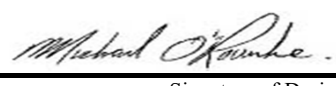


## Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                     |                                                                                                               |                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------------------|
| <b>A. Project Information</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                     |                                                                                                               |                                      |
| Building number, street name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                     | Unit no.                                                                                                      | Lot/con.                             |
| Municipality<br>VAUGHAN (WOODBIDGE)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Postal code                         | Plan number/ other description                                                                                |                                      |
| <b>B. Individual who reviews and takes responsibility for design activities</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                     |                                                                                                               |                                      |
| Name<br><b>MICHAEL O'ROURKE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                     | Firm<br><b>HVAC DESIGNS LTD.</b>                                                                              |                                      |
| Street address<br><b>375 FINLEY AVE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                     | Unit no.<br><b>202</b>                                                                                        | Lot/con.<br><b>N/A</b>               |
| Municipality<br><b>AJAX</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Postal code<br><b>L1S 2E2</b>       | Province<br><b>ONTARIO</b>                                                                                    | E-mail<br><b>info@hvacdesigns.ca</b> |
| Telephone number<br><b>(905) 619-2300</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Fax number<br><b>(905) 619-2375</b> | Cell number<br>( )                                                                                            |                                      |
| <b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                     |                                                                                                               |                                      |
| <input type="checkbox"/> House<br><input type="checkbox"/> Small Buildings<br><input type="checkbox"/> Large Buildings<br><input type="checkbox"/> Complex Buildings <input checked="" type="checkbox"/> HVAC – House<br><input type="checkbox"/> Building Services<br><input type="checkbox"/> Detection, Lighting and Power<br><input type="checkbox"/> Fire Protection <input type="checkbox"/> Building Structural<br><input type="checkbox"/> Plumbing – House<br><input type="checkbox"/> Plumbing – All Buildings<br><input type="checkbox"/> On-site Sewage Systems |                                     |                                                                                                               |                                      |
| Description of designer's work<br><b>HEAT LOSS / GAIN CALCULATIONS<br/>DUCT SIZING<br/>RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY<br/>RESIDENTIAL SYSTEM DESIGN per CSA-F280-12</b>                                                                                                                                                                                                                                                                                                                                                                                  |                                     | <b>Model:</b> 4003 THE BROOKSIDE<br><br><b>Project:</b> PINE VALLEY & TESTON                                  |                                      |
| <b>D. Declaration of Designer</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                     |                                                                                                               |                                      |
| I, <u><b>MICHAEL O'ROURKE</b></u> declare that (choose one as appropriate):<br>(print name)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                     |                                                                                                               |                                      |
| <input type="checkbox"/> I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.<br><br>Individual BCIN: _____<br>Firm BCIN: _____                                                                                                                                                                                                                                                              |                                     |                                                                                                               |                                      |
| <input checked="" type="checkbox"/> I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code.<br><br>Individual BCIN: <u>19669</u><br>Basis for exemption from registration and qualification: <u>O.B.C SENTENCE 3.2.4.1 (4)</u>                                                                                                                                                                                                                     |                                     |                                                                                                               |                                      |
| <input type="checkbox"/> The design work is exempt from the registration and qualification requirements of the Building Code.<br>Basis for exemption from registration and qualification: _____                                                                                                                                                                                                                                                                                                                                                                             |                                     |                                                                                                               |                                      |
| I certify that:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                     |                                                                                                               |                                      |
| 1. The information contained in this schedule is true to the best of my knowledge.<br>2. I have submitted this application with the knowledge and consent of the firm.                                                                                                                                                                                                                                                                                                                                                                                                      |                                     |                                                                                                               |                                      |
| February 26, 2020                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                     | <br>Signature of Designer |                                      |
| Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                     |                                                                                                               |                                      |

**NOTE:**

- For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) d) of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
- Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of authorization, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

**Application for a Permit Construct or Demolish – Effective January 1, 2015**

| SITE NAME: PINE VALLEY & TESTON |  |           |       |      |      |           |     |      |     | DATE: Feb-20             |     |      |     |           |     |      |     |           |     | WINTER NATURAL AIR CHANGE RATE 0.341 |     |           |     |      |   |           |   |   |   | HEAT LOSS ΔT °F. 76 |   |  |  |     |  |  |  |  |  | CSA-F280-12                          |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
|---------------------------------|--|-----------|-------|------|------|-----------|-----|------|-----|--------------------------|-----|------|-----|-----------|-----|------|-----|-----------|-----|--------------------------------------|-----|-----------|-----|------|---|-----------|---|---|---|---------------------|---|--|--|-----|--|--|--|--|--|--------------------------------------|--|--|--|--|--|--|--|--|--|---------------------|--|--|--|--|--|--|--|--|--|------------------|--|--|--|--|--|--|--|--|--|
| BUILDER: GOLD PARKHOMES         |  |           |       |      |      |           |     |      |     | TYPE: 4003 THE BROOKSIDE |     |      |     |           |     |      |     |           |     | GFA: 3296                            |     |           |     |      |   |           |   |   |   | LO# 77458           |   |  |  |     |  |  |  |  |  | SUMMER NATURAL AIR CHANGE RATE 0.124 |  |  |  |  |  |  |  |  |  | HEAT GAIN ΔT °F. 16 |  |  |  |  |  |  |  |  |  | SB-12 PACKAGE A1 |  |  |  |  |  |  |  |  |  |
| ROOM USE                        |  | MBR       |       |      |      | ENS       |     |      |     | WIC                      |     |      |     | BED-2     |     |      |     | BED-3     |     |                                      |     | BED-4     |     |      |   | BATH      |   |   |   | ENS-2               |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| EXP. WALL                       |  | 33        |       |      |      | 25        |     |      |     | 5                        |     |      |     | 13        |     |      |     | 15        |     |                                      |     | 12        |     |      |   | 7         |   |   |   | 8                   |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| CLG. HT.                        |  | 9         |       |      |      | 9         |     |      |     | 9                        |     |      |     | 9         |     |      |     | 9         |     |                                      |     | 9         |     |      |   | 9         |   |   |   | 9                   |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| FACTORS                         |  |           |       |      |      |           |     |      |     |                          |     |      |     |           |     |      |     |           |     |                                      |     |           |     |      |   |           |   |   |   |                     |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| GRS.WALL AREA                   |  | LOSS      |       | GAIN |      | 300       |     | 228  |     | 46                       |     | 118  |     | 137       |     | 109  |     | 64        |     | 73                                   |     |           |     |      |   |           |   |   |   |                     |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| GLAZING                         |  |           |       |      |      | LOSS      |     | GAIN |     | LOSS                     |     | GAIN |     | LOSS      |     | GAIN |     | LOSS      |     | GAIN                                 |     | LOSS      |     | GAIN |   |           |   |   |   |                     |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| NORTH                           |  | 21.3      | 16.8  | 0    | 0    | 0         | 0   | 0    | 0   | 0                        | 0   | 0    | 17  | 362       | 286 | 0    | 0   | 0         | 0   | 0                                    | 0   | 8         | 170 | 135  |   |           |   |   |   |                     |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| EAST                            |  | 21.3      | 42.4  | 0    | 0    | 0         | 0   | 0    | 0   | 0                        | 0   | 0    | 0   | 0         | 0   | 0    | 0   | 0         | 0   | 0                                    | 0   | 0         | 0   | 0    |   |           |   |   |   |                     |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| SOUTH                           |  | 21.3      | 25.7  | 0    | 0    | 0         | 9   | 192  | 232 | 0                        | 0   | 0    | 0   | 0         | 0   | 18   | 383 | 463       | 17  | 362                                  | 438 | 0         | 0   | 0    |   |           |   |   |   |                     |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| WEST                            |  | 21.3      | 42.4  | 34   | 724  | 1441      | 17  | 362  | 721 | 0                        | 0   | 0    | 0   | 0         | 0   | 0    | 0   | 0         | 0   | 0                                    | 0   | 0         | 0   | 0    |   |           |   |   |   |                     |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| SKYLT.                          |  | 37.2      | 103.0 | 0    | 0    | 0         | 0   | 0    | 0   | 0                        | 0   | 0    | 0   | 0         | 0   | 0    | 0   | 0         | 0   | 0                                    | 0   | 0         | 0   |      |   |           |   |   |   |                     |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| DOORS                           |  | 25.2      | 5.2   | 0    | 0    | 0         | 0   | 0    | 0   | 0                        | 0   | 0    | 0   | 0         | 0   | 0    | 0   | 0         | 0   | 0                                    | 0   | 0         | 0   |      |   |           |   |   |   |                     |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| NET EXPOSED WALL                |  | 4.5       | 0.9   | 266  | 1188 | 247       | 202 | 899  | 187 | 46                       | 203 | 42   | 101 | 452       | 94  | 119  | 529 | 110       | 92  | 411                                  | 86  | 64        | 284 | 59   |   |           |   |   |   |                     |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| NET EXPOSED BSMT WALL ABOVE GR  |  | 3.6       | 0.7   | 0    | 0    | 0         | 0   | 0    | 0   | 0                        | 0   | 0    | 0   | 0         | 0   | 0    | 0   | 0         | 0   | 0                                    | 0   | 0         | 0   |      |   |           |   |   |   |                     |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| EXPOSED CLG                     |  | 1.3       | 0.6   | 290  | 372  | 185       | 156 | 200  | 100 | 70                       | 90  | 45   | 234 | 300       | 149 | 195  | 250 | 124       | 166 | 213                                  | 106 | 98        | 126 | 63   |   |           |   |   |   |                     |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| NO ATTIC EXPOSED CLG            |  | 2.7       | 1.4   | 0    | 0    | 0         | 0   | 0    | 0   | 0                        | 0   | 0    | 0   | 0         | 0   | 0    | 0   | 0         | 0   | 0                                    | 0   | 0         | 0   |      |   |           |   |   |   |                     |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| EXPOSED FLOOR                   |  | 2.6       | 0.5   | 0    | 0    | 0         | 0   | 0    | 0   | 0                        | 0   | 0    | 0   | 0         | 0   | 0    | 0   | 0         | 0   | 0                                    | 0   | 0         | 0   |      |   |           |   |   |   |                     |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| BASEMENT/CRAWL HEAT LOSS        |  | 0         |       |      |      | 0         |     |      |     | 0                        |     |      |     | 0         |     |      |     | 0         |     |                                      |     | 0         |     |      |   | 0         |   |   |   |                     |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| SLAB ON GRADE HEAT LOSS         |  | 0         |       |      |      | 0         |     |      |     | 0                        |     |      |     | 0         |     |      |     | 0         |     |                                      |     | 0         |     |      |   | 0         |   |   |   |                     |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| SUBTOTAL HT LOSS                |  | 2284      |       |      |      | 1653      |     |      |     | 293                      |     |      |     | 1114      |     |      |     | 1162      |     |                                      |     | 986       |     |      |   | 410       |   |   |   | 542                 |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| SUB TOTAL HT GAIN               |  |           |       |      |      | 1874      |     |      |     | 1239                     |     |      |     | 87        |     |      |     | 529       |     |                                      |     | 698       |     |      |   | 629       |   |   |   | 122                 |   |  |  | 235 |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| LEVEL FACTOR / MULTIPLIER       |  | 0.20 0.32 |       |      |      | 0.20 0.32 |     |      |     | 0.20 0.32                |     |      |     | 0.20 0.32 |     |      |     | 0.20 0.32 |     |                                      |     | 0.20 0.32 |     |      |   | 0.20 0.32 |   |   |   | 0.20 0.32           |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| AIR CHANGE HEAT LOSS            |  | 737       |       |      |      | 533       |     |      |     | 95                       |     |      |     | 360       |     |      |     | 375       |     |                                      |     | 318       |     |      |   | 132       |   |   |   | 175                 |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| AIR CHANGE HEAT GAIN            |  |           |       |      |      | 203       |     |      |     | 134                      |     |      |     | 9         |     |      |     | 57        |     |                                      |     | 76        |     |      |   | 68        |   |   |   | 13                  |   |  |  | 26  |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| DUCT LOSS                       |  | 0         |       |      |      | 0         |     |      |     | 0                        |     |      |     | 0         |     |      |     | 0         |     |                                      |     | 0         |     |      |   | 0         |   |   |   | 0                   |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| DUCT GAIN                       |  | 0         |       |      |      | 0         |     |      |     | 0                        |     |      |     | 0         |     |      |     | 0         |     |                                      |     | 0         |     |      |   | 0         |   |   |   | 0                   |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| HEAT GAIN PEOPLE                |  | 240       | 2     |      |      | 480       | 0   | 0    | 0   | 0                        | 0   | 1    | 240 | 1         | 240 | 1    | 240 | 1         | 240 | 0                                    | 0   | 0         | 0   | 0    | 0 | 0         | 0 | 0 | 0 | 0                   | 0 |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| HEAT GAIN APPLIANCES/LIGHTS     |  |           |       |      |      | 683       |     |      |     | 0                        |     |      |     | 0         |     |      |     | 683       |     |                                      |     | 683       |     |      |   | 683       |   |   |   | 0                   |   |  |  | 0   |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| TOTAL HT LOSS BTU/H             |  | 3021      |       |      |      | 2186      |     |      |     | 387                      |     |      |     | 1474      |     |      |     | 1537      |     |                                      |     | 1305      |     |      |   | 542       |   |   |   | 716                 |   |  |  |     |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |
| TOTAL HT GAIN x 1.3 BTU/H       |  |           |       |      |      | 4212      |     |      |     | 1785                     |     |      |     | 125       |     |      |     | 1963      |     |                                      |     | 2206      |     |      |   | 2107      |   |   |   | 175                 |   |  |  | 339 |  |  |  |  |  |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                  |  |  |  |  |  |  |  |  |  |

