

# Air System Sizing Summary for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
01:18AM

## Air System Information

Air System Name ..... HVAC 1  
Equipment Class ..... SPLT AHU  
Air System Type ..... SZCAV

Number of zones ..... 1  
Floor Area ..... 824.4 ft<sup>2</sup>  
Location ..... Beaumont, Alberta

## Sizing Calculation Information

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

Zone CFM Sizing ..... Sum of space airflow rates  
Space CFM Sizing ..... Individual peak space loads

## Central Cooling Coil Sizing Data

Total coil load ..... 3.2 Tons  
Total coil load ..... 38.3 MBH  
Sensible coil load ..... 32.2 MBH  
Coil CFM at Aug 1600 ..... 2558 CFM  
Max block CFM ..... 2558 CFM  
Sum of peak zone CFM ..... 2558 CFM  
Sensible heat ratio ..... 0.842  
CFM/Ton ..... 802.4  
ft<sup>2</sup>/Ton ..... 258.6  
BTU/(hr-ft<sup>2</sup>) ..... 46.4  
Water flow @ 10.0 °F rise ..... N/A

Load occurs at ..... Aug 1600  
OA DB / WB ..... 82.3 / 59.8 °F  
Entering DB / WB ..... 75.9 / 66.3 °F  
Leaving DB / WB ..... 62.6 / 61.5 °F  
Coil ADP ..... 60.8 °F  
Bypass Factor ..... 0.120  
Resulting RH ..... 62 %  
Design supply temp. .... 55.0 °F  
Zone T-stat Check ..... 1 of 1 OK  
Max zone temperature deviation ..... 0.0 °F

## Central Heating Coil Sizing Data

Max coil load ..... 57.5 MBH  
Coil CFM at Des Htg ..... 2558 CFM  
Max coil CFM ..... 2558 CFM  
Water flow @ 20.0 °F drop ..... N/A

Load occurs at ..... Des Htg  
BTU/(hr-ft<sup>2</sup>) ..... 69.8  
Ent. DB / Lvg DB ..... 68.4 / 92.1 °F

## Supply Fan Sizing Data

Actual max CFM ..... 2558 CFM  
Standard CFM ..... 2246 CFM  
Actual max CFM/ft<sup>2</sup> ..... 3.10 CFM/ft<sup>2</sup>

Fan motor BHP ..... 0.00 BHP  
Fan motor kW ..... 0.00 kW  
Fan static ..... 0.00 in wg

## Outdoor Ventilation Air Data

Design airflow CFM ..... 0 CFM  
CFM/ft<sup>2</sup> ..... 0.00 CFM/ft<sup>2</sup>

CFM/person ..... 0.00 CFM/person

## Zone Sizing Summary for HVAC 1

Project Name: Project 119  
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### Air System Information

Air System Name ..... HVAC 1  
Equipment Class ..... SPLT AHU  
Air System Type ..... SZCAV

Number of zones ..... 1  
Floor Area ..... 824.4 ft<sup>2</sup>  
Location ..... Beaumont, Alberta

### Sizing Calculation Information

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

Zone CFM Sizing ..... Sum of space airflow rates  
Space CFM Sizing ..... Individual peak space loads

### Zone Terminal Sizing Data

| Zone Name | Design Supply Airflow (CFM) | Minimum Supply Airflow (CFM) | Zone CFM/ft <sup>2</sup> | Reheat Coil Load (MBH) | Reheat Coil Water gpm @ 20.0 °F | Zone Htg Unit Coil Load (MBH) | Zone Htg Unit Water gpm @ 20.0 °F | Mixing Box Fan Airflow (CFM) |
|-----------|-----------------------------|------------------------------|--------------------------|------------------------|---------------------------------|-------------------------------|-----------------------------------|------------------------------|
| Zone 1    | 2558                        | 2558                         | 3.10                     | 0.0                    | -                               | 0.0                           | -                                 | 0                            |

### Zone Peak Sensible Loads

| Zone Name | Zone Cooling Sensible (MBH) | Time of Peak Sensible Cooling Load | Zone Heating Load (MBH) | Zone Floor Area (ft <sup>2</sup> ) |
|-----------|-----------------------------|------------------------------------|-------------------------|------------------------------------|
| Zone 1    | 34.3                        | Aug 1500                           | 60.6                    | 824.4                              |

### Space Loads and Airflows

| Zone Name / Space Name | Mult. | Cooling Sensible (MBH) | Time of Peak Sensible Load | Air Flow (CFM) | Heating Load (MBH) | Floor Area (ft <sup>2</sup> ) | Space CFM/ft <sup>2</sup> |
|------------------------|-------|------------------------|----------------------------|----------------|--------------------|-------------------------------|---------------------------|
| <b>Zone 1</b>          |       |                        |                            |                |                    |                               |                           |
| Den A                  | 1     | 3.6                    | Aug 1500                   | 193            | 4.6                | 82.0                          | 2.35                      |
| Den B                  | 1     | 3.3                    | Aug 1500                   | 183            | 4.3                | 53.0                          | 3.46                      |
| Den C                  | 1     | 3.9                    | Aug 1500                   | 212            | 5.0                | 104.0                         | 2.04                      |
| Den D                  | 1     | 3.9                    | Aug 1500                   | 212            | 5.0                | 104.0                         | 2.04                      |
| Den G                  | 1     | 3.3                    | Aug 1500                   | 183            | 4.3                | 53.0                          | 3.46                      |
| Den H                  | 1     | 3.6                    | Aug 1500                   | 193            | 4.6                | 82.0                          | 2.35                      |
| Laundry A              | 1     | 0.9                    | Jul 2100                   | 88             | 2.1                | 23.3                          | 3.77                      |
| Laundry B              | 1     | 1.0                    | Jul 2200                   | 103            | 2.4                | 28.2                          | 3.66                      |
| Laundry C              | 1     | 0.9                    | Jul 2100                   | 89             | 2.1                | 23.8                          | 3.72                      |
| Laundry D              | 1     | 0.9                    | Jul 2100                   | 89             | 2.1                | 23.8                          | 3.72                      |
| Laundry E              | 1     | 0.9                    | Jul 2100                   | 88             | 2.1                | 23.0                          | 3.81                      |
| Laundry F              | 1     | 0.9                    | Jul 2000                   | 88             | 2.1                | 23.0                          | 3.81                      |
| Laundry G              | 1     | 1.0                    | Jul 2100                   | 103            | 2.4                | 28.2                          | 3.66                      |
| Laundry H              | 1     | 0.9                    | Jul 2100                   | 88             | 2.1                | 23.3                          | 3.77                      |
| WC A                   | 1     | 0.8                    | Jul 2100                   | 81             | 1.9                | 19.0                          | 4.26                      |
| WC B                   | 1     | 0.8                    | Jul 1900                   | 79             | 1.9                | 18.2                          | 4.36                      |
| WC C                   | 1     | 0.8                    | Jul 2100                   | 81             | 1.9                | 19.0                          | 4.26                      |
| WC D                   | 1     | 0.8                    | Jul 1900                   | 81             | 1.9                | 19.0                          | 4.26                      |
| WC E                   | 1     | 0.8                    | Jul 2100                   | 82             | 1.9                | 18.7                          | 4.40                      |
| WC F                   | 1     | 0.8                    | Jul 1900                   | 82             | 1.9                | 18.7                          | 4.40                      |
| WC G                   | 1     | 0.8                    | Jul 2100                   | 79             | 1.9                | 18.2                          | 4.36                      |
| WC H                   | 1     | 0.8                    | Jul 1900                   | 81             | 1.9                | 19.0                          | 4.26                      |

# Ventilation Sizing Summary for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

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## 1. Summary

Ventilation Sizing Method ..... Sum of Space OA Airflows  
Design Ventilation Airflow Rate ..... 0 CFM

## 2. Space Ventilation Analysis

| Zone Name / Space Name                  | Mult. | Floor Area (ft²) | Maximum Occupants | Maximum Supply Air (CFM) | Required Outdoor Air (CFM/person) | Required Outdoor Air (CFM/ft²) | Required Outdoor Air (CFM) | Required Outdoor Air (% of supply) | Uncorrected Outdoor Air (CFM) |
|-----------------------------------------|-------|------------------|-------------------|--------------------------|-----------------------------------|--------------------------------|----------------------------|------------------------------------|-------------------------------|
| <b>Zone 1</b>                           |       |                  |                   |                          |                                   |                                |                            |                                    |                               |
| Den A                                   | 1     | 82.0             | 2.0               | 192.8                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| Den B                                   | 1     | 53.0             | 2.0               | 183.4                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| Den C                                   | 1     | 104.0            | 2.0               | 212.5                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| Den D                                   | 1     | 104.0            | 2.0               | 212.5                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| Den G                                   | 1     | 53.0             | 2.0               | 183.4                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| Den H                                   | 1     | 82.0             | 2.0               | 192.8                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| Laundry A                               | 1     | 23.3             | 1.0               | 87.7                     | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| Laundry B                               | 1     | 28.2             | 1.0               | 103.2                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| Laundry C                               | 1     | 23.8             | 1.0               | 88.5                     | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| Laundry D                               | 1     | 23.8             | 1.0               | 88.5                     | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| Laundry E                               | 1     | 23.0             | 1.0               | 87.7                     | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| Laundry F                               | 1     | 23.0             | 1.0               | 87.7                     | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| Laundry G                               | 1     | 28.2             | 1.0               | 103.2                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| Laundry H                               | 1     | 23.3             | 1.0               | 87.7                     | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| WC A                                    | 1     | 19.0             | 1.0               | 80.9                     | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| WC B                                    | 1     | 18.2             | 1.0               | 79.3                     | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| WC C                                    | 1     | 19.0             | 1.0               | 80.9                     | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| WC D                                    | 1     | 19.0             | 1.0               | 80.9                     | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| WC E                                    | 1     | 18.7             | 1.0               | 82.2                     | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| WC F                                    | 1     | 18.7             | 1.0               | 82.2                     | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| WC G                                    | 1     | 18.2             | 1.0               | 79.3                     | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| WC H                                    | 1     | 19.0             | 1.0               | 80.9                     | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| <b>Totals (incl. Space Multipliers)</b> |       |                  |                   | <b>2558.3</b>            |                                   |                                |                            |                                    | <b>0.0</b>                    |

# Air System Design Load Summary for HVAC 1

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|                               | DESIGN COOLING                                                   |                      |                    | DESIGN HEATING                                                    |                      |                    |
|-------------------------------|------------------------------------------------------------------|----------------------|--------------------|-------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Aug 1600<br>COOLING OA DB / WB 82.3 °F / 59.8 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
| ZONE LOADS                    | Details                                                          | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                                           | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 120 ft²                                                          | 8106                 | -                  | 120 ft²                                                           | -                    | -                  |
| Wall Transmission             | 4518 ft²                                                         | 3837                 | -                  | 4518 ft²                                                          | 37868                | -                  |
| Roof Transmission             | 824 ft²                                                          | 1264                 | -                  | 824 ft²                                                           | 2377                 | -                  |
| Window Transmission           | 120 ft²                                                          | 273                  | -                  | 120 ft²                                                           | 6492                 | -                  |
| Skylight Transmission         | 0 ft²                                                            | 0                    | -                  | 0 ft²                                                             | 0                    | -                  |
| Door Loads                    | 504 ft²                                                          | 585                  | -                  | 504 ft²                                                           | 13910                | -                  |
| Floor Transmission            | 813 ft²                                                          | 0                    | -                  | 813 ft²                                                           | 0                    | -                  |
| Partitions                    | 1307 ft²                                                         | 0                    | -                  | 1307 ft²                                                          | 0                    | -                  |
| Ceiling                       | 824 ft²                                                          | 0                    | -                  | 824 ft²                                                           | 0                    | -                  |
| Overhead Lighting             | 824 W                                                            | 2468                 | -                  | 0                                                                 | 0                    | -                  |
| Task Lighting                 | 824 W                                                            | 2621                 | -                  | 0                                                                 | 0                    | -                  |
| Electric Equipment            | 1400 W                                                           | 4516                 | -                  | 0                                                                 | 0                    | -                  |
| People                        | 28                                                               | 5810                 | 5740               | 0                                                                 | 0                    | 0                  |
| Infiltration                  | -                                                                | 0                    | 0                  | -                                                                 | 0                    | 0                  |
| Miscellaneous                 | -                                                                | 0                    | 0                  | -                                                                 | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                         | 4422                 | 287                | 0%                                                                | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                | 33903                | 6027               | -                                                                 | 60647                | 0                  |
| Zone Conditioning             | -                                                                | 32218                | 6027               | -                                                                 | 57509                | 0                  |
| Plenum Wall Load              | 0%                                                               | 0                    | -                  | 0                                                                 | 0                    | -                  |
| Plenum Roof Load              | 0%                                                               | 0                    | -                  | 0                                                                 | 0                    | -                  |
| Plenum Lighting Load          | 0%                                                               | 0                    | -                  | 0                                                                 | 0                    | -                  |
| Return Fan Load               | 2558 CFM                                                         | 0                    | -                  | 2558 CFM                                                          | 0                    | -                  |
| Ventilation Load              | 0 CFM                                                            | 0                    | 0                  | 0 CFM                                                             | 0                    | 0                  |
| Supply Fan Load               | 2558 CFM                                                         | 0                    | -                  | 2558 CFM                                                          | 0                    | -                  |
| Space Fan Coil Fans           | -                                                                | 0                    | -                  | -                                                                 | 0                    | -                  |
| Duct Heat Gain / Loss         | 0%                                                               | 0                    | -                  | 0%                                                                | 0                    | -                  |
| >> Total System Loads         | -                                                                | 32218                | 6027               | -                                                                 | 57509                | 0                  |
| Central Cooling Coil          | -                                                                | 32218                | 6039               | -                                                                 | 0                    | 0                  |
| Central Heating Coil          | -                                                                | 0                    | -                  | -                                                                 | 57509                | -                  |
| >> Total Conditioning         | -                                                                | 32218                | 6039               | -                                                                 | 57509                | 0                  |
| Key:                          | Positive values are clg loads<br>Negative values are htg loads   |                      |                    | Positive values are htg loads<br>Negative values are clg loads    |                      |                    |

## Zone Design Load Summary for HVAC 1

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| Zone 1                        | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Aug 1500             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 83.0 °F / 60.0 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| ZONE LOADS                    | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 120 ft²                              | 8994                 | -                  | 120 ft²                                | -                    | -                  |
| Wall Transmission             | 4518 ft²                             | 3483                 | -                  | 4518 ft²                               | 37868                | -                  |
| Roof Transmission             | 824 ft²                              | 1201                 | -                  | 824 ft²                                | 2377                 | -                  |
| Window Transmission           | 120 ft²                              | 286                  | -                  | 120 ft²                                | 6492                 | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 504 ft²                              | 614                  | -                  | 504 ft²                                | 13910                | -                  |
| Floor Transmission            | 813 ft²                              | 0                    | -                  | 813 ft²                                | 0                    | -                  |
| Partitions                    | 1307 ft²                             | 0                    | -                  | 1307 ft²                               | 0                    | -                  |
| Ceiling                       | 824 ft²                              | 0                    | -                  | 824 ft²                                | 0                    | -                  |
| Overhead Lighting             | 824 W                                | 2444                 | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 824 W                                | 2608                 | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 1400 W                               | 4497                 | -                  | 0                                      | 0                    | -                  |
| People                        | 28                                   | 5737                 | 5740               | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 4480                 | 287                | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 34344                | 6027               | -                                      | 60647                | 0                  |

# Space Design Load Summary for HVAC 1

Project Name: Project 119  
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TABLE 1.1.A. Component Loads For Space "Den A" In Zone "Zone 1"

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Aug 1500             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 83.0 °F / 60.0 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 20 ft²                               | 1499                 | -                  | 20 ft²                                 | -                    | -                  |
| Wall Transmission             | 319 ft²                              | 223                  | -                  | 319 ft²                                | 2674                 | -                  |
| Roof Transmission             | 82 ft²                               | 119                  | -                  | 82 ft²                                 | 236                  | -                  |
| Window Transmission           | 20 ft²                               | 48                   | -                  | 20 ft²                                 | 1082                 | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | 26                   | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 82 ft²                               | 0                    | -                  | 82 ft²                                 | 0                    | -                  |
| Partitions                    | 92 ft²                               | 0                    | -                  | 92 ft²                                 | 0                    | -                  |
| Ceiling                       | 82 ft²                               | 0                    | -                  | 82 ft²                                 | 0                    | -                  |
| Overhead Lighting             | 82 W                                 | 243                  | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 82 W                                 | 259                  | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 100 W                                | 321                  | -                  | 0                                      | 0                    | -                  |
| People                        | 2                                    | 410                  | 410                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 472                  | 21                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 3621                 | 431                | -                                      | 4572                 | 0                  |

TABLE 1.1.B. Envelope Loads For Space "Den A" In Zone "Zone 1"

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 92            | 0.091                        | -               | -9                           | -                            | 771                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 72            | 0.091                        | -               | 86                           | -                            | 603                          |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 48                           | 1499                         | 1082                         |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 67            | 0.091                        | -               | 85                           | -                            | 562                          |
| DOOR              | 21            | 0.300                        | -               | 26                           | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 88            | 0.091                        | -               | 61                           | -                            | 738                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 82            | 0.031                        | -               | 119                          | -                            | 236                          |

# Space Design Load Summary for HVAC 1

Project Name: Project 119  
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TABLE 1.2.A. Component Loads For Space "Den B" In Zone "Zone 1"

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Aug 1500             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 83.0 °F / 60.0 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 20 ft²                               | 1499                 | -                  | 20 ft²                                 | -                    | -                  |
| Wall Transmission             | 233 ft²                              | 181                  | -                  | 233 ft²                                | 1953                 | -                  |
| Roof Transmission             | 53 ft²                               | 77                   | -                  | 53 ft²                                 | 153                  | -                  |
| Window Transmission           | 20 ft²                               | 48                   | -                  | 20 ft²                                 | 1082                 | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 42 ft²                               | 51                   | -                  | 42 ft²                                 | 1159                 | -                  |
| Floor Transmission            | 53 ft²                               | 0                    | -                  | 53 ft²                                 | 0                    | -                  |
| Partitions                    | 69 ft²                               | 0                    | -                  | 69 ft²                                 | 0                    | -                  |
| Ceiling                       | 53 ft²                               | 0                    | -                  | 53 ft²                                 | 0                    | -                  |
| Overhead Lighting             | 53 W                                 | 157                  | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 53 W                                 | 168                  | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 100 W                                | 321                  | -                  | 0                                      | 0                    | -                  |
| People                        | 2                                    | 410                  | 410                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 437                  | 21                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 3348                 | 431                | -                                      | 4347                 | 0                  |

TABLE 1.2.B. Envelope Loads For Space "Den B" In Zone "Zone 1"

|                    | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING           | COOLING           | HEATING           |
|--------------------|---------------|------------------------------|-----------------|-------------------|-------------------|-------------------|
|                    |               |                              |                 | TRANS<br>(BTU/hr) | SOLAR<br>(BTU/hr) | TRANS<br>(BTU/hr) |
| <b>N EXPOSURE</b>  |               |                              |                 |                   |                   |                   |
| WALL               | 39            | 0.091                        | -               | -4                | -                 | 327               |
| DOOR               | 21            | 0.300                        | -               | 26                | -                 | 580               |
| <b>S EXPOSURE</b>  |               |                              |                 |                   |                   |                   |
| WALL               | 70            | 0.091                        | -               | 84                | -                 | 587               |
| WINDOW 1           | 20            | 0.588                        | 0.811           | 48                | 1499              | 1082              |
| <b>E EXPOSURE</b>  |               |                              |                 |                   |                   |                   |
| WALL               | 70            | 0.091                        | -               | 89                | -                 | 587               |
| <b>NW EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| WALL               | 54            | 0.091                        | -               | 12                | -                 | 453               |
| DOOR               | 21            | 0.300                        | -               | 26                | -                 | 580               |
| <b>H EXPOSURE</b>  |               |                              |                 |                   |                   |                   |
| ROOF               | 53            | 0.031                        | -               | 77                | -                 | 153               |

# Space Design Load Summary for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
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TABLE 1.3.A. Component Loads For Space "Den C" In Zone "Zone 1"

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Aug 1500             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 83.0 °F / 60.0 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 20 ft²                               | 1499                 | -                  | 20 ft²                                 | -                    | -                  |
| Wall Transmission             | 367 ft²                              | 268                  | -                  | 367 ft²                                | 3076                 | -                  |
| Roof Transmission             | 104 ft²                              | 152                  | -                  | 104 ft²                                | 300                  | -                  |
| Window Transmission           | 20 ft²                               | 48                   | -                  | 20 ft²                                 | 1082                 | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | 26                   | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 104 ft²                              | 0                    | -                  | 104 ft²                                | 0                    | -                  |
| Partitions                    | 164 ft²                              | 0                    | -                  | 164 ft²                                | 0                    | -                  |
| Ceiling                       | 104 ft²                              | 0                    | -                  | 104 ft²                                | 0                    | -                  |
| Overhead Lighting             | 104 W                                | 308                  | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 104 W                                | 329                  | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 100 W                                | 321                  | -                  | 0                                      | 0                    | -                  |
| People                        | 2                                    | 410                  | 410                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 504                  | 21                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 3864                 | 431                | -                                      | 5037                 | 0                  |

TABLE 1.3.B. Envelope Loads For Space "Den C" In Zone "Zone 1"

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 95            | 0.091                        | -               | -9                           | -                            | 796                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 75            | 0.091                        | -               | 89                           | -                            | 629                          |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 48                           | 1499                         | 1082                         |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 88            | 0.091                        | -               | 112                          | -                            | 738                          |
| DOOR              | 21            | 0.300                        | -               | 26                           | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 109           | 0.091                        | -               | 75                           | -                            | 914                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 104           | 0.031                        | -               | 152                          | -                            | 300                          |

# Space Design Load Summary for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
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TABLE 1.4.A. Component Loads For Space "Den D" In Zone "Zone 1"

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Aug 1500             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 83.0 °F / 60.0 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 20 ft²                               | 1499                 | -                  | 20 ft²                                 | -                    | -                  |
| Wall Transmission             | 367 ft²                              | 280                  | -                  | 367 ft²                                | 3076                 | -                  |
| Roof Transmission             | 104 ft²                              | 152                  | -                  | 104 ft²                                | 300                  | -                  |
| Window Transmission           | 20 ft²                               | 48                   | -                  | 20 ft²                                 | 1082                 | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | 26                   | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 104 ft²                              | 0                    | -                  | 104 ft²                                | 0                    | -                  |
| Partitions                    | 204 ft²                              | 0                    | -                  | 204 ft²                                | 0                    | -                  |
| Ceiling                       | 104 ft²                              | 0                    | -                  | 104 ft²                                | 0                    | -                  |
| Overhead Lighting             | 104 W                                | 308                  | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 104 W                                | 329                  | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 100 W                                | 321                  | -                  | 0                                      | 0                    | -                  |
| People                        | 2                                    | 410                  | 410                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 506                  | 21                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 3878                 | 431                | -                                      | 5037                 | 0                  |

TABLE 1.4.B. Envelope Loads For Space "Den D" In Zone "Zone 1"

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING           | COOLING           | HEATING           |
|-------------------|---------------|------------------------------|-----------------|-------------------|-------------------|-------------------|
|                   |               |                              |                 | TRANS<br>(BTU/hr) | SOLAR<br>(BTU/hr) | TRANS<br>(BTU/hr) |
| <b>N EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| WALL              | 95            | 0.091                        | -               | -9                | -                 | 796               |
| <b>S EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| WALL              | 75            | 0.091                        | -               | 89                | -                 | 629               |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 48                | 1499              | 1082              |
| <b>E EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| WALL              | 109           | 0.091                        | -               | 139               | -                 | 914               |
| <b>W EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| WALL              | 88            | 0.091                        | -               | 61                | -                 | 738               |
| DOOR              | 21            | 0.300                        | -               | 26                | -                 | 580               |
| <b>H EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| ROOF              | 104           | 0.031                        | -               | 152               | -                 | 300               |

# Space Design Load Summary for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
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TABLE 1.5.A. Component Loads For Space "Den G" In Zone "Zone 1"

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Aug 1500             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 83.0 °F / 60.0 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 20 ft²                               | 1499                 | -                  | 20 ft²                                 | -                    | -                  |
| Wall Transmission             | 233 ft²                              | 155                  | -                  | 233 ft²                                | 1953                 | -                  |
| Roof Transmission             | 53 ft²                               | 77                   | -                  | 53 ft²                                 | 153                  | -                  |
| Window Transmission           | 20 ft²                               | 48                   | -                  | 20 ft²                                 | 1082                 | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 42 ft²                               | 51                   | -                  | 42 ft²                                 | 1159                 | -                  |
| Floor Transmission            | 53 ft²                               | 0                    | -                  | 53 ft²                                 | 0                    | -                  |
| Partitions                    | 69 ft²                               | 0                    | -                  | 69 ft²                                 | 0                    | -                  |
| Ceiling                       | 53 ft²                               | 0                    | -                  | 53 ft²                                 | 0                    | -                  |
| Overhead Lighting             | 53 W                                 | 157                  | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 53 W                                 | 168                  | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 100 W                                | 321                  | -                  | 0                                      | 0                    | -                  |
| People                        | 2                                    | 410                  | 410                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 433                  | 21                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 3318                 | 431                | -                                      | 4347                 | 0                  |

TABLE 1.5.B. Envelope Loads For Space "Den G" In Zone "Zone 1"

|                    | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|--------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b>  |               |                              |                 |                              |                              |                              |
| WALL               | 39            | 0.091                        | -               | -4                           | -                            | 327                          |
| DOOR               | 21            | 0.300                        | -               | 26                           | -                            | 580                          |
| <b>S EXPOSURE</b>  |               |                              |                 |                              |                              |                              |
| WALL               | 70            | 0.091                        | -               | 84                           | -                            | 587                          |
| WINDOW 1           | 20            | 0.588                        | 0.811           | 48                           | 1499                         | 1082                         |
| <b>NE EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL               | 49            | 0.091                        | -               | 23                           | -                            | 411                          |
| DOOR               | 21            | 0.300                        | -               | 26                           | -                            | 580                          |
| <b>W EXPOSURE</b>  |               |                              |                 |                              |                              |                              |
| WALL               | 75            | 0.091                        | -               | 52                           | -                            | 629                          |
| <b>H EXPOSURE</b>  |               |                              |                 |                              |                              |                              |
| ROOF               | 53            | 0.031                        | -               | 77                           | -                            | 153                          |

