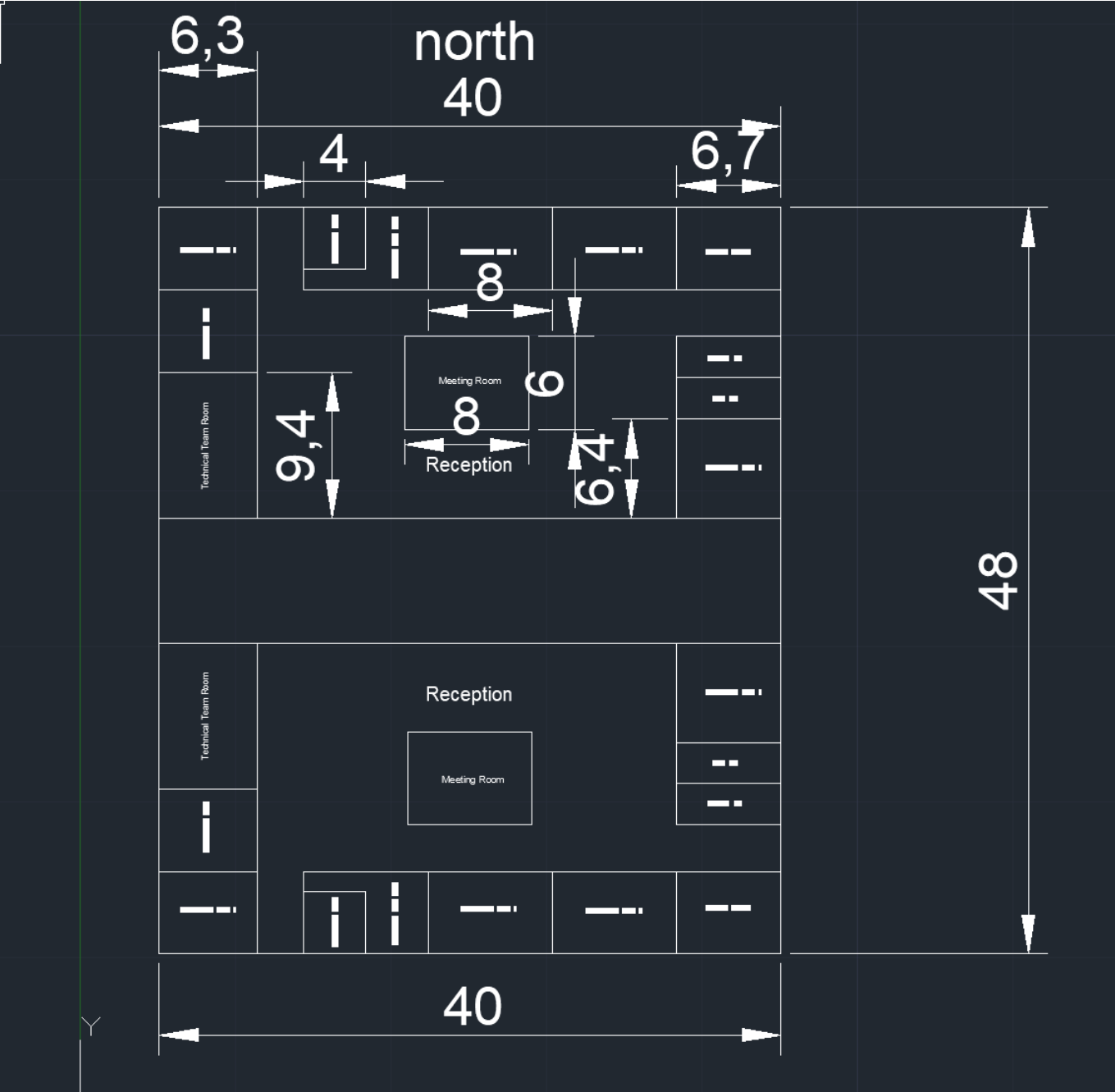
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Building Plan



Cooling Load Calculation

▪ Employer's Room 1 of Office 1

| | | |
|------------------|--|---|
| Space Area | 33.39 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | North wall with 1 Window (window dimension: 2 * 1.5 m ²) | |
| | West wall with 1 Window (window dimension: 2 * 1.5 m ²) | |
| Lighting | 25 w/m ² | |
| Appliance | Computer (average value) | 6 |
| | Medium Monitor Continuous | 6 |
| | Small desktop laser printer (idle) | 6 |
| No. of People | 6 | |
| Infiltration | 1.5 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " Employer's Room 1 " IN ZONE " Zone 1 " | | | | | | |
|---|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 6 m ² | 705 | - | 6 m ² | - | - |
| Wall Transmission | 46 m ² | 178 | - | 46 m ² | 1350 | - |
| Roof Transmission | 33 m ² | 628 | - | 33 m ² | 1031 | - |
| Window Transmission | 6 m ² | 186 | - | 6 m ² | 1204 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 33 m ² | 0 | - | 33 m ² | 316 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 835 W | 696 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 810 W | 750 | - | 0 | 0 | - |
| People | 6 | 341 | 360 | 0 | 0 | 0 |
| Infiltration | - | 636 | 784 | - | 1090 | 359 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 618 | 57 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 4738 | 1202 | - | 4991 | 359 |