| ROOM USE                       |            | MEDIA        |      | DIN         |      | KT/GR         |      | STDY       |      | W/R         |     | FOY          |      | MUD          |     | LOD         |      | BAS          |      |
|--------------------------------|------------|--------------|------|-------------|------|---------------|------|------------|------|-------------|-----|--------------|------|--------------|-----|-------------|------|--------------|------|
| EXP. WALL                      |            | 40           |      | 23          |      | 70            |      | 11         |      | 12          |     | 43           |      | 25           |     | 42          |      | 182          |      |
| CLG. HT.                       |            | 14           |      | 11          |      | 11            |      | 11         |      | 11          |     | 11           |      | 12           |     | 10          |      | 10           |      |
| FACTORS                        |            |              |      |             |      |               |      |            |      |             |     |              |      |              |     |             |      |              |      |
| GRS.WALL AREA                  | LOSS GAIN  | 560          |      | 253         |      | 770           |      | 121        |      | 132         |     | 473          |      | 300          |     | 420         |      | 1526         |      |
| GLAZING                        | LOSS GAIN  |              |      |             |      |               |      |            |      |             |     |              |      |              |     |             |      |              |      |
| NORTH                          | 21.3 16.8  | 0 0 0        |      | 0 0 0       |      | 0 0 0         |      | 32 681 538 |      | 0 0 0       |     | 0 0 0        |      | 9 192 151    |     | 0 0 0       |      | 3 64 50      |      |
| EAST                           | 21.3 42.4  | 55 1170 2332 |      | 0 0 0       |      | 0 0 0         |      | 0 0 0      |      | 0 0 0       |     | 42 894 1780  |      | 0 0 0        |     | 0 0 0       |      | 0 0 0        |      |
| SOUTH                          | 21.3 25.7  | 0 0 0        |      | 34 724 875  |      | 0 0 0         |      | 0 0 0      |      | 0 0 0       |     | 23 489 592   |      | 0 0 0        |     | 0 0 0       |      | 3 64 77      |      |
| WEST                           | 21.3 42.4  | 0 0 0        |      | 0 0 0       |      | 118 2511 5002 |      | 0 0 0      |      | 0 0 0       |     | 0 0 0        |      | 0 0 0        |     | 30 638 1272 |      | 0 0 0        |      |
| SKYLT.                         | 37.2 103.0 | 0 0 0        |      | 0 0 0       |      | 0 0 0         |      | 0 0 0      |      | 0 0 0       |     | 0 0 0        |      | 0 0 0        |     | 0 0 0       |      | 0 0 0        |      |
| DOORS                          | 25.2 5.2   | 10 252 52    |      | 0 0 0       |      | 0 0 0         |      | 0 0 0      |      | 0 0 0       |     | 40 1010 210  |      | 20 505 105   |     | 0 0 0       |      | 20 505 105   |      |
| NET EXPOSED WALL               | 4.5 0.9    | 495 2209 459 |      | 219 977 203 |      | 652 2910 605  |      | 89 397 83  |      | 132 589 122 |     | 368 1642 341 |      | 271 1209 251 |     | 0 0 0       |      | 0 0 0        |      |
| NET EXPOSED BSMT WALL ABOVE GR | 3.6 0.7    | 0 0 0        |      | 0 0 0       |      | 0 0 0         |      | 0 0 0      |      | 0 0 0       |     | 0 0 0        |      | 0 0 0        |     | 222 799 166 |      | 294 1058 220 |      |
| EXPOSED CLG                    | 1.3 0.6    | 365 468 233  |      | 0 0 0       |      | 0 0 0         |      | 0 0 0      |      | 0 0 0       |     | 0 0 0        |      | 0 0 0        |     | 0 0 0       |      | 0 0 0        |      |
| NO ATTIC EXPOSED CLG           | 2.7 1.4    | 79 217 108   |      | 0 0 0       |      | 0 0 0         |      | 0 0 0      |      | 0 0 0       |     | 156 429 213  |      | 0 0 0        |     | 0 0 0       |      | 0 0 0        |      |
| EXPOSED FLOOR                  | 2.6 0.5    | 444 1132 235 |      | 0 0 0       |      | 0 0 0         |      | 0 0 0      |      | 0 0 0       |     | 0 0 0        |      | 0 0 0        |     | 0 0 0       |      | 0 0 0        |      |
| BASEMENT/CRAWL HEAT LOSS       |            | 0            |      | 0           |      | 0             |      | 0          |      | 0           |     | 0            |      | 0            |     | 0           |      | 6069         |      |
| SLAB ON GRADE HEAT LOSS        |            | 0            |      | 0           |      | 0             |      | 0          |      | 0           |     | 0            |      | 0            |     | 0           |      | 0            |      |
| SUBTOTAL HT LOSS               |            | 5450         |      | 1701        |      | 5421          |      | 1078       |      | 589         |     | 4464         |      | 1906         |     | 1437        |      | 7760         |      |
| SUB TOTAL HT GAIN              |            |              | 3420 |             | 1078 |               | 5607 |            | 621  |             | 122 |              | 3137 |              | 508 |             | 1438 |              | 453  |
| LEVEL FACTOR / MULTIPLIER      | 0.20 0.32  |              |      | 0.30 0.44   |      | 0.30 0.44     |      | 0.30 0.44  |      | 0.30 0.44   |     | 0.30 0.44    |      | 0.30 0.44    |     |             |      | 0.50 1.22    |      |
| AIR CHANGE HEAT LOSS           |            | 1759         |      | 755         |      | 2405          |      | 478        |      | 261         |     | 1981         |      | 846          |     |             |      | 11211        |      |
| AIR CHANGE HEAT GAIN           |            |              | 370  |             | 117  |               | 607  |            | 67   |             | 13  |              | 340  |              | 55  |             |      | 205          |      |
| DUCT LOSS                      |            | 721          |      | 0           |      | 0             |      | 0          |      | 0           |     | 0            |      | 0            |     |             |      | 0            |      |
| DUCT GAIN                      |            | 447          |      | 0           |      | 0             |      | 0          |      | 0           |     | 0            |      | 0            |     |             |      | 0            |      |
| HEAT GAIN PEOPLE               | 240        | 0            | 0    | 0           | 0    | 0             | 0    | 0          | 0    | 0           | 0   | 0            | 0    | 0            | 0   | 0           | 0    | 0            | 0    |
| HEAT GAIN APPLIANCES/LIGHTS    |            |              | 683  |             | 683  |               | 683  |            | 683  |             | 0   |              | 0    |              | 0   |             | 0    | 683          |      |
| TOTAL HT LOSS BTU/H            |            | 7930         |      | 2456        |      | 7826          |      | 1557       |      | 850         |     | 6445         |      | 2752         |     | 1437        |      | 18971        |      |
| TOTAL HT GAIN x 1.3 BTU/H      |            |              | 6397 |             | 2442 |               | 8967 |            | 1782 |             | 176 |              | 4520 |              | 732 |             | 1869 |              | 1743 |

TOTAL HEAT GAIN BTU/H: 42201

TONS: 3.52

LOSS DUE TO VENTILATION LOAD BTU/H: 3181

STRUCTURAL HEAT LOSS: 61393

TOTAL COMBINED HEAT LOSS BTU/H: 64573



SITE NAME: PINE VALLEY & TESTON  
BUILDER: GOLD PARKHOMES

TYPE: 4003 THE BROOKSIDE

DATE: Feb-20

GFA: 3296

LO# 77458

HEATING CFM 1255 COOLING CFM 1255  
TOTAL HEAT LOSS 61,393 TOTAL HEAT GAIN 41,540  
AIR FLOW RATE CFM 20.44 AIR FLOW RATE CFM 30.21

furnace pressure 0.6  
furnace filter 0.05  
a/c coil pressure 0.2  
available pressure  
for s/a & r/a 0.35

**EL296UH090XE48C**  
**^LENNOX**  
**90**

AFUE = 96 %  
INPUT (BTU/H) = 88,000  
OUTPUT (BTU/H) = 85,000

| RUN COUNT | 4th | 3rd | 2nd | 1st | Bas |
|-----------|-----|-----|-----|-----|-----|
| S/A       | 0   | 0   | 12  | 10  | 5   |
| R/A       | 0   | 0   | 6   | 2   | 1   |

plenium pressure s/a 0.18  
max s/a dif press. loss 0.02  
min adjusted pressure s/a 0.16

r/a pressure 0.17  
r/a grille press. Loss 0.02  
adjusted pressure r/a 0.15

FAN SPEED  
LOW 0  
MEDLOW 0  
MEDIUM 1105  
MEDIUM HIGH 1255  
HIGH 1525

DESIGN CFM = 1255  
CFM @ .6" E.S.P.

TEMPERATURE RISE 63 °F

All S/A diffusers 4"x10" unless noted otherwise on layout.  
All S/A runs 5"Ø unless noted otherwise on layout.

| RUN #                     | 1    | 2    | 3    | 4     | 5     | 6     | 7    | 8     | 9     | 10   | 11    | 12   | 14    | 15    | 16    | 17   | 18   | 19   | 20    | 21   | 23   | 24    |
|---------------------------|------|------|------|-------|-------|-------|------|-------|-------|------|-------|------|-------|-------|-------|------|------|------|-------|------|------|-------|
| ROOM NAME                 | MBR  | ENS  | WIC  | BED-2 | BED-3 | BED-4 | BATH | MEDIA | MEDIA | MBR  | ENS-2 | DIN  | KT/GR | KT/GR | KT/GR | MUD  | W/R  | FOY  | MEDIA | STDY | FOY  | KT/GR |
| RM LOSS MBH               | 1.51 | 2.19 | 0.39 | 1.47  | 1.54  | 1.30  | 0.54 | 2.64  | 2.64  | 1.51 | 0.72  | 2.46 | 1.96  | 1.96  | 1.96  | 2.75 | 0.85 | 3.22 | 2.64  | 1.56 | 3.22 | 1.96  |
| CFM PER RUN HEAT          | 31   | 45   | 8    | 30    | 31    | 27    | 11   | 54    | 54    | 31   | 15    | 50   | 40    | 40    | 40    | 56   | 17   | 66   | 54    | 32   | 66   | 40    |
| RM GAIN MBH               | 2.11 | 1.78 | 0.13 | 1.96  | 2.21  | 2.11  | 0.18 | 2.13  | 2.13  | 2.11 | 0.34  | 2.44 | 2.24  | 2.24  | 2.24  | 0.73 | 0.18 | 2.26 | 2.13  | 1.78 | 2.26 | 2.24  |
| CFM PER RUN COOLING       | 64   | 54   | 4    | 59    | 67    | 64    | 5    | 64    | 64    | 64   | 10    | 74   | 68    | 68    | 68    | 22   | 5    | 68   | 64    | 54   | 68   | 68    |
| ADJUSTED PRESSURE         | 0.17 | 0.17 | 0.17 | 0.17  | 0.17  | 0.17  | 0.17 | 0.17  | 0.17  | 0.17 | 0.17  | 0.17 | 0.17  | 0.17  | 0.17  | 0.17 | 0.17 | 0.17 | 0.17  | 0.17 | 0.17 | 0.17  |
| ACTUAL DUCT LGH           | 46   | 55   | 27   | 27    | 47    | 45    | 54   | 56    | 61    | 51   | 27    | 31   | 43    | 36    | 33    | 21   | 29   | 53   | 71    | 11   | 53   | 30    |
| EQUIVALENT LENGTH         | 150  | 140  | 130  | 150   | 120   | 160   | 150  | 175   | 185   | 140  | 260   | 140  | 170   | 160   | 100   | 250  | 120  | 110  | 170   | 130  | 120  | 110   |
| TOTAL EFFECTIVE LENGTH    | 196  | 195  | 157  | 177   | 167   | 205   | 204  | 231   | 246   | 191  | 287   | 171  | 213   | 196   | 133   | 271  | 149  | 163  | 241   | 141  | 173  | 140   |
| ADJUSTED PRESSURE         | 0.09 | 0.09 | 0.11 | 0.1   | 0.1   | 0.08  | 0.08 | 0.07  | 0.07  | 0.09 | 0.06  | 0.1  | 0.08  | 0.09  | 0.13  | 0.06 | 0.12 | 0.11 | 0.07  | 0.12 | 0.1  | 0.12  |
| ROUND DUCT SIZE           | 5    | 5    | 4    | 6     | 6     | 6     | 4    | 5     | 5     | 5    | 4     | 6    | 5     | 5     | 5     | 5    | 4    | 5    | 5     | 5    | 5    | 5     |
| HEATING VELOCITY (ft/min) | 228  | 330  | 92   | 153   | 158   | 138   | 126  | 396   | 396   | 228  | 172   | 255  | 294   | 294   | 294   | 411  | 195  | 485  | 396   | 235  | 485  | 294   |
| COOLING VELOCITY (ft/min) | 470  | 396  | 46   | 301   | 342   | 326   | 57   | 470   | 470   | 470  | 115   | 377  | 499   | 499   | 499   | 162  | 57   | 499  | 470   | 396  | 499  | 499   |
| OUTLET GRILL SIZE         | 3X10 | 3X10 | 3X10 | 4X10  | 4X10  | 4X10  | 3X10 | 3X10  | 3X10  | 3X10 | 3X10  | 4X10 | 3X10  | 3X10  | 3X10  | 3X10 | 3X10 | 3X10 | 3X10  | 3X10 | 3X10 | 3X10  |
| TRUNK                     | A    | B    | B    | B     | D     | B     | D    | C     | C     | A    | B     | B    | A     | A     | A     | B    | D    | C    | C     | B    | C    | A     |

