

File No.: 19-1101  
May 14<sup>th</sup> , 2019

**Town of Milton**  
**150 Mary Street, Milton,**  
**ON, L9T 6Z5**

470 Bronte St. S,  
Milton, ON

Subject:

### Heat Load & Ventilation Requirements Calculations

Outside design temperature:

Based on Ontario Building Code (O.Reg 360/06) 2012, Supplementary Standard SB-1, Climatic data Ontario, as following:

| Design condition    |                     |
|---------------------|---------------------|
| Winter - Jan @ 2.5% | Summer - Jul @ 2.5% |
| -18 °C              | 30 °C               |

Ventilation requirement: calculation in accordance with ASHRAE 62.1.

Please see attached calculation for the abovementioned building.

Sincerely,



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Safaa Alhamadani, P.Eng.



Attachment list:  
Page 1: HEATING/COOLING DESIGN SUMMARY (HVAC)  
Page 2: MECHANICAL DRAWINGS

## Ventilation Sizing Summary for RTU-E

Project Name: 19-1101 - BRONTE ST  
Prepared by: CCCEI

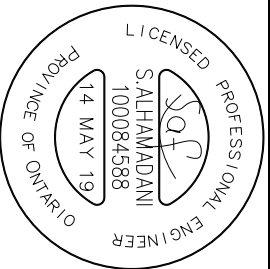
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### 1. Summary

Ventilation Sizing Method ..... Sum of Space OA Airflows  
Design Ventilation Airflow Rate ..... 311 CFM

### 2. Space Ventilation Analysis Table

| Zone Name / Space Name                  | Mult. | Floor Area (ft <sup>2</sup> ) | Maximum Occupants | Maximum Supply Air (CFM) | Required Outdoor Air (CFM/person) | Required Outdoor Air (CFM/ft <sup>2</sup> ) | Required Outdoor Air (CFM) | Required Outdoor Air (% of supply) | Uncorrected Outdoor Air (CFM) |
|---|-------|-------------------------------|-------------------|--------------------------|-----------------------------------|---|----------------------------|------------------------------------|-------------------------------|
| <b>Zone 1</b>                           |       |                               |                   |                          |                                   |   |                            |                                    |                               |
| 200                                     | 1     | 230.0                         | 6.0               | 142.7                    | 5.00                              | 0.06  | 0.0                        | 0.0                                | 43.8                          |
| 201                                     | 1     | 90.0                          | 1.0               | 38.6                     | 5.00                              | 0.06  | 0.0                        | 0.0                                | 10.4                          |
| 202                                     | 1     | 90.0                          | 1.0               | 38.6                     | 5.00                              | 0.06  | 0.0                        | 0.0                                | 10.4                          |
| 203                                     | 1     | 90.0                          | 1.0               | 38.6                     | 5.00                              | 0.06  | 0.0                        | 0.0                                | 10.4                          |
| 204                                     | 1     | 90.0                          | 1.0               | 38.6                     | 5.00                              | 0.06  | 0.0                        | 0.0                                | 10.4                          |
| 205                                     | 1     | 80.0                          | 1.0               | 35.7                     | 5.00                              | 0.06  | 0.0                        | 0.0                                | 9.8                           |
| 206                                     | 1     | 130.0                         | 1.0               | 50.1                     | 5.00                              | 0.06  | 0.0                        | 0.0                                | 12.8                          |
| 209                                     | 1     | 290.0                         | 8.0               | 444.7                    | 5.00                              | 0.06  | 0.0                        | 0.0                                | 57.4                          |
| 210                                     | 1     | 350.0                         | 5.0               | 912.9                    | 5.00                              | 0.06  | 0.0                        | 0.0                                | 46.0                          |
| 212                                     | 1     | 60.0                          | 1.0               | 30.0                     | 5.00                              | 0.06  | 0.0                        | 0.0                                | 8.6                           |
| 213                                     | 1     | 115.0                         | 2.0               | 58.6                     | 5.00                              | 0.06  | 0.0                        | 0.0                                | 16.9                          |
| 214                                     | 1     | 115.0                         | 1.0               | 45.8                     | 5.00                              | 0.06  | 0.0                        | 0.0                                | 11.9                          |
| 215                                     | 1     | 245.0                         | 4.0               | 121.5                    | 5.00                              | 0.06  | 0.0                        | 0.0                                | 34.7                          |
| 216                                     | 1     | 115.0                         | 0.0               | 33.0                     | 0.00                              | 0.06  | 0.0                        | 0.0                                | 6.9                           |
| COORRIDOR 1                             | 1     | 80.0                          | 0.0               | 23.0                     | 0.00                              | 0.06  | 0.0                        | 0.0                                | 4.8                           |
| COORRIDOR 2                             | 1     | 270.0                         | 0.0               | 77.5                     | 0.00                              | 0.06  | 0.0                        | 0.0                                | 16.2                          |
| <b>Totals (incl. Space Multipliers)</b> |       |                               |                   | <b>2129.9</b>            |                                   |   |                            |                                    | <b>311.4</b>                  |