▪ **Employer's Room 2 of Office 1**

| | | |
|------------------|---|----|
| Space Area | 42.4 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | North wall with 3 Windows (window dimension: 2 * 1.5 m ²) | |
| Lighting | 25 w/m ² | |
| Appliance | Computer (average value) | 10 |
| | Medium Monitor Continuous | 10 |
| | Small desktop laser printer (idle) | 10 |
| No. of People | 10 | |
| Infiltration | 1 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " Employer's Room 2 " IN ZONE " Zone 1 " | | | | | | |
|---|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 9 m ² | 481 | - | 9 m ² | - | - |
| Wall Transmission | 27 m ² | 87 | - | 27 m ² | 787 | - |
| Roof Transmission | 43 m ² | 807 | - | 43 m ² | 1324 | - |
| Window Transmission | 9 m ² | 278 | - | 9 m ² | 1806 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 43 m ² | 0 | - | 43 m ² | 295 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 1073 W | 894 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 1350 W | 1250 | - | 0 | 0 | - |
| People | 10 | 569 | 601 | 0 | 0 | 0 |
| Infiltration | - | 544 | 648 | - | 700 | 227 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 736 | 62 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 5646 | 1311 | - | 4913 | 227 |

▪ **Employer's Room 3 of Office 1**

| | | |
|------------------|--|----|
| Space Area | 42.4 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | North wall with 1 Window (window dimension: 2 * 1.5 m ²) | |
| Lighting | 25 w/m ² | |
| Appliance | Computer (average value) | 10 |
| | Medium Monitor Continuous | 10 |
| | Small desktop laser printer (idle) | 10 |
| No. of People | 10 | |
| Infiltration | 1 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " Employer's Room 3 " IN ZONE " Zone 1 " | | | | | | |
|---|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 9 m ² | 481 | - | 9 m ² | - | - |
| Wall Transmission | 27 m ² | 87 | - | 27 m ² | 787 | - |
| Roof Transmission | 42 m ² | 798 | - | 42 m ² | 1309 | - |
| Window Transmission | 9 m ² | 278 | - | 9 m ² | 1806 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 42 m ² | 0 | - | 42 m ² | 293 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 1060 W | 884 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 1350 W | 1250 | - | 0 | 0 | - |
| People | 10 | 569 | 601 | 0 | 0 | 0 |
| Infiltration | - | 538 | 668 | - | 692 | 227 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 733 | 63 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 5616 | 1332 | - | 4888 | 227 |

▪ **Employer's Room 4 of Office 1**

| | | |
|------------------|--|---|
| Space Area | 33.39 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | West wall with 3 Windows (window dimension: 2 * 1.5 m ²) | |
| Lighting | 25 w/m ² | |
| Appliance | Computer (average value) | 6 |
| | Medium Monitor Continuous | 6 |
| | Small desktop laser printer (idle) | 6 |
| No. of People | 6 | |
| Infiltration | 1 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " Employer's Room 4 " IN ZONE " Zone 1 " | | | | | | |
|---|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 3 m ² | 545 | - | 3 m ² | - | - |
| Wall Transmission | 21 m ² | 97 | - | 21 m ² | 609 | - |
| Roof Transmission | 33 m ² | 628 | - | 33 m ² | 1031 | - |
| Window Transmission | 3 m ² | 93 | - | 3 m ² | 602 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 33 m ² | 0 | - | 33 m ² | 209 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 835 W | 696 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 810 W | 750 | - | 0 | 0 | - |
| People | 6 | 341 | 360 | 0 | 0 | 0 |
| Infiltration | - | 424 | 511 | - | 545 | 181 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 536 | 44 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 4109 | 916 | - | 2997 | 181 |

▪ **Employer's Room 5 of Office 1**

| | | |
|------------------|--|---|
| Space Area | 42.88 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | East wall with 2 Windows (window dimension: 2 * 1.5 m ²) | |
| Lighting | 25 w/m ² | |
| Appliance | Computer (average value) | 8 |
| | Medium Monitor Continuous | 8 |
| | Small desktop laser printer (idle) | 8 |
| No. of People | 8 | |
| Infiltration | 1 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " Employer's Room 5 " IN ZONE " Zone 1 " | | | | | | |
|---|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 6 m ² | 768 | - | 6 m ² | - | - |
| Wall Transmission | 23 m ² | 186 | - | 23 m ² | 665 | - |
| Roof Transmission | 43 m ² | 807 | - | 43 m ² | 1324 | - |
| Window Transmission | 6 m ² | 186 | - | 6 m ² | 1204 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 43 m ² | 0 | - | 43 m ² | 260 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 1073 W | 894 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 1080 W | 1000 | - | 0 | 0 | - |
| People | 8 | 455 | 481 | 0 | 0 | 0 |
| Infiltration | - | 544 | 656 | - | 700 | 230 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 726 | 57 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 5566 | 1193 | - | 4153 | 230 |

▪ **Technical Team Room of Office 1**

| | | |
|------------------|--|----|
| Space Area | 59.22 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | West wall with 3 Windows (window dimension: 2 * 1.5 m ²) | |
| Lighting | 25 w/m ² | |
| Appliance | Computer (average value) | 10 |
| | Medium Monitor Continuous | 10 |
| | Small desktop laser printer (idle) | 10 |
| No. of People | 10 | |
| Infiltration | 1 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " Technical Team Room " IN ZONE " Zone 1 " | | | | | | |
|---|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 9 m ² | 1634 | - | 9 m ² | - | - |
| Wall Transmission | 33 m ² | 154 | - | 33 m ² | 971 | - |
| Roof Transmission | 59 m ² | 1114 | - | 59 m ² | 1827 | - |
| Window Transmission | 9 m ² | 278 | - | 9 m ² | 1806 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 59 m ² | 0 | - | 59 m ² | 371 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 1480 W | 1234 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 1350 W | 1250 | - | 0 | 0 | - |
| People | 10 | 569 | 601 | 0 | 0 | 0 |
| Infiltration | - | 751 | 907 | - | 966 | 316 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 1047 | 75 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 8031 | 1583 | - | 5942 | 316 |