| RUN #                     | 25   | 26   | 27   | 28   | 29   |
|---------------------------|------|------|------|------|------|
| ROOM NAME                 | BAS  | BAS  | BAS  | BAS  | BAS  |
| RM LOSS MBH               | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| CFM PER RUN HEAT          | 83   | 83   | 83   | 83   | 83   |
| RM GAIN MBH               | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 |
| CFM PER RUN COOLING       | 22   | 22   | 22   | 22   | 22   |
| ADJUSTED PRESSURE         | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 |
| ACTUAL DUCT LGH           | 44   | 19   | 23   | 35   | 44   |
| EQUIVALENT LENGTH         | 150  | 160  | 150  | 140  | 110  |
| TOTAL EFFECTIVE LENGTH    | 194  | 179  | 173  | 175  | 154  |
| ADJUSTED PRESSURE         | 0.08 | 0.09 | 0.09 | 0.09 | 0.11 |
| ROUND DUCT SIZE           | 6    | 6    | 6    | 6    | 6    |
| HEATING VELOCITY (ft/min) | 423  | 423  | 423  | 423  | 423  |
| COOLING VELOCITY (ft/min) | 112  | 112  | 112  | 112  | 112  |
| OUTLET GRILL SIZE         | 4X10 | 4X10 | 4X10 | 4X10 | 4X10 |
| TRUNK                     | A    | A    | B    | D    | C    |

**SUPPLY AIR TRUNK SIZE**

|         | TRUNK | STATIC | ROUND | RECT | VELOCITY |     | TRUNK   | STATIC | ROUND | RECT | VELOCITY |
|---------|-------|--------|-------|------|----------|-----|---------|--------|-------|------|----------|
|         | CFM   | PRESS. | DUCT  | DUCT | (ft/min) |     | CFM     | PRESS. | DUCT  | DUCT | (ft/min) |
| TRUNK A | 388   | 0.08   | 9.8   | 12   | x 8      | 582 | TRUNK G | 0      | 0.00  | 0    | 0 x 8 0  |
| TRUNK B | 734   | 0.06   | 13.4  | 20   | x 8      | 661 | TRUNK H | 0      | 0.00  | 0    | 0 x 8 0  |
| TRUNK C | 377   | 0.07   | 10.1  | 12   | x 8      | 566 | TRUNK I | 0      | 0.00  | 0    | 0 x 8 0  |
| TRUNK D | 519   | 0.07   | 11.3  | 16   | x 8      | 584 | TRUNK J | 0      | 0.00  | 0    | 0 x 8 0  |
| TRUNK E | 1255  | 0.06   | 16.4  | 32   | x 8      | 706 | TRUNK K | 0      | 0.00  | 0    | 0 x 8 0  |
| TRUNK F | 0     | 0.00   | 0     | 0    | x 8      | 0   | TRUNK L | 0      | 0.00  | 0    | 0 x 8 0  |

**RETURN AIR TRUNK SIZE**

|         | TRUNK | STATIC | ROUND | RECT |   | VELOCITY |     |
|---------|-------|--------|-------|------|---|----------|-----|
|         | CFM   | PRESS. | DUCT  | DUCT |   | (ft/min) |     |
| TRUNK O | 0     | 0.05   | 0     | 0    | x | 8        | 0   |
| TRUNK P | 0     | 0.05   | 0     | 0    | x | 8        | 0   |
| TRUNK Q | 0     | 0.05   | 0     | 0    | x | 8        | 0   |
| TRUNK R | 0     | 0.05   | 0     | 0    | x | 8        | 0   |
| TRUNK S | 0     | 0.05   | 0     | 0    | x | 8        | 0   |
| TRUNK T | 0     | 0.05   | 0     | 0    | x | 8        | 0   |
| TRUNK U | 0     | 0.05   | 0     | 0    | x | 8        | 0   |
| TRUNK V | 0     | 0.05   | 0     | 0    | x | 8        | 0   |
| TRUNK W | 0     | 0.05   | 0     | 0    | x | 8        | 0   |
| TRUNK X | 1255  | 0.05   | 17.2  | 28   | x | 10       | 645 |
| TRUNK Y | 730   | 0.05   | 14    | 22   | x | 8        | 597 |
| TRUNK Z | 210   | 0.05   | 8.8   | 10   | x | 8        | 378 |
| DROP    | 1255  | 0.05   | 17.2  | 24   | x | 12       | 628 |

| RETURN AIR #       | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9     | 10    | 11    | 12    | 14    | 15    | 16    | 17    | 18    | 19    | 20    | 21    | 23    | 24    |
|--------------------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| AIR VOLUME         | 75   | 75   | 135  | 135  | 75   | 330  | 190  | 45   | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
| PLENUM PRESSURE    | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  |
| ACTUAL DUCT LGH    | 41   | 53   | 45   | 67   | 71   | 26   | 25   | 47   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| EQUIVALENT LENGTH  | 195  | 190  | 185  | 190  | 185  | 145  | 145  | 245  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
| TOTAL EFFECTIVE LH | 236  | 243  | 230  | 257  | 256  | 171  | 170  | 292  | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| ADJUSTED PRESSURE  | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.09 | 0.09 | 0.05 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 |
| ROUND DUCT SIZE    | 5.7  | 5.7  | 7.1  | 7.1  | 5.7  | 9    | 7.3  | 4.9  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
| INLET GRILL SIZE   | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
| INLET GRILL SIZE   | X    | X    | X    | X    | X    | X    | X    | X    | X     | X     | X     | X     | X     | X     | X     | X     | X     | X     | X     | X     | X     | X     |
| INLET GRILL SIZE   | 14   | 14   | 14   | 14   | 14   | 30   | 14   | 14   | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |



TYPE: 4003 THE BROOKSIDE  
SITE NAME: PINE VALLEY & TESTON

LO # 77458

**RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY**

| COMBUSTION APPLIANCES |                                                                               | 9.32.3.1(1) |
|-----------------------|-------------------------------------------------------------------------------|-------------|
| a)                    | <input checked="" type="checkbox"/> Direct vent (sealed combustion) only      |             |
| b)                    | <input type="checkbox"/> Positive venting induced draft (except fireplaces)   |             |
| c)                    | <input type="checkbox"/> Natural draft, B-vent or induced draft gas fireplace |             |
| d)                    | <input type="checkbox"/> Solid Fuel (including fireplaces)                    |             |
| e)                    | <input type="checkbox"/> No Combustion Appliances                             |             |

| HEATING SYSTEM                                 |                                         |
|------------------------------------------------|-----------------------------------------|
| <input checked="" type="checkbox"/> Forced Air | <input type="checkbox"/> Non Forced Air |
| <input type="checkbox"/> Electric Space Heat   |                                         |

| HOUSE TYPE                            |                                                      | 9.32.1(2) |
|---------------------------------------|------------------------------------------------------|-----------|
| <input checked="" type="checkbox"/> I | Type a) or b) appliance only, no solid fuel          |           |
| <input type="checkbox"/> II           | Type I except with solid fuel (including fireplaces) |           |
| <input type="checkbox"/> III          | Any Type c) appliance                                |           |
| <input type="checkbox"/> IV           | Type I, or II with electric space heat               |           |
| <input type="checkbox"/>              | Other: Type I, II or IV no forced air                |           |

| SYSTEM DESIGN OPTIONS                 |                                               | O.N.H.W.P. |
|---------------------------------------|-----------------------------------------------|------------|
| <input type="checkbox"/> 1            | Exhaust only/Forced Air System                |            |
| <input type="checkbox"/> 2            | HRV with Ducting/Forced Air System            |            |
| <input checked="" type="checkbox"/> 3 | HRV Simplified/connected to forced air system |            |
| <input type="checkbox"/> 4            | HRV with Ducting/non forced air system        |            |
| <input type="checkbox"/>              | Part 6 Design                                 |            |

| TOTAL VENTILATION CAPACITY |                                     | 9.32.3.3(1) |
|----------------------------|-------------------------------------|-------------|
| Basement + Master Bedroom  | <u>2</u> @ 21.2 cfm <u>42.4</u> cfm |             |
| Other Bedrooms             | <u>3</u> @ 10.6 cfm <u>31.8</u> cfm |             |
| Kitchen & Bathrooms        | <u>5</u> @ 10.6 cfm <u>53</u> cfm   |             |
| Other Rooms                | <u>5</u> @ 10.6 cfm <u>53.0</u> cfm |             |
| Table 9.32.3.A.            | TOTAL <u>180.2</u> cfm              |             |

| PRINCIPAL VENTILATION CAPACITY REQUIRED |          | 9.32.3.4.(1) |
|-----------------------------------------|----------|--------------|
| 1 Bedroom                               | 31.8 cfm |              |
| 2 Bedroom                               | 47.7 cfm |              |
| 3 Bedroom                               | 63.6 cfm |              |
| 4 Bedroom                               | 79.5 cfm |              |
| 5 Bedroom                               | 95.4 cfm |              |
| TOTAL                                   | 79.5 cfm |              |

| SUPPLEMENTAL VENTILATION CAPACITY |                  | 9.32.3.5. |
|-----------------------------------|------------------|-----------|
| Total Ventilation Capacity        | <u>180.2</u> cfm |           |
| Less Principal Ventil. Capacity   | <u>155</u> cfm   |           |
| Required Supplemental Capacity    | <u>25.2</u> cfm  |           |

| PRINCIPAL EXHAUST FAN CAPACITY |                                                                   |
|--------------------------------|-------------------------------------------------------------------|
| Model: VANEE 65H               | Location: BSMT                                                    |
| <u>155.0</u> cfm               | <u>3.0</u> sones <input checked="" type="checkbox"/> HVI Approved |

| PRINCIPAL EXHAUST HEAT LOSS CALCULATION |               |        |        |      |
|-----------------------------------------|---------------|--------|--------|------|
| CFM                                     | $\Delta T$ °F | FACTOR | % LOSS |      |
| 155.0 CFM                               | X 76 F        | X 1.08 | X      | 0.25 |

| SUPPLEMENTAL FANS |           | NUTONE |                                     |       |
|-------------------|-----------|--------|-------------------------------------|-------|
| Location          | Model     | cfm    | HVI                                 | Sones |
| ENS               | QTXEN050C | 50     | <input checked="" type="checkbox"/> | 0.3   |
| BATH              | QTXEN050C | 50     | <input checked="" type="checkbox"/> | 0.3   |
| ENS-2             | QTXEN050C | 50     | <input checked="" type="checkbox"/> | 0.3   |
| W/R               | QTXEN050C | 50     | <input checked="" type="checkbox"/> | 0.3   |