# Space Design Load Summary for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
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TABLE 1.6.A. Component Loads For Space "Den H" In Zone "Zone 1"

| SPACE LOADS                   | DESIGN COOLING                       |                         |                    | DESIGN HEATING                         |                         |                    |
|-------------------------------|--------------------------------------|-------------------------|--------------------|----------------------------------------|-------------------------|--------------------|
|                               | COOLING DATA AT Aug 1500             |                         |                    | HEATING DATA AT DES HTG                |                         |                    |
|                               | COOLING OA DB / WB 83.0 °F / 60.0 °F |                         |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                         |                    |
|                               |                                      | OCCUPIED T-STAT 75.0 °F |                    |                                        | OCCUPIED T-STAT 70.0 °F |                    |
|                               | Details                              | Sensible<br>(BTU/hr)    | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr)    | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 20 ft²                               | 1499                    | -                  | 20 ft²                                 | -                       | -                  |
| Wall Transmission             | 319 ft²                              | 236                     | -                  | 319 ft²                                | 2674                    | -                  |
| Roof Transmission             | 82 ft²                               | 119                     | -                  | 82 ft²                                 | 236                     | -                  |
| Window Transmission           | 20 ft²                               | 48                      | -                  | 20 ft²                                 | 1082                    | -                  |
| Skylight Transmission         | 0 ft²                                | 0                       | -                  | 0 ft²                                  | 0                       | -                  |
| Door Loads                    | 21 ft²                               | 26                      | -                  | 21 ft²                                 | 580                     | -                  |
| Floor Transmission            | 82 ft²                               | 0                       | -                  | 82 ft²                                 | 0                       | -                  |
| Partitions                    | 92 ft²                               | 0                       | -                  | 92 ft²                                 | 0                       | -                  |
| Ceiling                       | 82 ft²                               | 0                       | -                  | 82 ft²                                 | 0                       | -                  |
| Overhead Lighting             | 82 W                                 | 243                     | -                  | 0                                      | 0                       | -                  |
| Task Lighting                 | 82 W                                 | 259                     | -                  | 0                                      | 0                       | -                  |
| Electric Equipment            | 100 W                                | 321                     | -                  | 0                                      | 0                       | -                  |
| People                        | 2                                    | 410                     | 410                | 0                                      | 0                       | 0                  |
| Infiltration                  | -                                    | 0                       | 0                  | -                                      | 0                       | 0                  |
| Miscellaneous                 | -                                    | 0                       | 0                  | -                                      | 0                       | 0                  |
| Safety Factor                 | 15% / 5%                             | 474                     | 21                 | 0%                                     | 0                       | 0                  |
| >> Total Zone Loads           | -                                    | 3635                    | 431                | -                                      | 4572                    | 0                  |

TABLE 1.6.B. Envelope Loads For Space "Den H" In Zone "Zone 1"

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING           | COOLING           | HEATING           |
|-------------------|---------------|------------------------------|-----------------|-------------------|-------------------|-------------------|
|                   |               |                              |                 | TRANS<br>(BTU/hr) | SOLAR<br>(BTU/hr) | TRANS<br>(BTU/hr) |
| <b>N EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| WALL              | 92            | 0.091                        | -               | -9                | -                 | 771               |
| <b>S EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| WALL              | 72            | 0.091                        | -               | 86                | -                 | 603               |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 48                | 1499              | 1082              |
| <b>E EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| WALL              | 88            | 0.091                        | -               | 112               | -                 | 738               |
| <b>W EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| WALL              | 67            | 0.091                        | -               | 46                | -                 | 562               |
| DOOR              | 21            | 0.300                        | -               | 26                | -                 | 580               |
| <b>H EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| ROOF              | 82            | 0.031                        | -               | 119               | -                 | 236               |

# Space Design Load Summary for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
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**TABLE 1.7.A. Component Loads For Space "Laundry A" In Zone "Zone 1"**

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2100             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 70.2 °F / 55.5 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                | 0                    | -                  | 0 ft²                                  | -                    | -                  |
| Wall Transmission             | 171 ft²                              | 265                  | -                  | 171 ft²                                | 1433                 | -                  |
| Roof Transmission             | 23 ft²                               | 22                   | -                  | 23 ft²                                 | 67                   | -                  |
| Window Transmission           | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | -24                  | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 23 ft²                               | 0                    | -                  | 23 ft²                                 | 0                    | -                  |
| Partitions                    | 49 ft²                               | 0                    | -                  | 49 ft²                                 | 0                    | -                  |
| Ceiling                       | 23 ft²                               | 0                    | -                  | 23 ft²                                 | 0                    | -                  |
| Overhead Lighting             | 23 W                                 | 73                   | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 23 W                                 | 76                   | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 50 W                                 | 164                  | -                  | 0                                      | 0                    | -                  |
| People                        | 1                                    | 218                  | 205                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 119                  | 10                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 913                  | 215                | -                                      | 2080                 | 0                  |

**TABLE 1.7.B. Envelope Loads For Space "Laundry A" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING           | COOLING           | HEATING           |
|-------------------|---------------|------------------------------|-----------------|-------------------|-------------------|-------------------|
|                   |               |                              |                 | TRANS<br>(BTU/hr) | SOLAR<br>(BTU/hr) | TRANS<br>(BTU/hr) |
| <b>N EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| WALL              | 28            | 0.091                        | -               | 13                | -                 | 235               |
| DOOR              | 21            | 0.300                        | -               | -24               | -                 | 580               |
| <b>S EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| WALL              | 49            | 0.091                        | -               | 86                | -                 | 411               |
| <b>E EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| WALL              | 47            | 0.091                        | -               | 87                | -                 | 394               |
| <b>W EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| WALL              | 47            | 0.091                        | -               | 79                | -                 | 394               |
| <b>H EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| ROOF              | 23            | 0.031                        | -               | 22                | -                 | 67                |

# Space Design Load Summary for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

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**TABLE 1.8.A. Component Loads For Space "Laundry B" In Zone "Zone 1"**

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2200             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 68.0 °F / 54.7 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                | 0                    | -                  | 0 ft²                                  | -                    | -                  |
| Wall Transmission             | 213 ft²                              | 346                  | -                  | 213 ft²                                | 1785                 | -                  |
| Roof Transmission             | 28 ft²                               | 20                   | -                  | 28 ft²                                 | 81                   | -                  |
| Window Transmission           | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | -34                  | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 23 ft²                               | 0                    | -                  | 23 ft²                                 | 0                    | -                  |
| Partitions                    | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Ceiling                       | 28 ft²                               | 0                    | -                  | 28 ft²                                 | 0                    | -                  |
| Overhead Lighting             | 28 W                                 | 88                   | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 28 W                                 | 92                   | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 50 W                                 | 164                  | -                  | 0                                      | 0                    | -                  |
| People                        | 1                                    | 220                  | 205                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 135                  | 10                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 1031                 | 215                | -                                      | 2446                 | 0                  |

**TABLE 1.8.B. Envelope Loads For Space "Laundry B" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 34            | 0.091                        | -               | 18                           | -                            | 285                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 34            | 0.091                        | -               | 61                           | -                            | 285                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 62            | 0.091                        | -               | 114                          | -                            | 520                          |
| DOOR              | 21            | 0.300                        | -               | -34                          | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 83            | 0.091                        | -               | 154                          | -                            | 696                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 28            | 0.031                        | -               | 20                           | -                            | 81                           |

# Space Design Load Summary for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
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**TABLE 1.9.A. Component Loads For Space "Laundry C" In Zone "Zone 1"**

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2100             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 70.2 °F / 55.5 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                | 0                    | -                  | 0 ft²                                  | -                    | -                  |
| Wall Transmission             | 173 ft²                              | 267                  | -                  | 173 ft²                                | 1450                 | -                  |
| Roof Transmission             | 24 ft²                               | 23                   | -                  | 24 ft²                                 | 69                   | -                  |
| Window Transmission           | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | -24                  | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 23 ft²                               | 0                    | -                  | 23 ft²                                 | 0                    | -                  |
| Partitions                    | 95 ft²                               | 0                    | -                  | 95 ft²                                 | 0                    | -                  |
| Ceiling                       | 24 ft²                               | 0                    | -                  | 24 ft²                                 | 0                    | -                  |
| Overhead Lighting             | 24 W                                 | 74                   | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 24 W                                 | 77                   | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 50 W                                 | 164                  | -                  | 0                                      | 0                    | -                  |
| People                        | 1                                    | 218                  | 205                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 120                  | 10                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 919                  | 215                | -                                      | 2098                 | 0                  |

**TABLE 1.9.B. Envelope Loads For Space "Laundry C" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING           | COOLING           | HEATING           |
|-------------------|---------------|------------------------------|-----------------|-------------------|-------------------|-------------------|
|                   |               |                              |                 | TRANS<br>(BTU/hr) | SOLAR<br>(BTU/hr) | TRANS<br>(BTU/hr) |
| <b>N EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| WALL              | 29            | 0.091                        | -               | 14                | -                 | 243               |
| DOOR              | 21            | 0.300                        | -               | -24               | -                 | 580               |
| <b>S EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| WALL              | 50            | 0.091                        | -               | 87                | -                 | 419               |
| <b>E EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| WALL              | 47            | 0.091                        | -               | 87                | -                 | 394               |
| <b>W EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| WALL              | 47            | 0.091                        | -               | 79                | -                 | 394               |
| <b>H EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| ROOF              | 24            | 0.031                        | -               | 23                | -                 | 69                |

# Space Design Load Summary for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
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TABLE 1.10.A. Component Loads For Space "Laundry D" In Zone "Zone 1"

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2100             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 70.2 °F / 55.5 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                | 0                    | -                  | 0 ft²                                  | -                    | -                  |
| Wall Transmission             | 173 ft²                              | 267                  | -                  | 173 ft²                                | 1450                 | -                  |
| Roof Transmission             | 24 ft²                               | 23                   | -                  | 24 ft²                                 | 69                   | -                  |
| Window Transmission           | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | -24                  | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 23 ft²                               | 0                    | -                  | 23 ft²                                 | 0                    | -                  |
| Partitions                    | 50 ft²                               | 0                    | -                  | 50 ft²                                 | 0                    | -                  |
| Ceiling                       | 24 ft²                               | 0                    | -                  | 24 ft²                                 | 0                    | -                  |
| Overhead Lighting             | 24 W                                 | 74                   | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 24 W                                 | 77                   | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 50 W                                 | 164                  | -                  | 0                                      | 0                    | -                  |
| People                        | 1                                    | 218                  | 205                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 120                  | 10                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 919                  | 215                | -                                      | 2098                 | 0                  |

TABLE 1.10.B. Envelope Loads For Space "Laundry D" In Zone "Zone 1"

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 29            | 0.091                        | -               | 14                           | -                            | 243                          |
| DOOR              | 21            | 0.300                        | -               | -24                          | -                            | 580                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 50            | 0.091                        | -               | 87                           | -                            | 419                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 47            | 0.091                        | -               | 87                           | -                            | 394                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 47            | 0.091                        | -               | 79                           | -                            | 394                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 24            | 0.031                        | -               | 23                           | -                            | 69                           |

# Space Design Load Summary for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

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TABLE 1.11.A. Component Loads For Space "Laundry E" In Zone "Zone 1"

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2100             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 70.2 °F / 55.5 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                | 0                    | -                  | 0 ft²                                  | -                    | -                  |
| Wall Transmission             | 171 ft²                              | 245                  | -                  | 171 ft²                                | 1433                 | -                  |
| Roof Transmission             | 23 ft²                               | 22                   | -                  | 23 ft²                                 | 66                   | -                  |
| Window Transmission           | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | -24                  | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 23 ft²                               | 0                    | -                  | 23 ft²                                 | 0                    | -                  |
| Partitions                    | 42 ft²                               | 0                    | -                  | 42 ft²                                 | 0                    | -                  |
| Ceiling                       | 23 ft²                               | 0                    | -                  | 23 ft²                                 | 0                    | -                  |
| Overhead Lighting             | 23 W                                 | 72                   | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 23 W                                 | 75                   | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 50 W                                 | 164                  | -                  | 0                                      | 0                    | -                  |
| People                        | 1                                    | 218                  | 205                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 116                  | 10                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 887                  | 215                | -                                      | 2079                 | 0                  |

TABLE 1.11.B. Envelope Loads For Space "Laundry E" In Zone "Zone 1"

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 42            | 0.091                        | -               | 20                           | -                            | 352                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 42            | 0.091                        | -               | 73                           | -                            | 352                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 33            | 0.091                        | -               | 61                           | -                            | 277                          |
| DOOR              | 21            | 0.300                        | -               | -24                          | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 54            | 0.091                        | -               | 91                           | -                            | 453                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 23            | 0.031                        | -               | 22                           | -                            | 66                           |

# Space Design Load Summary for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

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TABLE 1.12.A. Component Loads For Space "Laundry F" In Zone "Zone 1"

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2000             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 72.7 °F / 56.4 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                | 0                    | -                  | 0 ft²                                  | -                    | -                  |
| Wall Transmission             | 171 ft²                              | 236                  | -                  | 171 ft²                                | 1433                 | -                  |
| Roof Transmission             | 23 ft²                               | 28                   | -                  | 23 ft²                                 | 66                   | -                  |
| Window Transmission           | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | -14                  | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 23 ft²                               | 0                    | -                  | 23 ft²                                 | 0                    | -                  |
| Partitions                    | 42 ft²                               | 0                    | -                  | 42 ft²                                 | 0                    | -                  |
| Ceiling                       | 23 ft²                               | 0                    | -                  | 23 ft²                                 | 0                    | -                  |
| Overhead Lighting             | 23 W                                 | 71                   | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 23 W                                 | 74                   | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 50 W                                 | 163                  | -                  | 0                                      | 0                    | -                  |
| People                        | 1                                    | 216                  | 205                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 116                  | 10                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 893                  | 215                | -                                      | 2079                 | 0                  |

TABLE 1.12.B. Envelope Loads For Space "Laundry F" In Zone "Zone 1"

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 42            | 0.091                        | -               | 17                           | -                            | 352                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 42            | 0.091                        | -               | 70                           | -                            | 352                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 54            | 0.091                        | -               | 100                          | -                            | 453                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 33            | 0.091                        | -               | 49                           | -                            | 277                          |
| DOOR              | 21            | 0.300                        | -               | -14                          | -                            | 580                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 23            | 0.031                        | -               | 28                           | -                            | 66                           |

# Space Design Load Summary for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
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TABLE 1.13.A. Component Loads For Space "Laundry G" In Zone "Zone 1"

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2100             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 70.2 °F / 55.5 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                | 0                    | -                  | 0 ft²                                  | -                    | -                  |
| Wall Transmission             | 213 ft²                              | 334                  | -                  | 213 ft²                                | 1785                 | -                  |
| Roof Transmission             | 28 ft²                               | 27                   | -                  | 28 ft²                                 | 81                   | -                  |
| Window Transmission           | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | -24                  | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 23 ft²                               | 0                    | -                  | 23 ft²                                 | 0                    | -                  |
| Partitions                    | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Ceiling                       | 28 ft²                               | 0                    | -                  | 28 ft²                                 | 0                    | -                  |
| Overhead Lighting             | 28 W                                 | 88                   | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 28 W                                 | 92                   | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 50 W                                 | 164                  | -                  | 0                                      | 0                    | -                  |
| People                        | 1                                    | 218                  | 205                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 135                  | 10                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 1033                 | 215                | -                                      | 2446                 | 0                  |

TABLE 1.13.B. Envelope Loads For Space "Laundry G" In Zone "Zone 1"

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 34            | 0.091                        | -               | 16                           | -                            | 285                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 34            | 0.091                        | -               | 59                           | -                            | 285                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 83            | 0.091                        | -               | 154                          | -                            | 696                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 62            | 0.091                        | -               | 104                          | -                            | 520                          |
| DOOR              | 21            | 0.300                        | -               | -24                          | -                            | 580                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 28            | 0.031                        | -               | 27                           | -                            | 81                           |

# Space Design Load Summary for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

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TABLE 1.14.A. Component Loads For Space "Laundry H" In Zone "Zone 1"

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2100             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 70.2 °F / 55.5 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                | 0                    | -                  | 0 ft²                                  | -                    | -                  |
| Wall Transmission             | 171 ft²                              | 265                  | -                  | 171 ft²                                | 1433                 | -                  |
| Roof Transmission             | 23 ft²                               | 22                   | -                  | 23 ft²                                 | 67                   | -                  |
| Window Transmission           | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | -24                  | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 23 ft²                               | 0                    | -                  | 23 ft²                                 | 0                    | -                  |
| Partitions                    | 49 ft²                               | 0                    | -                  | 49 ft²                                 | 0                    | -                  |
| Ceiling                       | 23 ft²                               | 0                    | -                  | 23 ft²                                 | 0                    | -                  |
| Overhead Lighting             | 23 W                                 | 73                   | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 23 W                                 | 76                   | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 50 W                                 | 164                  | -                  | 0                                      | 0                    | -                  |
| People                        | 1                                    | 218                  | 205                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 119                  | 10                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 913                  | 215                | -                                      | 2080                 | 0                  |

TABLE 1.14.B. Envelope Loads For Space "Laundry H" In Zone "Zone 1"

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 28            | 0.091                        | -               | 13                           | -                            | 235                          |
| DOOR              | 21            | 0.300                        | -               | -24                          | -                            | 580                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 49            | 0.091                        | -               | 86                           | -                            | 411                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 47            | 0.091                        | -               | 87                           | -                            | 394                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 47            | 0.091                        | -               | 79                           | -                            | 394                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 23            | 0.031                        | -               | 22                           | -                            | 67                           |

# Space Design Load Summary for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
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TABLE 1.15.A. Component Loads For Space "WC A" In Zone "Zone 1"

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2100             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 70.2 °F / 55.5 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                | 0                    | -                  | 0 ft²                                  | -                    | -                  |
| Wall Transmission             | 153 ft²                              | 216                  | -                  | 153 ft²                                | 1282                 | -                  |
| Roof Transmission             | 19 ft²                               | 18                   | -                  | 19 ft²                                 | 55                   | -                  |
| Window Transmission           | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | -24                  | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 19 ft²                               | 0                    | -                  | 19 ft²                                 | 0                    | -                  |
| Partitions                    | 40 ft²                               | 0                    | -                  | 40 ft²                                 | 0                    | -                  |
| Ceiling                       | 19 ft²                               | 0                    | -                  | 19 ft²                                 | 0                    | -                  |
| Overhead Lighting             | 19 W                                 | 59                   | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 19 W                                 | 62                   | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 50 W                                 | 164                  | -                  | 0                                      | 0                    | -                  |
| People                        | 1                                    | 218                  | 205                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 107                  | 10                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 820                  | 215                | -                                      | 1917                 | 0                  |

TABLE 1.15.B. Envelope Loads For Space "WC A" In Zone "Zone 1"

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 40            | 0.091                        | -               | 19                           | -                            | 335                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 40            | 0.091                        | -               | 70                           | -                            | 335                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 26            | 0.091                        | -               | 48                           | -                            | 218                          |
| DOOR              | 21            | 0.300                        | -               | -24                          | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 47            | 0.091                        | -               | 79                           | -                            | 394                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 19            | 0.031                        | -               | 18                           | -                            | 55                           |

# Space Design Load Summary for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
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TABLE 1.16.A. Component Loads For Space "WC B" In Zone "Zone 1"

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1900             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 75.5 °F / 57.4 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                | 0                    | -                  | 0 ft²                                  | -                    | -                  |
| Wall Transmission             | 149 ft²                              | 191                  | -                  | 149 ft²                                | 1249                 | -                  |
| Roof Transmission             | 18 ft²                               | 27                   | -                  | 18 ft²                                 | 52                   | -                  |
| Window Transmission           | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | -2                   | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 18 ft²                               | 0                    | -                  | 18 ft²                                 | 0                    | -                  |
| Partitions                    | 46 ft²                               | 0                    | -                  | 46 ft²                                 | 0                    | -                  |
| Ceiling                       | 18 ft²                               | 0                    | -                  | 18 ft²                                 | 0                    | -                  |
| Overhead Lighting             | 18 W                                 | 56                   | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 18 W                                 | 59                   | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 50 W                                 | 163                  | -                  | 0                                      | 0                    | -                  |
| People                        | 1                                    | 214                  | 205                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 106                  | 10                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 815                  | 215                | -                                      | 1881                 | 0                  |

TABLE 1.16.B. Envelope Loads For Space "WC B" In Zone "Zone 1"

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 39            | 0.091                        | -               | 14                           | -                            | 327                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 39            | 0.091                        | -               | 61                           | -                            | 327                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 46            | 0.091                        | -               | 84                           | -                            | 386                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 25            | 0.091                        | -               | 32                           | -                            | 210                          |
| DOOR              | 21            | 0.300                        | -               | -2                           | -                            | 580                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 18            | 0.031                        | -               | 27                           | -                            | 52                           |

# Space Design Load Summary for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

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TABLE 1.17.A. Component Loads For Space "WC C" In Zone "Zone 1"

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2100             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 70.2 °F / 55.5 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                | 0                    | -                  | 0 ft²                                  | -                    | -                  |
| Wall Transmission             | 153 ft²                              | 216                  | -                  | 153 ft²                                | 1282                 | -                  |
| Roof Transmission             | 19 ft²                               | 18                   | -                  | 19 ft²                                 | 55                   | -                  |
| Window Transmission           | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | -24                  | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 19 ft²                               | 0                    | -                  | 19 ft²                                 | 0                    | -                  |
| Partitions                    | 40 ft²                               | 0                    | -                  | 40 ft²                                 | 0                    | -                  |
| Ceiling                       | 19 ft²                               | 0                    | -                  | 19 ft²                                 | 0                    | -                  |
| Overhead Lighting             | 19 W                                 | 59                   | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 19 W                                 | 62                   | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 50 W                                 | 164                  | -                  | 0                                      | 0                    | -                  |
| People                        | 1                                    | 218                  | 205                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 107                  | 10                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 820                  | 215                | -                                      | 1917                 | 0                  |

TABLE 1.17.B. Envelope Loads For Space "WC C" In Zone "Zone 1"

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 40            | 0.091                        | -               | 19                           | -                            | 335                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 40            | 0.091                        | -               | 70                           | -                            | 335                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 26            | 0.091                        | -               | 48                           | -                            | 218                          |
| DOOR              | 21            | 0.300                        | -               | -24                          | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 47            | 0.091                        | -               | 79                           | -                            | 394                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 19            | 0.031                        | -               | 18                           | -                            | 55                           |

# Space Design Load Summary for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

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TABLE 1.18.A. Component Loads For Space "WC D" In Zone "Zone 1"

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1900<br>COOLING OA DB / WB 75.5 °F / 57.4 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
| SPACE LOADS                   | Details                                                                                     | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                                                                      | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | -                    | -                  |
| Wall Transmission             | 153 ft²                                                                                     | 196                  | -                  | 153 ft²                                                                                      | 1282                 | -                  |
| Roof Transmission             | 19 ft²                                                                                      | 28                   | -                  | 19 ft²                                                                                       | 55                   | -                  |
| Window Transmission           | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 21 ft²                                                                                      | -2                   | -                  | 21 ft²                                                                                       | 580                  | -                  |
| Floor Transmission            | 19 ft²                                                                                      | 0                    | -                  | 19 ft²                                                                                       | 0                    | -                  |
| Partitions                    | 40 ft²                                                                                      | 0                    | -                  | 40 ft²                                                                                       | 0                    | -                  |
| Ceiling                       | 19 ft²                                                                                      | 0                    | -                  | 19 ft²                                                                                       | 0                    | -                  |
| Overhead Lighting             | 19 W                                                                                        | 58                   | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 19 W                                                                                        | 61                   | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 50 W                                                                                        | 163                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 1                                                                                           | 214                  | 205                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 108                  | 10                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 828                  | 215                | -                                                                                            | 1917                 | 0                  |

TABLE 1.18.B. Envelope Loads For Space "WC D" In Zone "Zone 1"

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 40            | 0.091                        | -               | 14                           | -                            | 335                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 40            | 0.091                        | -               | 62                           | -                            | 335                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 47            | 0.091                        | -               | 86                           | -                            | 394                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 26            | 0.091                        | -               | 33                           | -                            | 218                          |
| DOOR              | 21            | 0.300                        | -               | -2                           | -                            | 580                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 19            | 0.031                        | -               | 28                           | -                            | 55                           |

# Space Design Load Summary for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
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TABLE 1.19.A. Component Loads For Space "WC E" In Zone "Zone 1"

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2100             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 70.2 °F / 55.5 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                | 0                    | -                  | 0 ft²                                  | -                    | -                  |
| Wall Transmission             | 157 ft²                              | 220                  | -                  | 157 ft²                                | 1316                 | -                  |
| Roof Transmission             | 19 ft²                               | 18                   | -                  | 19 ft²                                 | 54                   | -                  |
| Window Transmission           | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | -24                  | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 18 ft²                               | 0                    | -                  | 18 ft²                                 | 0                    | -                  |
| Partitions                    | 42 ft²                               | 0                    | -                  | 42 ft²                                 | 0                    | -                  |
| Ceiling                       | 19 ft²                               | 0                    | -                  | 19 ft²                                 | 0                    | -                  |
| Overhead Lighting             | 19 W                                 | 58                   | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 19 W                                 | 61                   | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 50 W                                 | 164                  | -                  | 0                                      | 0                    | -                  |
| People                        | 1                                    | 218                  | 205                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 107                  | 10                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 823                  | 215                | -                                      | 1949                 | 0                  |

TABLE 1.19.B. Envelope Loads For Space "WC E" In Zone "Zone 1"

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 42            | 0.091                        | -               | 20                           | -                            | 352                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 42            | 0.091                        | -               | 73                           | -                            | 352                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 26            | 0.091                        | -               | 48                           | -                            | 218                          |
| DOOR              | 21            | 0.300                        | -               | -24                          | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 47            | 0.091                        | -               | 79                           | -                            | 394                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 19            | 0.031                        | -               | 18                           | -                            | 54                           |

# Space Design Load Summary for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
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TABLE 1.20.A. Component Loads For Space "WC F" In Zone "Zone 1"

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1900             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 75.5 °F / 57.4 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                | 0                    | -                  | 0 ft²                                  | -                    | -                  |
| Wall Transmission             | 157 ft²                              | 200                  | -                  | 157 ft²                                | 1316                 | -                  |
| Roof Transmission             | 19 ft²                               | 28                   | -                  | 19 ft²                                 | 54                   | -                  |
| Window Transmission           | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | -2                   | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 18 ft²                               | 0                    | -                  | 18 ft²                                 | 0                    | -                  |
| Partitions                    | 42 ft²                               | 0                    | -                  | 42 ft²                                 | 0                    | -                  |
| Ceiling                       | 19 ft²                               | 0                    | -                  | 19 ft²                                 | 0                    | -                  |
| Overhead Lighting             | 19 W                                 | 57                   | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 19 W                                 | 60                   | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 50 W                                 | 163                  | -                  | 0                                      | 0                    | -                  |
| People                        | 1                                    | 214                  | 205                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 108                  | 10                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 829                  | 215                | -                                      | 1949                 | 0                  |

TABLE 1.20.B. Envelope Loads For Space "WC F" In Zone "Zone 1"

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 42            | 0.091                        | -               | 15                           | -                            | 352                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 42            | 0.091                        | -               | 65                           | -                            | 352                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 47            | 0.091                        | -               | 86                           | -                            | 394                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 26            | 0.091                        | -               | 33                           | -                            | 218                          |
| DOOR              | 21            | 0.300                        | -               | -2                           | -                            | 580                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 19            | 0.031                        | -               | 28                           | -                            | 54                           |

# Space Design Load Summary for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
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TABLE 1.21.A. Component Loads For Space "WC G" In Zone "Zone 1"