▪ **Manager's Room of Office 1**

| | | |
|------------------|--|---|
| Space Area | 16 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | North wall with 1 Window (window dimension: 2 * 1.5 m ²) | |
| Lighting | 25 w/m ² | |
| Appliance | Computer (high conservative value) | 1 |
| | Large Monitor Continuous | 1 |
| | Small desktop laser printer (idle) | 1 |
| | Paper Shredder | 1 |
| No. of People | 1 | |
| Infiltration | 1 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " Manager's Room " IN ZONE " Zone 1 " | | | | | | |
|--|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 3 m ² | 160 | - | 3 m ² | - | - |
| Wall Transmission | 15 m ² | 48 | - | 15 m ² | 437 | - |
| Roof Transmission | 16 m ² | 301 | - | 16 m ² | 494 | - |
| Window Transmission | 3 m ² | 93 | - | 3 m ² | 602 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 16 m ² | 0 | - | 16 m ² | 129 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 400 W | 333 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 1545 W | 1430 | - | 0 | 0 | - |
| People | 1 | 57 | 60 | 0 | 0 | 0 |
| Infiltration | - | 203 | 242 | - | 261 | 87 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 394 | 15 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 3020 | 317 | - | 1923 | 87 |

▪ **Manager's Room Hall of Office 1**

| | | |
|------------------|--|---|
| Space Area | 26.4 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | North wall with 1 Window (window dimension: 2 * 1.5 m ²) | |
| Lighting | 25 w/m ² | |
| Appliance | Computer (average value) | 2 |
| | Medium Monitor Continuous | 2 |
| | Small desktop laser printer (idle) | 2 |
| No. of People | 2 | |
| Infiltration | 1 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " Manager's Room hall " IN ZONE " Zone 1 " | | | | | | |
|---|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 3 m ² | 160 | - | 3 m ² | - | - |
| Wall Transmission | 15 m ² | 48 | - | 15 m ² | 437 | - |
| Roof Transmission | 26 m ² | 497 | - | 26 m ² | 815 | - |
| Window Transmission | 3 m ² | 93 | - | 3 m ² | 602 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 26 m ² | 0 | - | 26 m ² | 161 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 660 W | 550 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 270 W | 250 | - | 0 | 0 | - |
| People | 2 | 114 | 120 | 0 | 0 | 0 |
| Infiltration | - | 335 | 413 | - | 431 | 142 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 307 | 27 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 2354 | 560 | - | 2446 | 142 |

▪ Meeting Room of Office 1

| | | |
|------------------|------------------------------------|----|
| Space Area | 48 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | No external walls | |
| Lighting | 25 w/m ² | |
| Appliance | Computer (average value) | 14 |
| | Medium Monitor Continuous | 14 |
| | Small desktop laser printer (idle) | 1 |
| No. of People | 14 | |
| Infiltration | 0.5 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " Meeting Room " IN ZONE " Zone 1 " | | | | | | |
|--|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 0 m ² | 0 | - | 0 m ² | - | - |
| Wall Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Roof Transmission | 48 m ² | 903 | - | 48 m ² | 1482 | - |
| Window Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 48 m ² | 0 | - | 48 m ² | 0 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 1200 W | 1000 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 1760 W | 1629 | - | 0 | 0 | - |
| People | 14 | 796 | 841 | 0 | 0 | 0 |
| Infiltration | - | 305 | 378 | - | 313 | 105 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 695 | 61 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 5329 | 1280 | - | 1795 | 105 |

▪ **Kitchen of Office 1**

| | | |
|------------------|--|---|
| Space Area | 35.51 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | North wall with 1 Window (window dimension: 2 * 1.5 m ²) | |
| | East wall | |
| Lighting | 25 w/m ² | |
| Appliance | Coffee maker 10 cups | 1 |
| | Water cooler | 1 |
| | Toaster 4 Slice | 1 |
| | Hot plate high speed double burner (with hood) | 1 |
| | Steam kettle (small) | 1 |
| | Refrigerator (large) | 1 |
| No. of People | 12 | |
| Infiltration | 1.5 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " Kitchen " IN ZONE " Zone 1 " | | | | | | |
|---|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 6 m ² | 320 | - | 6 m ² | - | - |
| Wall Transmission | 48 m ² | 273 | - | 48 m ² | 1402 | - |
| Roof Transmission | 36 m ² | 668 | - | 36 m ² | 1096 | - |
| Window Transmission | 6 m ² | 186 | - | 6 m ² | 1204 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 36 m ² | 0 | - | 36 m ² | 331 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 888 W | 740 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 0 W | 0 | - | 0 | 0 | - |
| People | 12 | 641 | 422 | 0 | 0 | 0 |
| Infiltration | - | 450 | 531 | - | 579 | 192 |
| Miscellaneous | - | 6711 | 3234 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 1498 | 209 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 11487 | 4397 | - | 4613 | 192 |