| HEAT RECOVERY VENTILATOR                              |                                                  | 9.32.3.11. |
|-------------------------------------------------------|--------------------------------------------------|------------|
| Model: VANEE 65H                                      |                                                  |            |
| <u>155</u> cfm high                                   | <u>64</u> cfm low                                |            |
| <u>75</u> % Sensible Efficiency @ 32 deg F ( 0 deg C) | <input checked="" type="checkbox"/> HVI Approved |            |

| LOCATION OF INSTALLATION |                   |
|--------------------------|-------------------|
| Lot:                     | Concession        |
| Township                 | Plan:             |
| Address                  |                   |
| Roll #                   | Building Permit # |

| BUILDER:       |        |
|----------------|--------|
| GOLD PARKHOMES |        |
| Name:          |        |
| Address:       |        |
| City:          |        |
| Telephone #:   | Fax #: |

| INSTALLING CONTRACTOR |        |
|-----------------------|--------|
| Name:                 |        |
| Address:              |        |
| City:                 |        |
| Telephone #:          | Fax #: |

| DESIGNER CERTIFICATION                                                                                        |                         |
|---------------------------------------------------------------------------------------------------------------|-------------------------|
| I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code. |                         |
| Name:                                                                                                         | HVAC Designs Ltd.       |
| Signature:                                                                                                    | <i>Michael O'Rourke</i> |
| HRAI #                                                                                                        | 001820                  |
| Date:                                                                                                         | February-20             |

| CSA F280-12 Residential Heat Loss and Heat Gain Calculations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                           |                                                           |                                                                                                                                                                    |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-------------------|--------------|------|------|----|-------|-------|------|----|-------|--------|------|---|---------|-------|---|---|---|--------|---|---|---|--------|--|--|--------------|--------|--|--|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------|-------|--------------------------------|-------|-------------------------------|--|--|--|--|--|--------|---------|-------|-------|-------------|----|-----|----|----|-------------|----|----|---|----|
| Formula Sheet (For Air Leakage / Ventilation Calculation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                           |                                                           |                                                                                                                                                                    |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| LO#: 77458                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Model: 4003 THE BROOKSIDE | Builder: GOLD PARKHOMES                                   | Date: 2020-02-26                                                                                                                                                   |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| <b>Volume Calculation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                           |                                                           | <b>Air Change &amp; Delta T Data</b>                                                                                                                               |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| <b>House Volume</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> </thead> <tbody> <tr> <td>Bsmt</td> <td>1530</td> <td>10</td> <td>15300</td> </tr> <tr> <td>First</td> <td>1530</td> <td>11</td> <td>16830</td> </tr> <tr> <td>Second</td> <td>1782</td> <td>9</td> <td>16216.2</td> </tr> <tr> <td>Third</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td>Fourth</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>48,346.2 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>1369.0 m³</td> </tr> </tbody> </table> |                           |                                                           | Level                                                                                                                                                              | Floor Area (ft²)                                             | Floor Height (ft) | Volume (ft³) | Bsmt | 1530 | 10 | 15300 | First | 1530 | 11 | 16830 | Second | 1782 | 9 | 16216.2 | Third | 0 | 9 | 0 | Fourth | 0 | 9 | 0 | Total: |  |  | 48,346.2 ft³ | Total: |  |  | 1369.0 m³ | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 30%; text-align: center;">0.341</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.124</td> </tr> </table><br><table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="5" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTDh</td> <td style="text-align: center;">22</td> <td style="text-align: center;">-20</td> <td style="text-align: center;">42</td> <td style="text-align: center;">76</td> </tr> <tr> <td>Summer DTDc</td> <td style="text-align: center;">22</td> <td style="text-align: center;">31</td> <td style="text-align: center;">9</td> <td style="text-align: center;">16</td> </tr> </table> |  | WINTER NATURAL AIR CHANGE RATE | 0.341 | SUMMER NATURAL AIR CHANGE RATE | 0.124 | Design Temperature Difference |  |  |  |  |  | Tin °C | Tout °C | ΔT °C | ΔT °F | Winter DTDh | 22 | -20 | 42 | 76 | Summer DTDc | 22 | 31 | 9 | 16 |
| Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Floor Area (ft²)          | Floor Height (ft)                                         | Volume (ft³)                                                                                                                                                       |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Bsmt                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1530                      | 10                                                        | 15300                                                                                                                                                              |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| First                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1530                      | 11                                                        | 16830                                                                                                                                                              |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Second                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1782                      | 9                                                         | 16216.2                                                                                                                                                            |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Third                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0                         | 9                                                         | 0                                                                                                                                                                  |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Fourth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0                         | 9                                                         | 0                                                                                                                                                                  |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Total:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                           |                                                           | 48,346.2 ft³                                                                                                                                                       |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Total:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                           |                                                           | 1369.0 m³                                                                                                                                                          |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| WINTER NATURAL AIR CHANGE RATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.341                     |                                                           |                                                                                                                                                                    |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| SUMMER NATURAL AIR CHANGE RATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.124                     |                                                           |                                                                                                                                                                    |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Design Temperature Difference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                           |                                                           |                                                                                                                                                                    |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Tin °C                    | Tout °C                                                   | ΔT °C                                                                                                                                                              | ΔT °F                                                        |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Winter DTDh                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 22                        | -20                                                       | 42                                                                                                                                                                 | 76                                                           |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Summer DTDc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 22                        | 31                                                        | 9                                                                                                                                                                  | 16                                                           |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| <b>5.2.3.1 Heat Loss due to Air Leakage</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                           |                                                           | <b>6.2.6 Sensible Gain due to Air Leakage</b>                                                                                                                      |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| $HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ <p>0.341 x 380.28 x 42 °C x 1.2 = 6571 W</p> <p style="text-align: right;">= 22422 Btu/h</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                           |                                                           | $HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ <p>= 0.124 x 380.28 x 9 °C x 1.2 = 498 W</p> <p style="text-align: right;">= 1700 Btu/h</p> |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| <b>5.2.3.2 Heat Loss due to Mechanical Ventilation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                           |                                                           | <b>6.2.7 Sensible heat Gain due to Ventilation</b>                                                                                                                 |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| $HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>155 CFM x 76 °F x 1.08 x 0.25 = 3181 Btu/h</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                           |                                                           | $HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>155 CFM x 16 °F x 1.08 x 0.25 = 661 Btu/h</p>                                                         |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| <b>5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                           |                                                           |                                                                                                                                                                    |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| $HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                           |                                                           |                                                                                                                                                                    |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Level Factor (LF)         | HLairve Air Leakage +<br>Ventilation Heat Loss<br>(Btu/h) | Level Conductive Heat<br>Loss: (HL <sub>level</sub> )                                                                                                              | Air Leakage Heat Loss Multiplier (LF x<br>HLairbv / HLlevel) |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0.5                       | 22,422                                                    | 9,197                                                                                                                                                              | 1.219                                                        |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0.3                       |                                                           | 15,159                                                                                                                                                             | 0.444                                                        |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0.2                       |                                                           | 13,894                                                                                                                                                             | 0.323                                                        |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0                         |                                                           | 0                                                                                                                                                                  | 0.000                                                        |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0                         |                                                           | 0                                                                                                                                                                  | 0.000                                                        |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| <p>*HLairbv = Air leakage heat loss + ventilation heat loss</p> <p>*For a balanced or supply only ventilation system HLairve = 0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                           |                                                           |                                                                                                                                                                    |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |

**HEAT LOSS AND GAIN SUMMARY SHEET****MODEL:** 4003 THE BROOKSIDE**BUILDER:** GOLD PARKHOMES**SFQT:** 3296**LO#** 77458**SITE:** PINE VALLEY & TESTON**DESIGN ASSUMPTIONS**

|                      |    |                                |    |
|----------------------|----|--------------------------------|----|
| HEATING              | °F | COOLING                        | °F |
| OUTDOOR DESIGN TEMP. | -4 | OUTDOOR DESIGN TEMP.           | 88 |
| INDOOR DESIGN TEMP.  | 72 | INDOOR DESIGN TEMP. (MAX 75°F) | 72 |

**BUILDING DATA**

|                                                  |                 |                           |          |
|--------------------------------------------------|-----------------|---------------------------|----------|
| ATTACHMENT:                                      | DETACHED        | # OF STORIES (+BASEMENT): | 3        |
| FRONT FACES:                                     | EAST            | ASSUMED (Y/N):            | Y        |
| AIR CHANGES PER HOUR:                            | 3.57            | ASSUMED (Y/N):            | Y        |
| AIR TIGHTNESS CATEGORY:                          | AVERAGE         | ASSUMED (Y/N):            | Y        |
| WIND EXPOSURE:                                   | SHELTERED       | ASSUMED (Y/N):            | Y        |
| HOUSE VOLUME (ft <sup>3</sup> ):                 | 48346.2         | ASSUMED (Y/N):            | Y        |
| INTERNAL SHADING:                                | BLINDS/CURTAINS | ASSUMED OCCUPANTS:        | 5        |
| INTERIOR LIGHTING LOAD (Btu/h/ft <sup>2</sup> ): | 1.27            | DC BRUSHLESS MOTOR (Y/N): | Y        |
| FOUNDATION CONFIGURATION                         | BCIN_1          | DEPTH BELOW GRADE:        | 7.0 ft   |
| LENGTH: 59.0 ft                                  | WIDTH: 32.0 ft  | EXPOSED PERIMETER:        | 182.0 ft |

| 2012 OBC - COMPLIANCE PACKAGE                                              |  | Compliance Package A1 |           |
|----------------------------------------------------------------------------|--|-----------------------|-----------|
| Component                                                                  |  | Nominal               | Min. Eff. |
| Ceiling with Attic Space Minimum RSI (R)-Value                             |  | 60                    | 59.22     |
| Ceiling Without Attic Space Minimum RSI (R)-Value                          |  | 31                    | 27.65     |
| Exposed Floor Minimum RSI (R)-Value                                        |  | 31                    | 29.80     |
| Walls Above Grade Minimum RSI (R)-Value                                    |  | 22                    | 17.03     |
| Basement Walls Minimum RSI (R)-Value                                       |  | 20 ci                 | 21.12     |
| Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value |  | -                     | -         |
| Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value        |  | 10                    | 10        |
| Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value             |  | 10                    | 11.13     |
| Windows and Sliding Glass Doors Maximum U-Value                            |  | 0.28                  | -         |
| Skylights Maximum U-Value                                                  |  | 0.49                  | -         |
| Space Heating Equipment Minimum AFUE                                       |  | 0.96                  | -         |
| HRV Minimum Efficiency                                                     |  | 75%                   | -         |
| Domestic Hot Water Heater Minimum EF                                       |  | 0.8                   | -         |

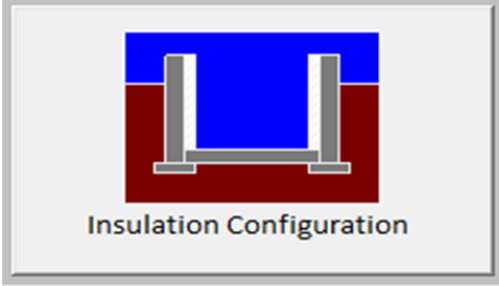
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



## Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

| Weather Station Description    |                                           |                                                                                                                 |
|--------------------------------|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Province:                      | Ontario                                   |                                                                                                                 |
| Region:                        | Vaughan (Woodbridge)                      |                                                                                                                 |
| Site Description               |                                           |                                                                                                                 |
| Soil Conductivity:             | Normal conductivity: dry sand, loam, clay |                                                                                                                 |
| Water Table:                   | Normal (7-10 m, 23-33 ft)                 |                                                                                                                 |
| Foundation Dimensions          |                                           |                                                                                                                 |
| Floor Length (m):              | 18.0                                      | <br>Insulation Configuration |
| Floor Width (m):               | 9.8                                       |                                                                                                                 |
| Exposed Perimeter (m):         | 0.0                                       |                                                                                                                 |
| Wall Height (m):               | 3.0                                       |                                                                                                                 |
| Depth Below Grade (m):         | 2.13                                      |                                                                                                                 |
| Window Area (m <sup>2</sup> ): | 3.3                                       |                                                                                                                 |
| Door Area (m <sup>2</sup> ):   | 1.9                                       |                                                                                                                 |
| Radiant Slab                   |                                           |                                                                                                                 |
| Heated Fraction of the Slab:   | 0                                         |                                                                                                                 |
| Fluid Temperature (°C):        | 33                                        |                                                                                                                 |
| Design Months                  |                                           |                                                                                                                 |
| Heating Month                  | 1                                         |                                                                                                                 |
| Foundation Loads               |                                           |                                                                                                                 |
| Heating Load (Watts):          |                                           | 1778                                                                                                            |