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2100             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 70.2 °F / 55.5 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                | 0                    | -                  | 0 ft²                                  | -                    | -                  |
| Wall Transmission             | 149 ft²                              | 210                  | -                  | 149 ft²                                | 1249                 | -                  |
| Roof Transmission             | 18 ft²                               | 17                   | -                  | 18 ft²                                 | 52                   | -                  |
| Window Transmission           | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | -24                  | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 18 ft²                               | 0                    | -                  | 18 ft²                                 | 0                    | -                  |
| Partitions                    | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Ceiling                       | 18 ft²                               | 0                    | -                  | 18 ft²                                 | 0                    | -                  |
| Overhead Lighting             | 18 W                                 | 57                   | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 18 W                                 | 59                   | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 50 W                                 | 164                  | -                  | 0                                      | 0                    | -                  |
| People                        | 1                                    | 218                  | 205                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 105                  | 10                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 807                  | 215                | -                                      | 1881                 | 0                  |

TABLE 1.21.B. Envelope Loads For Space "WC G" In Zone "Zone 1"

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING           | COOLING           | HEATING           |
|-------------------|---------------|------------------------------|-----------------|-------------------|-------------------|-------------------|
|                   |               |                              |                 | TRANS<br>(BTU/hr) | SOLAR<br>(BTU/hr) | TRANS<br>(BTU/hr) |
| <b>N EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| WALL              | 39            | 0.091                        | -               | 18                | -                 | 327               |
| <b>S EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| WALL              | 39            | 0.091                        | -               | 68                | -                 | 327               |
| <b>E EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| WALL              | 25            | 0.091                        | -               | 46                | -                 | 210               |
| DOOR              | 21            | 0.300                        | -               | -24               | -                 | 580               |
| <b>W EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| WALL              | 46            | 0.091                        | -               | 77                | -                 | 386               |
| <b>H EXPOSURE</b> |               |                              |                 |                   |                   |                   |
| ROOF              | 18            | 0.031                        | -               | 17                | -                 | 52                |

# Space Design Load Summary for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
01:18AM

TABLE 1.22.A. Component Loads For Space "WC H" In Zone "Zone 1"

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1900             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 75.5 °F / 57.4 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                | 0                    | -                  | 0 ft²                                  | -                    | -                  |
| Wall Transmission             | 153 ft²                              | 196                  | -                  | 153 ft²                                | 1282                 | -                  |
| Roof Transmission             | 19 ft²                               | 28                   | -                  | 19 ft²                                 | 55                   | -                  |
| Window Transmission           | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | -2                   | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 19 ft²                               | 0                    | -                  | 19 ft²                                 | 0                    | -                  |
| Partitions                    | 40 ft²                               | 0                    | -                  | 40 ft²                                 | 0                    | -                  |
| Ceiling                       | 19 ft²                               | 0                    | -                  | 19 ft²                                 | 0                    | -                  |
| Overhead Lighting             | 19 W                                 | 58                   | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 19 W                                 | 61                   | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 50 W                                 | 163                  | -                  | 0                                      | 0                    | -                  |
| People                        | 1                                    | 214                  | 205                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 108                  | 10                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 828                  | 215                | -                                      | 1917                 | 0                  |

TABLE 1.22.B. Envelope Loads For Space "WC H" In Zone "Zone 1"

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 40            | 0.091                        | -               | 14                           | -                            | 335                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 40            | 0.091                        | -               | 62                           | -                            | 335                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 47            | 0.091                        | -               | 86                           | -                            | 394                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 26            | 0.091                        | -               | 33                           | -                            | 218                          |
| DOOR              | 21            | 0.300                        | -               | -2                           | -                            | 580                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 19            | 0.031                        | -               | 28                           | -                            | 55                           |

# System Psychrometrics for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
01:19AM

August DESIGN COOLING DAY, 1600

TABLE 1: SYSTEM DATA

| Component            | Location | Dry-Bulb Temp (°F) | Specific Humidity (lb/lb) | Airflow (CFM) | CO2 Level (ppm) | Sensible Heat (BTU/hr) | Latent Heat (BTU/hr) |
|----------------------|----------|--------------------|---------------------------|---------------|-----------------|------------------------|----------------------|
| Ventilation Air      | Inlet    | 82.3               | 0.00732                   | 0             | 400             | 0                      | 0                    |
| Vent - Return Mixing | Outlet   | 75.9               | 0.01359                   | 2558          | 3426            | -                      | -                    |
| Central Cooling Coil | Outlet   | 62.6               | 0.01303                   | 2558          | 3426            | 32218                  | 6039                 |
| Central Heating Coil | Outlet   | 62.6               | 0.01303                   | 2558          | 3426            | 0                      | -                    |
| Supply Fan           | Outlet   | 62.6               | 0.01303                   | 2558          | 3426            | 0                      | -                    |
| Cold Supply Duct     | Outlet   | 62.6               | 0.01303                   | 2558          | 3426            | -                      | -                    |
| Zone Air             | -        | 75.9               | 0.01359                   | 2558          | 3426            | 32218                  | 6027                 |
| Return Plenum        | Outlet   | 75.9               | 0.01359                   | 2558          | 3426            | 0                      | -                    |

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 0.948 BTU/(hr-CFM-F)

Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4167.5 BTU/(hr-CFM)

Site Altitude = 3556.0 ft

TABLE 2: ZONE DATA

| Zone Name | Zone Sensible Load (BTU/hr) | T-stat Mode | Zone Cond (BTU/hr) | Zone Temp (°F) | Zone Airflow (CFM) | CO2 Level (ppm) | Terminal Heating Coil (BTU/hr) | Zone Heating Unit (BTU/hr) |
|-----------|-----------------------------|-------------|--------------------|----------------|--------------------|-----------------|--------------------------------|----------------------------|
| Zone 1    | 33903                       | Cooling     | 32218              | 75.9           | 2558               | 3426            | 0                              | 0                          |

# System Psychrometrics for HVAC 1

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
01:19AM

## WINTER DESIGN HEATING

TABLE 1: SYSTEM DATA

| Component            | Location | Dry-Bulb Temp (°F) | Specific Humidity (lb/lb) | Airflow (CFM) | CO2 Level (ppm) | Sensible Heat (BTU/hr) | Latent Heat (BTU/hr) |
|----------------------|----------|--------------------|---------------------------|---------------|-----------------|------------------------|----------------------|
| Ventilation Air      | Inlet    | -22.0              | 0.00013                   | 0             | 400             | 0                      | 0                    |
| Vent - Return Mixing | Outlet   | 68.4               | 0.01699                   | 2558          | 800             | -                      | -                    |
| Central Cooling Coil | Outlet   | 68.4               | 0.01699                   | 2558          | 800             | 0                      | 0                    |
| Central Heating Coil | Outlet   | 92.1               | 0.01699                   | 2558          | 800             | 57509                  | -                    |
| Supply Fan           | Outlet   | 92.1               | 0.01699                   | 2558          | 800             | 0                      | -                    |
| Cold Supply Duct     | Outlet   | 92.1               | 0.01699                   | 2558          | 800             | -                      | -                    |
| Zone Air             | -        | 68.4               | 0.01699                   | 2558          | 800             | -57509                 | 0                    |
| Return Plenum        | Outlet   | 68.4               | 0.01699                   | 2558          | 800             | 0                      | -                    |

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 0.948 BTU/(hr-CFM-F)

Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4167.5 BTU/(hr-CFM)

Site Altitude = 3556.0 ft

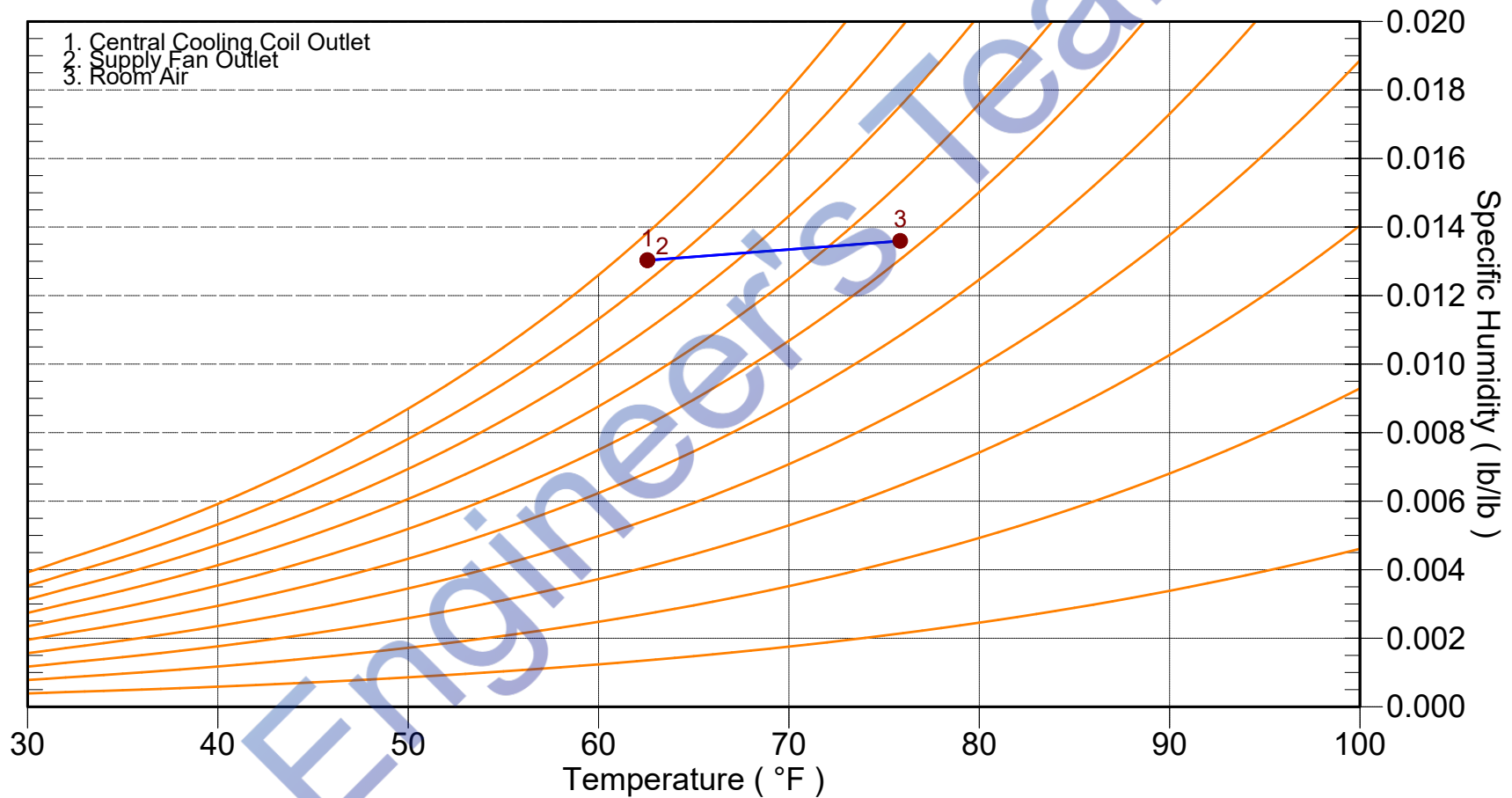
TABLE 2: ZONE DATA

| Zone Name | Zone Sensible Load (BTU/hr) | T-stat Mode | Zone Cond (BTU/hr) | Zone Temp (°F) | Zone Airflow (CFM) | CO2 Level (ppm) | Terminal Heating Coil (BTU/hr) | Zone Heating Unit (BTU/hr) |
|-----------|-----------------------------|-------------|--------------------|----------------|--------------------|-----------------|--------------------------------|----------------------------|
| Zone 1    | -60647                      | Heating     | -57509             | 68.4           | 2558               | 800             | 0                              | 0                          |

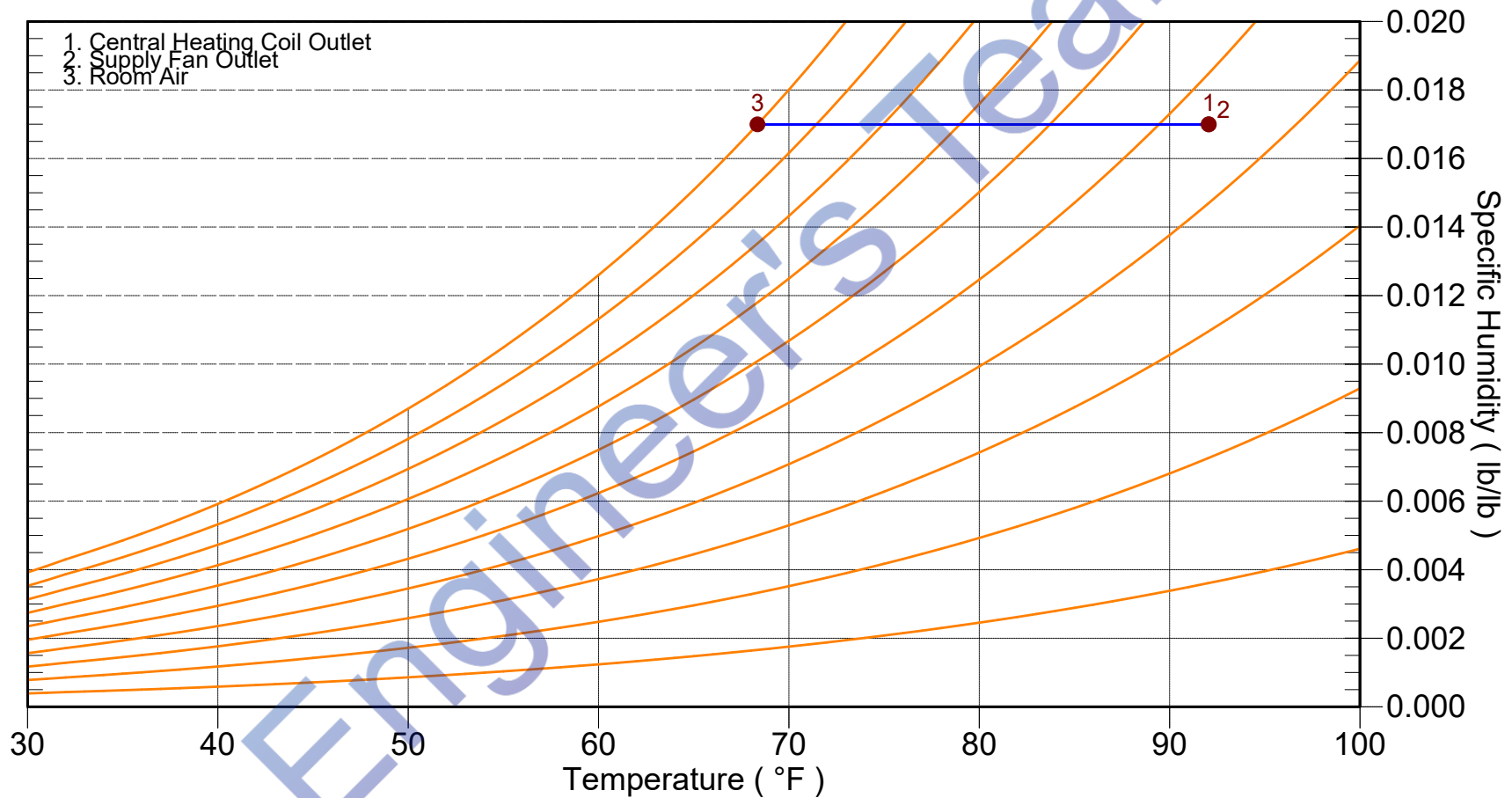
Location: Beaumont, Alberta

Altitude: 3556.0 ft.

Data for: August DESIGN COOLING DAY, 1600



Location: Beaumont, Alberta  
Altitude: 3556.0 ft.  
Data for: WINTER DESIGN HEATING



## Air System Sizing Summary for HVAC 2

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
01:19AM

### Air System Information

Air System Name ..... HVAC 2  
Equipment Class ..... SPLT AHU  
Air System Type ..... SZCAV

Number of zones ..... 1  
Floor Area ..... 4074.0 ft<sup>2</sup>  
Location ..... Beaumont, Alberta

### Sizing Calculation Information

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

Zone CFM Sizing ..... Sum of space airflow rates  
Space CFM Sizing ..... Individual peak space loads

### Central Cooling Coil Sizing Data

Total coil load ..... 5.7 Tons  
Total coil load ..... 68.6 MBH  
Sensible coil load ..... 68.6 MBH  
Coil CFM at Jul 1600 ..... 4032 CFM  
Max block CFM ..... 4032 CFM  
Sum of peak zone CFM ..... 4032 CFM  
Sensible heat ratio ..... 1.000  
CFM/Ton ..... 704.9  
ft<sup>2</sup>/Ton ..... 712.3  
BTU/(hr-ft<sup>2</sup>) ..... 16.8  
Water flow @ 10.0 °F rise ..... N/A

Load occurs at ..... Jul 1600  
OA DB / WB ..... 82.3 / 59.8 °F  
Entering DB / WB ..... 76.7 / 62.2 °F  
Leaving DB / WB ..... 58.7 / 56.1 °F  
Coil ADP ..... 56.3 °F  
Bypass Factor ..... 0.120  
Resulting RH ..... 49 %  
Design supply temp. .... 55.0 °F  
Zone T-stat Check ..... 1 of 1 OK  
Max zone temperature deviation ..... 0.0 °F

### Central Heating Coil Sizing Data

Max coil load ..... 120.2 MBH  
Coil CFM at Des Htg ..... 4032 CFM  
Max coil CFM ..... 4032 CFM  
Water flow @ 20.0 °F drop ..... N/A

Load occurs at ..... Des Htg  
BTU/(hr-ft<sup>2</sup>) ..... 29.5  
Ent. DB / Lvg DB ..... 60.5 / 91.9 °F

### Supply Fan Sizing Data

Actual max CFM ..... 4032 CFM  
Standard CFM ..... 3540 CFM  
Actual max CFM/ft<sup>2</sup> ..... 0.99 CFM/ft<sup>2</sup>

Fan motor BHP ..... 0.00 BHP  
Fan motor kW ..... 0.00 kW  
Fan static ..... 0.00 in wg

### Outdoor Ventilation Air Data

Design airflow CFM ..... 364 CFM  
CFM/ft<sup>2</sup> ..... 0.09 CFM/ft<sup>2</sup>

CFM/person ..... 15.19 CFM/person

## Zone Sizing Summary for HVAC 2

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
01:19AM

### Air System Information

Air System Name ..... HVAC 2  
Equipment Class ..... SPLT AHU  
Air System Type ..... SZCAV

Number of zones ..... 1  
Floor Area ..... 4074.0 ft<sup>2</sup>  
Location ..... Beaumont, Alberta

### Sizing Calculation Information

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

Zone CFM Sizing ..... Sum of space airflow rates  
Space CFM Sizing ..... Individual peak space loads

### Zone Terminal Sizing Data

| Zone Name | Design Supply Airflow (CFM) | Minimum Supply Airflow (CFM) | Zone CFM/ft <sup>2</sup> | Reheat Coil Load (MBH) | Reheat Coil Water gpm @ 20.0 °F | Zone Htg Unit Coil Load (MBH) | Zone Htg Unit Water gpm @ 20.0 °F | Mixing Box Fan Airflow (CFM) |
|-----------|-----------------------------|------------------------------|--------------------------|------------------------|---------------------------------|-------------------------------|-----------------------------------|------------------------------|
| Zone 1    | 4032                        | 4032                         | 0.99                     | 0.0                    | -                               | 0.0                           | -                                 | 0                            |

### Zone Peak Sensible Loads

| Zone Name | Zone Cooling Sensible (MBH) | Time of Peak Sensible Cooling Load | Zone Heating Load (MBH) | Zone Floor Area (ft <sup>2</sup> ) |
|-----------|-----------------------------|------------------------------------|-------------------------|------------------------------------|
| Zone 1    | 73.4                        | Jul 1500                           | 95.6                    | 4074.0                             |

### Space Loads and Airflows

| Zone Name / Space Name | Mult. | Cooling Sensible (MBH) | Time of Peak Sensible Load | Air Flow (CFM) | Heating Load (MBH) | Floor Area (ft <sup>2</sup> ) | Space CFM/ft <sup>2</sup> |
|------------------------|-------|------------------------|----------------------------|----------------|--------------------|-------------------------------|---------------------------|
| <b>Zone 1</b>          |       |                        |                            |                |                    |                               |                           |
| LIVING ROOM A          | 1     | 9.9                    | Jul 1600                   | 529            | 12.5               | 590.0                         | 0.90                      |
| LIVING ROOM B          | 1     | 8.7                    | Jul 1500                   | 485            | 11.5               | 460.0                         | 1.05                      |
| LIVING ROOM C          | 1     | 9.7                    | Jul 1600                   | 519            | 12.3               | 572.0                         | 0.91                      |
| LIVING ROOM D          | 1     | 9.7                    | Jul 1600                   | 519            | 12.3               | 572.0                         | 0.91                      |
| LIVING ROOM E          | 1     | 8.3                    | Jul 1500                   | 483            | 11.4               | 415.0                         | 1.16                      |
| LIVING ROOM F          | 1     | 8.3                    | Jul 1500                   | 483            | 11.4               | 415.0                         | 1.16                      |
| LIVING ROOM G          | 1     | 8.7                    | Jul 1500                   | 485            | 11.5               | 460.0                         | 1.05                      |
| LIVING ROOM H          | 1     | 9.9                    | Jul 1600                   | 529            | 12.5               | 590.0                         | 0.90                      |

## Ventilation Sizing Summary for HVAC 2

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
01:19AM

### 1. Summary

Ventilation Sizing Method ..... Sum of Space OA Airflows  
Design Ventilation Airflow Rate ..... 364 CFM

### 2. Space Ventilation Analysis

| Zone Name / Space Name                  | Mult. | Floor Area (ft²) | Maximum Occupants | Maximum Supply Air (CFM) | Required Outdoor Air (CFM/person) | Required Outdoor Air (CFM/ft²) | Required Outdoor Air (CFM) | Required Outdoor Air (% of supply) | Uncorrected Outdoor Air (CFM) |
|-----------------------------------------|-------|------------------|-------------------|--------------------------|-----------------------------------|--------------------------------|----------------------------|------------------------------------|-------------------------------|
| <b>Zone 1</b>                           |       |                  |                   |                          |                                   |                                |                            |                                    |                               |
| LIVING ROOM A                           | 1     | 590.0            | 3.0               | 528.7                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 50.4                          |
| LIVING ROOM B                           | 1     | 460.0            | 3.0               | 485.3                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 42.6                          |
| LIVING ROOM C                           | 1     | 572.0            | 3.0               | 519.4                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 49.3                          |
| LIVING ROOM D                           | 1     | 572.0            | 3.0               | 519.4                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 49.3                          |
| LIVING ROOM E                           | 1     | 415.0            | 3.0               | 482.6                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 39.9                          |
| LIVING ROOM F                           | 1     | 415.0            | 3.0               | 482.6                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 39.9                          |
| LIVING ROOM G                           | 1     | 460.0            | 3.0               | 485.3                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 42.6                          |
| LIVING ROOM H                           | 1     | 590.0            | 3.0               | 528.7                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 50.4                          |
| <b>Totals (incl. Space Multipliers)</b> |       |                  |                   | <b>4032.0</b>            |                                   |                                |                            |                                    | <b>364.4</b>                  |

Engineer's Team

## Air System Design Load Summary for HVAC 2

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
01:19AM

|                               | DESIGN COOLING                                                 |                   |                 | DESIGN HEATING                                                 |                   |                 |
|-------------------------------|----------------------------------------------------------------|-------------------|-----------------|----------------------------------------------------------------|-------------------|-----------------|
|                               | COOLING DATA AT Jul 1600                                       |                   |                 | HEATING DATA AT DES HTG                                        |                   |                 |
|                               | COOLING OA DB / WB 82.3 °F / 59.8 °F                           |                   |                 | HEATING OA DB / WB -22.0 °F / -22.6 °F                         |                   |                 |
| ZONE LOADS                    | Details                                                        | Sensible (BTU/hr) | Latent (BTU/hr) | Details                                                        | Sensible (BTU/hr) | Latent (BTU/hr) |
| Window & Skylight Solar Loads | 320 ft²                                                        | 12163             | -               | 320 ft²                                                        | -                 | -               |
| Wall Transmission             | 7384 ft²                                                       | 8199              | -               | 7384 ft²                                                       | 61889             | -               |
| Roof Transmission             | 4074 ft²                                                       | 7260              | -               | 4074 ft²                                                       | 11746             | -               |
| Window Transmission           | 320 ft²                                                        | 728               | -               | 320 ft²                                                        | 17311             | -               |
| Skylight Transmission         | 0 ft²                                                          | 0                 | -               | 0 ft²                                                          | 0                 | -               |
| Door Loads                    | 168 ft²                                                        | 195               | -               | 168 ft²                                                        | 4637              | -               |
| Floor Transmission            | 0 ft²                                                          | 0                 | -               | 0 ft²                                                          | 0                 | -               |
| Partitions                    | 4206 ft²                                                       | 0                 | -               | 4206 ft²                                                       | 0                 | -               |
| Ceiling                       | 4074 ft²                                                       | 0                 | -               | 4074 ft²                                                       | 0                 | -               |
| Overhead Lighting             | 4074 W                                                         | 12198             | -               | 0                                                              | 0                 | -               |
| Task Lighting                 | 4074 W                                                         | 12954             | -               | 0                                                              | 0                 | -               |
| Electric Equipment            | 1600 W                                                         | 5161              | -               | 0                                                              | 0                 | -               |
| People                        | 24                                                             | 4980              | 4920            | 0                                                              | 0                 | 0               |
| Infiltration                  | -                                                              | 0                 | 0               | -                                                              | 0                 | 0               |
| Miscellaneous                 | -                                                              | 0                 | 0               | -                                                              | 0                 | 0               |
| Safety Factor                 | 15% / 5%                                                       | 9576              | 246             | 0%                                                             | 0                 | 0               |
| >> Total Zone Loads           | -                                                              | 73414             | 5166            | -                                                              | 95583             | 0               |
| Zone Conditioning             | -                                                              | 66482             | 5166            | -                                                              | 88846             | 0               |
| Plenum Wall Load              | 0%                                                             | 0                 | -               | 0                                                              | 0                 | -               |
| Plenum Roof Load              | 0%                                                             | 0                 | -               | 0                                                              | 0                 | -               |
| Plenum Lighting Load          | 0%                                                             | 0                 | -               | 0                                                              | 0                 | -               |
| Return Fan Load               | 4032 CFM                                                       | 0                 | -               | 4032 CFM                                                       | 0                 | -               |
| Ventilation Load              | 364 CFM                                                        | 2153              | -5019           | 364 CFM                                                        | 31347             | 0               |
| Supply Fan Load               | 4032 CFM                                                       | 0                 | -               | 4032 CFM                                                       | 0                 | -               |
| Space Fan Coil Fans           | -                                                              | 0                 | -               | -                                                              | 0                 | -               |
| Duct Heat Gain / Loss         | 0%                                                             | 0                 | -               | 0%                                                             | 0                 | -               |
| >> Total System Loads         | -                                                              | 68635             | 147             | -                                                              | 120194            | 0               |
| Central Cooling Coil          | -                                                              | 68635             | 0               | -                                                              | 0                 | 0               |
| Central Heating Coil          | -                                                              | 0                 | -               | -                                                              | 120194            | -               |
| >> Total Conditioning         | -                                                              | 68635             | 0               | -                                                              | 120194            | 0               |
| Key:                          | Positive values are clg loads<br>Negative values are htg loads |                   |                 | Positive values are htg loads<br>Negative values are clg loads |                   |                 |