▪ Reception of Office 1

| | | |
|------------------|-----------------------------------|---|
| Space Area | 348.9 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | No External Wall | |
| Lighting | 25 w/m ² | |
| Appliance | Computer (Conservative value) | 3 |
| | Large Monitor Continuous | 3 |
| | Large office laser printer (idle) | 1 |
| | Office copier (idle) | 1 |
| | Water cooler | 3 |
| | Hot beverage vending machine | 1 |
| | Cold beverage vending machine | 1 |
| No. of People | 25 | |
| Infiltration | 1.5 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE "Reception" IN ZONE "Zone 1" | | | | | | |
|---|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 0 m ² | 0 | - | 0 m ² | - | - |
| Wall Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Roof Transmission | 349 m ² | 6563 | - | 349 m ² | 10770 | - |
| Window Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 349 m ² | 0 | - | 349 m ² | 0 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 8723 W | 7271 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 3540 W | 3277 | - | 0 | 0 | - |
| People | 25 | 1422 | 1502 | 0 | 0 | 0 |
| Infiltration | - | 2213 | 2684 | - | 2278 | 759 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 3112 | 209 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 23859 | 4396 | - | 13048 | 759 |

▪ Corridor 1 of Office 1

| | |
|------------------|--|
| Space Area | 15.9 m ² |
| Floor to Ceiling | 4.5 m |
| Walls (External) | North wall with 1 Window (window dimension: 2 * 1.5 m ²) |
| Lighting | 25 w/m ² |
| No. of People | 2 |
| Infiltration | 1 |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " Corridor 1 " IN ZONE " Zone 1 " | | | | | | |
|--|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 3 m ² | 160 | - | 3 m ² | - | - |
| Wall Transmission | 11 m ² | 34 | - | 11 m ² | 306 | - |
| Roof Transmission | 16 m ² | 299 | - | 16 m ² | 491 | - |
| Window Transmission | 3 m ² | 93 | - | 3 m ² | 602 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 16 m ² | 0 | - | 16 m ² | 110 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 398 W | 331 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 0 W | 0 | - | 0 | 0 | - |
| People | 2 | 114 | 120 | 0 | 0 | 0 |
| Infiltration | - | 202 | 248 | - | 208 | 67 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 185 | 18 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 1418 | 387 | - | 1717 | 67 |

▪ Corridor 2 of Office 1

| | |
|------------------|---|
| Space Area | 15.9 m ² |
| Floor to Ceiling | 4.5 m |
| Walls (External) | East wall with 1 Window (window dimension: 2 * 1.5 m ²) |
| Lighting | 25 w/m ² |
| No. of People | 2 |
| Infiltration | 1 |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " Corridor 2 " IN ZONE " Zone 1 " | | | | | | |
|--|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 3 m ² | 384 | - | 3 m ² | - | - |
| Wall Transmission | 11 m ² | 86 | - | 11 m ² | 306 | - |
| Roof Transmission | 16 m ² | 299 | - | 16 m ² | 491 | - |
| Window Transmission | 3 m ² | 93 | - | 3 m ² | 602 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 16 m ² | 0 | - | 16 m ² | 110 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 398 W | 331 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 0 W | 0 | - | 0 | 0 | - |
| People | 2 | 114 | 120 | 0 | 0 | 0 |
| Infiltration | - | 202 | 244 | - | 208 | 68 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 226 | 18 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 1735 | 383 | - | 1717 | 68 |

▪ **Men's WC of Office 1**

| | |
|------------------|---------------------|
| Space Area | 15.9 m ² |
| Floor to Ceiling | 4.5 m |
| Walls (External) | No External Wall |
| Lighting | 25 w/m ² |
| No. of People | 2 |
| Infiltration | 1 |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " Men WC " IN ZONE " Zone 1 " | | | | | | |
|--|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 0 m ² | 0 | - | 0 m ² | - | - |
| Wall Transmission | 14 m ² | 110 | - | 14 m ² | 394 | - |
| Roof Transmission | 16 m ² | 299 | - | 16 m ² | 491 | - |
| Window Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 16 m ² | 0 | - | 16 m ² | 110 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 398 W | 331 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 0 W | 0 | - | 0 | 0 | - |
| People | 2 | 107 | 70 | 0 | 0 | 0 |
| Infiltration | - | 101 | 125 | - | 104 | 34 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 142 | 10 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 1091 | 205 | - | 1098 | 34 |

▪ **Women's WC of Office 1**

| | |
|------------------|---------------------|
| Space Area | 15.9 m ² |
| Floor to Ceiling | 4.5 m |
| Walls (External) | No External Wall |
| Lighting | 25 w/m ² |
| No. of People | 2 |
| Infiltration | 1 |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " Women WC " IN ZONE " Zone 1 " | | | | | | |
|--|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 0 m ² | 0 | - | 0 m ² | - | - |
| Wall Transmission | 14 m ² | 110 | - | 14 m ² | 394 | - |
| Roof Transmission | 16 m ² | 299 | - | 16 m ² | 491 | - |
| Window Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 16 m ² | 0 | - | 16 m ² | 110 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 398 W | 331 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 0 W | 0 | - | 0 | 0 | - |
| People | 2 | 107 | 70 | 0 | 0 | 0 |
| Infiltration | - | 101 | 125 | - | 104 | 34 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 142 | 10 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 1091 | 205 | - | 1098 | 34 |

▪ **Employer's Room 1 of Office 2**

| | | |
|------------------|--|---|
| Space Area | 33.39 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | South wall with 1 Window (window dimension: 2 * 1.5 m ²) | |
| | West wall with 1 Window (window dimension: 2 * 1.5 m ²) | |
| Lighting | 25 w/m ² | |
| Appliance | Computer (average value) | 6 |
| | Medium Monitor Continuous | 6 |
| | Small desktop laser printer (idle) | 6 |
| No. of People | 6 | |
| Infiltration | 1.5 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " 2- Employer's Room 1 " IN ZONE " Zone 1 " | | | | | | |
|--|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Aug 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 6 m ² | 991 | - | 6 m ² | - | - |
| Wall Transmission | 46 m ² | 232 | - | 46 m ² | 1350 | - |
| Roof Transmission | 33 m ² | 555 | - | 33 m ² | 1031 | - |
| Window Transmission | 6 m ² | 186 | - | 6 m ² | 1204 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 33 m ² | 0 | - | 33 m ² | 316 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 835 W | 696 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 810 W | 750 | - | 0 | 0 | - |
| People | 6 | 341 | 360 | 0 | 0 | 0 |
| Infiltration | - | 636 | 765 | - | 1090 | 356 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 658 | 56 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 5045 | 1182 | - | 4991 | 356 |