TYPE: 4003 THE BROOKSIDE  
LO# 77458

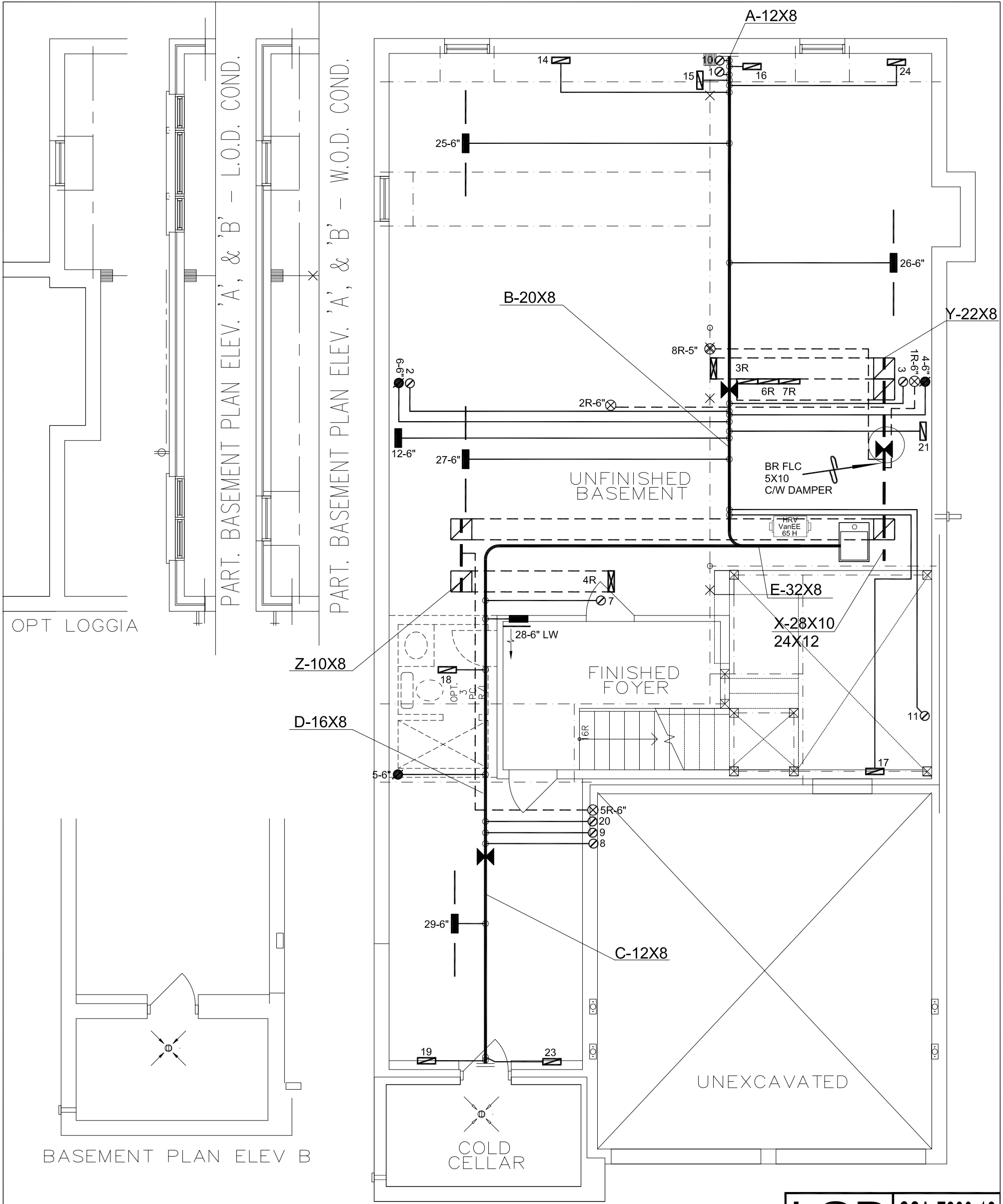
# Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

| Weather Station Description       |                            |                        |    |    |
|-----------------------------------|----------------------------|------------------------|----|----|
| Province:                         | Ontario                    |                        |    |    |
| Region:                           | Vaughan (Woodbridge)       |                        |    |    |
| Weather Station Location:         | Open flat terrain, grass   |                        |    |    |
| Anemometer height (m):            | 10                         |                        |    |    |
| Local Shielding                   |                            |                        |    |    |
| Building Site:                    | Suburban, forest           |                        |    |    |
| Walls:                            | Heavy                      |                        |    |    |
| Flue:                             | Heavy                      |                        |    |    |
| Highest Ceiling Height (m):       | 7.04                       |                        |    |    |
| Building Configuration            |                            |                        |    |    |
| Type:                             | Detached                   |                        |    |    |
| Number of Stories:                | Two                        |                        |    |    |
| Foundation:                       | Full                       |                        |    |    |
| House Volume (m <sup>3</sup> ):   | 1369.0                     |                        |    |    |
| Air Leakage/Ventilation           |                            |                        |    |    |
| Air Tightness Type:               | Present (1961-) (3.57 ACH) |                        |    |    |
| Custom BDT Data:                  | ELA @ 10 Pa.               | 1824.9 cm <sup>2</sup> |    |    |
|                                   | 3.57                       | ACH @ 50 Pa            |    |    |
| Mechanical Ventilation (L/s):     | Total Supply               | Total Exhaust          |    |    |
|                                   | 73.2                       | 73.2                   |    |    |
| Flue Size                         |                            |                        |    |    |
| Flue #:                           | #1                         | #2                     | #3 | #4 |
| Diameter (mm):                    | 0                          | 0                      | 0  | 0  |
| Natural Infiltration Rates        |                            |                        |    |    |
| Heating Air Leakage Rate (ACH/H): | 0.341                      |                        |    |    |
| Cooling Air Leakage Rate (ACH/H): | 0.124                      |                        |    |    |

TYPE: 4003 THE BROOKSIDE  
LO# 77458





I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

LOD

WOD

CSA-F280-12

PACKAGE A1

| HVAC LEGEND |                                 |        |                                 |        |                              |        |                            | 3.        | REVISED AS PER ARCHITECTURALS | FEB/2020 |
|-------------|---------------------------------|--------|---------------------------------|--------|------------------------------|--------|----------------------------|-----------|-------------------------------|----------|
| SYMBOL      | DESCRIPTION                     | SYMBOL | DESCRIPTION                     | SYMBOL | DESCRIPTION                  | SYMBOL | DESCRIPTION                | 2.        | RETURN #8 ADDED TO HALL       | NOV/2018 |
|             | FLOOR SUPPLY AIR GRILLE         |        | 6" SUPPLY AIR BOOT ABOVE        |        | 14"x8" RETURN AIR GRILLE     |        | RETURN AIR STACK ABOVE     | 1.        | DECK CONDITIONS ADDED         | OCT/2018 |
|             | FLOOR SUPPLY AIR GRILLE 6" BOOT |        | SUPPLY AIR STACK FROM 2nd FLOOR |        | 30"x8" RETURN AIR GRILLE     |        | RETURN AIR STACK 2nd FLOOR | No.       | Description                   | Date     |
|             | SUPPLY AIR BOOT ABOVE           |        | 6" SUPPLY AIR STACK 2nd FLOOR   |        | FRA- FLOOR RETURN AIR GRILLE |        | REDUCER                    | REVISIONS |                               |          |

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Client

GOLD PARK HOMES

Project Name

PINE VALLEY & TESTON VAUGHAN, ONTARIO

THE BROOKSIDE 4003

3296 sqft

375 Finley Ave - Suite 202 - Ajax, Ontario  
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375  
Email: info@hvacdesigns.ca  
Web: www.hvacdesigns.ca  
Specializing in Residential Mechanical Design Services

Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

HEAT LOSS 64573 BTU/H  
UNIT DATA

MAKE

LENNOX

MODEL

EL296UH090XE48C

INPUT

88 MBTU/H

OUTPUT

85 MBTU/H

COOLING

3.5 TONS

FAN SPEED

1255 cfm @ 0.6" w.c.

# OF RUNS

S/A

R/A

FANS

3RD FLOOR

2ND FLOOR

12

6

3

1ST FLOOR

10

2

2

BASEMENT

5

1

0

ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

Sheet Title

BASEMENT HEATING LAYOUT

Date

JAN/2018

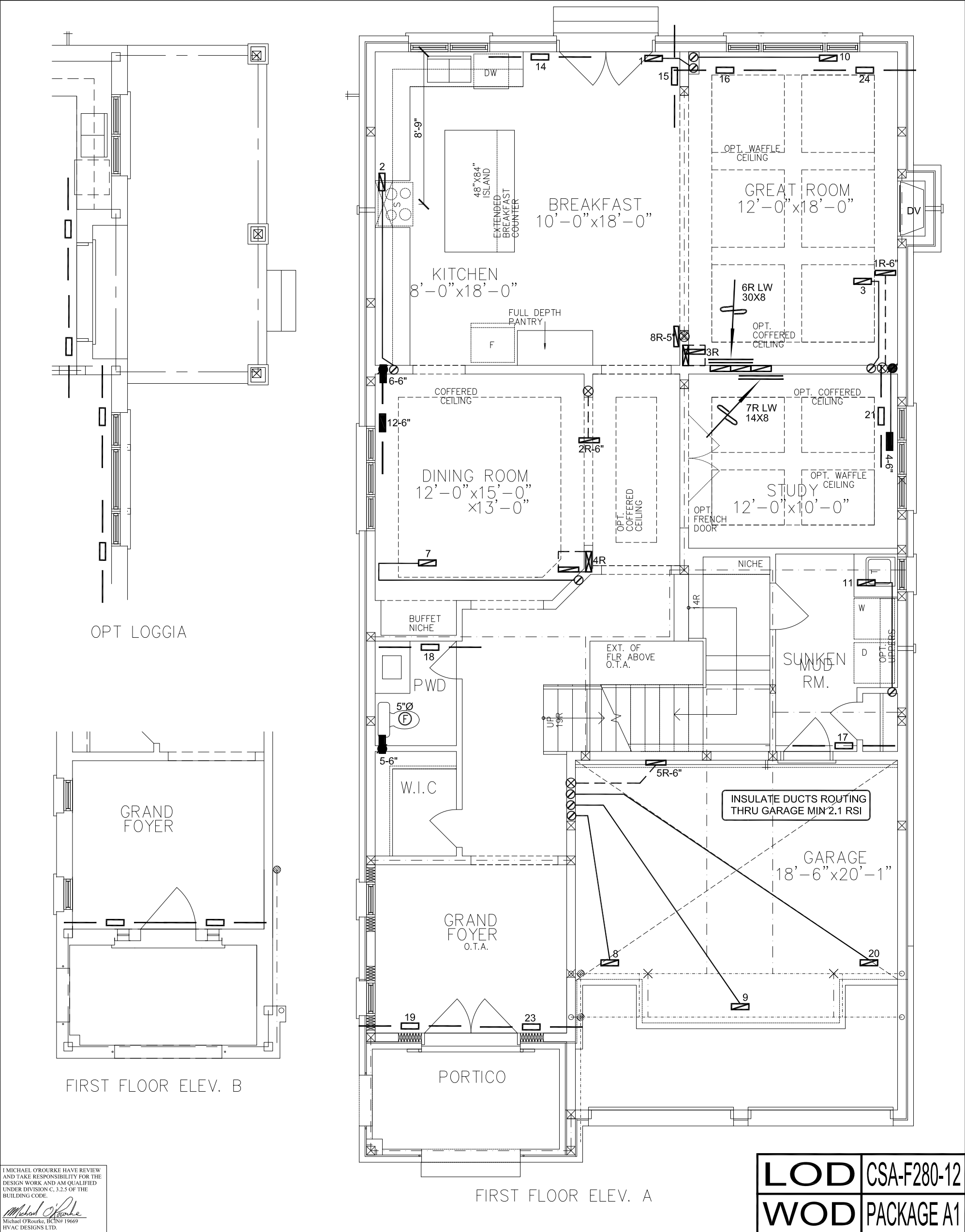
Scale

3/16" = 1'-0"