## Zone Design Load Summary for HVAC 2

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
01:19AM

| Zone 1                        | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1500             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 83.0 °F / 60.0 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| ZONE LOADS                    | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 320 ft²                              | 13224                | -                  | 320 ft²                                | -                    | -                  |
| Wall Transmission             | 7384 ft²                             | 7737                 | -                  | 7384 ft²                               | 61889                | -                  |
| Roof Transmission             | 4074 ft²                             | 6907                 | -                  | 4074 ft²                               | 11746                | -                  |
| Window Transmission           | 320 ft²                              | 764                  | -                  | 320 ft²                                | 17311                | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 168 ft²                              | 205                  | -                  | 168 ft²                                | 4637                 | -                  |
| Floor Transmission            | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Partitions                    | 4206 ft²                             | 0                    | -                  | 4206 ft²                               | 0                    | -                  |
| Ceiling                       | 4074 ft²                             | 0                    | -                  | 4074 ft²                               | 0                    | -                  |
| Overhead Lighting             | 4074 W                               | 12078                | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 4074 W                               | 12888                | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 1600 W                               | 5140                 | -                  | 0                                      | 0                    | -                  |
| People                        | 24                                   | 4917                 | 4920               | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 9579                 | 246                | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 73438                | 5166               | -                                      | 95583                | 0                  |

## Space Design Load Summary for HVAC 2

Project Name: Project 119  
Prepared by: E Lab

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**TABLE 1.1.A. Component Loads For Space "LIVING ROOM A" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1600<br>COOLING OA DB / WB 82.3 °F / 59.8 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
|                               |                                                                                             | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |                                                                                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| SPACE LOADS                   | Details                                                                                     |                      |                    | Details                                                                                      |                      |                    |
| Window & Skylight Solar Loads | 40 ft²                                                                                      | 1520                 | -                  | 40 ft²                                                                                       | -                    | -                  |
| Wall Transmission             | 965 ft²                                                                                     | 1048                 | -                  | 965 ft²                                                                                      | 8088                 | -                  |
| Roof Transmission             | 590 ft²                                                                                     | 1051                 | -                  | 590 ft²                                                                                      | 1701                 | -                  |
| Window Transmission           | 40 ft²                                                                                      | 91                   | -                  | 40 ft²                                                                                       | 2164                 | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 21 ft²                                                                                      | 24                   | -                  | 21 ft²                                                                                       | 580                  | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 341 ft²                                                                                     | 0                    | -                  | 341 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 590 ft²                                                                                     | 0                    | -                  | 590 ft²                                                                                      | 0                    | -                  |
| Overhead Lighting             | 590 W                                                                                       | 1766                 | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 590 W                                                                                       | 1876                 | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 200 W                                                                                       | 645                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 3                                                                                           | 623                  | 615                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 1297                 | 31                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 9942                 | 646                | -                                                                                            | 12533                | 0                  |

**TABLE 1.1.B. Envelope Loads For Space "LIVING ROOM A" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 152           | 0.091                        | -               | 30                           | -                            | 1274                         |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 45                           | 421                          | 1082                         |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 152           | 0.091                        | -               | 167                          | -                            | 1274                         |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 45                           | 1100                         | 1082                         |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 320           | 0.091                        | -               | 530                          | -                            | 2682                         |
| DOOR              | 21            | 0.300                        | -               | 24                           | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 341           | 0.091                        | -               | 321                          | -                            | 2858                         |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 590           | 0.031                        | -               | 1051                         | -                            | 1701                         |

## Space Design Load Summary for HVAC 2

Project Name: Project 119  
Prepared by: E Lab

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**TABLE 1.2.A. Component Loads For Space "LIVING ROOM B" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1500<br>COOLING OA DB / WB 83.0 °F / 60.0 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
|                               |                                                                                             | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |                                                                                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| SPACE LOADS                   | Details                                                                                     |                      |                    | Details                                                                                      |                      |                    |
| Window & Skylight Solar Loads | 40 ft²                                                                                      | 1653                 | -                  | 40 ft²                                                                                       | -                    | -                  |
| Wall Transmission             | 887 ft²                                                                                     | 942                  | -                  | 887 ft²                                                                                      | 7434                 | -                  |
| Roof Transmission             | 460 ft²                                                                                     | 780                  | -                  | 460 ft²                                                                                      | 1326                 | -                  |
| Window Transmission           | 40 ft²                                                                                      | 95                   | -                  | 40 ft²                                                                                       | 2164                 | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 21 ft²                                                                                      | 26                   | -                  | 21 ft²                                                                                       | 580                  | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 682 ft²                                                                                     | 0                    | -                  | 682 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 460 ft²                                                                                     | 0                    | -                  | 460 ft²                                                                                      | 0                    | -                  |
| Overhead Lighting             | 460 W                                                                                       | 1364                 | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 460 W                                                                                       | 1455                 | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 200 W                                                                                       | 642                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 3                                                                                           | 615                  | 615                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 1136                 | 31                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 8708                 | 646                | -                                                                                            | 11504                | 0                  |

**TABLE 1.2.B. Envelope Loads For Space "LIVING ROOM B" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 113           | 0.091                        | -               | 18                           | -                            | 947                          |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 48                           | 424                          | 1082                         |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 113           | 0.091                        | -               | 108                          | -                            | 947                          |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 48                           | 1229                         | 1082                         |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 320           | 0.091                        | -               | 500                          | -                            | 2682                         |
| DOOR              | 21            | 0.300                        | -               | 26                           | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 341           | 0.091                        | -               | 315                          | -                            | 2858                         |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 460           | 0.031                        | -               | 780                          | -                            | 1326                         |

## Space Design Load Summary for HVAC 2

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Prepared by: E Lab

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**TABLE 1.3.A. Component Loads For Space "LIVING ROOM C" In Zone "Zone 1"**

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1600             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 82.3 °F / 59.8 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 40 ft²                               | 1520                 | -                  | 40 ft²                                 | -                    | -                  |
| Wall Transmission             | 945 ft²                              | 1021                 | -                  | 945 ft²                                | 7921                 | -                  |
| Roof Transmission             | 572 ft²                              | 1019                 | -                  | 572 ft²                                | 1649                 | -                  |
| Window Transmission           | 40 ft²                               | 91                   | -                  | 40 ft²                                 | 2164                 | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | 24                   | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Partitions                    | 360 ft²                              | 0                    | -                  | 360 ft²                                | 0                    | -                  |
| Ceiling                       | 572 ft²                              | 0                    | -                  | 572 ft²                                | 0                    | -                  |
| Overhead Lighting             | 572 W                                | 1713                 | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 572 W                                | 1819                 | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 200 W                                | 645                  | -                  | 0                                      | 0                    | -                  |
| People                        | 3                                    | 623                  | 615                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 1271                 | 31                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 9746                 | 646                | -                                      | 12313                | 0                  |

**TABLE 1.3.B. Envelope Loads For Space "LIVING ROOM C" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 153           | 0.091                        | -               | 30                           | -                            | 1282                         |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 45                           | 421                          | 1082                         |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 153           | 0.091                        | -               | 168                          | -                            | 1282                         |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 45                           | 1100                         | 1082                         |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 309           | 0.091                        | -               | 512                          | -                            | 2590                         |
| DOOR              | 21            | 0.300                        | -               | 24                           | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 330           | 0.091                        | -               | 310                          | -                            | 2766                         |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 572           | 0.031                        | -               | 1019                         | -                            | 1649                         |

## Space Design Load Summary for HVAC 2

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Prepared by: E Lab

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**TABLE 1.4.A. Component Loads For Space "LIVING ROOM D" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1600<br>COOLING OA DB / WB 82.3 °F / 59.8 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
|                               |                                                                                             | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |                                                                                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| SPACE LOADS                   | Details                                                                                     |                      |                    | Details                                                                                      |                      |                    |
| Window & Skylight Solar Loads | 40 ft²                                                                                      | 1520                 | -                  | 40 ft²                                                                                       | -                    | -                  |
| Wall Transmission             | 945 ft²                                                                                     | 1021                 | -                  | 945 ft²                                                                                      | 7921                 | -                  |
| Roof Transmission             | 572 ft²                                                                                     | 1019                 | -                  | 572 ft²                                                                                      | 1649                 | -                  |
| Window Transmission           | 40 ft²                                                                                      | 91                   | -                  | 40 ft²                                                                                       | 2164                 | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 21 ft²                                                                                      | 24                   | -                  | 21 ft²                                                                                       | 580                  | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 360 ft²                                                                                     | 0                    | -                  | 360 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 572 ft²                                                                                     | 0                    | -                  | 572 ft²                                                                                      | 0                    | -                  |
| Overhead Lighting             | 572 W                                                                                       | 1713                 | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 572 W                                                                                       | 1819                 | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 200 W                                                                                       | 645                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 3                                                                                           | 623                  | 615                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 1271                 | 31                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 9746                 | 646                | -                                                                                            | 12313                | 0                  |

**TABLE 1.4.B. Envelope Loads For Space "LIVING ROOM D" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 153           | 0.091                        | -               | 30                           | -                            | 1282                         |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 45                           | 421                          | 1082                         |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 153           | 0.091                        | -               | 168                          | -                            | 1282                         |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 45                           | 1100                         | 1082                         |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 309           | 0.091                        | -               | 512                          | -                            | 2590                         |
| DOOR              | 21            | 0.300                        | -               | 24                           | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 330           | 0.091                        | -               | 310                          | -                            | 2766                         |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 572           | 0.031                        | -               | 1019                         | -                            | 1649                         |

## Space Design Load Summary for HVAC 2

Project Name: Project 119  
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**TABLE 1.5.A. Component Loads For Space "LIVING ROOM E" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1500<br>COOLING OA DB / WB 83.0 °F / 60.0 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
|                               |                                                                                             | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |                                                                                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| SPACE LOADS                   | Details                                                                                     |                      |                    | Details                                                                                      |                      |                    |
| Window & Skylight Solar Loads | 40 ft²                                                                                      | 1653                 | -                  | 40 ft²                                                                                       | -                    | -                  |
| Wall Transmission             | 895 ft²                                                                                     | 980                  | -                  | 895 ft²                                                                                      | 7501                 | -                  |
| Roof Transmission             | 415 ft²                                                                                     | 704                  | -                  | 415 ft²                                                                                      | 1197                 | -                  |
| Window Transmission           | 40 ft²                                                                                      | 95                   | -                  | 40 ft²                                                                                       | 2164                 | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 21 ft²                                                                                      | 26                   | -                  | 21 ft²                                                                                       | 580                  | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 720 ft²                                                                                     | 0                    | -                  | 720 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 415 ft²                                                                                     | 0                    | -                  | 415 ft²                                                                                      | 0                    | -                  |
| Overhead Lighting             | 415 W                                                                                       | 1230                 | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 415 W                                                                                       | 1313                 | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 200 W                                                                                       | 642                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 3                                                                                           | 615                  | 615                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 1089                 | 31                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 8346                 | 646                | -                                                                                            | 11441                | 0                  |

**TABLE 1.5.B. Envelope Loads For Space "LIVING ROOM E" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 93            | 0.091                        | -               | 15                           | -                            | 779                          |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 48                           | 424                          | 1082                         |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 93            | 0.091                        | -               | 89                           | -                            | 779                          |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 48                           | 1229                         | 1082                         |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 344           | 0.091                        | -               | 538                          | -                            | 2883                         |
| DOOR              | 21            | 0.300                        | -               | 26                           | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 365           | 0.091                        | -               | 338                          | -                            | 3059                         |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 415           | 0.031                        | -               | 704                          | -                            | 1197                         |

## Space Design Load Summary for HVAC 2

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**TABLE 1.6.A. Component Loads For Space "LIVING ROOM F" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1500<br>COOLING OA DB / WB 83.0 °F / 60.0 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
|                               |                                                                                             | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |                                                                                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| SPACE LOADS                   | Details                                                                                     |                      |                    | Details                                                                                      |                      |                    |
| Window & Skylight Solar Loads | 40 ft²                                                                                      | 1653                 | -                  | 40 ft²                                                                                       | -                    | -                  |
| Wall Transmission             | 895 ft²                                                                                     | 980                  | -                  | 895 ft²                                                                                      | 7501                 | -                  |
| Roof Transmission             | 415 ft²                                                                                     | 704                  | -                  | 415 ft²                                                                                      | 1197                 | -                  |
| Window Transmission           | 40 ft²                                                                                      | 95                   | -                  | 40 ft²                                                                                       | 2164                 | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 21 ft²                                                                                      | 26                   | -                  | 21 ft²                                                                                       | 580                  | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 720 ft²                                                                                     | 0                    | -                  | 720 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 415 ft²                                                                                     | 0                    | -                  | 415 ft²                                                                                      | 0                    | -                  |
| Overhead Lighting             | 415 W                                                                                       | 1230                 | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 415 W                                                                                       | 1313                 | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 200 W                                                                                       | 642                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 3                                                                                           | 615                  | 615                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 1089                 | 31                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 8346                 | 646                | -                                                                                            | 11441                | 0                  |

**TABLE 1.6.B. Envelope Loads For Space "LIVING ROOM F" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 93            | 0.091                        | -               | 15                           | -                            | 779                          |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 48                           | 424                          | 1082                         |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 93            | 0.091                        | -               | 89                           | -                            | 779                          |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 48                           | 1229                         | 1082                         |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 344           | 0.091                        | -               | 538                          | -                            | 2883                         |
| DOOR              | 21            | 0.300                        | -               | 26                           | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 365           | 0.091                        | -               | 338                          | -                            | 3059                         |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 415           | 0.031                        | -               | 704                          | -                            | 1197                         |

## Space Design Load Summary for HVAC 2

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
01:19AM

**TABLE 1.7.A. Component Loads For Space "LIVING ROOM G" In Zone "Zone 1"**

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1500             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 83.0 °F / 60.0 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 40 ft²                               | 1653                 | -                  | 40 ft²                                 | -                    | -                  |
| Wall Transmission             | 887 ft²                              | 942                  | -                  | 887 ft²                                | 7434                 | -                  |
| Roof Transmission             | 460 ft²                              | 780                  | -                  | 460 ft²                                | 1326                 | -                  |
| Window Transmission           | 40 ft²                               | 95                   | -                  | 40 ft²                                 | 2164                 | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | 26                   | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Partitions                    | 682 ft²                              | 0                    | -                  | 682 ft²                                | 0                    | -                  |
| Ceiling                       | 460 ft²                              | 0                    | -                  | 460 ft²                                | 0                    | -                  |
| Overhead Lighting             | 460 W                                | 1364                 | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 460 W                                | 1455                 | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 200 W                                | 642                  | -                  | 0                                      | 0                    | -                  |
| People                        | 3                                    | 615                  | 615                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 1136                 | 31                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 8708                 | 646                | -                                      | 11504                | 0                  |

**TABLE 1.7.B. Envelope Loads For Space "LIVING ROOM G" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 113           | 0.091                        | -               | 18                           | -                            | 947                          |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 48                           | 424                          | 1082                         |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 113           | 0.091                        | -               | 108                          | -                            | 947                          |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 48                           | 1229                         | 1082                         |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 320           | 0.091                        | -               | 500                          | -                            | 2682                         |
| DOOR              | 21            | 0.300                        | -               | 26                           | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 341           | 0.091                        | -               | 315                          | -                            | 2858                         |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 460           | 0.031                        | -               | 780                          | -                            | 1326                         |

## Space Design Load Summary for HVAC 2

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
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**TABLE 1.8.A. Component Loads For Space "LIVING ROOM H" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1600<br>COOLING OA DB / WB 82.3 °F / 59.8 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
|                               |                                                                                             | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |                                                                                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| SPACE LOADS                   | Details                                                                                     |                      |                    | Details                                                                                      |                      |                    |
| Window & Skylight Solar Loads | 40 ft²                                                                                      | 1520                 | -                  | 40 ft²                                                                                       | -                    | -                  |
| Wall Transmission             | 965 ft²                                                                                     | 1048                 | -                  | 965 ft²                                                                                      | 8088                 | -                  |
| Roof Transmission             | 590 ft²                                                                                     | 1051                 | -                  | 590 ft²                                                                                      | 1701                 | -                  |
| Window Transmission           | 40 ft²                                                                                      | 91                   | -                  | 40 ft²                                                                                       | 2164                 | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 21 ft²                                                                                      | 24                   | -                  | 21 ft²                                                                                       | 580                  | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 341 ft²                                                                                     | 0                    | -                  | 341 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 590 ft²                                                                                     | 0                    | -                  | 590 ft²                                                                                      | 0                    | -                  |
| Overhead Lighting             | 590 W                                                                                       | 1766                 | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 590 W                                                                                       | 1876                 | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 200 W                                                                                       | 645                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 3                                                                                           | 623                  | 615                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 1297                 | 31                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 9942                 | 646                | -                                                                                            | 12533                | 0                  |

**TABLE 1.8.B. Envelope Loads For Space "LIVING ROOM H" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 152           | 0.091                        | -               | 30                           | -                            | 1274                         |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 45                           | 421                          | 1082                         |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 152           | 0.091                        | -               | 167                          | -                            | 1274                         |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 45                           | 1100                         | 1082                         |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 320           | 0.091                        | -               | 530                          | -                            | 2682                         |
| DOOR              | 21            | 0.300                        | -               | 24                           | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 341           | 0.091                        | -               | 321                          | -                            | 2858                         |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 590           | 0.031                        | -               | 1051                         | -                            | 1701                         |

# System Psychrometrics for HVAC 2

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
01:19AM

July DESIGN COOLING DAY, 1600

TABLE 1: SYSTEM DATA

| Component            | Location | Dry-Bulb Temp (°F) | Specific Humidity (lb/lb) | Airflow (CFM) | CO2 Level (ppm) | Sensible Heat (BTU/hr) | Latent Heat (BTU/hr) |
|----------------------|----------|--------------------|---------------------------|---------------|-----------------|------------------------|----------------------|
| Ventilation Air      | Inlet    | 82.3               | 0.00732                   | 364           | 400             | 2153                   | -5019                |
| Vent - Return Mixing | Outlet   | 76.7               | 0.01032                   | 4032          | 1026            | -                      | -                    |
| Central Cooling Coil | Outlet   | 58.7               | 0.01032                   | 4032          | 1026            | 68635                  | 0                    |
| Central Heating Coil | Outlet   | 58.7               | 0.01032                   | 4032          | 1026            | 0                      | -                    |
| Supply Fan           | Outlet   | 58.7               | 0.01032                   | 4032          | 1026            | 0                      | -                    |
| Cold Supply Duct     | Outlet   | 58.7               | 0.01032                   | 4032          | 1026            | -                      | -                    |
| Zone Air             | -        | 76.1               | 0.01063                   | 4032          | 1088            | 66482                  | 5166                 |
| Return Plenum        | Outlet   | 76.1               | 0.01063                   | 4032          | 1088            | 0                      | -                    |

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 0.948 BTU/(hr-CFM-F)  
Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4167.5 BTU/(hr-CFM)  
Site Altitude = 3556.0 ft

TABLE 2: ZONE DATA

| Zone Name | Zone Sensible Load (BTU/hr) | T-stat Mode | Zone Cond (BTU/hr) | Zone Temp (°F) | Zone Airflow (CFM) | CO2 Level (ppm) | Terminal Heating Coil (BTU/hr) | Zone Heating Unit (BTU/hr) |
|-----------|-----------------------------|-------------|--------------------|----------------|--------------------|-----------------|--------------------------------|----------------------------|
| Zone 1    | 73414                       | Cooling     | 66482              | 76.1           | 4032               | 1088            | 0                              | 0                          |

## System Psychrometrics for HVAC 2

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
01:19AM

### WINTER DESIGN HEATING

**TABLE 1: SYSTEM DATA**

| Component            | Location | Dry-Bulb Temp (°F) | Specific Humidity (lb/lb) | Airflow (CFM) | CO2 Level (ppm) | Sensible Heat (BTU/hr) | Latent Heat (BTU/hr) |
|----------------------|----------|--------------------|---------------------------|---------------|-----------------|------------------------|----------------------|
| Ventilation Air      | Inlet    | -22.0              | 0.00013                   | 364           | 400             | -31347                 | 0                    |
| Vent - Return Mixing | Outlet   | 60.5               | 0.00013                   | 4032          | 497             | -                      | -                    |
| Central Cooling Coil | Outlet   | 60.5               | 0.00013                   | 4032          | 497             | 0                      | 0                    |
| Central Heating Coil | Outlet   | 91.9               | 0.00013                   | 4032          | 497             | 120194                 | -                    |
| Supply Fan           | Outlet   | 91.9               | 0.00013                   | 4032          | 497             | 0                      | -                    |
| Cold Supply Duct     | Outlet   | 91.9               | 0.00013                   | 4032          | 497             | -                      | -                    |
| Zone Air             | -        | 68.7               | 0.00013                   | 4032          | 506             | -88846                 | 0                    |
| Return Plenum        | Outlet   | 68.7               | 0.00013                   | 4032          | 506             | 0                      | -                    |

*Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 0.948 BTU/(hr-CFM-F)*

*Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4167.5 BTU/(hr-CFM)*

*Site Altitude = 3556.0 ft*

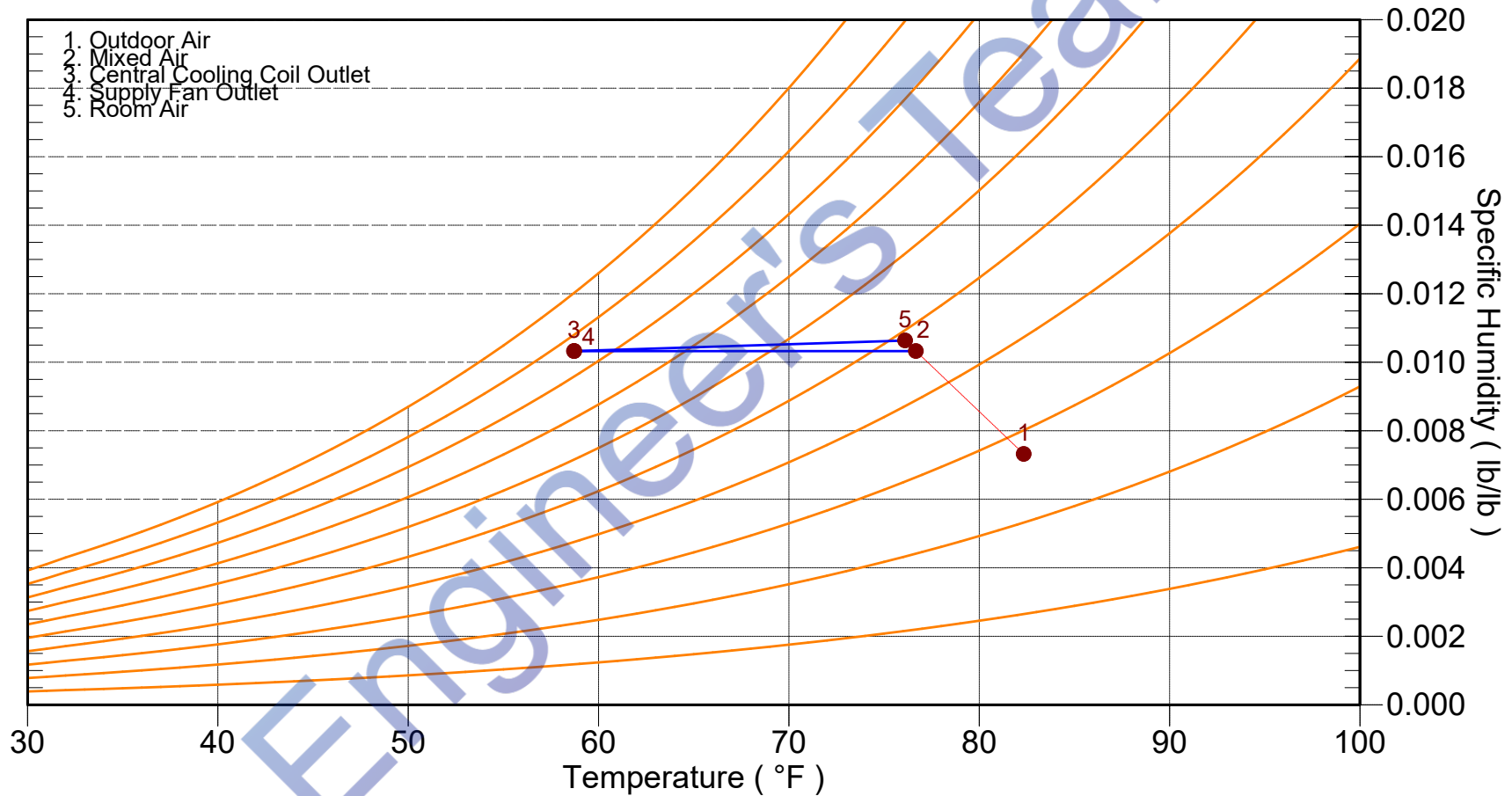
**TABLE 2: ZONE DATA**

| Zone Name | Zone Sensible Load (BTU/hr) | T-stat Mode | Zone Cond (BTU/hr) | Zone Temp (°F) | Zone Airflow (CFM) | CO2 Level (ppm) | Terminal Heating Coil (BTU/hr) | Zone Heating Unit (BTU/hr) |
|-----------|-----------------------------|-------------|--------------------|----------------|--------------------|-----------------|--------------------------------|----------------------------|
| Zone 1    | -95583                      | Heating     | -88846             | 68.7           | 4032               | 506             | 0                              | 0                          |

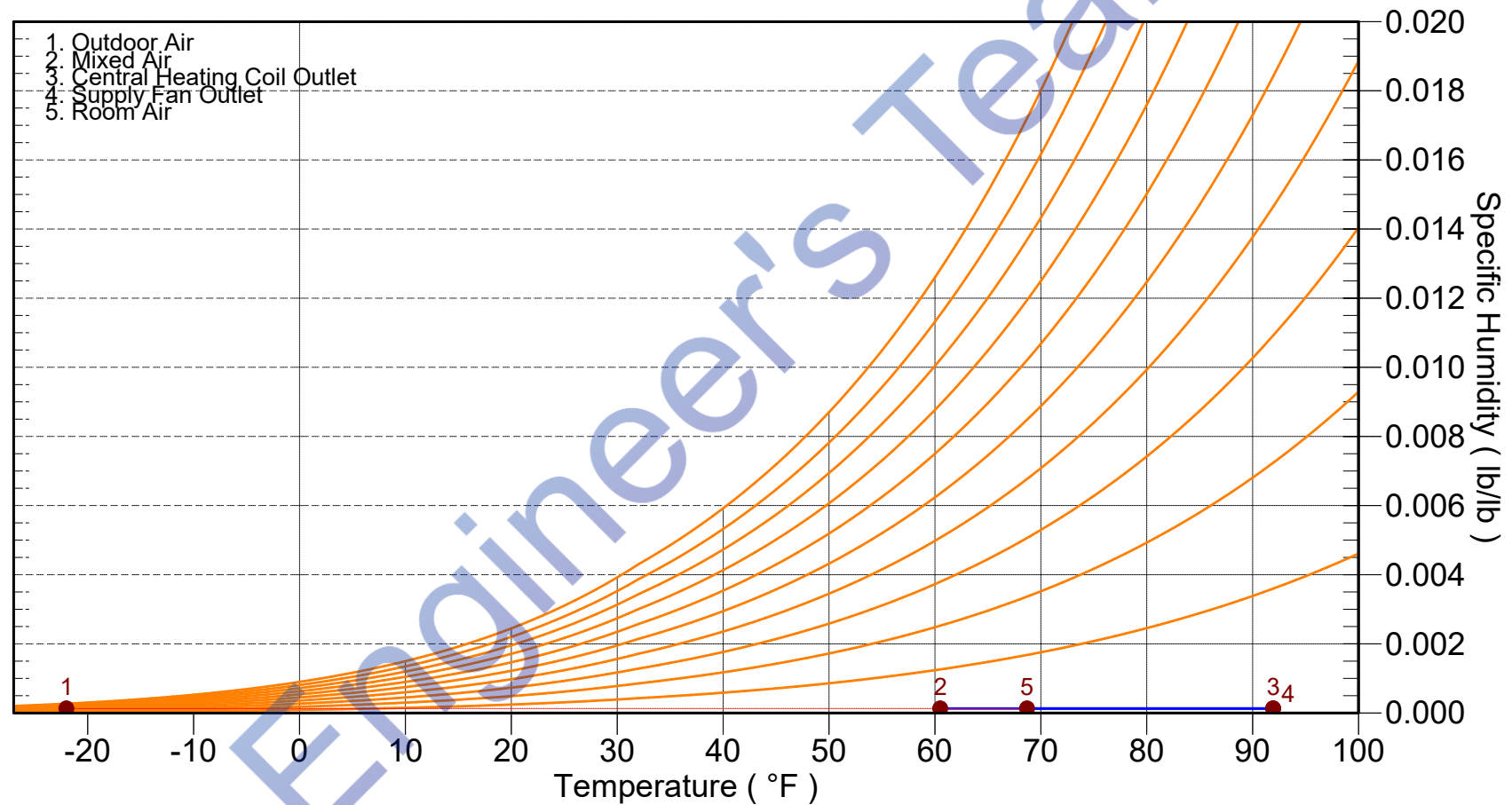
Location: Beaumont, Alberta

Altitude: 3556.0 ft.