▪ **Employer's Room 2 of Office 2**

| | | |
|------------------|---|----|
| Space Area | 42.4 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | South wall with 3 Windows (window dimension: 2 * 1.5 m ²) | |
| Lighting | 25 w/m ² | |
| Appliance | Computer (average value) | 10 |
| | Medium Monitor Continuous | 10 |
| | Small desktop laser printer (idle) | 10 |
| No. of People | 10 | |
| Infiltration | 1 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " 2- Employer's Room 2 " IN ZONE " Zone 1 " | | | | | | |
|--|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Aug 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 9 m ² | 1386 | - | 9 m ² | - | - |
| Wall Transmission | 27 m ² | 155 | - | 27 m ² | 787 | - |
| Roof Transmission | 43 m ² | 713 | - | 43 m ² | 1324 | - |
| Window Transmission | 9 m ² | 278 | - | 9 m ² | 1806 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 43 m ² | 0 | - | 43 m ² | 295 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 1073 W | 894 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 1350 W | 1250 | - | 0 | 0 | - |
| People | 10 | 569 | 601 | 0 | 0 | 0 |
| Infiltration | - | 544 | 646 | - | 700 | 231 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 868 | 62 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 6657 | 1309 | - | 4913 | 231 |

▪ **Employer's Room 3 of Office 2**

| | | |
|------------------|--|----|
| Space Area | 42.4 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | South wall with 1 Window (window dimension: 2 * 1.5 m ²) | |
| Lighting | 25 w/m ² | |
| Appliance | Computer (average value) | 10 |
| | Medium Monitor Continuous | 10 |
| | Small desktop laser printer (idle) | 10 |
| No. of People | 10 | |
| Infiltration | 1 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " 2- Employer's Room 3 " IN ZONE " Zone 1 " | | | | | | |
|--|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Aug 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 9 m ² | 1386 | - | 9 m ² | - | - |
| Wall Transmission | 27 m ² | 155 | - | 27 m ² | 787 | - |
| Roof Transmission | 42 m ² | 705 | - | 42 m ² | 1309 | - |
| Window Transmission | 9 m ² | 278 | - | 9 m ² | 1806 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 42 m ² | 0 | - | 42 m ² | 293 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 1060 W | 884 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 1350 W | 1250 | - | 0 | 0 | - |
| People | 10 | 569 | 601 | 0 | 0 | 0 |
| Infiltration | - | 538 | 658 | - | 692 | 229 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 865 | 63 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 6629 | 1322 | - | 4888 | 229 |

▪ **Employer's Room 4 of Office 2**

| | | |
|------------------|--|---|
| Space Area | 33.39 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | West wall with 3 Windows (window dimension: 2 * 1.5 m ²) | |
| Lighting | 25 w/m ² | |
| Appliance | Computer (average value) | 6 |
| | Medium Monitor Continuous | 6 |
| | Small desktop laser printer (idle) | 6 |
| No. of People | 6 | |
| Infiltration | 1 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " 2- Employer's Room 4 " IN ZONE " Zone 1 " | | | | | | |
|--|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 3 m ² | 545 | - | 3 m ² | - | - |
| Wall Transmission | 21 m ² | 97 | - | 21 m ² | 609 | - |
| Roof Transmission | 33 m ² | 628 | - | 33 m ² | 1031 | - |
| Window Transmission | 3 m ² | 93 | - | 3 m ² | 602 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 33 m ² | 0 | - | 33 m ² | 209 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 835 W | 696 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 810 W | 750 | - | 0 | 0 | - |
| People | 6 | 341 | 360 | 0 | 0 | 0 |
| Infiltration | - | 424 | 511 | - | 545 | 181 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 536 | 44 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 4109 | 916 | - | 2997 | 181 |

▪ **Employer's Room 5 of Office 2**

| | | |
|------------------|--|---|
| Space Area | 42.88 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | East wall with 2 Windows (window dimension: 2 * 1.5 m ²) | |
| Lighting | 25 w/m ² | |
| Appliance | Computer (average value) | 8 |
| | Medium Monitor Continuous | 8 |
| | Small desktop laser printer (idle) | 8 |
| No. of People | 8 | |
| Infiltration | 1 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " 2- Employer's Room 5 " IN ZONE " Zone 1 " | | | | | | |
|--|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 6 m ² | 768 | - | 6 m ² | - | - |
| Wall Transmission | 23 m ² | 186 | - | 23 m ² | 665 | - |
| Roof Transmission | 43 m ² | 807 | - | 43 m ² | 1324 | - |
| Window Transmission | 6 m ² | 186 | - | 6 m ² | 1204 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 43 m ² | 0 | - | 43 m ² | 260 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 1073 W | 894 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 1080 W | 1000 | - | 0 | 0 | - |
| People | 8 | 455 | 481 | 0 | 0 | 0 |
| Infiltration | - | 544 | 656 | - | 700 | 230 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 726 | 57 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 5566 | 1193 | - | 4153 | 230 |