## Air System Design Load Summary for RTU-E

Project Name: 19-1101 - BRONTE ST  
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|                                    | DESIGN COOLING   |                          |                        | DESIGN HEATING   |                          |                        |
|------------------------------------|--|--------------------------|------------------------|--|--------------------------|------------------------|
|                                    | COOLING DATA AT Jul 1700   |                          |                        | HEATING DATA AT DES HTG  |                          |                        |
|                                    | COOLING OA DB / WB 85.0 °F / 70.4 °F                                   |                          |                        | HEATING OA DB / WB -4.0 °F / -5.3 °F                                   |                          |                        |
| <b>ZONE LOADS</b>                  | <b>Details</b>   | <b>Sensible (BTU/hr)</b> | <b>Latent (BTU/hr)</b> | <b>Details</b>   | <b>Sensible (BTU/hr)</b> | <b>Latent (BTU/hr)</b> |
| Window & Skylight Solar Loads      | 343 ft²  | 16234                    | -                      | 343 ft²  | -                        | -                      |
| Wall Transmission                  | 425 ft²  | 286                      | -                      | 425 ft²  | 1329                     | -                      |
| Roof Transmission                  | 2440 ft²   | 3228                     | -                      | 2440 ft²   | 4660                     | -                      |
| Window Transmission                | 343 ft²  | 1503                     | -                      | 343 ft²  | 14925                    | -                      |
| Skylight Transmission              | 0 ft²  | 0                        | -                      | 0 ft²  | 0                        | -                      |
| Door Loads                         | 0 ft²  | 0                        | -                      | 0 ft²  | 0                        | -                      |
| Floor Transmission                 | 0 ft²  | 0                        | -                      | 0 ft²  | 0                        | -                      |
| Partitions                         | 0 ft²  | 0                        | -                      | 0 ft²  | 0                        | -                      |
| Ceiling                            | 0 ft²  | 0                        | -                      | 0 ft²  | 0                        | -                      |
| Overhead Lighting                  | 2440 W   | 8325                     | -                      | 0  | 0                        | -                      |
| Task Lighting                      | 0 W  | 0                        | -                      | 0  | 0                        | -                      |
| Electric Equipment                 | 0 W  | 0                        | -                      | 0  | 0                        | -                      |
| People                             | 33   | 7590                     | 3960                   | 0  | 0                        | 0                      |
| Infiltration                       | -  | 0                        | 0                      | -  | 0                        | 0                      |
| Miscellaneous                      | -  | 0                        | 0                      | -  | 0                        | 0                      |
| Safety Factor                      | 0% / 0%  | 0                        | 0                      | 0%   | 0                        | 0                      |
| <b>&gt;&gt; Total Zone Loads</b>   | -  | <b>37165</b>             | <b>3960</b>            | -  | <b>20914</b>             | <b>0</b>               |
| Zone Conditioning                  | -  | 36706                    | 3960                   | -  | 20967                    | 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                    | 2130 CFM   | 0                        | -                      | 2130 CFM   | 0                        | -                      |
| Ventilation Load                   | 311 CFM  | 2945                     | 2972                   | 311 CFM  | 24237                    | 0                      |
| Supply Fan Load                    | 2130 CFM   | 0                        | -                      | 2130 CFM   | 0                        | -                      |
| Space Fan Coil Fans                | -  | 0                        | -                      | -  | 0                        | -                      |
| Duct Heat Gain / Loss              | 0%   | 0                        | -                      | 0%   | 0                        | -                      |
| <b>&gt;&gt; Total System Loads</b> | -  | <b>39651</b>             | <b>6932</b>            | -  | <b>45203</b>             | <b>0</b>               |
| Central Cooling Coil               | -  | 39651                    | 6934                   | -  | 0                        | 0                      |
| Central Heating Coil               | -  | 0                        | -                      | -  | 45203                    | -                      |
| <b>&gt;&gt; Total Conditioning</b> | -  | <b>39651</b>             | <b>6934</b>            | -  | <b>45203</b>             | <b>0</b>               |
| <b>Key:</b>                        | <b>Positive values are clg loads<br/>Negative values are htg loads</b> |                          |                        | <b>Positive values are htg loads<br/>Negative values are clg loads</b> |                          |                        |