Data for: July DESIGN COOLING DAY, 1600



Location: Beaumont, Alberta  
Altitude: 3556.0 ft.  
Data for: WINTER DESIGN HEATING



## Air System Sizing Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
01:19AM

### Air System Information

Air System Name ..... **HVAC 3**  
Equipment Class ..... **SPLT AHU**  
Air System Type ..... **SZCAV**

Number of zones ..... **1**  
Floor Area ..... **2789.0** ft<sup>2</sup>  
Location ..... **Beaumont, Alberta**

### Sizing Calculation Information

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

Zone CFM Sizing ..... **Sum of space airflow rates**  
Space CFM Sizing ..... **Individual peak space loads**

### Central Cooling Coil Sizing Data

Total coil load ..... **7.9** Tons  
Total coil load ..... **95.4** MBH  
Sensible coil load ..... **91.4** MBH  
Coil CFM at Jul 1600 ..... **7070** CFM  
Max block CFM ..... **7070** CFM  
Sum of peak zone CFM ..... **7070** CFM  
Sensible heat ratio ..... **0.958**  
CFM/Ton ..... **889.4**  
ft<sup>2</sup>/Ton ..... **350.8**  
BTU/(hr-ft<sup>2</sup>) ..... **34.2**  
Water flow @ 10.0 °F rise ..... **N/A**

Load occurs at ..... **Jul 1600**  
OA DB / WB ..... **82.3 / 59.8** °F  
Entering DB / WB ..... **76.1 / 65.7** °F  
Leaving DB / WB ..... **62.5 / 61.3** °F  
Coil ADP ..... **60.6** °F  
Bypass Factor ..... **0.120**  
Resulting RH ..... **61** %  
Design supply temp. .... **55.0** °F  
Zone T-stat Check ..... **1 of 1** OK  
Max zone temperature deviation ..... **0.0** °F

### Central Heating Coil Sizing Data

Max coil load ..... **187.3** MBH  
Coil CFM at Des Htg ..... **7070** CFM  
Max coil CFM ..... **7070** CFM  
Water flow @ 20.0 °F drop ..... **N/A**

Load occurs at ..... **Des Htg**  
BTU/(hr-ft<sup>2</sup>) ..... **67.1**  
Ent. DB / Lvg DB ..... **64.4 / 92.3** °F

### Supply Fan Sizing Data

Actual max CFM ..... **7070** CFM  
Standard CFM ..... **6208** CFM  
Actual max CFM/ft<sup>2</sup> ..... **2.54** CFM/ft<sup>2</sup>

Fan motor BHP ..... **0.00** BHP  
Fan motor kW ..... **0.00** kW  
Fan static ..... **0.00** in wg

### Outdoor Ventilation Air Data

Design airflow CFM ..... **327** CFM  
CFM/ft<sup>2</sup> ..... **0.12** CFM/ft<sup>2</sup>

CFM/person ..... **5.85** CFM/person

## Zone Sizing Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
01:19AM

### Air System Information

Air System Name ..... HVAC 3  
Equipment Class ..... SPLT AHU  
Air System Type ..... SZCAV

Number of zones ..... 1  
Floor Area ..... 2789.0 ft<sup>2</sup>  
Location ..... Beaumont, Alberta

### Sizing Calculation Information

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

Zone CFM Sizing ..... Sum of space airflow rates  
Space CFM Sizing ..... Individual peak space loads

### Zone Terminal Sizing Data

| Zone Name | Design Supply Airflow (CFM) | Minimum Supply Airflow (CFM) | Zone CFM/ft <sup>2</sup> | Reheat Coil Load (MBH) | Reheat Coil Water gpm @ 20.0 °F | Zone Htg Unit Coil Load (MBH) | Zone Htg Unit Water gpm @ 20.0 °F | Mixing Box Fan Airflow (CFM) |
|-----------|-----------------------------|------------------------------|--------------------------|------------------------|---------------------------------|-------------------------------|-----------------------------------|------------------------------|
| Zone 1    | 7070                        | 7070                         | 2.54                     | 0.0                    |                                 | 0.0                           | -                                 | 0                            |

### Zone Peak Sensible Loads

| Zone Name | Zone Cooling Sensible (MBH) | Time of Peak Sensible Cooling Load | Zone Heating Load (MBH) | Zone Floor Area (ft <sup>2</sup> ) |
|-----------|-----------------------------|------------------------------------|-------------------------|------------------------------------|
| Zone 1    | 93.1                        | Jul 1600                           | 166.2                   | 2789.0                             |

## Zone Sizing Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
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### Space Loads and Airflows

| Zone Name /<br>Space Name | Mult. | Cooling<br>Sensible<br>(MBH) | Time of<br>Peak<br>Sensible<br>Load | Air<br>Flow<br>(CFM) | Heating<br>Load<br>(MBH) | Floor<br>Area<br>(ft²) | Space<br>CFM/ft² |
|---------------------------|-------|------------------------------|-------------------------------------|----------------------|--------------------------|------------------------|------------------|
| <b>Zone 1</b>             |       |                              |                                     |                      |                          |                        |                  |
| B W/C A                   | 1     | 1.3                          | Jul 1800                            | 147                  | 3.5                      | 50.2                   | 2.93             |
| B W/C B                   | 1     | 1.2                          | Jul 2000                            | 115                  | 2.7                      | 43.3                   | 2.65             |
| B W/C C                   | 1     | 1.0                          | Jul 2100                            | 106                  | 2.5                      | 35.0                   | 3.03             |
| B W/C D                   | 1     | 1.0                          | Jul 2100                            | 106                  | 2.5                      | 35.0                   | 3.03             |
| B W/C E                   | 1     | 1.1                          | Jul 2200                            | 107                  | 2.5                      | 33.6                   | 3.20             |
| B W/C F                   | 1     | 1.1                          | Jul 2100                            | 107                  | 2.5                      | 33.6                   | 3.20             |
| B W/C G                   | 1     | 1.2                          | Jul 2100                            | 115                  | 2.7                      | 43.3                   | 2.65             |
| B W/C H                   | 1     | 1.3                          | Jul 1800                            | 147                  | 3.5                      | 50.2                   | 2.93             |
| BEDROOM A2                | 1     | 4.1                          | Jul 1700                            | 215                  | 4.6                      | 60.5                   | 3.55             |
| BEDROOM B1                | 1     | 3.2                          | Jul 1900                            | 212                  | 5.0                      | 97.4                   | 2.17             |
| BEDROOM C1                | 1     | 5.3                          | Aug 2000                            | 492                  | 11.7                     | 92.2                   | 5.33             |
| BEDROOM C2                | 1     | 4.1                          | Aug 1500                            | 216                  | 5.1                      | 89.5                   | 2.42             |
| BEDROOM D1                | 1     | 5.3                          | Aug 2000                            | 492                  | 11.7                     | 92.2                   | 5.33             |
| BEDROOM D2                | 1     | 4.1                          | Aug 1500                            | 216                  | 5.1                      | 89.5                   | 2.42             |
| BEDROOM E1                | 1     | 4.1                          | Aug 1500                            | 215                  | 4.7                      | 87.2                   | 2.46             |
| BEDROOM F1                | 1     | 4.1                          | Aug 1500                            | 215                  | 4.7                      | 87.2                   | 2.46             |
| BEDROOM G1                | 1     | 3.2                          | Jul 1900                            | 212                  | 5.0                      | 97.4                   | 2.17             |
| BEDROOM H1                | 1     | 3.1                          | Jul 1800                            | 224                  | 5.3                      | 97.4                   | 2.30             |
| BEDROOM H2                | 1     | 3.5                          | Jul 1000                            | 193                  | 4.6                      | 60.5                   | 3.19             |
| M BEDROOM A               | 1     | 5.0                          | Aug 1500                            | 297                  | 7.0                      | 171.0                  | 1.74             |
| M BEDROOM B               | 1     | 4.8                          | Aug 1500                            | 267                  | 6.3                      | 153.3                  | 1.74             |
| M BEDROOM C               | 1     | 3.2                          | Jul 1800                            | 248                  | 5.9                      | 105.1                  | 2.36             |
| M BEDROOM D               | 1     | 3.2                          | Jul 1800                            | 248                  | 5.9                      | 105.1                  | 2.36             |
| M BEDROOM E               | 1     | 3.3                          | Jul 1900                            | 216                  | 5.1                      | 107.4                  | 2.01             |
| M BEDROOM F               | 1     | 3.3                          | Jul 1900                            | 216                  | 5.1                      | 107.4                  | 2.01             |
| M BEDROOM G               | 1     | 4.8                          | Aug 1500                            | 267                  | 6.3                      | 153.3                  | 1.74             |
| M BEDROOM H               | 1     | 5.0                          | Aug 1500                            | 297                  | 7.0                      | 171.0                  | 1.74             |
| M WC A                    | 1     | 1.2                          | Jul 2200                            | 116                  | 2.8                      | 43.6                   | 2.67             |
| M WC B                    | 1     | 1.1                          | Jul 2100                            | 111                  | 2.6                      | 40.2                   | 2.76             |
| M WC C                    | 1     | 1.3                          | Jul 2100                            | 135                  | 3.2                      | 54.0                   | 2.51             |
| M WC D                    | 1     | 1.3                          | Jul 2100                            | 135                  | 3.2                      | 54.0                   | 2.51             |
| M WC E                    | 1     | 1.1                          | Jul 2200                            | 107                  | 2.5                      | 33.6                   | 3.20             |
| M WC F                    | 1     | 1.1                          | Jul 2100                            | 107                  | 2.5                      | 33.6                   | 3.20             |
| M WC G                    | 1     | 1.1                          | Jul 2100                            | 111                  | 2.6                      | 40.2                   | 2.76             |
| M WC H                    | 1     | 1.2                          | Jul 2100                            | 116                  | 2.8                      | 43.6                   | 2.67             |
| BEDROOM A1                | 1     | 3.1                          | Jul 1800                            | 224                  | 5.3                      | 97.4                   | 2.30             |

## Ventilation Sizing Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
01:20AM

### 1. Summary

Ventilation Sizing Method ..... Sum of Space OA Airflows  
Design Ventilation Airflow Rate ..... 327 CFM

### 2. Space Ventilation Analysis

| Zone Name / Space Name | Mult. | Floor Area (ft²) | Maximum Occupants | Maximum Supply Air (CFM) | Required Outdoor Air (CFM/person) | Required Outdoor Air (CFM/ft²) | Required Outdoor Air (CFM) | Required Outdoor Air (% of supply) | Uncorrected Outdoor Air (CFM) |
|------------------------|-------|------------------|-------------------|--------------------------|-----------------------------------|--------------------------------|----------------------------|------------------------------------|-------------------------------|
| <b>Zone 1</b>          |       |                  |                   |                          |                                   |                                |                            |                                    |                               |
| B W/C A                | 1     | 50.2             | 1.0               | 146.9                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| B W/C B                | 1     | 43.3             | 1.0               | 114.9                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| B W/C C                | 1     | 35.0             | 1.0               | 106.1                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| B W/C D                | 1     | 35.0             | 1.0               | 106.1                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| B W/C E                | 1     | 33.6             | 1.0               | 107.4                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| B W/C F                | 1     | 33.6             | 1.0               | 107.4                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| B W/C G                | 1     | 43.3             | 1.0               | 114.9                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| B W/C H                | 1     | 50.2             | 1.0               | 146.9                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| BEDROOM A2             | 1     | 60.5             | 2.0               | 215.1                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 13.6                          |
| BEDROOM B1             | 1     | 97.4             | 2.0               | 211.6                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 15.8                          |
| BEDROOM C1             | 1     | 92.2             | 2.0               | 491.8                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 15.5                          |
| BEDROOM C2             | 1     | 89.5             | 2.0               | 216.4                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 15.4                          |
| BEDROOM D1             | 1     | 92.2             | 2.0               | 491.8                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 15.5                          |
| BEDROOM D2             | 1     | 89.5             | 2.0               | 216.4                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 15.4                          |
| BEDROOM E1             | 1     | 87.2             | 2.0               | 214.5                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 15.2                          |
| BEDROOM F1             | 1     | 87.2             | 2.0               | 214.5                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 15.2                          |
| BEDROOM G1             | 1     | 97.4             | 2.0               | 211.6                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 15.8                          |
| BEDROOM H1             | 1     | 97.4             | 2.0               | 223.8                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 15.8                          |
| BEDROOM H2             | 1     | 60.5             | 2.0               | 193.1                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 13.6                          |
| M BEDROOM A            | 1     | 171.0            | 2.0               | 297.1                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 20.3                          |
| M BEDROOM B            | 1     | 153.3            | 2.0               | 266.6                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 19.2                          |
| M BEDROOM C            | 1     | 105.1            | 2.0               | 248.1                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 16.3                          |
| M BEDROOM D            | 1     | 105.1            | 2.0               | 248.1                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 16.3                          |
| M BEDROOM E            | 1     | 107.4            | 2.0               | 215.7                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 16.4                          |
| M BEDROOM F            | 1     | 107.4            | 2.0               | 215.7                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 16.4                          |
| M BEDROOM G            | 1     | 153.3            | 2.0               | 266.6                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 19.2                          |
| M BEDROOM H            | 1     | 171.0            | 2.0               | 297.1                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 20.3                          |
| M WC A                 | 1     | 43.6             | 1.0               | 116.4                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| M WC B                 | 1     | 40.2             | 1.0               | 111.0                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| M WC C                 | 1     | 54.0             | 1.0               | 135.3                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| M WC D                 | 1     | 54.0             | 1.0               | 135.3                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| M WC E                 | 1     | 33.6             | 1.0               | 107.4                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| M WC F                 | 1     | 33.6             | 1.0               | 107.4                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| M WC G                 | 1     | 40.2             | 1.0               | 111.0                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| M WC H                 | 1     | 43.6             | 1.0               | 116.4                    | 0.00                              | 0.00                           | 0.0                        | 0.0                                | 0.0                           |
| BEDROOM A1             | 1     | 97.4             | 2.0               | 223.8                    | 5.00                              | 0.06                           | 0.0                        | 0.0                                | 15.8                          |

Ventilation Sizing Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
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|                                  |  |  |  |        |  |  |  |  |       |
|----------------------------------|--|--|--|--------|--|--|--|--|-------|
| Totals (incl. Space Multipliers) |  |  |  | 7070.4 |  |  |  |  | 327.3 |
|----------------------------------|--|--|--|--------|--|--|--|--|-------|

Engineer's Team

# Air System Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

|                               | DESIGN COOLING                                                 |                   |                 | DESIGN HEATING                                                 |                   |                 |
|-------------------------------|----------------------------------------------------------------|-------------------|-----------------|----------------------------------------------------------------|-------------------|-----------------|
|                               | COOLING DATA AT Jul 1600                                       |                   |                 | HEATING DATA AT DES HTG                                        |                   |                 |
|                               | COOLING OA DB / WB 82.3 °F / 59.8 °F                           |                   |                 | HEATING OA DB / WB -22.0 °F / -22.6 °F                         |                   |                 |
| ZONE LOADS                    | Details                                                        | Sensible (BTU/hr) | Latent (BTU/hr) | Details                                                        | Sensible (BTU/hr) | Latent (BTU/hr) |
| Window & Skylight Solar Loads | 400 ft²                                                        | 16905             | -               | 400 ft²                                                        | -                 | -               |
| Wall Transmission             | 12436 ft²                                                      | 12604             | -               | 12436 ft²                                                      | 104233            | -               |
| Roof Transmission             | 2741 ft²                                                       | 4884              | -               | 2741 ft²                                                       | 7902              | -               |
| Window Transmission           | 400 ft²                                                        | 910               | -               | 400 ft²                                                        | 21638             | -               |
| Skylight Transmission         | 0 ft²                                                          | 0                 | -               | 0 ft²                                                          | 0                 | -               |
| Door Loads                    | 1176 ft²                                                       | 1365              | -               | 1176 ft²                                                       | 32458             | -               |
| Floor Transmission            | 0 ft²                                                          | 0                 | -               | 0 ft²                                                          | 0                 | -               |
| Partitions                    | 5158 ft²                                                       | 0                 | -               | 5158 ft²                                                       | 0                 | -               |
| Ceiling                       | 0 ft²                                                          | 0                 | -               | 0 ft²                                                          | 0                 | -               |
| Overhead Lighting             | 2789 W                                                         | 8350              | -               | 0                                                              | 0                 | -               |
| Task Lighting                 | 2789 W                                                         | 8868              | -               | 0                                                              | 0                 | -               |
| Electric Equipment            | 4800 W                                                         | 15483             | -               | 0                                                              | 0                 | -               |
| People                        | 56                                                             | 11621             | 11480           | 0                                                              | 0                 | 0               |
| Infiltration                  | -                                                              | 0                 | 0               | -                                                              | 0                 | 0               |
| Miscellaneous                 | -                                                              | 0                 | 0               | -                                                              | 0                 | 0               |
| Safety Factor                 | 15% / 5%                                                       | 12148             | 574             | 0%                                                             | 0                 | 0               |
| >> Total Zone Loads           | -                                                              | 91338             | 12054           | -                                                              | 166231            | 0               |
| Zone Conditioning             | -                                                              | 89360             | 12054           | -                                                              | 159161            | 0               |
| Plenum Wall Load              | 0%                                                             | 0                 | -               | 0                                                              | 0                 | -               |
| Plenum Roof Load              | 0%                                                             | 0                 | -               | 0                                                              | 0                 | -               |
| Plenum Lighting Load          | 0%                                                             | 0                 | -               | 0                                                              | 0                 | -               |
| Return Fan Load               | 7070 CFM                                                       | 0                 | -               | 7070 CFM                                                       | 0                 | -               |
| Ventilation Load              | 327 CFM                                                        | 2023              | -8193           | 327 CFM                                                        | 28111             | 0               |
| Supply Fan Load               | 7070 CFM                                                       | 0                 | -               | 7070 CFM                                                       | 0                 | -               |
| Space Fan Coil Fans           | -                                                              | 0                 | -               | -                                                              | 0                 | -               |
| Duct Heat Gain / Loss         | 0%                                                             | 0                 | -               | 0%                                                             | 0                 | -               |
| >> Total System Loads         | -                                                              | 91383             | 3861            | -                                                              | 187272            | 0               |
| Central Cooling Coil          | -                                                              | 91383             | 4014            | -                                                              | 0                 | 0               |
| Central Heating Coil          | -                                                              | 0                 | -               | -                                                              | 187272            | -               |
| >> Total Conditioning         | -                                                              | 91383             | 4014            | -                                                              | 187272            | 0               |
| Key:                          | Positive values are clg loads<br>Negative values are htg loads |                   |                 | Positive values are htg loads<br>Negative values are clg loads |                   |                 |

## Zone Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

| Zone 1                        | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1600             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 82.3 °F / 59.8 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| ZONE LOADS                    | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 400 ft²                              | 16905                | -                  | 400 ft²                                | -                    | -                  |
| Wall Transmission             | 12436 ft²                            | 12604                | -                  | 12436 ft²                              | 104233               | -                  |
| Roof Transmission             | 2741 ft²                             | 4884                 | -                  | 2741 ft²                               | 7902                 | -                  |
| Window Transmission           | 400 ft²                              | 910                  | -                  | 400 ft²                                | 21638                | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 1176 ft²                             | 1365                 | -                  | 1176 ft²                               | 32458                | -                  |
| Floor Transmission            | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Partitions                    | 5158 ft²                             | 0                    | -                  | 5158 ft²                               | 0                    | -                  |
| Ceiling                       | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Overhead Lighting             | 2789 W                               | 8350                 | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 2789 W                               | 8868                 | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 4800 W                               | 15483                | -                  | 0                                      | 0                    | -                  |
| People                        | 56                                   | 11621                | 11480              | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 12148                | 574                | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 93138                | 12054              | -                                      | 166231               | 0                  |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.1.A. Component Loads For Space "B W/C A" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1800<br>COOLING OA DB / WB 78.4 °F / 58.4 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
| SPACE LOADS                   | Details                                                                                     | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                                                                      | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | -                    | -                  |
| Wall Transmission             | 260 ft²                                                                                     | 313                  | -                  | 260 ft²                                                                                      | 2179                 | -                  |
| Roof Transmission             | 50 ft²                                                                                      | 84                   | -                  | 50 ft²                                                                                       | 145                  | -                  |
| Window Transmission           | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 42 ft²                                                                                      | 20                   | -                  | 42 ft²                                                                                       | 1159                 | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 102 ft²                                                                                     | 0                    | -                  | 102 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 50 W                                                                                        | 153                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 50 W                                                                                        | 161                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 50 W                                                                                        | 162                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 1                                                                                           | 212                  | 205                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 166                  | 10                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 1272                 | 215                | -                                                                                            | 3483                 | 0                  |

**TABLE 1.1.B. Envelope Loads For Space "B W/C A" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 49            | 0.091                        | -               | 15                           | -                            | 411                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 28            | 0.091                        | -               | 40                           | -                            | 235                          |
| DOOR              | 21            | 0.300                        | -               | 10                           | -                            | 580                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 81            | 0.091                        | -               | 145                          | -                            | 679                          |
| DOOR              | 21            | 0.300                        | -               | 10                           | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 102           | 0.091                        | -               | 114                          | -                            | 855                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 50            | 0.031                        | -               | 84                           | -                            | 145                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.2.A. Component Loads For Space "B W/C B" In Zone "Zone 1"**

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2000             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 72.7 °F / 56.4 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                | 0                    | -                  | 0 ft²                                  | -                    | -                  |
| Wall Transmission             | 241 ft²                              | 329                  | -                  | 241 ft²                                | 2020                 | -                  |
| Roof Transmission             | 43 ft²                               | 54                   | -                  | 43 ft²                                 | 125                  | -                  |
| Window Transmission           | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | -14                  | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Partitions                    | 125 ft²                              | 0                    | -                  | 125 ft²                                | 0                    | -                  |
| Ceiling                       | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Overhead Lighting             | 43 W                                 | 134                  | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 43 W                                 | 140                  | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 50 W                                 | 163                  | -                  | 0                                      | 0                    | -                  |
| People                        | 1                                    | 216                  | 205                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 153                  | 10                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 1177                 | 215                | -                                      | 2724                 | 0                  |

**TABLE 1.2.B. Envelope Loads For Space "B W/C B" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 61            | 0.091                        | -               | 25                           | -                            | 511                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 61            | 0.091                        | -               | 102                          | -                            | 511                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 70            | 0.091                        | -               | 129                          | -                            | 587                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 49            | 0.091                        | -               | 73                           | -                            | 411                          |
| DOOR              | 21            | 0.300                        | -               | -14                          | -                            | 580                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 43            | 0.031                        | -               | 54                           | -                            | 125                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.3.A. Component Loads For Space "B W/C C" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2100<br>COOLING OA DB / WB 70.2 °F / 55.5 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
| SPACE LOADS                   | Details                                                                                     | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                                                                      | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | -                    | -                  |
| Wall Transmission             | 219 ft²                                                                                     | 295                  | -                  | 219 ft²                                                                                      | 1836                 | -                  |
| Roof Transmission             | 35 ft²                                                                                      | 33                   | -                  | 35 ft²                                                                                       | 101                  | -                  |
| Window Transmission           | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 21 ft²                                                                                      | -24                  | -                  | 21 ft²                                                                                       | 580                  | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 70 ft²                                                                                      | 0                    | -                  | 70 ft²                                                                                       | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 35 W                                                                                        | 109                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 35 W                                                                                        | 114                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 50 W                                                                                        | 164                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 1                                                                                           | 218                  | 205                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 136                  | 10                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 1046                 | 215                | -                                                                                            | 2516                 | 0                  |

**TABLE 1.3.B. Envelope Loads For Space "B W/C C" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 70            | 0.091                        | -               | 33                           | -                            | 587                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 49            | 0.091                        | -               | 86                           | -                            | 411                          |
| DOOR              | 21            | 0.300                        | -               | -24                          | -                            | 580                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 50            | 0.091                        | -               | 93                           | -                            | 419                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 50            | 0.091                        | -               | 84                           | -                            | 419                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 35            | 0.031                        | -               | 33                           | -                            | 101                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.4.A. Component Loads For Space "B W/C D" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2100<br>COOLING OA DB / WB 70.2 °F / 55.5 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
| SPACE LOADS                   | Details                                                                                     | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                                                                      | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | -                    | -                  |
| Wall Transmission             | 219 ft²                                                                                     | 295                  | -                  | 219 ft²                                                                                      | 1836                 | -                  |
| Roof Transmission             | 35 ft²                                                                                      | 33                   | -                  | 35 ft²                                                                                       | 101                  | -                  |
| Window Transmission           | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 21 ft²                                                                                      | -24                  | -                  | 21 ft²                                                                                       | 580                  | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 70 ft²                                                                                      | 0                    | -                  | 70 ft²                                                                                       | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 35 W                                                                                        | 109                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 35 W                                                                                        | 114                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 50 W                                                                                        | 164                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 1                                                                                           | 218                  | 205                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 136                  | 10                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 1046                 | 215                | -                                                                                            | 2516                 | 0                  |