▪ **Technical Team Room of Office 2**

| | | |
|------------------|--|----|
| Space Area | 59.22 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | West wall with 3 Windows (window dimension: 2 * 1.5 m ²) | |
| Lighting | 25 w/m ² | |
| Appliance | Computer (average value) | 10 |
| | Medium Monitor Continuous | 10 |
| | Small desktop laser printer (idle) | 10 |
| No. of People | 10 | |
| Infiltration | 1 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " 2- Technical Team Room " IN ZONE " Zone 1 " | | | | | | |
|--|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 9 m ² | 1634 | - | 9 m ² | - | - |
| Wall Transmission | 33 m ² | 154 | - | 33 m ² | 971 | - |
| Roof Transmission | 59 m ² | 1114 | - | 59 m ² | 1827 | - |
| Window Transmission | 9 m ² | 278 | - | 9 m ² | 1806 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 59 m ² | 0 | - | 59 m ² | 371 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 1480 W | 1234 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 1350 W | 1250 | - | 0 | 0 | - |
| People | 10 | 569 | 601 | 0 | 0 | 0 |
| Infiltration | - | 751 | 907 | - | 966 | 316 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 1047 | 75 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 8031 | 1583 | - | 5942 | 316 |

▪ **Manager's Room of Office 2**

| | | |
|------------------|--|---|
| Space Area | 16 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | South wall with 1 Window (window dimension: 2 * 1.5 m ²) | |
| Lighting | 25 w/m ² | |
| Appliance | Computer (high conservative value) | 1 |
| | Large Monitor Continuous | 1 |
| | Small desktop laser printer (idle) | 1 |
| | Paper Shredder | 1 |
| No. of People | 1 | |
| Infiltration | 1 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " 2- Manager's Room " IN ZONE " Zone 1 " | | | | | | |
|---|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Aug 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 3 m ² | 462 | - | 3 m ² | - | - |
| Wall Transmission | 15 m ² | 86 | - | 15 m ² | 437 | - |
| Roof Transmission | 16 m ² | 266 | - | 16 m ² | 494 | - |
| Window Transmission | 3 m ² | 93 | - | 3 m ² | 602 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 16 m ² | 0 | - | 16 m ² | 129 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 400 W | 333 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 1545 W | 1430 | - | 0 | 0 | - |
| People | 1 | 57 | 60 | 0 | 0 | 0 |
| Infiltration | - | 203 | 241 | - | 261 | 86 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 440 | 15 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 3370 | 316 | - | 1923 | 86 |

▪ **Manager's Room Hall of Office 2**

| | | |
|------------------|--|---|
| Space Area | 26.4 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | South wall with 1 Window (window dimension: 2 * 1.5 m ²) | |
| Lighting | 25 w/m ² | |
| Appliance | Computer (average value) | 2 |
| | Medium Monitor Continuous | 2 |
| | Small desktop laser printer (idle) | 2 |
| No. of People | 2 | |
| Infiltration | 1 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " 2- Manager's Room hall " IN ZONE " Zone 1 " | | | | | | |
|--|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Aug 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 3 m ² | 462 | - | 3 m ² | - | - |
| Wall Transmission | 15 m ² | 86 | - | 15 m ² | 437 | - |
| Roof Transmission | 26 m ² | 439 | - | 26 m ² | 815 | - |
| Window Transmission | 3 m ² | 93 | - | 3 m ² | 602 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 26 m ² | 0 | - | 26 m ² | 161 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 660 W | 550 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 270 W | 250 | - | 0 | 0 | - |
| People | 2 | 114 | 120 | 0 | 0 | 0 |
| Infiltration | - | 335 | 414 | - | 431 | 142 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 349 | 27 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 2678 | 561 | - | 2446 | 142 |

▪ Meeting Room of Office 2

| | | |
|------------------|------------------------------------|----|
| Space Area | 48 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | No external walls | |
| Lighting | 25 w/m ² | |
| Appliance | Computer (average value) | 14 |
| | Medium Monitor Continuous | 14 |
| | Small desktop laser printer (idle) | 1 |
| No. of People | 14 | |
| Infiltration | 0.5 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " 2- Meeting Room " IN ZONE " Zone 1 " | | | | | | |
|---|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 0 m ² | 0 | - | 0 m ² | - | - |
| Wall Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Roof Transmission | 48 m ² | 903 | - | 48 m ² | 1482 | - |
| Window Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 48 m ² | 0 | - | 48 m ² | 0 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 1200 W | 1000 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 1760 W | 1629 | - | 0 | 0 | - |
| People | 14 | 796 | 841 | 0 | 0 | 0 |
| Infiltration | - | 305 | 378 | - | 313 | 105 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 695 | 61 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 5329 | 1280 | - | 1795 | 105 |

▪ **Kitchen of Office 2**

| | | |
|------------------|--|---|
| Space Area | 35.51 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | South wall with 1 Window (window dimension: 2 * 1.5 m ²) | |
| | East wall | |
| Lighting | 25 w/m ² | |
| Appliance | Coffee maker 10 cups | 1 |
| | Water cooler | 1 |
| | Toaster 4 Slice | 1 |
| | Hot plate high speed double burner (with hood) | 1 |
| | Steam kettle (small) | 1 |
| | Refrigerator (large) | 1 |
| No. of People | 12 | |
| Infiltration | 1.5 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " 2- Kitchen " IN ZONE " Zone 1 " | | | | | | |
|--|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Aug 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 6 m ² | 924 | - | 6 m ² | - | - |
| Wall Transmission | 48 m ² | 237 | - | 48 m ² | 1402 | - |
| Roof Transmission | 36 m ² | 590 | - | 36 m ² | 1096 | - |
| Window Transmission | 6 m ² | 186 | - | 6 m ² | 1204 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 36 m ² | 0 | - | 36 m ² | 331 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 888 W | 740 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 0 W | 0 | - | 0 | 0 | - |
| People | 12 | 641 | 422 | 0 | 0 | 0 |
| Infiltration | - | 450 | 532 | - | 579 | 190 |
| Miscellaneous | - | 6711 | 3234 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 1572 | 209 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 12051 | 4398 | - | 4613 | 190 |