BCIN# 19669

LO#

77458



I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

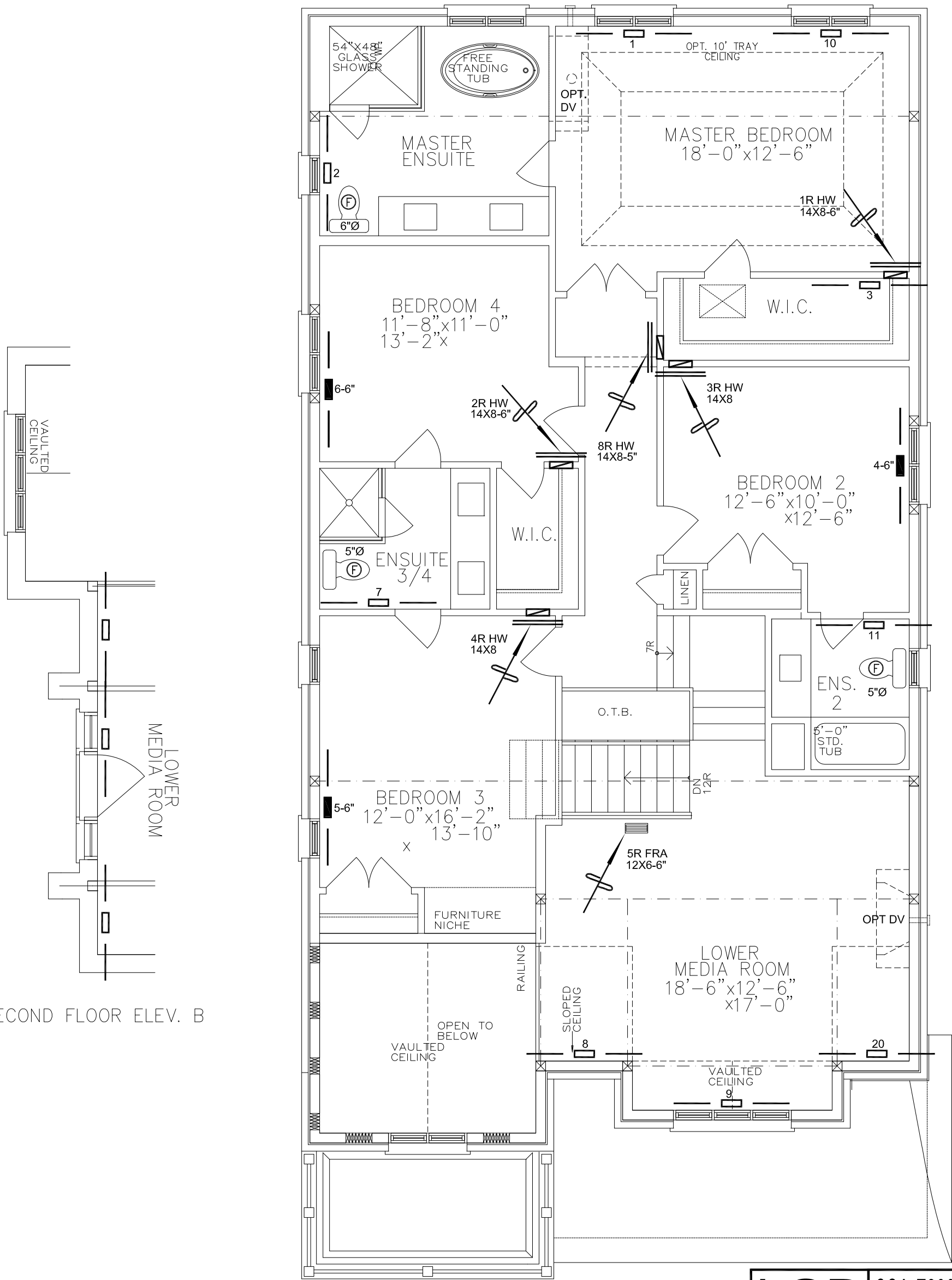
*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

| HVAC LEGEND |                                 |        |                                 |        |                              |        |                            | 3.        | REVISED AS PER ARCHITECTURALS | FEB/2020 |
|-------------|---------------------------------|--------|---------------------------------|--------|------------------------------|--------|----------------------------|-----------|-------------------------------|----------|
| SYMBOL      | DESCRIPTION                     | SYMBOL | DESCRIPTION                     | SYMBOL | DESCRIPTION                  | SYMBOL | DESCRIPTION                | 2.        | RETURN #8 ADDED TO HALL       | NOV/2018 |
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|                                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                            |               |
|---------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------|
| Client                                |  | <div></div> <div>375 Finley Ave - Suite 202 - Ajax, Ontario<br/>L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375<br/>Email: info@hvacdesigns.ca<br/>Web: www.hvacdesigns.ca<br/>Specializing in Residential Mechanical Design Services</div> <div>Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.</div> | Sheet Title                |               |
| GOLD PARK HOMES                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | FIRST FLOOR HEATING LAYOUT |               |
| Project Name                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Date                       | JAN/2018      |
| PINE VALLEY & TESTON VAUGHAN, ONTARIO |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Scale                      | 3/16" = 1'-0" |
| THE BROOKSIDE 4003                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | BCIN# 19669                |               |
| 3296 sqft                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | LO#                        | 77458         |

SECOND FLOOR ELEV. B



SECOND FLOOR ELEV. A

LOD

WOD

CSA-F280-12

PACKAGE A1

I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

| HVAC LEGEND |                                 |        |                                 |        |                              |        |                            | 3.        | REVISED AS PER ARCHITECTURALS | FEB/2020 |
|-------------|---------------------------------|--------|---------------------------------|--------|------------------------------|--------|----------------------------|-----------|-------------------------------|----------|
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Client

GOLD PARK HOMES

Project Name

PINE VALLEY & TESTON VAUGHAN, ONTARIO

THE BROOKSIDE 4003

3296 sqft

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L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375  
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Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

Sheet Title

SECOND FLOOR HEATING LAYOUT

Date

JAN/2018

Scale

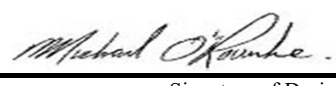
3/16" = 1'-0"

BCIN# 19669

LO# 77458

## Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                     |                                                                                         |                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------|
| <b>A. Project Information</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                     |                                                                                         |                                      |
| Building number, street name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                     | Unit no.                                                                                | Lot/con.                             |
| Municipality<br>VAUGHAN (WOODBIDGE)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Postal code                         | Plan number/ other description                                                          |                                      |
| <b>B. Individual who reviews and takes responsibility for design activities</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                     |                                                                                         |                                      |
| Name<br><b>MICHAEL O'ROURKE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                     | Firm<br><b>HVAC DESIGNS LTD.</b>                                                        |                                      |
| Street address<br><b>375 FINLEY AVE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                     | Unit no.<br><b>202</b>                                                                  | Lot/con.<br><b>N/A</b>               |
| Municipality<br><b>AJAX</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Postal code<br><b>L1S 2E2</b>       | Province<br><b>ONTARIO</b>                                                              | E-mail<br><b>info@hvacdesigns.ca</b> |
| Telephone number<br><b>(905) 619-2300</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Fax number<br><b>(905) 619-2375</b> | Cell number<br>( )                                                                      |                                      |
| <b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                     |                                                                                         |                                      |
| <input type="checkbox"/> House<br><input type="checkbox"/> Small Buildings<br><input type="checkbox"/> Large Buildings<br><input type="checkbox"/> Complex Buildings <input checked="" type="checkbox"/> HVAC – House<br><input type="checkbox"/> Building Services<br><input type="checkbox"/> Detection, Lighting and Power<br><input type="checkbox"/> Fire Protection <input type="checkbox"/> Building Structural<br><input type="checkbox"/> Plumbing – House<br><input type="checkbox"/> Plumbing – All Buildings<br><input type="checkbox"/> On-site Sewage Systems |                                     |                                                                                         |                                      |
| Description of designer's work<br><b>HEAT LOSS / GAIN CALCULATIONS</b><br><b>DUCT SIZING</b><br><b>RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY</b><br><b>RESIDENTIAL SYSTEM DESIGN per CSA-F280-12</b>                                                                                                                                                                                                                                                                                                                                                                |                                     | <b>Model:</b> 4003 THE BROOKSIDE<br><br>WOB<br><br><b>Project:</b> PINE VALLEY & TESTON |                                      |
| <b>D. Declaration of Designer</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                     |                                                                                         |                                      |
| I, <u><b>MICHAEL O'ROURKE</b></u> declare that (choose one as appropriate):<br>(print name)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                     |                                                                                         |                                      |
| <input type="checkbox"/> I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.<br><br>Individual BCIN: _____<br>Firm BCIN: _____                                                                                                                                                                                                                                                              |                                     |                                                                                         |                                      |
| <input checked="" type="checkbox"/> I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code.<br><br>Individual BCIN: <u>19669</u><br>Basis for exemption from registration and qualification: <u>O.B.C SENTENCE 3.2.4.1 (4)</u>                                                                                                                                                                                                                     |                                     |                                                                                         |                                      |
| <input type="checkbox"/> The design work is exempt from the registration and qualification requirements of the Building Code.<br>Basis for exemption from registration and qualification: _____                                                                                                                                                                                                                                                                                                                                                                             |                                     |                                                                                         |                                      |
| I certify that:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                     |                                                                                         |                                      |
| 1. The information contained in this schedule is true to the best of my knowledge.<br>2. I have submitted this application with the knowledge and consent of the firm.                                                                                                                                                                                                                                                                                                                                                                                                      |                                     |                                                                                         |                                      |
| February 26, 2020                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                     |     |                                      |
| Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                     | Signature of Designer                                                                   |                                      |

**NOTE:**

- For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) d) of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
- Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of authorization, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