**TABLE 1.4.B. Envelope Loads For Space "B W/C D" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 70            | 0.091                        | -               | 33                           | -                            | 587                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 49            | 0.091                        | -               | 86                           | -                            | 411                          |
| DOOR              | 21            | 0.300                        | -               | -24                          | -                            | 580                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 50            | 0.091                        | -               | 93                           | -                            | 419                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 50            | 0.091                        | -               | 84                           | -                            | 419                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 35            | 0.031                        | -               | 33                           | -                            | 101                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.5.A. Component Loads For Space "B W/C E" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2200<br>COOLING OA DB / WB 68.0 °F / 54.7 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
|                               |                                                                                             | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |                                                                                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| SPACE LOADS                   | Details                                                                                     |                      |                    | Details                                                                                      |                      |                    |
| Window & Skylight Solar Loads | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | -                    | -                  |
| Wall Transmission             | 223 ft²                                                                                     | 354                  | -                  | 223 ft²                                                                                      | 1869                 | -                  |
| Roof Transmission             | 34 ft²                                                                                      | 23                   | -                  | 34 ft²                                                                                       | 97                   | -                  |
| Window Transmission           | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 21 ft²                                                                                      | -34                  | -                  | 21 ft²                                                                                       | 580                  | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 85 ft²                                                                                      | 0                    | -                  | 85 ft²                                                                                       | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 34 W                                                                                        | 105                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 34 W                                                                                        | 109                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 50 W                                                                                        | 164                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 1                                                                                           | 220                  | 205                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 141                  | 10                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 1084                 | 215                | -                                                                                            | 2546                 | 0                  |

**TABLE 1.5.B. Envelope Loads For Space "B W/C E" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 42            | 0.091                        | -               | 22                           | -                            | 352                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 42            | 0.091                        | -               | 75                           | -                            | 352                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 59            | 0.091                        | -               | 108                          | -                            | 495                          |
| DOOR              | 21            | 0.300                        | -               | -34                          | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 80            | 0.091                        | -               | 148                          | -                            | 671                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 34            | 0.031                        | -               | 23                           | -                            | 97                           |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.6.A. Component Loads For Space "B W/C F" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2100<br>COOLING OA DB / WB 70.2 °F / 55.5 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
|                               |                                                                                             | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |                                                                                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| SPACE LOADS                   | Details                                                                                     |                      |                    | Details                                                                                      |                      |                    |
| Window & Skylight Solar Loads | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | -                    | -                  |
| Wall Transmission             | 223 ft²                                                                                     | 341                  | -                  | 223 ft²                                                                                      | 1869                 | -                  |
| Roof Transmission             | 34 ft²                                                                                      | 32                   | -                  | 34 ft²                                                                                       | 97                   | -                  |
| Window Transmission           | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 21 ft²                                                                                      | -24                  | -                  | 21 ft²                                                                                       | 580                  | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 85 ft²                                                                                      | 0                    | -                  | 85 ft²                                                                                       | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 34 W                                                                                        | 105                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 34 W                                                                                        | 109                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 50 W                                                                                        | 164                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 1                                                                                           | 218                  | 205                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 142                  | 10                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 1086                 | 215                | -                                                                                            | 2546                 | 0                  |

**TABLE 1.6.B. Envelope Loads For Space "B W/C F" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 42            | 0.091                        | -               | 20                           | -                            | 352                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 42            | 0.091                        | -               | 73                           | -                            | 352                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 80            | 0.091                        | -               | 148                          | -                            | 671                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 59            | 0.091                        | -               | 99                           | -                            | 495                          |
| DOOR              | 21            | 0.300                        | -               | -24                          | -                            | 580                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 34            | 0.031                        | -               | 32                           | -                            | 97                           |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.7.A. Component Loads For Space "B W/C G" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2100<br>COOLING OA DB / WB 70.2 °F / 55.5 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
|                               |                                                                                             | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |                                                                                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| SPACE LOADS                   | Details                                                                                     |                      |                    | Details                                                                                      |                      |                    |
| Window & Skylight Solar Loads | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | -                    | -                  |
| Wall Transmission             | 241 ft²                                                                                     | 344                  | -                  | 241 ft²                                                                                      | 2020                 | -                  |
| Roof Transmission             | 43 ft²                                                                                      | 41                   | -                  | 43 ft²                                                                                       | 125                  | -                  |
| Window Transmission           | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 21 ft²                                                                                      | -24                  | -                  | 21 ft²                                                                                       | 580                  | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 125 ft²                                                                                     | 0                    | -                  | 125 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 43 W                                                                                        | 135                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 43 W                                                                                        | 141                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 50 W                                                                                        | 164                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 1                                                                                           | 218                  | 205                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 153                  | 10                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 1172                 | 215                | -                                                                                            | 2724                 | 0                  |

**TABLE 1.7.B. Envelope Loads For Space "B W/C G" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 61            | 0.091                        | -               | 29                           | -                            | 511                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 61            | 0.091                        | -               | 107                          | -                            | 511                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 49            | 0.091                        | -               | 91                           | -                            | 411                          |
| DOOR              | 21            | 0.300                        | -               | -24                          | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 70            | 0.091                        | -               | 118                          | -                            | 587                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 43            | 0.031                        | -               | 41                           | -                            | 125                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.8.A. Component Loads For Space "B W/C H" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1800<br>COOLING OA DB / WB 78.4 °F / 58.4 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
| SPACE LOADS                   | Details                                                                                     | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                                                                      | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | -                    | -                  |
| Wall Transmission             | 260 ft²                                                                                     | 327                  | -                  | 260 ft²                                                                                      | 2179                 | -                  |
| Roof Transmission             | 50 ft²                                                                                      | 84                   | -                  | 50 ft²                                                                                       | 145                  | -                  |
| Window Transmission           | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 42 ft²                                                                                      | 20                   | -                  | 42 ft²                                                                                       | 1159                 | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 102 ft²                                                                                     | 0                    | -                  | 102 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 50 W                                                                                        | 153                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 50 W                                                                                        | 161                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 50 W                                                                                        | 162                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 1                                                                                           | 212                  | 205                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 168                  | 10                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 1288                 | 215                | -                                                                                            | 3483                 | 0                  |

**TABLE 1.8.B. Envelope Loads For Space "B W/C H" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 49            | 0.091                        | -               | 15                           | -                            | 411                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 28            | 0.091                        | -               | 40                           | -                            | 235                          |
| DOOR              | 21            | 0.300                        | -               | 10                           | -                            | 580                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 102           | 0.091                        | -               | 182                          | -                            | 855                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 81            | 0.091                        | -               | 91                           | -                            | 679                          |
| DOOR              | 21            | 0.300                        | -               | 10                           | -                            | 580                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 50            | 0.031                        | -               | 84                           | -                            | 145                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.9.A. Component Loads For Space "BEDROOM A2" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1700<br>COOLING OA DB / WB 80.8 °F / 59.3 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
| SPACE LOADS                   | Details                                                                                     | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                                                                      | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 20 ft²                                                                                      | 1669                 | -                  | 20 ft²                                                                                       | -                    | -                  |
| Wall Transmission             | 258 ft²                                                                                     | 253                  | -                  | 258 ft²                                                                                      | 2162                 | -                  |
| Roof Transmission             | 61 ft²                                                                                      | 108                  | -                  | 61 ft²                                                                                       | 174                  | -                  |
| Window Transmission           | 20 ft²                                                                                      | 36                   | -                  | 20 ft²                                                                                       | 1082                 | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 42 ft²                                                                                      | 38                   | -                  | 42 ft²                                                                                       | 1159                 | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 100 ft²                                                                                     | 0                    | -                  | 100 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 61 W                                                                                        | 183                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 61 W                                                                                        | 193                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 200 W                                                                                       | 648                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 2                                                                                           | 420                  | 410                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 532                  | 21                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 4079                 | 431                | -                                                                                            | 4578                 | 0                  |

**TABLE 1.9.B. Envelope Loads For Space "BEDROOM A2" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 79            | 0.091                        | -               | 19                           | -                            | 662                          |
| DOOR              | 21            | 0.300                        | -               | 19                           | -                            | 580                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 100           | 0.091                        | -               | 126                          | -                            | 838                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 39            | 0.091                        | -               | 67                           | -                            | 327                          |
| DOOR              | 21            | 0.300                        | -               | 19                           | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 40            | 0.091                        | -               | 40                           | -                            | 335                          |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 36                           | 1669                         | 1082                         |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 61            | 0.031                        | -               | 108                          | -                            | 174                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.10.A. Component Loads For Space "BEDROOM B1" In Zone "Zone 1"**

|                               | DESIGN COOLING                       |          |          | DESIGN HEATING                         |          |          |
|-------------------------------|--------------------------------------|----------|----------|----------------------------------------|----------|----------|
|                               | COOLING DATA AT Jul 1900             |          |          | HEATING DATA AT DES HTG                |          |          |
|                               | COOLING OA DB / WB 75.5 °F / 57.4 °F |          |          | HEATING OA DB / WB -22.0 °F / -22.6 °F |          |          |
|                               | OCCUPIED T-STAT 75.0 °F              |          |          | OCCUPIED T-STAT 70.0 °F                |          |          |
|                               |                                      | Sensible | Latent   |                                        | Sensible | Latent   |
| SPACE LOADS                   | Details                              | (BTU/hr) | (BTU/hr) | Details                                | (BTU/hr) | (BTU/hr) |
| Window & Skylight Solar Loads | 20 ft²                               | 457      | -        | 20 ft²                                 | -        | -        |
| Wall Transmission             | 365 ft²                              | 460      | -        | 365 ft²                                | 3059     | -        |
| Roof Transmission             | 102 ft²                              | 153      | -        | 102 ft²                                | 295      | -        |
| Window Transmission           | 20 ft²                               | -3       | -        | 20 ft²                                 | 1082     | -        |
| Skylight Transmission         | 0 ft²                                | 0        | -        | 0 ft²                                  | 0        | -        |
| Door Loads                    | 21 ft²                               | -2       | -        | 21 ft²                                 | 580      | -        |
| Floor Transmission            | 0 ft²                                | 0        | -        | 0 ft²                                  | 0        | -        |
| Partitions                    | 102 ft²                              | 0        | -        | 102 ft²                                | 0        | -        |
| Ceiling                       | 0 ft²                                | 0        | -        | 0 ft²                                  | 0        | -        |
| Overhead Lighting             | 97 W                                 | 299      | -        | 0                                      | 0        | -        |
| Task Lighting                 | 97 W                                 | 314      | -        | 0                                      | 0        | -        |
| Electric Equipment            | 200 W                                | 652      | -        | 0                                      | 0        | -        |
| People                        | 2                                    | 429      | 410      | 0                                      | 0        | 0        |
| Infiltration                  | -                                    | 0        | 0        | -                                      | 0        | 0        |
| Miscellaneous                 | -                                    | 0        | 0        | -                                      | 0        | 0        |
| Safety Factor                 | 15% / 5%                             | 414      | 21       | 0%                                     | 0        | 0        |
| >> Total Zone Loads           | -                                    | 3173     | 431      | -                                      | 5016     | 0        |

**TABLE 1.10.B. Envelope Loads For Space "BEDROOM B1" In Zone "Zone 1"**

|                   | Area  | U-Value           | Shade  | COOLING  | COOLING  | HEATING  |
|-------------------|-------|-------------------|--------|----------|----------|----------|
|                   | (ft²) | (BTU/(hr-ft²-°F)) | Coeff. | TRANS    | SOLAR    | TRANS    |
|                   |       |                   |        | (BTU/hr) | (BTU/hr) | (BTU/hr) |
| <b>N EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 90    | 0.091             | -      | 32       | -        | 754      |
| WINDOW 1          | 20    | 0.588             | 0.811  | -3       | 457      | 1082     |
| <b>S EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 89    | 0.091             | -      | 139      | -        | 746      |
| DOOR              | 21    | 0.300             | -      | -2       | -        | 580      |
| <b>E EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 93    | 0.091             | -      | 170      | -        | 779      |
| <b>W EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 93    | 0.091             | -      | 120      | -        | 779      |
| <b>H EXPOSURE</b> |       |                   |        |          |          |          |
| ROOF              | 102   | 0.031             | -      | 153      | -        | 295      |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.11.A. Component Loads For Space "BEDROOM C1" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Aug 2000<br>COOLING OA DB / WB 72.7 °F / 56.4 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
|                               |                                                                                             | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |                                                                                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| SPACE LOADS                   | Details                                                                                     |                      |                    | Details                                                                                      |                      |                    |
| Window & Skylight Solar Loads | 20 ft²                                                                                      | 920                  | -                  | 20 ft²                                                                                       | -                    | -                  |
| Wall Transmission             | 1092 ft²                                                                                    | 1982                 | -                  | 1092 ft²                                                                                     | 9153                 | -                  |
| Roof Transmission             | 92 ft²                                                                                      | 87                   | -                  | 92 ft²                                                                                       | 266                  | -                  |
| Window Transmission           | 20 ft²                                                                                      | -25                  | -                  | 20 ft²                                                                                       | 1082                 | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 42 ft²                                                                                      | -27                  | -                  | 42 ft²                                                                                       | 1159                 | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 214 ft²                                                                                     | 0                    | -                  | 214 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 92 W                                                                                        | 285                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 92 W                                                                                        | 298                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 200 W                                                                                       | 654                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 2                                                                                           | 433                  | 410                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 691                  | 21                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 5297                 | 431                | -                                                                                            | 11660                | 0                  |

**TABLE 1.11.B. Envelope Loads For Space "BEDROOM C1" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 43            | 0.091                        | -               | 7                            | -                            | 360                          |
| DOOR              | 42            | 0.300                        | -               | -27                          | -                            | 1159                         |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 835           | 0.091                        | -               | 1670                         | -                            | 6999                         |
| WINDOW 1          | 20            | 0.588                        | 0.811           | -25                          | 920                          | 1082                         |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 107           | 0.091                        | -               | 168                          | -                            | 897                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 107           | 0.091                        | -               | 137                          | -                            | 897                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 92            | 0.031                        | -               | 87                           | -                            | 266                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.12.A. Component Loads For Space "BEDROOM C2" In Zone "Zone 1"**

|                               | DESIGN COOLING                       |          |          | DESIGN HEATING                         |          |          |
|-------------------------------|--------------------------------------|----------|----------|----------------------------------------|----------|----------|
|                               | COOLING DATA AT Aug 1500             |          |          | HEATING DATA AT DES HTG                |          |          |
|                               | COOLING OA DB / WB 83.0 °F / 60.0 °F |          |          | HEATING OA DB / WB -22.0 °F / -22.6 °F |          |          |
|                               | OCCUPIED T-STAT 75.0 °F              |          |          | OCCUPIED T-STAT 70.0 °F                |          |          |
|                               |                                      | Sensible | Latent   |                                        | Sensible | Latent   |
| SPACE LOADS                   | Details                              | (BTU/hr) | (BTU/hr) | Details                                | (BTU/hr) | (BTU/hr) |
| Window & Skylight Solar Loads | 20 ft²                               | 1499     | -        | 20 ft²                                 | -        | -        |
| Wall Transmission             | 318 ft²                              | 281      | -        | 318 ft²                                | 2665     | -        |
| Roof Transmission             | 61 ft²                               | 88       | -        | 61 ft²                                 | 174      | -        |
| Window Transmission           | 20 ft²                               | 48       | -        | 20 ft²                                 | 1082     | -        |
| Skylight Transmission         | 0 ft²                                | 0        | -        | 0 ft²                                  | 0        | -        |
| Door Loads                    | 42 ft²                               | 51       | -        | 42 ft²                                 | 1159     | -        |
| Floor Transmission            | 0 ft²                                | 0        | -        | 0 ft²                                  | 0        | -        |
| Partitions                    | 214 ft²                              | 0        | -        | 214 ft²                                | 0        | -        |
| Ceiling                       | 0 ft²                                | 0        | -        | 0 ft²                                  | 0        | -        |
| Overhead Lighting             | 90 W                                 | 265      | -        | 0                                      | 0        | -        |
| Task Lighting                 | 90 W                                 | 283      | -        | 0                                      | 0        | -        |
| Electric Equipment            | 200 W                                | 642      | -        | 0                                      | 0        | -        |
| People                        | 2                                    | 410      | 410      | 0                                      | 0        | 0        |
| Infiltration                  | -                                    | 0        | 0        | -                                      | 0        | 0        |
| Miscellaneous                 | -                                    | 0        | 0        | -                                      | 0        | 0        |
| Safety Factor                 | 15% / 5%                             | 535      | 21       | 0%                                     | 0        | 0        |
| >> Total Zone Loads           | -                                    | 4103     | 431      | -                                      | 5081     | 0        |

**TABLE 1.12.B. Envelope Loads For Space "BEDROOM C2" In Zone "Zone 1"**

|                   | Area  | U-Value           | Shade  | COOLING  | COOLING  | HEATING  |
|-------------------|-------|-------------------|--------|----------|----------|----------|
|                   | (ft²) | (BTU/(hr-ft²-°F)) | Coeff. | TRANS    | SOLAR    | TRANS    |
|                   |       |                   |        | (BTU/hr) | (BTU/hr) | (BTU/hr) |
| <b>N EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 41    | 0.091             | -      | -4       | -        | 344      |
| DOOR              | 42    | 0.300             | -      | 51       | -        | 1159     |
| <b>S EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 63    | 0.091             | -      | 75       | -        | 528      |
| WINDOW 1          | 20    | 0.588             | 0.811  | 48       | 1499     | 1082     |
| <b>E EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 107   | 0.091             | -      | 136      | -        | 897      |
| <b>W EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 107   | 0.091             | -      | 74       | -        | 897      |
| <b>H EXPOSURE</b> |       |                   |        |          |          |          |
| ROOF              | 61    | 0.031             | -      | 88       | -        | 174      |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.13.A. Component Loads For Space "BEDROOM D1" In Zone "Zone 1"**

|                               | DESIGN COOLING                       |          |          | DESIGN HEATING                         |          |          |
|-------------------------------|--------------------------------------|----------|----------|----------------------------------------|----------|----------|
|                               | COOLING DATA AT Aug 2000             |          |          | HEATING DATA AT DES HTG                |          |          |
|                               | COOLING OA DB / WB 72.7 °F / 56.4 °F |          |          | HEATING OA DB / WB -22.0 °F / -22.6 °F |          |          |
|                               | OCCUPIED T-STAT 75.0 °F              |          |          | OCCUPIED T-STAT 70.0 °F                |          |          |
|                               |                                      | Sensible | Latent   |                                        | Sensible | Latent   |
| SPACE LOADS                   | Details                              | (BTU/hr) | (BTU/hr) | Details                                | (BTU/hr) | (BTU/hr) |
| Window & Skylight Solar Loads | 20 ft²                               | 920      | -        | 20 ft²                                 | -        | -        |
| Wall Transmission             | 1092 ft²                             | 1982     | -        | 1092 ft²                               | 9153     | -        |
| Roof Transmission             | 92 ft²                               | 87       | -        | 92 ft²                                 | 266      | -        |
| Window Transmission           | 20 ft²                               | -25      | -        | 20 ft²                                 | 1082     | -        |
| Skylight Transmission         | 0 ft²                                | 0        | -        | 0 ft²                                  | 0        | -        |
| Door Loads                    | 42 ft²                               | -27      | -        | 42 ft²                                 | 1159     | -        |
| Floor Transmission            | 0 ft²                                | 0        | -        | 0 ft²                                  | 0        | -        |
| Partitions                    | 214 ft²                              | 0        | -        | 214 ft²                                | 0        | -        |
| Ceiling                       | 0 ft²                                | 0        | -        | 0 ft²                                  | 0        | -        |
| Overhead Lighting             | 92 W                                 | 285      | -        | 0                                      | 0        | -        |
| Task Lighting                 | 92 W                                 | 298      | -        | 0                                      | 0        | -        |
| Electric Equipment            | 200 W                                | 654      | -        | 0                                      | 0        | -        |
| People                        | 2                                    | 433      | 410      | 0                                      | 0        | 0        |
| Infiltration                  | -                                    | 0        | 0        | -                                      | 0        | 0        |
| Miscellaneous                 | -                                    | 0        | 0        | -                                      | 0        | 0        |
| Safety Factor                 | 15% / 5%                             | 691      | 21       | 0%                                     | 0        | 0        |
| >> Total Zone Loads           | -                                    | 5297     | 431      | -                                      | 11660    | 0        |

**TABLE 1.13.B. Envelope Loads For Space "BEDROOM D1" In Zone "Zone 1"**

|                   | Area  | U-Value           | Shade  | COOLING  | COOLING  | HEATING  |
|-------------------|-------|-------------------|--------|----------|----------|----------|
|                   | (ft²) | (BTU/(hr-ft²-°F)) | Coeff. | TRANS    | SOLAR    | TRANS    |
|                   |       |                   |        | (BTU/hr) | (BTU/hr) | (BTU/hr) |
| <b>N EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 43    | 0.091             | -      | 7        | -        | 360      |
| DOOR              | 42    | 0.300             | -      | -27      | -        | 1159     |
| <b>S EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 835   | 0.091             | -      | 1670     | -        | 6999     |
| WINDOW 1          | 20    | 0.588             | 0.811  | -25      | 920      | 1082     |
| <b>E EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 107   | 0.091             | -      | 168      | -        | 897      |
| <b>W EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 107   | 0.091             | -      | 137      | -        | 897      |
| <b>H EXPOSURE</b> |       |                   |        |          |          |          |
| ROOF              | 92    | 0.031             | -      | 87       | -        | 266      |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.14.A. Component Loads For Space "BEDROOM D2" In Zone "Zone 1"**

|                               | DESIGN COOLING                       |          |          | DESIGN HEATING                         |          |          |
|-------------------------------|--------------------------------------|----------|----------|----------------------------------------|----------|----------|
|                               | COOLING DATA AT Aug 1500             |          |          | HEATING DATA AT DES HTG                |          |          |
|                               | COOLING OA DB / WB 83.0 °F / 60.0 °F |          |          | HEATING OA DB / WB -22.0 °F / -22.6 °F |          |          |
|                               | OCCUPIED T-STAT 75.0 °F              |          |          | OCCUPIED T-STAT 70.0 °F                |          |          |
|                               |                                      | Sensible | Latent   |                                        | Sensible | Latent   |
| SPACE LOADS                   | Details                              | (BTU/hr) | (BTU/hr) | Details                                | (BTU/hr) | (BTU/hr) |
| Window & Skylight Solar Loads | 20 ft²                               | 1499     | -        | 20 ft²                                 | -        | -        |
| Wall Transmission             | 318 ft²                              | 281      | -        | 318 ft²                                | 2665     | -        |
| Roof Transmission             | 61 ft²                               | 88       | -        | 61 ft²                                 | 174      | -        |
| Window Transmission           | 20 ft²                               | 48       | -        | 20 ft²                                 | 1082     | -        |
| Skylight Transmission         | 0 ft²                                | 0        | -        | 0 ft²                                  | 0        | -        |
| Door Loads                    | 42 ft²                               | 51       | -        | 42 ft²                                 | 1159     | -        |
| Floor Transmission            | 0 ft²                                | 0        | -        | 0 ft²                                  | 0        | -        |
| Partitions                    | 214 ft²                              | 0        | -        | 214 ft²                                | 0        | -        |
| Ceiling                       | 0 ft²                                | 0        | -        | 0 ft²                                  | 0        | -        |
| Overhead Lighting             | 90 W                                 | 265      | -        | 0                                      | 0        | -        |
| Task Lighting                 | 90 W                                 | 283      | -        | 0                                      | 0        | -        |
| Electric Equipment            | 200 W                                | 642      | -        | 0                                      | 0        | -        |
| People                        | 2                                    | 410      | 410      | 0                                      | 0        | 0        |
| Infiltration                  | -                                    | 0        | 0        | -                                      | 0        | 0        |
| Miscellaneous                 | -                                    | 0        | 0        | -                                      | 0        | 0        |
| Safety Factor                 | 15% / 5%                             | 535      | 21       | 0%                                     | 0        | 0        |
| >> Total Zone Loads           | -                                    | 4103     | 431      | -                                      | 5081     | 0        |

**TABLE 1.14.B. Envelope Loads For Space "BEDROOM D2" In Zone "Zone 1"**

|                   | Area  | U-Value           | Shade  | COOLING  | COOLING  | HEATING  |
|-------------------|-------|-------------------|--------|----------|----------|----------|
|                   | (ft²) | (BTU/(hr-ft²-°F)) | Coeff. | TRANS    | SOLAR    | TRANS    |
|                   |       |                   |        | (BTU/hr) | (BTU/hr) | (BTU/hr) |
| <b>N EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 41    | 0.091             | -      | -4       | -        | 344      |
| DOOR              | 42    | 0.300             | -      | 51       | -        | 1159     |
| <b>S EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 63    | 0.091             | -      | 75       | -        | 528      |
| WINDOW 1          | 20    | 0.588             | 0.811  | 48       | 1499     | 1082     |
| <b>E EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 107   | 0.091             | -      | 136      | -        | 897      |
| <b>W EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 107   | 0.091             | -      | 74       | -        | 897      |
| <b>H EXPOSURE</b> |       |                   |        |          |          |          |
| ROOF              | 61    | 0.031             | -      | 88       | -        | 174      |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.15.A. Component Loads For Space "BEDROOM E1" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Aug 1500<br>COOLING OA DB / WB 83.0 °F / 60.0 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
| SPACE LOADS                   | Details                                                                                     | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                                                                      | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 20 ft²                                                                                      | 1499                 | -                  | 20 ft²                                                                                       | -                    | -                  |
| Wall Transmission             | 333 ft²                                                                                     | 252                  | -                  | 333 ft²                                                                                      | 2791                 | -                  |
| Roof Transmission             | 87 ft²                                                                                      | 127                  | -                  | 87 ft²                                                                                       | 251                  | -                  |
| Window Transmission           | 20 ft²                                                                                      | 48                   | -                  | 20 ft²                                                                                       | 1082                 | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 21 ft²                                                                                      | 26                   | -                  | 21 ft²                                                                                       | 580                  | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 131 ft²                                                                                     | 0                    | -                  | 131 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 87 W                                                                                        | 259                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 87 W                                                                                        | 276                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 200 W                                                                                       | 642                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 2                                                                                           | 410                  | 410                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 531                  | 21                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 4069                 | 431                | -                                                                                            | 4704                 | 0                  |

**TABLE 1.15.B. Envelope Loads For Space "BEDROOM E1" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 89            | 0.091                        | -               | -8                           | -                            | 746                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 69            | 0.091                        | -               | 82                           | -                            | 578                          |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 48                           | 1499                         | 1082                         |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 98            | 0.091                        | -               | 125                          | -                            | 821                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 77            | 0.091                        | -               | 53                           | -                            | 645                          |
| DOOR              | 21            | 0.300                        | -               | 26                           | -                            | 580                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 87            | 0.031                        | -               | 127                          | -                            | 251                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.16.A. Component Loads For Space "BEDROOM F1" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Aug 1500<br>COOLING OA DB / WB 83.0 °F / 60.0 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
|                               |                                                                                             | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |                                                                                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| SPACE LOADS                   | Details                                                                                     |                      |                    | Details                                                                                      |                      |                    |
| Window & Skylight Solar Loads | 20 ft²                                                                                      | 1499                 | -                  | 20 ft²                                                                                       | -                    | -                  |
| Wall Transmission             | 333 ft²                                                                                     | 252                  | -                  | 333 ft²                                                                                      | 2791                 | -                  |
| Roof Transmission             | 87 ft²                                                                                      | 127                  | -                  | 87 ft²                                                                                       | 251                  | -                  |
| Window Transmission           | 20 ft²                                                                                      | 48                   | -                  | 20 ft²                                                                                       | 1082                 | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 21 ft²                                                                                      | 26                   | -                  | 21 ft²                                                                                       | 580                  | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 131 ft²                                                                                     | 0                    | -                  | 131 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 87 W                                                                                        | 259                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 87 W                                                                                        | 276                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 200 W                                                                                       | 642                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 2                                                                                           | 410                  | 410                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 531                  | 21                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 4069                 | 431                | -                                                                                            | 4704                 | 0                  |