▪ **Space 10: Reception of Office 2**

| | | |
|------------------|-----------------------------------|---|
| Space Area | 348.9 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | No External Wall | |
| Lighting | 25 w/m ² | |
| Appliance | Computer (Conservative value) | 3 |
| | Large Monitor Continuous | 3 |
| | Large office laser printer (idle) | 1 |
| | Office copier (idle) | 1 |
| | Water cooler | 3 |
| | Hot beverage vending machine | 1 |
| | Cold beverage vending machine | 1 |
| No. of People | 25 | |
| Infiltration | 1.5 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " 2- Reception " IN ZONE " Zone 1 " | | | | | | |
|--|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 0 m ² | 0 | - | 0 m ² | - | - |
| Wall Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Roof Transmission | 349 m ² | 6563 | - | 349 m ² | 10770 | - |
| Window Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 349 m ² | 0 | - | 349 m ² | 0 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 8723 W | 7271 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 3540 W | 3277 | - | 0 | 0 | - |
| People | 25 | 1422 | 1502 | 0 | 0 | 0 |
| Infiltration | - | 2213 | 2684 | - | 2278 | 759 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 3112 | 209 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 23859 | 4396 | - | 13048 | 759 |

▪ Corridor 1 of Office 2

| | |
|------------------|--|
| Space Area | 15.9 m ² |
| Floor to Ceiling | 4.5 m |
| Walls (External) | North wall with 1 Window (window dimension: 2 * 1.5 m ²) |
| Lighting | 25 w/m ² |
| No. of People | 2 |
| Infiltration | 1 |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE "2- Corridor 1" IN ZONE "Zone 1" | | | | | | |
|---|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Aug 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 3 m ² | 462 | - | 3 m ² | - | - |
| Wall Transmission | 11 m ² | 60 | - | 11 m ² | 306 | - |
| Roof Transmission | 16 m ² | 264 | - | 16 m ² | 491 | - |
| Window Transmission | 3 m ² | 93 | - | 3 m ² | 602 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 16 m ² | 0 | - | 16 m ² | 110 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 398 W | 331 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 0 W | 0 | - | 0 | 0 | - |
| People | 2 | 114 | 120 | 0 | 0 | 0 |
| Infiltration | - | 202 | 244 | - | 208 | 68 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 229 | 18 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 1755 | 383 | - | 1717 | 68 |

▪ Corridor 2 of Office 2

| | |
|------------------|---|
| Space Area | 15.9 m ² |
| Floor to Ceiling | 4.5 m |
| Walls (External) | East wall with 1 Window (window dimension: 2 * 1.5 m ²) |
| Lighting | 25 w/m ² |
| No. of People | 2 |
| Infiltration | 1 |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE "2- Corridor 2 " IN ZONE " Zone 1 " | | | | | | |
|--|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 3 m ² | 384 | - | 3 m ² | - | - |
| Wall Transmission | 11 m ² | 86 | - | 11 m ² | 306 | - |
| Roof Transmission | 16 m ² | 299 | - | 16 m ² | 491 | - |
| Window Transmission | 3 m ² | 93 | - | 3 m ² | 602 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 16 m ² | 0 | - | 16 m ² | 110 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 398 W | 331 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 0 W | 0 | - | 0 | 0 | - |
| People | 2 | 114 | 120 | 0 | 0 | 0 |
| Infiltration | - | 202 | 244 | - | 208 | 68 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 226 | 18 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 1735 | 383 | - | 1717 | 68 |

▪ **Men's WC of Office 2**

| | |
|------------------|---------------------|
| Space Area | 15.9 m ² |
| Floor to Ceiling | 4.5 m |
| Walls (External) | No External Wall |
| Lighting | 25 w/m ² |
| No. of People | 2 |
| Infiltration | 1 |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " 2- Men WC " IN ZONE " Zone 1 " | | | | | | |
|---|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 0 m ² | 0 | - | 0 m ² | - | - |
| Wall Transmission | 14 m ² | 110 | - | 14 m ² | 394 | - |
| Roof Transmission | 16 m ² | 299 | - | 16 m ² | 491 | - |
| Window Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 16 m ² | 0 | - | 16 m ² | 110 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 398 W | 331 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 0 W | 0 | - | 0 | 0 | - |
| People | 2 | 107 | 70 | 0 | 0 | 0 |
| Infiltration | - | 101 | 125 | - | 104 | 34 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 142 | 10 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 1091 | 205 | - | 1098 | 34 |

▪ **Women's WC of Office 2**

| | |
|------------------|---------------------|
| Space Area | 15.9 m ² |
| Floor to Ceiling | 4.5 m |
| Walls (External) | No External Wall |
| Lighting | 25 w/m ² |
| No. of People | 2 |
| Infiltration | 1 |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " 2- Women WC " IN ZONE " Zone 1 " | | | | | | |
|---|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 0 m ² | 0 | - | 0 m ² | - | - |
| Wall Transmission | 14 m ² | 110 | - | 14 m ² | 394 | - |
| Roof Transmission | 16 m ² | 299 | - | 16 m ² | 491 | - |
| Window Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Floor Transmission | 16 m ² | 0 | - | 16 m ² | 110 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 398 W | 331 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 0 W | 0 | - | 0 | 0 | - |
| People | 2 | 107 | 70 | 0 | 0 | 0 |
| Infiltration | - | 101 | 125 | - | 104 | 34 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 142 | 10 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 1091 | 205 | - | 1098 | 34 |