**Application for a Permit Construct or Demolish – Effective January 1, 2015**



| SITE NAME: PINE VALLEY & TESTON |  |           |       |           |      |           |      |           |     | WOB                      |      | DATE: Feb-20 |     | WINTER NATURAL AIR CHANGE RATE 0.408 |      |           |     | HEAT LOSS ΔT °F. 76                  |      | CSA-F280-12 |     |                     |     |                  |     |
|---------------------------------|--|-----------|-------|-----------|------|-----------|------|-----------|-----|--------------------------|------|--------------|-----|--------------------------------------|------|-----------|-----|--------------------------------------|------|-------------|-----|---------------------|-----|------------------|-----|
| BUILDER: GOLD PARKHOMES         |  |           |       |           |      |           |      |           |     | TYPE: 4003 THE BROOKSIDE |      |              |     | GFA: 3296                            |      | LO# 80232 |     | SUMMER NATURAL AIR CHANGE RATE 0.137 |      |             |     | HEAT GAIN ΔT °F. 13 |     | SB-12 PACKAGE A1 |     |
| ROOM USE                        |  |           |       | MBR       |      |           |      | ENS       |     | WIC                      |      | BED-2        |     | BED-3                                |      | BED-4     |     | BATH                                 |      |             |     | ENS-2               |     |                  |     |
| EXP. WALL                       |  |           |       | 33        |      |           |      | 25        |     | 5                        |      | 13           |     | 15                                   |      | 12        |     | 7                                    |      |             |     | 8                   |     |                  |     |
| CLG. HT.                        |  |           |       | 9         |      |           |      | 9         |     | 9                        |      | 9            |     | 9                                    |      | 9         |     | 9                                    |      |             |     | 9                   |     |                  |     |
| FACTORS                         |  |           |       |           |      |           |      |           |     |                          |      |              |     |                                      |      |           |     |                                      |      |             |     |                     |     |                  |     |
| GRS.WALL AREA                   |  | LOSS GAIN |       | 300       |      | 228       |      | 46        |     | 118                      |      | 137          |     | 109                                  |      | 64        |     |                                      |      |             |     | 73                  |     |                  |     |
| GLAZING                         |  |           |       | LOSS GAIN |      | LOSS GAIN |      | LOSS GAIN |     | LOSS GAIN                |      | LOSS GAIN    |     | LOSS GAIN                            |      | LOSS GAIN |     |                                      |      |             |     | LOSS GAIN           |     |                  |     |
| NORTH                           |  | 21.3      | 16.0  | 0         | 0    | 0         | 0    | 0         | 0   | 0                        | 0    | 0            | 17  | 362                                  | 272  | 0         | 0   | 0                                    | 0    | 0           | 0   | 0                   | 8   | 170              | 128 |
| EAST                            |  | 21.3      | 41.6  | 0         | 0    | 0         | 0    | 0         | 0   | 0                        | 0    | 0            | 0   | 0                                    | 0    | 0         | 0   | 0                                    | 0    | 0           | 0   | 0                   | 0   | 0                | 0   |
| SOUTH                           |  | 21.3      | 24.9  | 0         | 0    | 0         | 9    | 192       | 224 | 0                        | 0    | 0            | 0   | 0                                    | 0    | 18        | 383 | 448                                  | 17   | 362         | 423 | 0                   | 0   | 0                | 0   |
| WEST                            |  | 21.3      | 41.6  | 34        | 724  | 1413      | 17   | 362       | 706 | 0                        | 0    | 0            | 0   | 0                                    | 0    | 0         | 0   | 0                                    | 0    | 0           | 0   | 0                   | 0   | 0                | 0   |
| SKYLT.                          |  | 37.2      | 101.5 | 0         | 0    | 0         | 0    | 0         | 0   | 0                        | 0    | 0            | 0   | 0                                    | 0    | 0         | 0   | 0                                    | 0    | 0           | 0   | 0                   | 0   | 0                | 0   |
| DOORS                           |  | 25.2      | 4.3   | 0         | 0    | 0         | 0    | 0         | 0   | 0                        | 0    | 0            | 0   | 0                                    | 0    | 0         | 0   | 0                                    | 0    | 0           | 0   | 0                   | 0   | 0                | 0   |
| NET EXPOSED WALL                |  | 4.5       | 0.8   | 266       | 1188 | 200       | 202  | 899       | 151 | 46                       | 203  | 34           | 101 | 452                                  | 76   | 119       | 529 | 89                                   | 92   | 411         | 69  | 64                  | 284 | 48               | 65  |
| NET EXPOSED BSMT WALL ABOVE GR  |  | 3.6       | 0.6   | 0         | 0    | 0         | 0    | 0         | 0   | 0                        | 0    | 0            | 0   | 0                                    | 0    | 0         | 0   | 0                                    | 0    | 0           | 0   | 0                   | 0   | 0                | 49  |
| EXPOSED CLG                     |  | 1.3       | 0.6   | 290       | 372  | 170       | 156  | 200       | 92  | 70                       | 90   | 41           | 234 | 300                                  | 138  | 195       | 250 | 115                                  | 166  | 213         | 98  | 98                  | 126 | 58               | 64  |
| NO ATTIC EXPOSED CLG            |  | 2.7       | 1.3   | 0         | 0    | 0         | 0    | 0         | 0   | 0                        | 0    | 0            | 0   | 0                                    | 0    | 0         | 0   | 0                                    | 0    | 0           | 0   | 0                   | 0   | 0                | 38  |
| EXPOSED FLOOR                   |  | 2.6       | 0.4   | 0         | 0    | 0         | 0    | 0         | 0   | 0                        | 0    | 0            | 0   | 0                                    | 0    | 0         | 0   | 0                                    | 0    | 0           | 0   | 0                   | 0   | 0                | 0   |
| BASEMENT/CRAWL HEAT LOSS        |  |           |       | 0         |      | 0         |      | 0         |     | 0                        |      | 0            |     | 0                                    |      | 0         |     | 0                                    |      | 0           |     | 0                   |     | 0                |     |
| SLAB ON GRADE HEAT LOSS         |  |           |       | 0         |      | 0         |      | 0         |     | 0                        |      | 0            |     | 0                                    |      | 0         |     | 0                                    |      | 0           |     | 0                   |     | 0                |     |
| SUBTOTAL HT LOSS                |  |           |       | 2284      |      | 1653      |      | 293       |     | 1114                     |      | 1162         |     | 986                                  |      | 410       |     | 542                                  |      |             |     |                     |     |                  |     |
| SUB TOTAL HT GAIN               |  |           |       | 1783      |      | 1174      |      | 75        |     | 485                      |      | 652          |     | 590                                  |      | 105       |     | 214                                  |      |             |     |                     |     |                  |     |
| LEVEL FACTOR / MULTIPLIER       |  | 0.20      | 0.39  |           |      | 0.20      | 0.39 |           |     | 0.20                     | 0.39 |              |     | 0.20                                 | 0.39 |           |     | 0.20                                 | 0.39 |             |     |                     |     |                  |     |
| AIR CHANGE HEAT LOSS            |  |           |       | 881       |      | 638       |      | 113       |     | 430                      |      | 448          |     | 381                                  |      | 158       |     | 209                                  |      |             |     |                     |     |                  |     |
| AIR CHANGE HEAT GAIN            |  |           |       | 159       |      | 105       |      | 7         |     | 43                       |      | 58           |     | 53                                   |      | 9         |     | 19                                   |      |             |     |                     |     |                  |     |
| DUCT LOSS                       |  |           |       | 0         |      | 0         |      | 0         |     | 0                        |      | 0            |     | 0                                    |      | 0         |     | 0                                    |      |             |     |                     |     |                  |     |
| DUCT GAIN                       |  |           |       | 0         |      | 0         |      | 0         |     | 0                        |      | 0            |     | 0                                    |      | 0         |     | 0                                    |      |             |     |                     |     |                  |     |
| HEAT GAIN PEOPLE                |  | 240       | 2     | 480       |      | 0         | 0    | 0         | 0   | 0                        | 1    | 240          | 1   | 240                                  | 1    | 240       | 0   | 0                                    | 0    | 0           | 0   | 0                   | 0   | 0                | 0   |
| HEAT GAIN APPLIANCES/LIGHTS     |  |           |       | 683       |      | 0         |      | 0         |     | 683                      |      | 683          |     | 683                                  |      | 683       |     | 0                                    |      |             |     |                     |     |                  |     |
| TOTAL HT LOSS BTU/H             |  |           |       | 3166      |      | 2291      |      | 406       |     | 1544                     |      | 1611         |     | 1367                                 |      | 568       |     | 751                                  |      |             |     |                     |     |                  |     |
| TOTAL HT GAIN x 1.3 BTU/H       |  |           |       | 4038      |      | 1662      |      | 107       |     | 1887                     |      | 2123         |     | 2036                                 |      | 149       |     | 303                                  |      |             |     |                     |     |                  |     |

| ROOM USE                       |      |       | MEDIA |      |      | DIN  |      |      | KT/GR |      |      | STDY |     |      |      |      |      | W/R  |      |      | FOY  |      |      | MUD   |      |      |       |      |      |      |     |      | WOB  |  |  | BAS |  |  |
|--------------------------------|------|-------|-------|------|------|------|------|------|-------|------|------|------|-----|------|------|------|------|------|------|------|------|------|------|-------|------|------|-------|------|------|------|-----|------|------|--|--|-----|--|--|
| EXP. WALL                      |      |       | 40    |      |      | 23   |      |      | 70    |      |      | 11   |     |      |      |      |      | 12   |      |      | 43   |      |      | 25    |      |      |       |      |      |      |     |      | 42   |  |  | 140 |  |  |
| CLG. HT.                       |      |       | 14    |      |      | 11   |      |      | 11    |      |      | 11   |     |      |      |      |      | 11   |      |      | 11   |      |      | 12    |      |      |       |      |      |      |     |      | 10   |  |  | 10  |  |  |
| FACTORS                        |      |       |       |      |      |      |      |      |       |      |      |      |     |      |      |      |      |      |      |      |      |      |      |       |      |      |       |      |      |      |     |      |      |  |  |     |  |  |
| GRS.WALL AREA                  | LOSS | GAIN  | 560   |      |      | 253  |      |      | 770   |      |      | 121  |     |      |      |      |      | 132  |      |      | 473  |      |      | 300   |      |      |       |      |      | 420  |     |      | 980  |  |  |     |  |  |
| GLAZING                        |      |       | LOSS  |      | GAIN | LOSS |      | GAIN | LOSS  |      | GAIN | LOSS |     | GAIN | LOSS |      | GAIN | LOSS |      | GAIN | LOSS |      | GAIN | LOSS  |      | GAIN | LOSS  |      | GAIN | LOSS |     | GAIN |      |  |  |     |  |  |
| NORTH                          | 21.3 | 16.0  | 0     | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 32   | 681 | 511  | 0    | 0    | 0    | 0    | 0    | 0    | 9    | 192  | 144  | 0     | 0    | 0    | 0     | 0    | 0    | 3    | 64  | 48   |      |  |  |     |  |  |
| EAST                           | 21.3 | 41.6  | 55    | 1170 | 2285 | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0   | 0    | 0    | 0    | 0    | 42   | 894  | 1745 | 0    | 0    | 0    | 0     | 0    | 0    | 0     | 0    | 0    | 0    | 0   | 0    |      |  |  |     |  |  |
| SOUTH                          | 21.3 | 24.9  | 0     | 0    | 0    | 34   | 724  | 847  | 0     | 0    | 0    | 0    | 0   | 0    | 0    | 0    | 0    | 23   | 489  | 573  | 0    | 0    | 0    | 0     | 0    | 0    | 0     | 3    | 64   | 75   | 0   | 0    |      |  |  |     |  |  |
| WEST                           | 21.3 | 41.6  | 0     | 0    | 0    | 0    | 0    | 0    | 118   | 2511 | 4903 | 0    | 0   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0     | 0    | 0    | 0    | 0   | 0    |      |  |  |     |  |  |
| SKYLT.                         | 37.2 | 101.5 | 0     | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0     | 0    | 0    | 0    | 0   |      |      |  |  |     |  |  |
| DOORS                          | 25.2 | 4.3   | 10    | 252  | 43   | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0   | 0    | 0    | 0    | 0    | 40   | 1010 | 170  | 20   | 505  | 85   | 20    | 505  | 85   | 20    | 505  | 85   | 20   | 505 | 85   |      |  |  |     |  |  |
| NET EXPOSED WALL               | 4.5  | 0.8   | 495   | 2209 | 372  | 219  | 977  | 165  | 652   | 2910 | 490  | 89   | 397 | 67   | 132  | 589  | 99   | 368  | 1642 | 277  | 271  | 1209 | 204  | 318   | 1419 | 239  | 0     | 0    | 0    | 0    | 0   |      |      |  |  |     |  |  |
| NET EXPOSED BSMT WALL ABOVE GR | 3.6  | 0.6   | 0     | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 420   | 1511 | 255  | 0    | 0   |      |      |  |  |     |  |  |
| EXPOSED CLG                    | 1.3  | 0.6   | 365   | 468  | 214  | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0     | 0    | 0    | 0    | 0   |      |      |  |  |     |  |  |
| NO ATTIC EXPOSED CLG           | 2.7  | 1.3   | 79    | 217  | 99   | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0   | 0    | 0    | 0    | 0    | 156  | 429  | 196  | 0    | 0    | 0    | 0     | 0    | 0    | 0     | 0    | 0    | 0    | 0   |      |      |  |  |     |  |  |
| EXPOSED FLOOR                  | 2.6  | 0.4   | 444   | 1132 | 191  | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0     | 0    | 0    | 0    | 0   |      |      |  |  |     |  |  |
| BASEMENT/CRAWL HEAT LOSS       |      |       | 0     |      |      | 0    |      |      | 0     |      |      | 0    |     |      | 0    |      |      | 0    |      |      | 0    |      |      | 0     |      |      | 0     |      |      | 0    |     |      | 2430 |  |  |     |  |  |
| SLAB ON GRADE HEAT LOSS        |      |       | 0     |      |      | 0    |      |      | 0     |      |      | 0    |     |      | 0    |      |      | 0    |      |      | 0    |      |      | 0     |      |      | 0     |      |      | 0    |     |      | 533  |  |  |     |  |  |
| SUBTOTAL HT LOSS               |      |       | 5450  |      |      | 1701 |      |      | 5421  |      |      | 1078 |     |      | 589  |      |      | 4464 |      |      | 1906 |      |      | 4202  |      |      | 4574  |      |      | 462  |     |      |      |  |  |     |  |  |
| SUB TOTAL HT GAIN              |      |       | 3205  |      |      | 1011 |      |      | 5393  |      |      | 578  |     |      | 99   |      |      | 2961 |      |      | 433  |      |      | 3731  |      |      | 462   |      |      |      |     |      |      |  |  |     |  |  |
| LEVEL FACTOR / MULTIPLIER      | 0.20 | 0.39  |       |      |      | 0.30 | 0.53 |      |       |      | 0.30 | 0.53 |     |      |      | 0.30 | 0.53 |      |      |      | 0.30 | 0.53 |      |       |      | 0.50 | 1.53  |      |      |      |     |      |      |  |  |     |  |  |
| AIR CHANGE HEAT LOSS           |      |       | 2103  |      |      | 902  |      |      | 2876  |      |      | 572  |     |      | 313  |      |      | 2368 |      |      | 1011 |      |      | 13404 |      |      |       |      |      |      |     |      |      |  |  |     |  |  |
| AIR CHANGE HEAT GAIN           |      |       | 286   |      |      | 90   |      |      | 482   |      |      | 52   |     |      | 9    |      |      | 265  |      |      | 39   |      |      | 375   |      |      |       |      |      |      |     |      |      |  |  |     |  |  |
| DUCT LOSS                      |      |       | 755   |      |      | 0    |      |      | 0     |      |      | 0    |     |      | 0    |      |      | 0    |      |      | 0    |      |      | 0     |      |      |       |      |      |      |     |      |      |  |  |     |  |  |
| DUCT GAIN                      |      |       | 417   |      |      | 0    |      |      | 0     |      |      | 0    |     |      | 0    |      |      | 0    |      |      | 0    |      |      | 0     |      |      |       |      |      |      |     |      |      |  |  |     |  |  |
| HEAT GAIN PEOPLE               | 240  | 0     | 0     | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0     | 0    | 0    | 0    | 0   |      |      |  |  |     |  |  |
| HEAT GAIN APPLIANCES/LIGHTS    |      |       | 683   |      |      | 683  |      |      | 683   |      |      | 683  |     |      | 0    |      |      | 0    |      |      | 0    |      |      | 0     |      |      | 0     |      |      | 683  |     |      |      |  |  |     |  |  |
| TOTAL HT LOSS BTU/H            |      |       | 8308  |      |      | 2603 |      |      | 8297  |      |      | 1650 |     |      | 902  |      |      | 6833 |      |      | 2917 |      |      | 4735  |      |      | 17978 |      |      |      |     |      |      |  |  |     |  |  |
| TOTAL HT GAIN x 1.3 BTU/H      |      |       | 5969  |      |      | 2320 |      |      | 8526  |      |      | 1707 |     |      | 140  |      |      | 4193 |      |      | 612  |      |      | 4851  |      |      | 1978  |      |      |      |     |      |      |  |  |     |  |  |