**TABLE 1.16.B. Envelope Loads For Space "BEDROOM F1" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 89            | 0.091                        | -               | -8                           | -                            | 746                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 69            | 0.091                        | -               | 82                           | -                            | 578                          |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 48                           | 1499                         | 1082                         |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 98            | 0.091                        | -               | 125                          | -                            | 821                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 77            | 0.091                        | -               | 53                           | -                            | 645                          |
| DOOR              | 21            | 0.300                        | -               | 26                           | -                            | 580                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 87            | 0.031                        | -               | 127                          | -                            | 251                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.17.A. Component Loads For Space "BEDROOM G1" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |          |          | DESIGN HEATING                                                                               |          |          |
|-------------------------------|---------------------------------------------------------------------------------------------|----------|----------|----------------------------------------------------------------------------------------------|----------|----------|
|                               | COOLING DATA AT Jul 1900<br>COOLING OA DB / WB 75.5 °F / 57.4 °F<br>OCCUPIED T-STAT 75.0 °F |          |          | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |          |          |
|                               |                                                                                             | Sensible | Latent   |                                                                                              | Sensible | Latent   |
| SPACE LOADS                   | Details                                                                                     | (BTU/hr) | (BTU/hr) | Details                                                                                      | (BTU/hr) | (BTU/hr) |
| Window & Skylight Solar Loads | 20 ft²                                                                                      | 457      | -        | 20 ft²                                                                                       | -        | -        |
| Wall Transmission             | 365 ft²                                                                                     | 460      | -        | 365 ft²                                                                                      | 3059     | -        |
| Roof Transmission             | 102 ft²                                                                                     | 153      | -        | 102 ft²                                                                                      | 295      | -        |
| Window Transmission           | 20 ft²                                                                                      | -3       | -        | 20 ft²                                                                                       | 1082     | -        |
| Skylight Transmission         | 0 ft²                                                                                       | 0        | -        | 0 ft²                                                                                        | 0        | -        |
| Door Loads                    | 21 ft²                                                                                      | -2       | -        | 21 ft²                                                                                       | 580      | -        |
| Floor Transmission            | 0 ft²                                                                                       | 0        | -        | 0 ft²                                                                                        | 0        | -        |
| Partitions                    | 102 ft²                                                                                     | 0        | -        | 102 ft²                                                                                      | 0        | -        |
| Ceiling                       | 0 ft²                                                                                       | 0        | -        | 0 ft²                                                                                        | 0        | -        |
| Overhead Lighting             | 97 W                                                                                        | 299      | -        | 0                                                                                            | 0        | -        |
| Task Lighting                 | 97 W                                                                                        | 314      | -        | 0                                                                                            | 0        | -        |
| Electric Equipment            | 200 W                                                                                       | 652      | -        | 0                                                                                            | 0        | -        |
| People                        | 2                                                                                           | 429      | 410      | 0                                                                                            | 0        | 0        |
| Infiltration                  | -                                                                                           | 0        | 0        | -                                                                                            | 0        | 0        |
| Miscellaneous                 | -                                                                                           | 0        | 0        | -                                                                                            | 0        | 0        |
| Safety Factor                 | 15% / 5%                                                                                    | 414      | 21       | 0%                                                                                           | 0        | 0        |
| >> Total Zone Loads           | -                                                                                           | 3173     | 431      | -                                                                                            | 5016     | 0        |

**TABLE 1.17.B. Envelope Loads For Space "BEDROOM G1" In Zone "Zone 1"**

|                   | Area  | U-Value           | Shade  | COOLING  | COOLING  | HEATING  |
|-------------------|-------|-------------------|--------|----------|----------|----------|
|                   | (ft²) | (BTU/(hr-ft²-°F)) | Coeff. | TRANS    | SOLAR    | TRANS    |
|                   |       |                   |        | (BTU/hr) | (BTU/hr) | (BTU/hr) |
| <b>N EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 90    | 0.091             | -      | 32       | -        | 754      |
| WINDOW 1          | 20    | 0.588             | 0.811  | -3       | 457      | 1082     |
| <b>S EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 89    | 0.091             | -      | 139      | -        | 746      |
| DOOR              | 21    | 0.300             | -      | -2       | -        | 580      |
| <b>E EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 93    | 0.091             | -      | 170      | -        | 779      |
| <b>W EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 93    | 0.091             | -      | 120      | -        | 779      |
| <b>H EXPOSURE</b> |       |                   |        |          |          |          |
| ROOF              | 102   | 0.031             | -      | 153      | -        | 295      |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.18.A. Component Loads For Space "BEDROOM H1" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1800<br>COOLING OA DB / WB 78.4 °F / 58.4 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
|                               |                                                                                             | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |                                                                                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| SPACE LOADS                   | Details                                                                                     |                      |                    | Details                                                                                      |                      |                    |
| Window & Skylight Solar Loads | 20 ft²                                                                                      | 449                  | -                  | 20 ft²                                                                                       | -                    | -                  |
| Wall Transmission             | 332 ft²                                                                                     | 386                  | -                  | 332 ft²                                                                                      | 2783                 | -                  |
| Roof Transmission             | 97 ft²                                                                                      | 164                  | -                  | 97 ft²                                                                                       | 281                  | -                  |
| Window Transmission           | 20 ft²                                                                                      | 19                   | -                  | 20 ft²                                                                                       | 1082                 | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 42 ft²                                                                                      | 20                   | -                  | 42 ft²                                                                                       | 1159                 | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 102 ft²                                                                                     | 0                    | -                  | 102 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 97 W                                                                                        | 297                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 97 W                                                                                        | 313                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 200 W                                                                                       | 650                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 2                                                                                           | 425                  | 410                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 408                  | 21                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 3129                 | 431                | -                                                                                            | 5305                 | 0                  |

**TABLE 1.18.B. Envelope Loads For Space "BEDROOM H1" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 75            | 0.091                        | -               | 22                           | -                            | 629                          |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 19                           | 449                          | 1082                         |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 74            | 0.091                        | -               | 105                          | -                            | 620                          |
| DOOR              | 21            | 0.300                        | -               | 10                           | -                            | 580                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 81            | 0.091                        | -               | 145                          | -                            | 679                          |
| DOOR              | 21            | 0.300                        | -               | 10                           | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 102           | 0.091                        | -               | 114                          | -                            | 855                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 97            | 0.031                        | -               | 164                          | -                            | 281                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.19.A. Component Loads For Space "BEDROOM H2" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1000<br>COOLING OA DB / WB 70.7 °F / 55.7 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
| SPACE LOADS                   | Details                                                                                     | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                                                                      | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 20 ft²                                                                                      | 1526                 | -                  | 20 ft²                                                                                       | -                    | -                  |
| Wall Transmission             | 258 ft²                                                                                     | 190                  | -                  | 258 ft²                                                                                      | 2162                 | -                  |
| Roof Transmission             | 61 ft²                                                                                      | 25                   | -                  | 61 ft²                                                                                       | 174                  | -                  |
| Window Transmission           | 20 ft²                                                                                      | -61                  | -                  | 20 ft²                                                                                       | 1082                 | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 42 ft²                                                                                      | -66                  | -                  | 42 ft²                                                                                       | 1159                 | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 100 ft²                                                                                     | 0                    | -                  | 100 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 61 W                                                                                        | 176                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 61 W                                                                                        | 190                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 200 W                                                                                       | 638                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 2                                                                                           | 401                  | 410                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 453                  | 21                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 3472                 | 431                | -                                                                                            | 4578                 | 0                  |

**TABLE 1.19.B. Envelope Loads For Space "BEDROOM H2" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 79            | 0.091                        | -               | 14                           | -                            | 662                          |
| DOOR              | 21            | 0.300                        | -               | -33                          | -                            | 580                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 100           | 0.091                        | -               | 88                           | -                            | 838                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 40            | 0.091                        | -               | 40                           | -                            | 335                          |
| WINDOW 1          | 20            | 0.588                        | 0.811           | -61                          | 1526                         | 1082                         |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 39            | 0.091                        | -               | 48                           | -                            | 327                          |
| DOOR              | 21            | 0.300                        | -               | -33                          | -                            | 580                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 61            | 0.031                        | -               | 25                           | -                            | 174                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.20.A. Component Loads For Space "M BEDROOM A" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |          |          | DESIGN HEATING                                                                               |          |          |
|-------------------------------|---------------------------------------------------------------------------------------------|----------|----------|----------------------------------------------------------------------------------------------|----------|----------|
|                               | COOLING DATA AT Aug 1500<br>COOLING OA DB / WB 83.0 °F / 60.0 °F<br>OCCUPIED T-STAT 75.0 °F |          |          | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |          |          |
|                               |                                                                                             | Sensible | Latent   |                                                                                              | Sensible | Latent   |
| SPACE LOADS                   | Details                                                                                     | (BTU/hr) | (BTU/hr) | Details                                                                                      | (BTU/hr) | (BTU/hr) |
| Window & Skylight Solar Loads | 20 ft²                                                                                      | 1499     | -        | 20 ft²                                                                                       | -        | -        |
| Wall Transmission             | 445 ft²                                                                                     | 369      | -        | 445 ft²                                                                                      | 3730     | -        |
| Roof Transmission             | 171 ft²                                                                                     | 249      | -        | 171 ft²                                                                                      | 493      | -        |
| Window Transmission           | 20 ft²                                                                                      | 48       | -        | 20 ft²                                                                                       | 1082     | -        |
| Skylight Transmission         | 0 ft²                                                                                       | 0        | -        | 0 ft²                                                                                        | 0        | -        |
| Door Loads                    | 63 ft²                                                                                      | 77       | -        | 63 ft²                                                                                       | 1739     | -        |
| Floor Transmission            | 0 ft²                                                                                       | 0        | -        | 0 ft²                                                                                        | 0        | -        |
| Partitions                    | 220 ft²                                                                                     | 0        | -        | 220 ft²                                                                                      | 0        | -        |
| Ceiling                       | 0 ft²                                                                                       | 0        | -        | 0 ft²                                                                                        | 0        | -        |
| Overhead Lighting             | 171 W                                                                                       | 507      | -        | 0                                                                                            | 0        | -        |
| Task Lighting                 | 171 W                                                                                       | 541      | -        | 0                                                                                            | 0        | -        |
| Electric Equipment            | 200 W                                                                                       | 642      | -        | 0                                                                                            | 0        | -        |
| People                        | 2                                                                                           | 410      | 410      | 0                                                                                            | 0        | 0        |
| Infiltration                  | -                                                                                           | 0        | 0        | -                                                                                            | 0        | 0        |
| Miscellaneous                 | -                                                                                           | 0        | 0        | -                                                                                            | 0        | 0        |
| Safety Factor                 | 15% / 5%                                                                                    | 651      | 21       | 0%                                                                                           | 0        | 0        |
| >> Total Zone Loads           | -                                                                                           | 4993     | 431      | -                                                                                            | 7044     | 0        |

**TABLE 1.20.B. Envelope Loads For Space "M BEDROOM A" In Zone "Zone 1"**

|                   | Area  | U-Value           | Shade  | COOLING  | COOLING  | HEATING  |
|-------------------|-------|-------------------|--------|----------|----------|----------|
|                   | (ft²) | (BTU/(hr-ft²-°F)) | Coeff. | TRANS    | SOLAR    | TRANS    |
|                   |       |                   |        | (BTU/hr) | (BTU/hr) | (BTU/hr) |
| <b>N EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 93    | 0.091             | -      | -9       | -        | 779      |
| DOOR              | 21    | 0.300             | -      | 26       | -        | 580      |
| <b>S EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 94    | 0.091             | -      | 112      | -        | 788      |
| WINDOW 1          | 20    | 0.588             | 0.811  | 48       | 1499     | 1082     |
| <b>E EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 150   | 0.091             | -      | 191      | -        | 1257     |
| <b>W EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 108   | 0.091             | -      | 74       | -        | 905      |
| DOOR              | 42    | 0.300             | -      | 51       | -        | 1159     |
| <b>H EXPOSURE</b> |       |                   |        |          |          |          |
| ROOF              | 171   | 0.031             | -      | 249      | -        | 493      |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.21.A. Component Loads For Space "M BEDROOM B" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Aug 1500<br>COOLING OA DB / WB 83.0 °F / 60.0 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
|                               |                                                                                             | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |                                                                                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| SPACE LOADS                   | Details                                                                                     |                      |                    | Details                                                                                      |                      |                    |
| Window & Skylight Solar Loads | 20 ft²                                                                                      | 1499                 | -                  | 20 ft²                                                                                       | -                    | -                  |
| Wall Transmission             | 434 ft²                                                                                     | 352                  | -                  | 434 ft²                                                                                      | 3638                 | -                  |
| Roof Transmission             | 153 ft²                                                                                     | 223                  | -                  | 153 ft²                                                                                      | 442                  | -                  |
| Window Transmission           | 20 ft²                                                                                      | 48                   | -                  | 20 ft²                                                                                       | 1082                 | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 42 ft²                                                                                      | 51                   | -                  | 42 ft²                                                                                       | 1159                 | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 200 ft²                                                                                     | 0                    | -                  | 200 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 153 W                                                                                       | 454                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 153 W                                                                                       | 485                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 200 W                                                                                       | 642                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 2                                                                                           | 410                  | 410                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 625                  | 21                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 4790                 | 431                | -                                                                                            | 6321                 | 0                  |

**TABLE 1.21.B. Envelope Loads For Space "M BEDROOM B" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 91            | 0.091                        | -               | -9                           | -                            | 763                          |
| DOOR              | 42            | 0.300                        | -               | 51                           | -                            | 1159                         |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 113           | 0.091                        | -               | 135                          | -                            | 947                          |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 48                           | 1499                         | 1082                         |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 115           | 0.091                        | -               | 147                          | -                            | 964                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 115           | 0.091                        | -               | 79                           | -                            | 964                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 153           | 0.031                        | -               | 223                          | -                            | 442                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.22.A. Component Loads For Space "M BEDROOM C" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1800<br>COOLING OA DB / WB 78.4 °F / 58.4 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
|                               |                                                                                             | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |                                                                                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| SPACE LOADS                   | Details                                                                                     |                      |                    | Details                                                                                      |                      |                    |
| Window & Skylight Solar Loads | 20 ft²                                                                                      | 449                  | -                  | 20 ft²                                                                                       | -                    | -                  |
| Wall Transmission             | 329 ft²                                                                                     | 361                  | -                  | 329 ft²                                                                                      | 2758                 | -                  |
| Roof Transmission             | 105 ft²                                                                                     | 176                  | -                  | 105 ft²                                                                                      | 303                  | -                  |
| Window Transmission           | 20 ft²                                                                                      | 19                   | -                  | 20 ft²                                                                                       | 1082                 | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 63 ft²                                                                                      | 30                   | -                  | 63 ft²                                                                                       | 1739                 | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 200 ft²                                                                                     | 0                    | -                  | 200 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 105 W                                                                                       | 320                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 105 W                                                                                       | 337                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 200 W                                                                                       | 650                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 2                                                                                           | 425                  | 410                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 415                  | 21                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 3182                 | 431                | -                                                                                            | 5881                 | 0                  |

**TABLE 1.22.B. Envelope Loads For Space "M BEDROOM C" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 93            | 0.091                        | -               | 28                           | -                            | 779                          |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 19                           | 449                          | 1082                         |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 71            | 0.091                        | -               | 101                          | -                            | 595                          |
| DOOR              | 42            | 0.300                        | -               | 20                           | -                            | 1159                         |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 72            | 0.091                        | -               | 128                          | -                            | 603                          |
| DOOR              | 21            | 0.300                        | -               | 10                           | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 93            | 0.091                        | -               | 104                          | -                            | 779                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 105           | 0.031                        | -               | 176                          | -                            | 303                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.23.A. Component Loads For Space "M BEDROOM D" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1800<br>COOLING OA DB / WB 78.4 °F / 58.4 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
|                               |                                                                                             | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |                                                                                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| SPACE LOADS                   | Details                                                                                     |                      |                    | Details                                                                                      |                      |                    |
| Window & Skylight Solar Loads | 20 ft²                                                                                      | 449                  | -                  | 20 ft²                                                                                       | -                    | -                  |
| Wall Transmission             | 329 ft²                                                                                     | 375                  | -                  | 329 ft²                                                                                      | 2758                 | -                  |
| Roof Transmission             | 105 ft²                                                                                     | 176                  | -                  | 105 ft²                                                                                      | 303                  | -                  |
| Window Transmission           | 20 ft²                                                                                      | 19                   | -                  | 20 ft²                                                                                       | 1082                 | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 63 ft²                                                                                      | 30                   | -                  | 63 ft²                                                                                       | 1739                 | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 200 ft²                                                                                     | 0                    | -                  | 200 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 105 W                                                                                       | 320                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 105 W                                                                                       | 337                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 200 W                                                                                       | 650                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 2                                                                                           | 425                  | 410                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 417                  | 21                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 3198                 | 431                | -                                                                                            | 5881                 | 0                  |

**TABLE 1.23.B. Envelope Loads For Space "M BEDROOM D" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 93            | 0.091                        | -               | 28                           | -                            | 779                          |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 19                           | 449                          | 1082                         |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 71            | 0.091                        | -               | 101                          | -                            | 595                          |
| DOOR              | 42            | 0.300                        | -               | 20                           | -                            | 1159                         |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 93            | 0.091                        | -               | 166                          | -                            | 779                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 72            | 0.091                        | -               | 81                           | -                            | 603                          |
| DOOR              | 21            | 0.300                        | -               | 10                           | -                            | 580                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 105           | 0.031                        | -               | 176                          | -                            | 303                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.24.A. Component Loads For Space "M BEDROOM E" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1900<br>COOLING OA DB / WB 75.5 °F / 57.4 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
|                               |                                                                                             | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |                                                                                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| SPACE LOADS                   | Details                                                                                     |                      |                    | Details                                                                                      |                      |                    |
| Window & Skylight Solar Loads | 20 ft²                                                                                      | 457                  | -                  | 20 ft²                                                                                       | -                    | -                  |
| Wall Transmission             | 375 ft²                                                                                     | 472                  | -                  | 375 ft²                                                                                      | 3143                 | -                  |
| Roof Transmission             | 107 ft²                                                                                     | 160                  | -                  | 107 ft²                                                                                      | 310                  | -                  |
| Window Transmission           | 20 ft²                                                                                      | -3                   | -                  | 20 ft²                                                                                       | 1082                 | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 21 ft²                                                                                      | -2                   | -                  | 21 ft²                                                                                       | 580                  | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 232 ft²                                                                                     | 0                    | -                  | 232 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 107 W                                                                                       | 330                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 107 W                                                                                       | 346                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 200 W                                                                                       | 652                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 2                                                                                           | 429                  | 410                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 426                  | 21                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 3268                 | 431                | -                                                                                            | 5114                 | 0                  |

**TABLE 1.24.B. Envelope Loads For Space "M BEDROOM E" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 93            | 0.091                        | -               | 33                           | -                            | 779                          |
| WINDOW 1          | 20            | 0.588                        | 0.811           | -3                           | 457                          | 1082                         |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 92            | 0.091                        | -               | 143                          | -                            | 771                          |
| DOOR              | 21            | 0.300                        | -               | -2                           | -                            | 580                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 95            | 0.091                        | -               | 173                          | -                            | 796                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 95            | 0.091                        | -               | 122                          | -                            | 796                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 107           | 0.031                        | -               | 160                          | -                            | 310                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.25.A. Component Loads For Space "M BEDROOM F" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1900<br>COOLING OA DB / WB 75.5 °F / 57.4 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
|                               |                                                                                             | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |                                                                                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| SPACE LOADS                   | Details                                                                                     |                      |                    | Details                                                                                      |                      |                    |
| Window & Skylight Solar Loads | 20 ft²                                                                                      | 457                  | -                  | 20 ft²                                                                                       | -                    | -                  |
| Wall Transmission             | 375 ft²                                                                                     | 472                  | -                  | 375 ft²                                                                                      | 3143                 | -                  |
| Roof Transmission             | 107 ft²                                                                                     | 160                  | -                  | 107 ft²                                                                                      | 310                  | -                  |
| Window Transmission           | 20 ft²                                                                                      | -3                   | -                  | 20 ft²                                                                                       | 1082                 | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 21 ft²                                                                                      | -2                   | -                  | 21 ft²                                                                                       | 580                  | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 232 ft²                                                                                     | 0                    | -                  | 232 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 107 W                                                                                       | 330                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 107 W                                                                                       | 346                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 200 W                                                                                       | 652                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 2                                                                                           | 429                  | 410                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 426                  | 21                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 3268                 | 431                | -                                                                                            | 5114                 | 0                  |

**TABLE 1.25.B. Envelope Loads For Space "M BEDROOM F" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 93            | 0.091                        | -               | 33                           | -                            | 779                          |
| WINDOW 1          | 20            | 0.588                        | 0.811           | -3                           | 457                          | 1082                         |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 92            | 0.091                        | -               | 143                          | -                            | 771                          |
| DOOR              | 21            | 0.300                        | -               | -2                           | -                            | 580                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 95            | 0.091                        | -               | 173                          | -                            | 796                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 95            | 0.091                        | -               | 122                          | -                            | 796                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 107           | 0.031                        | -               | 160                          | -                            | 310                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.26.A. Component Loads For Space "M BEDROOM G" In Zone "Zone 1"**

|                               | DESIGN COOLING                       |          |          | DESIGN HEATING                         |          |          |
|-------------------------------|--------------------------------------|----------|----------|----------------------------------------|----------|----------|
|                               | COOLING DATA AT Aug 1500             |          |          | HEATING DATA AT DES HTG                |          |          |
|                               | COOLING OA DB / WB 83.0 °F / 60.0 °F |          |          | HEATING OA DB / WB -22.0 °F / -22.6 °F |          |          |
|                               | OCCUPIED T-STAT 75.0 °F              |          |          | OCCUPIED T-STAT 70.0 °F                |          |          |
|                               |                                      | Sensible | Latent   |                                        | Sensible | Latent   |
| SPACE LOADS                   | Details                              | (BTU/hr) | (BTU/hr) | Details                                | (BTU/hr) | (BTU/hr) |
| Window & Skylight Solar Loads | 20 ft²                               | 1499     | -        | 20 ft²                                 | -        | -        |
| Wall Transmission             | 434 ft²                              | 352      | -        | 434 ft²                                | 3638     | -        |
| Roof Transmission             | 153 ft²                              | 223      | -        | 153 ft²                                | 442      | -        |
| Window Transmission           | 20 ft²                               | 48       | -        | 20 ft²                                 | 1082     | -        |
| Skylight Transmission         | 0 ft²                                | 0        | -        | 0 ft²                                  | 0        | -        |
| Door Loads                    | 42 ft²                               | 51       | -        | 42 ft²                                 | 1159     | -        |
| Floor Transmission            | 0 ft²                                | 0        | -        | 0 ft²                                  | 0        | -        |
| Partitions                    | 200 ft²                              | 0        | -        | 200 ft²                                | 0        | -        |
| Ceiling                       | 0 ft²                                | 0        | -        | 0 ft²                                  | 0        | -        |
| Overhead Lighting             | 153 W                                | 454      | -        | 0                                      | 0        | -        |
| Task Lighting                 | 153 W                                | 485      | -        | 0                                      | 0        | -        |
| Electric Equipment            | 200 W                                | 642      | -        | 0                                      | 0        | -        |
| People                        | 2                                    | 410      | 410      | 0                                      | 0        | 0        |
| Infiltration                  | -                                    | 0        | 0        | -                                      | 0        | 0        |
| Miscellaneous                 | -                                    | 0        | 0        | -                                      | 0        | 0        |
| Safety Factor                 | 15% / 5%                             | 625      | 21       | 0%                                     | 0        | 0        |
| >> Total Zone Loads           | -                                    | 4790     | 431      | -                                      | 6321     | 0        |

**TABLE 1.26.B. Envelope Loads For Space "M BEDROOM G" In Zone "Zone 1"**

|                   | Area  | U-Value           | Shade  | COOLING  | COOLING  | HEATING  |
|-------------------|-------|-------------------|--------|----------|----------|----------|
|                   | (ft²) | (BTU/(hr-ft²-°F)) | Coeff. | TRANS    | SOLAR    | TRANS    |
|                   |       |                   |        | (BTU/hr) | (BTU/hr) | (BTU/hr) |
| <b>N EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 91    | 0.091             | -      | -9       | -        | 763      |
| DOOR              | 42    | 0.300             | -      | 51       | -        | 1159     |
| <b>S EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 113   | 0.091             | -      | 135      | -        | 947      |
| WINDOW 1          | 20    | 0.588             | 0.811  | 48       | 1499     | 1082     |
| <b>E EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 115   | 0.091             | -      | 147      | -        | 964      |
| <b>W EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 115   | 0.091             | -      | 79       | -        | 964      |
| <b>H EXPOSURE</b> |       |                   |        |          |          |          |
| ROOF              | 153   | 0.031             | -      | 223      | -        | 442      |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.27.A. Component Loads For Space "M BEDROOM H" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |          |          | DESIGN HEATING                                                                               |          |          |
|-------------------------------|---------------------------------------------------------------------------------------------|----------|----------|----------------------------------------------------------------------------------------------|----------|----------|
|                               | COOLING DATA AT Aug 1500<br>COOLING OA DB / WB 83.0 °F / 60.0 °F<br>OCCUPIED T-STAT 75.0 °F |          |          | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |          |          |
|                               |                                                                                             | Sensible | Latent   |                                                                                              | Sensible | Latent   |
| SPACE LOADS                   | Details                                                                                     | (BTU/hr) | (BTU/hr) | Details                                                                                      | (BTU/hr) | (BTU/hr) |
| Window & Skylight Solar Loads | 20 ft²                                                                                      | 1499     | -        | 20 ft²                                                                                       | -        | -        |
| Wall Transmission             | 445 ft²                                                                                     | 344      | -        | 445 ft²                                                                                      | 3730     | -        |
| Roof Transmission             | 171 ft²                                                                                     | 249      | -        | 171 ft²                                                                                      | 493      | -        |
| Window Transmission           | 20 ft²                                                                                      | 48       | -        | 20 ft²                                                                                       | 1082     | -        |
| Skylight Transmission         | 0 ft²                                                                                       | 0        | -        | 0 ft²                                                                                        | 0        | -        |
| Door Loads                    | 63 ft²                                                                                      | 77       | -        | 63 ft²                                                                                       | 1739     | -        |
| Floor Transmission            | 0 ft²                                                                                       | 0        | -        | 0 ft²                                                                                        | 0        | -        |
| Partitions                    | 220 ft²                                                                                     | 0        | -        | 220 ft²                                                                                      | 0        | -        |
| Ceiling                       | 0 ft²                                                                                       | 0        | -        | 0 ft²                                                                                        | 0        | -        |
| Overhead Lighting             | 171 W                                                                                       | 507      | -        | 0                                                                                            | 0        | -        |
| Task Lighting                 | 171 W                                                                                       | 541      | -        | 0                                                                                            | 0        | -        |
| Electric Equipment            | 200 W                                                                                       | 642      | -        | 0                                                                                            | 0        | -        |
| People                        | 2                                                                                           | 410      | 410      | 0                                                                                            | 0        | 0        |
| Infiltration                  | -                                                                                           | 0        | 0        | -                                                                                            | 0        | 0        |
| Miscellaneous                 | -                                                                                           | 0        | 0        | -                                                                                            | 0        | 0        |
| Safety Factor                 | 15% / 5%                                                                                    | 648      | 21       | 0%                                                                                           | 0        | 0        |
| >> Total Zone Loads           | -                                                                                           | 4965     | 431      | -                                                                                            | 7044     | 0        |