▪ **Main Lobby**

| | | |
|------------------|--|---|
| Space Area | 320 m ² | |
| Floor to Ceiling | 4.5 m | |
| Walls (External) | West wall with 1 wood door (4*3 m ²) Panel door with 7/16 in panels | |
| | East wall with 1 wood door (4*3 m ²) Panel door with 7/16 in panels | |
| Lighting | 25 w/m ² | |
| Appliance | Computer (average value) | 4 |
| | Medium Monitor Continuous | 4 |
| | Small desktop laser printer (idle) | 4 |
| No. of People | 20 | |
| Infiltration | 1.5 | |

| TABLE 1.1.A. COMPONENT LOADS FOR SPACE " Main Lobby " IN ZONE " Zone 1 " | | | | | | |
|--|---|----------|--------|--|----------|--------|
| | DESIGN COOLING | | | DESIGN HEATING | | |
| | COOLING DATA AT Jul 1600 COOLING OA DB / WB 29.4 °C / 21.7 °C OCCUPIED T-STAT 21.0 °C | | | HEATING DATA AT DES HTG HEATING OA DB / WB -24.4 °C / -24.9 °C OCCUPIED T-STAT 19.0 °C | | |
| | | Sensible | Latent | | Sensible | Latent |
| SPACE LOADS | Details | (W) | (W) | Details | (W) | (W) |
| Window & Skylight Solar Loads | 0 m ² | 0 | - | 0 m ² | - | - |
| Wall Transmission | 48 m ² | 307 | - | 48 m ² | 1399 | - |
| Roof Transmission | 320 m ² | 6020 | - | 320 m ² | 9878 | - |
| Window Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Skylight Transmission | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Door Loads | 24 m ² | 59 | - | 24 m ² | 386 | - |
| Floor Transmission | 320 m ² | 0 | - | 320 m ² | 958 | - |
| Partitions | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Ceiling | 0 m ² | 0 | - | 0 m ² | 0 | - |
| Overhead Lighting | 8000 W | 6669 | - | 0 | 0 | - |
| Task Lighting | 0 W | 0 | - | 0 | 0 | - |
| Electric Equipment | 540 W | 500 | - | 0 | 0 | - |
| People | 20 | 1138 | 1202 | 0 | 0 | 0 |
| Infiltration | - | 6090 | 7539 | - | 10444 | 3447 |
| Miscellaneous | - | 0 | 0 | - | 0 | 0 |
| Safety Factor | 15% / 5% | 3117 | 437 | 0% | 0 | 0 |
| >> Total Zone Loads | - | 23900 | 9178 | - | 23066 | 3447 |

Calculation Results Table

| Cooling Load Table | | | |
|--------------------|----------|--------|-------|
| Space | sensible | latent | total |
| Space 1 | 4738 | 1202 | 5940 |
| Space 2 | 5646 | 1311 | 6957 |
| Space 3 | 5616 | 1332 | 6948 |
| Space 4 | 4109 | 916 | 5025 |
| Space 5 | 5566 | 1193 | 6759 |
| Space 6 | 8031 | 1583 | 9614 |
| Space 7 | 3020 | 317 | 3337 |
| Space 8 | 2354 | 560 | 2914 |
| Space 9 | 5329 | 1280 | 6609 |
| Space 10 | 11487 | 4397 | 15884 |
| Space 11 | 23859 | 4396 | 28255 |
| Space 12 | 1418 | 387 | 1805 |
| Space 13 | 1735 | 383 | 2118 |
| Space 14 | 1091 | 205 | 1296 |
| Space 15 | 1091 | 205 | 1296 |
| Space 16 | 5045 | 1182 | 6227 |
| Space 17 | 6657 | 1309 | 7966 |
| Space 18 | 6629 | 1322 | 7951 |
| Space 19 | 4109 | 916 | 5025 |
| Space 20 | 5566 | 1193 | 6759 |
| Space 21 | 8031 | 1583 | 9614 |
| Space 22 | 3370 | 316 | 3686 |
| Space 23 | 2678 | 561 | 3239 |
| Space 24 | 5329 | 1280 | 6609 |
| Space 25 | 12051 | 4398 | 16449 |

| Space | sensible | latent | total |
|--|----------|--------|--------|
| Space 26 | 23859 | 4396 | 28255 |
| Space 27 | 1755 | 383 | 2138 |
| Space 28 | 1735 | 383 | 2118 |
| Space 29 | 1091 | 205 | 1296 |
| Space 30 | 1091 | 205 | 1296 |
| Space 31 | 23900 | 9178 | 33078 |
| Total Cooling Load (Watt) | 197986 | 48477 | 246463 |
| Total Cooling Load Ton of Refrigeration | 56.3 | 13.78 | 70.08 |

System Capacity,

Based on the building usage and project being office, and the obtained cooling load, we select the all-air air conditioning system which is Constant Air Volume (CAV). To calculate the capacity of the air conditioner, one of the two formulas below is used, with the second formula being more accurate.

$$cfm = \frac{Q \times 12}{1.08 \times \Delta T} = 70.08 = 51.38 \left[\frac{cfm}{TR} \right]$$

$$cfm = 95.06 \times 69.68 = 3598 \text{ cfm}$$