**TABLE 1.27.B. Envelope Loads For Space "M BEDROOM H" In Zone "Zone 1"**

|                   | Area  | U-Value           | Shade  | COOLING  | COOLING  | HEATING  |
|-------------------|-------|-------------------|--------|----------|----------|----------|
|                   | (ft²) | (BTU/(hr-ft²-°F)) | Coeff. | TRANS    | SOLAR    | TRANS    |
|                   |       |                   |        | (BTU/hr) | (BTU/hr) | (BTU/hr) |
| <b>N EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 93    | 0.091             | -      | -9       | -        | 779      |
| DOOR              | 21    | 0.300             | -      | 26       | -        | 580      |
| <b>S EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 94    | 0.091             | -      | 112      | -        | 788      |
| WINDOW 1          | 20    | 0.588             | 0.811  | 48       | 1499     | 1082     |
| <b>E EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 108   | 0.091             | -      | 138      | -        | 905      |
| DOOR              | 42    | 0.300             | -      | 51       | -        | 1159     |
| <b>W EXPOSURE</b> |       |                   |        |          |          |          |
| WALL              | 150   | 0.091             | -      | 103      | -        | 1257     |
| <b>H EXPOSURE</b> |       |                   |        |          |          |          |
| ROOF              | 171   | 0.031             | -      | 249      | -        | 493      |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.28.A. Component Loads For Space "M WC A" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2200<br>COOLING OA DB / WB 68.0 °F / 54.7 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
|                               |                                                                                             | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |                                                                                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| SPACE LOADS                   | Details                                                                                     |                      |                    | Details                                                                                      |                      |                    |
| Window & Skylight Solar Loads | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | -                    | -                  |
| Wall Transmission             | 245 ft²                                                                                     | 379                  | -                  | 245 ft²                                                                                      | 2053                 | -                  |
| Roof Transmission             | 44 ft²                                                                                      | 30                   | -                  | 44 ft²                                                                                       | 126                  | -                  |
| Window Transmission           | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 21 ft²                                                                                      | -34                  | -                  | 21 ft²                                                                                       | 580                  | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 80 ft²                                                                                      | 0                    | -                  | 80 ft²                                                                                       | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 44 W                                                                                        | 137                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 44 W                                                                                        | 142                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 50 W                                                                                        | 164                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 1                                                                                           | 220                  | 205                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 156                  | 10                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 1195                 | 215                | -                                                                                            | 2759                 | 0                  |

**TABLE 1.28.B. Envelope Loads For Space "M WC A" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 53            | 0.091                        | -               | 28                           | -                            | 444                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 53            | 0.091                        | -               | 95                           | -                            | 444                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 59            | 0.091                        | -               | 108                          | -                            | 495                          |
| DOOR              | 21            | 0.300                        | -               | -34                          | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 80            | 0.091                        | -               | 148                          | -                            | 671                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 44            | 0.031                        | -               | 30                           | -                            | 126                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.29.A. Component Loads For Space "M WC B" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2100<br>COOLING OA DB / WB 70.2 °F / 55.5 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
| SPACE LOADS                   | Details                                                                                     | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                                                                      | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | -                    | -                  |
| Wall Transmission             | 231 ft²                                                                                     | 328                  | -                  | 231 ft²                                                                                      | 1936                 | -                  |
| Roof Transmission             | 40 ft²                                                                                      | 38                   | -                  | 40 ft²                                                                                       | 116                  | -                  |
| Window Transmission           | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 21 ft²                                                                                      | -24                  | -                  | 21 ft²                                                                                       | 580                  | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 120 ft²                                                                                     | 0                    | -                  | 120 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 40 W                                                                                        | 125                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 40 W                                                                                        | 131                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 50 W                                                                                        | 164                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 1                                                                                           | 218                  | 205                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 147                  | 10                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 1128                 | 215                | -                                                                                            | 2632                 | 0                  |

**TABLE 1.29.B. Envelope Loads For Space "M WC B" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 61            | 0.091                        | -               | 29                           | -                            | 511                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 40            | 0.091                        | -               | 70                           | -                            | 335                          |
| DOOR              | 21            | 0.300                        | -               | -24                          | -                            | 580                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 65            | 0.091                        | -               | 120                          | -                            | 545                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 65            | 0.091                        | -               | 109                          | -                            | 545                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 40            | 0.031                        | -               | 38                           | -                            | 116                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.30.A. Component Loads For Space "M WC C" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2100<br>COOLING OA DB / WB 70.2 °F / 55.5 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
| SPACE LOADS                   | Details                                                                                     | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                                                                      | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | -                    | -                  |
| Wall Transmission             | 295 ft²                                                                                     | 406                  | -                  | 295 ft²                                                                                      | 2473                 | -                  |
| Roof Transmission             | 54 ft²                                                                                      | 51                   | -                  | 54 ft²                                                                                       | 156                  | -                  |
| Window Transmission           | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 21 ft²                                                                                      | -24                  | -                  | 21 ft²                                                                                       | 580                  | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 160 ft²                                                                                     | 0                    | -                  | 160 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 54 W                                                                                        | 168                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 54 W                                                                                        | 175                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 50 W                                                                                        | 164                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 1                                                                                           | 218                  | 205                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 174                  | 10                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 1334                 | 215                | -                                                                                            | 3208                 | 0                  |

**TABLE 1.30.B. Envelope Loads For Space "M WC C" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 87            | 0.091                        | -               | 41                           | -                            | 729                          |
| DOOR              | 21            | 0.300                        | -               | -24                          | -                            | 580                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 108           | 0.091                        | -               | 189                          | -                            | 905                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 50            | 0.091                        | -               | 93                           | -                            | 419                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 50            | 0.091                        | -               | 84                           | -                            | 419                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 54            | 0.031                        | -               | 51                           | -                            | 156                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.31.A. Component Loads For Space "M WC D" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2100<br>COOLING OA DB / WB 70.2 °F / 55.5 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
| SPACE LOADS                   | Details                                                                                     | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                                                                      | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | -                    | -                  |
| Wall Transmission             | 295 ft²                                                                                     | 406                  | -                  | 295 ft²                                                                                      | 2473                 | -                  |
| Roof Transmission             | 54 ft²                                                                                      | 51                   | -                  | 54 ft²                                                                                       | 156                  | -                  |
| Window Transmission           | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 21 ft²                                                                                      | -24                  | -                  | 21 ft²                                                                                       | 580                  | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 160 ft²                                                                                     | 0                    | -                  | 160 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 54 W                                                                                        | 168                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 54 W                                                                                        | 175                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 50 W                                                                                        | 164                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 1                                                                                           | 218                  | 205                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 174                  | 10                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 1334                 | 215                | -                                                                                            | 3208                 | 0                  |

**TABLE 1.31.B. Envelope Loads For Space "M WC D" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 87            | 0.091                        | -               | 41                           | -                            | 729                          |
| DOOR              | 21            | 0.300                        | -               | -24                          | -                            | 580                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 108           | 0.091                        | -               | 189                          | -                            | 905                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 50            | 0.091                        | -               | 93                           | -                            | 419                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 50            | 0.091                        | -               | 84                           | -                            | 419                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 54            | 0.031                        | -               | 51                           | -                            | 156                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.32.A. Component Loads For Space "M WC E" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2200<br>COOLING OA DB / WB 68.0 °F / 54.7 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
|                               |                                                                                             | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |                                                                                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| SPACE LOADS                   | Details                                                                                     |                      |                    | Details                                                                                      |                      |                    |
| Window & Skylight Solar Loads | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | -                    | -                  |
| Wall Transmission             | 223 ft²                                                                                     | 354                  | -                  | 223 ft²                                                                                      | 1869                 | -                  |
| Roof Transmission             | 34 ft²                                                                                      | 23                   | -                  | 34 ft²                                                                                       | 97                   | -                  |
| Window Transmission           | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 21 ft²                                                                                      | -34                  | -                  | 21 ft²                                                                                       | 580                  | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 122 ft²                                                                                     | 0                    | -                  | 122 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 34 W                                                                                        | 105                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 34 W                                                                                        | 109                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 50 W                                                                                        | 164                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 1                                                                                           | 220                  | 205                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 141                  | 10                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 1084                 | 215                | -                                                                                            | 2546                 | 0                  |

**TABLE 1.32.B. Envelope Loads For Space "M WC E" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 42            | 0.091                        | -               | 22                           | -                            | 352                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 42            | 0.091                        | -               | 75                           | -                            | 352                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 59            | 0.091                        | -               | 108                          | -                            | 495                          |
| DOOR              | 21            | 0.300                        | -               | -34                          | -                            | 580                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 80            | 0.091                        | -               | 148                          | -                            | 671                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 34            | 0.031                        | -               | 23                           | -                            | 97                           |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.33.A. Component Loads For Space "M WC F" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2100<br>COOLING OA DB / WB 70.2 °F / 55.5 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
|                               |                                                                                             | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |                                                                                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| SPACE LOADS                   | Details                                                                                     |                      |                    | Details                                                                                      |                      |                    |
| Window & Skylight Solar Loads | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | -                    | -                  |
| Wall Transmission             | 223 ft²                                                                                     | 341                  | -                  | 223 ft²                                                                                      | 1869                 | -                  |
| Roof Transmission             | 34 ft²                                                                                      | 32                   | -                  | 34 ft²                                                                                       | 97                   | -                  |
| Window Transmission           | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 21 ft²                                                                                      | -24                  | -                  | 21 ft²                                                                                       | 580                  | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 122 ft²                                                                                     | 0                    | -                  | 122 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 34 W                                                                                        | 105                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 34 W                                                                                        | 109                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 50 W                                                                                        | 164                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 1                                                                                           | 218                  | 205                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 142                  | 10                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 1086                 | 215                | -                                                                                            | 2546                 | 0                  |

**TABLE 1.33.B. Envelope Loads For Space "M WC F" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 42            | 0.091                        | -               | 20                           | -                            | 352                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 42            | 0.091                        | -               | 73                           | -                            | 352                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 80            | 0.091                        | -               | 148                          | -                            | 671                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 59            | 0.091                        | -               | 99                           | -                            | 495                          |
| DOOR              | 21            | 0.300                        | -               | -24                          | -                            | 580                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 34            | 0.031                        | -               | 32                           | -                            | 97                           |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.34.A. Component Loads For Space "M WC G" In Zone "Zone 1"**

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2100             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 70.2 °F / 55.5 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                | 0                    | -                  | 0 ft²                                  | -                    | -                  |
| Wall Transmission             | 231 ft²                              | 328                  | -                  | 231 ft²                                | 1936                 | -                  |
| Roof Transmission             | 40 ft²                               | 38                   | -                  | 40 ft²                                 | 116                  | -                  |
| Window Transmission           | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | -24                  | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Partitions                    | 120 ft²                              | 0                    | -                  | 120 ft²                                | 0                    | -                  |
| Ceiling                       | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Overhead Lighting             | 40 W                                 | 125                  | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 40 W                                 | 131                  | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 50 W                                 | 164                  | -                  | 0                                      | 0                    | -                  |
| People                        | 1                                    | 218                  | 205                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 147                  | 10                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 1128                 | 215                | -                                      | 2632                 | 0                  |

**TABLE 1.34.B. Envelope Loads For Space "M WC G" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 61            | 0.091                        | -               | 29                           | -                            | 511                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 40            | 0.091                        | -               | 70                           | -                            | 335                          |
| DOOR              | 21            | 0.300                        | -               | -24                          | -                            | 580                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 65            | 0.091                        | -               | 120                          | -                            | 545                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 65            | 0.091                        | -               | 109                          | -                            | 545                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 40            | 0.031                        | -               | 38                           | -                            | 116                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.35.A. Component Loads For Space "M WC H" In Zone "Zone 1"**

|                               | DESIGN COOLING                       |                      |                    | DESIGN HEATING                         |                      |                    |
|-------------------------------|--------------------------------------|----------------------|--------------------|----------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 2100             |                      |                    | HEATING DATA AT DES HTG                |                      |                    |
|                               | COOLING OA DB / WB 70.2 °F / 55.5 °F |                      |                    | HEATING OA DB / WB -22.0 °F / -22.6 °F |                      |                    |
|                               | OCCUPIED T-STAT 75.0 °F              |                      |                    | OCCUPIED T-STAT 70.0 °F                |                      |                    |
| SPACE LOADS                   | Details                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) | Details                                | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| Window & Skylight Solar Loads | 0 ft²                                | 0                    | -                  | 0 ft²                                  | -                    | -                  |
| Wall Transmission             | 245 ft²                              | 365                  | -                  | 245 ft²                                | 2053                 | -                  |
| Roof Transmission             | 44 ft²                               | 41                   | -                  | 44 ft²                                 | 126                  | -                  |
| Window Transmission           | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Skylight Transmission         | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Door Loads                    | 21 ft²                               | -24                  | -                  | 21 ft²                                 | 580                  | -                  |
| Floor Transmission            | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Partitions                    | 80 ft²                               | 0                    | -                  | 80 ft²                                 | 0                    | -                  |
| Ceiling                       | 0 ft²                                | 0                    | -                  | 0 ft²                                  | 0                    | -                  |
| Overhead Lighting             | 44 W                                 | 136                  | -                  | 0                                      | 0                    | -                  |
| Task Lighting                 | 44 W                                 | 142                  | -                  | 0                                      | 0                    | -                  |
| Electric Equipment            | 50 W                                 | 164                  | -                  | 0                                      | 0                    | -                  |
| People                        | 1                                    | 218                  | 205                | 0                                      | 0                    | 0                  |
| Infiltration                  | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Miscellaneous                 | -                                    | 0                    | 0                  | -                                      | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                             | 156                  | 10                 | 0%                                     | 0                    | 0                  |
| >> Total Zone Loads           | -                                    | 1199                 | 215                | -                                      | 2759                 | 0                  |

**TABLE 1.35.B. Envelope Loads For Space "M WC H" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 53            | 0.091                        | -               | 25                           | -                            | 444                          |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 53            | 0.091                        | -               | 93                           | -                            | 444                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 80            | 0.091                        | -               | 148                          | -                            | 671                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 59            | 0.091                        | -               | 99                           | -                            | 495                          |
| DOOR              | 21            | 0.300                        | -               | -24                          | -                            | 580                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 44            | 0.031                        | -               | 41                           | -                            | 126                          |

## Space Design Load Summary for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

**TABLE 1.36.A. Component Loads For Space "BEDROOM A1" In Zone "Zone 1"**

|                               | DESIGN COOLING                                                                              |                      |                    | DESIGN HEATING                                                                               |                      |                    |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|----------------------|--------------------|
|                               | COOLING DATA AT Jul 1800<br>COOLING OA DB / WB 78.4 °F / 58.4 °F<br>OCCUPIED T-STAT 75.0 °F |                      |                    | HEATING DATA AT DES HTG<br>HEATING OA DB / WB -22.0 °F / -22.6 °F<br>OCCUPIED T-STAT 70.0 °F |                      |                    |
|                               |                                                                                             | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |                                                                                              | Sensible<br>(BTU/hr) | Latent<br>(BTU/hr) |
| SPACE LOADS                   | Details                                                                                     |                      |                    | Details                                                                                      |                      |                    |
| Window & Skylight Solar Loads | 20 ft²                                                                                      | 449                  | -                  | 20 ft²                                                                                       | -                    | -                  |
| Wall Transmission             | 332 ft²                                                                                     | 400                  | -                  | 332 ft²                                                                                      | 2783                 | -                  |
| Roof Transmission             | 97 ft²                                                                                      | 164                  | -                  | 97 ft²                                                                                       | 281                  | -                  |
| Window Transmission           | 20 ft²                                                                                      | 19                   | -                  | 20 ft²                                                                                       | 1082                 | -                  |
| Skylight Transmission         | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Door Loads                    | 42 ft²                                                                                      | 20                   | -                  | 42 ft²                                                                                       | 1159                 | -                  |
| Floor Transmission            | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Partitions                    | 102 ft²                                                                                     | 0                    | -                  | 102 ft²                                                                                      | 0                    | -                  |
| Ceiling                       | 0 ft²                                                                                       | 0                    | -                  | 0 ft²                                                                                        | 0                    | -                  |
| Overhead Lighting             | 97 W                                                                                        | 297                  | -                  | 0                                                                                            | 0                    | -                  |
| Task Lighting                 | 97 W                                                                                        | 313                  | -                  | 0                                                                                            | 0                    | -                  |
| Electric Equipment            | 200 W                                                                                       | 650                  | -                  | 0                                                                                            | 0                    | -                  |
| People                        | 2                                                                                           | 425                  | 410                | 0                                                                                            | 0                    | 0                  |
| Infiltration                  | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Miscellaneous                 | -                                                                                           | 0                    | 0                  | -                                                                                            | 0                    | 0                  |
| Safety Factor                 | 15% / 5%                                                                                    | 410                  | 21                 | 0%                                                                                           | 0                    | 0                  |
| >> Total Zone Loads           | -                                                                                           | 3145                 | 431                | -                                                                                            | 5305                 | 0                  |

**TABLE 1.36.B. Envelope Loads For Space "BEDROOM A1" In Zone "Zone 1"**

|                   | Area<br>(ft²) | U-Value<br>(BTU/(hr-ft²-°F)) | Shade<br>Coeff. | COOLING<br>TRANS<br>(BTU/hr) | COOLING<br>SOLAR<br>(BTU/hr) | HEATING<br>TRANS<br>(BTU/hr) |
|-------------------|---------------|------------------------------|-----------------|------------------------------|------------------------------|------------------------------|
| <b>N EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 75            | 0.091                        | -               | 22                           | -                            | 629                          |
| WINDOW 1          | 20            | 0.588                        | 0.811           | 19                           | 449                          | 1082                         |
| <b>S EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 74            | 0.091                        | -               | 105                          | -                            | 620                          |
| DOOR              | 21            | 0.300                        | -               | 10                           | -                            | 580                          |
| <b>E EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 102           | 0.091                        | -               | 182                          | -                            | 855                          |
| <b>W EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| WALL              | 81            | 0.091                        | -               | 91                           | -                            | 679                          |
| DOOR              | 21            | 0.300                        | -               | 10                           | -                            | 580                          |
| <b>H EXPOSURE</b> |               |                              |                 |                              |                              |                              |
| ROOF              | 97            | 0.031                        | -               | 164                          | -                            | 281                          |

## System Psychrometrics for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
01:24AM

July DESIGN COOLING DAY, 1600

**TABLE 1: SYSTEM DATA**

| Component            | Location | Dry-Bulb Temp (°F) | Specific Humidity (lb/lb) | Airflow (CFM) | CO2 Level (ppm) | Sensible Heat (BTU/hr) | Latent Heat (BTU/hr) |
|----------------------|----------|--------------------|---------------------------|---------------|-----------------|------------------------|----------------------|
| Ventilation Air      | Inlet    | 82.3               | 0.00732                   | 327           | 400             | 2023                   | -8193                |
| Vent - Return Mixing | Outlet   | 76.1               | 0.01305                   | 7070          | 1754            | -                      | -                    |
| Central Cooling Coil | Outlet   | 62.5               | 0.01291                   | 7070          | 1754            | 91383                  | 4014                 |
| Central Heating Coil | Outlet   | 62.5               | 0.01291                   | 7070          | 1754            | 0                      | -                    |
| Supply Fan           | Outlet   | 62.5               | 0.01291                   | 7070          | 1754            | 0                      | -                    |
| Cold Supply Duct     | Outlet   | 62.5               | 0.01291                   | 7070          | 1754            | -                      | -                    |
| Zone Air             | -        | 75.8               | 0.01332                   | 7070          | 1820            | 89360                  | 12054                |
| Return Plenum        | Outlet   | 75.8               | 0.01332                   | 7070          | 1820            | 0                      | -                    |

*Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 0.948 BTU/(hr-CFM-F)*

*Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4167.5 BTU/(hr-CFM)*

*Site Altitude = 3556.0 ft*

**TABLE 2: ZONE DATA**

| Zone Name | Zone Sensible Load (BTU/hr) | T-stat Mode | Zone Cond (BTU/hr) | Zone Temp (°F) | Zone Airflow (CFM) | CO2 Level (ppm) | Terminal Heating Coil (BTU/hr) | Zone Heating Unit (BTU/hr) |
|-----------|-----------------------------|-------------|--------------------|----------------|--------------------|-----------------|--------------------------------|----------------------------|
| Zone 1    | 93138                       | Cooling     | 89360              | 75.8           | 7070               | 1820            | 0                              | 0                          |

# System Psychrometrics for HVAC 3

Project Name: Project 119  
Prepared by: E Lab

11/28/2024  
01:24AM

## WINTER DESIGN HEATING

TABLE 1: SYSTEM DATA

| Component            | Location | Dry-Bulb Temp (°F) | Specific Humidity (lb/lb) | Airflow (CFM) | CO2 Level (ppm) | Sensible Heat (BTU/hr) | Latent Heat (BTU/hr) |
|----------------------|----------|--------------------|---------------------------|---------------|-----------------|------------------------|----------------------|
| Ventilation Air      | Inlet    | -22.0              | 0.00013                   | 327           | 400             | -28111                 | 0                    |
| Vent - Return Mixing | Outlet   | 64.4               | 0.00013                   | 7070          | 606             | -                      | -                    |
| Central Cooling Coil | Outlet   | 64.4               | 0.00013                   | 7070          | 606             | 0                      | 0                    |
| Central Heating Coil | Outlet   | 92.3               | 0.00013                   | 7070          | 606             | 187272                 | -                    |
| Supply Fan           | Outlet   | 92.3               | 0.00013                   | 7070          | 606             | 0                      | -                    |
| Cold Supply Duct     | Outlet   | 92.3               | 0.00013                   | 7070          | 606             | -                      | -                    |
| Zone Air             | -        | 68.6               | 0.00013                   | 7070          | 616             | -159161                | 0                    |
| Return Plenum        | Outlet   | 68.6               | 0.00013                   | 7070          | 616             | 0                      | -                    |

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 0.948 BTU/(hr-CFM-F)  
Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4167.5 BTU/(hr-CFM)  
Site Altitude = 3556.0 ft

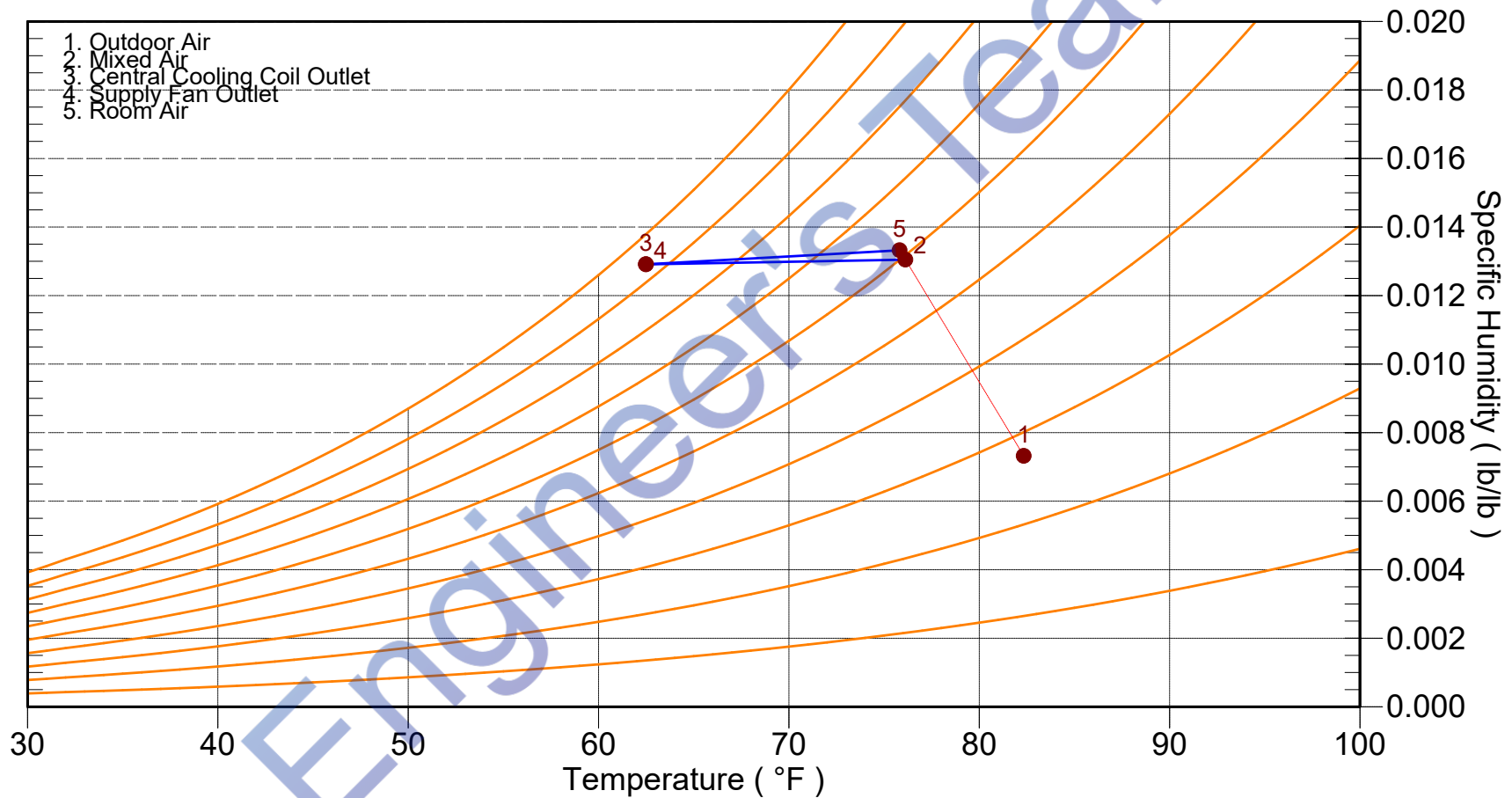
TABLE 2: ZONE DATA

| Zone Name | Zone Sensible Load (BTU/hr) | T-stat Mode | Zone Cond (BTU/hr) | Zone Temp (°F) | Zone Airflow (CFM) | CO2 Level (ppm) | Terminal Heating Coil (BTU/hr) | Zone Heating Unit (BTU/hr) |
|-----------|-----------------------------|-------------|--------------------|----------------|--------------------|-----------------|--------------------------------|----------------------------|
| Zone 1    | -166231                     | Heating     | -159161            | 68.6           | 7070               | 616             | 0                              | 0                          |

Location: Beaumont, Alberta

Altitude: 3556.0 ft.

Data for: July DESIGN COOLING DAY, 1600



Location: Beaumont, Alberta  
Altitude: 3556.0 ft.  
Data for: WINTER DESIGN HEATING