SITE NAME: PINE VALLEY & TESTON  
BUILDER: GOLD PARKHOMES

WOB  
TYPE: 4003 THE BROOKSIDE

DATE: Feb-20

GFA: 3296 LO# 80232

HEATING CFM 1255 COOLING CFM 1255  
TOTAL HEAT LOSS 65,925 TOTAL HEAT GAIN 42,600  
AIR FLOW RATE CFM 19.04 AIR FLOW RATE CFM 29.46

furnace pressure 0.6  
furnace filter 0.05  
a/c coil pressure 0.2  
available pressure  
for s/a & r/a 0.35

\*LENNOX  
EL296UH090XE48C  
FAN SPEED 90

AFUE = 96 %  
INPUT (BTU/H) = 88,000  
OUTPUT (BTU/H) = 85,000

| RUN COUNT | 4th | 3rd | 2nd | 1st | Bas |
|-----------|-----|-----|-----|-----|-----|
| S/A       | 0   | 0   | 12  | 10  | 6   |
| R/A       | 0   | 0   | 6   | 2   | 1   |

plenium pressure s/a 0.18  
max s/a dif press. loss 0.01  
min adjusted pressure s/a 0.17

r/a pressure 0.17  
r/a grille press. Loss 0.02  
adjusted pressure r/a 0.15

LOW 0  
MEDLOW 0  
MEDIUM 1105  
MEDIUM HIGH 1255  
HIGH 1525

DESIGN CFM = 1255  
CFM @ .6" E.S.P.

TEMPERATURE RISE 63 °F

All S/A diffusers 4"x10" unless noted otherwise on layout.

All S/A runs 5"Ø unless noted otherwise on layout.

| RUN #                     | 1    | 2    | 3    | 4     | 5     | 6     | 7    | 8     | 9     | 10   | 11    | 12   | 14    | 15    | 16    | 17   | 18   | 19   | 20    | 21   | 23   | 24    |
|---------------------------|------|------|------|-------|-------|-------|------|-------|-------|------|-------|------|-------|-------|-------|------|------|------|-------|------|------|-------|
| ROOM NAME                 | MBR  | ENS  | WIC  | BED-2 | BED-3 | BED-4 | BATH | MEDIA | MEDIA | MBR  | ENS-2 | DIN  | KT/GR | KT/GR | KT/GR | MUD  | W/R  | FOY  | MEDIA | STDY | FOY  | KT/GR |
| RM LOSS MBH               | 1.58 | 2.29 | 0.41 | 1.54  | 1.61  | 1.37  | 0.57 | 2.77  | 2.77  | 1.58 | 0.75  | 2.60 | 2.07  | 2.07  | 2.07  | 2.92 | 0.90 | 3.42 | 2.77  | 1.65 | 3.42 | 2.07  |
| CFM PER RUN HEAT          | 30   | 44   | 8    | 29    | 31    | 26    | 11   | 53    | 53    | 30   | 14    | 50   | 39    | 39    | 39    | 56   | 17   | 65   | 53    | 31   | 65   | 39    |
| RM GAIN MBH               | 2.02 | 1.66 | 0.11 | 1.89  | 2.12  | 2.04  | 0.15 | 1.99  | 1.99  | 2.02 | 0.30  | 2.32 | 2.13  | 2.13  | 2.13  | 0.61 | 0.14 | 2.10 | 1.99  | 1.71 | 2.10 | 2.13  |
| CFM PER RUN COOLING       | 59   | 49   | 3    | 56    | 63    | 60    | 4    | 59    | 59    | 59   | 9     | 68   | 63    | 63    | 63    | 18   | 4    | 62   | 59    | 50   | 62   | 63    |
| ADJUSTED PRESSURE         | 0.17 | 0.17 | 0.17 | 0.17  | 0.17  | 0.17  | 0.17 | 0.17  | 0.17  | 0.17 | 0.17  | 0.17 | 0.17  | 0.17  | 0.17  | 0.17 | 0.17 | 0.17 | 0.17  | 0.17 | 0.17 | 0.17  |
| ACTUAL DUCT LGH           | 46   | 55   | 27   | 27    | 47    | 45    | 54   | 56    | 61    | 51   | 27    | 31   | 43    | 36    | 33    | 21   | 29   | 53   | 71    | 11   | 53   | 30    |
| EQUIVALENT LENGTH         | 150  | 140  | 130  | 150   | 120   | 160   | 150  | 175   | 185   | 140  | 260   | 140  | 170   | 160   | 100   | 250  | 120  | 110  | 170   | 130  | 120  | 110   |
| TOTAL EFFECTIVE LENGTH    | 196  | 195  | 157  | 177   | 167   | 205   | 204  | 231   | 246   | 191  | 287   | 171  | 213   | 196   | 133   | 271  | 149  | 163  | 241   | 141  | 173  | 140   |
| ADJUSTED PRESSURE         | 0.09 | 0.09 | 0.11 | 0.1   | 0.1   | 0.08  | 0.08 | 0.07  | 0.07  | 0.09 | 0.06  | 0.1  | 0.08  | 0.09  | 0.13  | 0.06 | 0.12 | 0.11 | 0.07  | 0.12 | 0.1  | 0.12  |
| ROUND DUCT SIZE           | 5    | 4    | 4    | 6     | 6     | 6     | 4    | 5     | 5     | 5    | 4     | 6    | 5     | 5     | 4     | 5    | 4    | 5    | 5     | 5    | 5    | 4     |
| HEATING VELOCITY (ft/min) | 220  | 505  | 92   | 148   | 158   | 133   | 126  | 389   | 389   | 220  | 161   | 255  | 286   | 286   | 447   | 411  | 195  | 477  | 389   | 228  | 477  | 447   |
| COOLING VELOCITY (ft/min) | 433  | 562  | 34   | 286   | 321   | 306   | 46   | 433   | 433   | 433  | 103   | 347  | 463   | 463   | 723   | 132  | 46   | 455  | 433   | 367  | 455  | 723   |
| OUTLET GRILL SIZE         | 3X10 | 3X10 | 3X10 | 4X10  | 4X10  | 4X10  | 3X10 | 3X10  | 3X10  | 3X10 | 3X10  | 4X10 | 3X10  | 3X10  | 3X10  | 3X10 | 3X10 | 3X10 | 3X10  | 3X10 | 3X10 | 3X10  |
| TRUNK                     | A    | B    | B    | B     | D     | B     | D    | C     | C     | A    | B     | B    | A     | A     | A     | B    | D    | C    | C     | B    | C    | A     |

| RUN #                     | 25   | 26   | 27   | 28   | 29   | 30   |
|---------------------------|------|------|------|------|------|------|
| ROOM NAME                 | BAS  | BAS  | BAS  | BAS  | BAS  | BAS  |
| RM LOSS MBH               | 3.79 | 3.79 | 3.79 | 3.79 | 3.79 | 3.79 |
| CFM PER RUN HEAT          | 72   | 72   | 72   | 72   | 72   | 72   |
| RM GAIN MBH               | 1.14 | 1.14 | 1.14 | 1.14 | 1.14 | 1.14 |
| CFM PER RUN COOLING       | 34   | 34   | 34   | 34   | 34   | 34   |
| ADJUSTED PRESSURE         | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 |
| ACTUAL DUCT LGH           | 44   | 19   | 23   | 35   | 44   | 58   |
| EQUIVALENT LENGTH         | 150  | 160  | 150  | 140  | 110  | 200  |
| TOTAL EFFECTIVE LENGTH    | 194  | 179  | 173  | 175  | 154  | 258  |
| ADJUSTED PRESSURE         | 0.09 | 0.1  | 0.1  | 0.1  | 0.11 | 0.07 |
| ROUND DUCT SIZE           | 6    | 6    | 6    | 6    | 6    | 6    |
| HEATING VELOCITY (ft/min) | 367  | 367  | 367  | 367  | 367  | 367  |
| COOLING VELOCITY (ft/min) | 173  | 173  | 173  | 173  | 173  | 173  |
| OUTLET GRILL SIZE         | 4X10 | 4X10 | 4X10 | 4X10 | 4X10 | 4X10 |
| TRUNK                     | A    | A    | B    | D    | C    | A    |

**SUPPLY AIR TRUNK SIZE**

|         | TRUNK | STATIC | ROUND | RECT | VELOCITY |
|---------|-------|--------|-------|------|----------|
|         | CFM   | PRESS. | DUCT  | DUCT | (ft/min) |
| TRUNK A | 432   | 0.07   | 10.6  | 14   | x 8 555  |
| TRUNK B | 762   | 0.06   | 13.6  | 22   | x 8 623  |
| TRUNK C | 361   | 0.07   | 9.9   | 12   | x 8 542  |
| TRUNK D | 492   | 0.07   | 11.1  | 16   | x 8 554  |
| TRUNK E | 1255  | 0.06   | 16.4  | 32   | x 8 706  |
| TRUNK F | 0     | 0.00   | 0     | 0    | x 8 0    |

**RETURN AIR TRUNK SIZE**

|         | TRUNK | STATIC | ROUND | RECT | VELOCITY |
|---------|-------|--------|-------|------|----------|
|         | CFM   | PRESS. | DUCT  | DUCT | (ft/min) |
| TRUNK O | 0     | 0.05   | 0     | 0    | x 8 0    |
| TRUNK P | 0     | 0.05   | 0     | 0    | x 8 0    |
| TRUNK Q | 0     | 0.05   | 0     | 0    | x 8 0    |
| TRUNK R | 0     | 0.05   | 0     | 0    | x 8 0    |
| TRUNK S | 0     | 0.05   | 0     | 0    | x 8 0    |
| TRUNK T | 0     | 0.05   | 0     | 0    | x 8 0    |
| TRUNK U | 0     | 0.05   | 0     | 0    | x 8 0    |
| TRUNK V | 0     | 0.05   | 0     | 0    | x 8 0    |
| TRUNK W | 0     | 0.05   | 0     | 0    | x 8 0    |

| RETURN AIR #       | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 0     | 0     | 0     | 0     | 0     | 0     | 0     | BR   |
|--------------------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|------|
| AIR VOLUME         | 75   | 75   | 135  | 135  | 75   | 330  | 190  | 45   | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 195  |
| PLENUM PRESSURE    | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15 |
| ACTUAL DUCT LGH    | 41   | 53   | 45   | 67   | 71   | 26   | 25   | 47   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 14   |
| EQUIVALENT LENGTH  | 195  | 190  | 185  | 190  | 185  | 145  | 145  | 245  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 185  |
| TOTAL EFFECTIVE LH | 236  | 243  | 230  | 257  | 256  | 171  | 170  | 292  | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 199  |
| ADJUSTED PRESSURE  | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.09 | 0.09 | 0.05 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 0.07 |
| ROUND DUCT SIZE    | 5.7  | 5.7  | 7.1  | 7.1  | 5.7  | 9    | 7.3  | 4.9  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 7.9  |
| INLET GRILL SIZE   | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 8    |
|                    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X     | X     | X     | X     | X     | X     | X    |
| INLET GRILL SIZE   | 14   | 14   | 14   | 14   | 14   | 30   | 14   | 14   | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 24   |

|         |      |      |      |    |   |    |     |
|---------|------|------|------|----|---|----|-----|
| TRUNK X | 1255 | 0.05 | 17.2 | 28 | x | 10 | 645 |
| TRUNK Y | 730  | 0.05 | 14   | 22 | x | 8  | 597 |
| TRUNK Z | 210  | 0.05 | 8.8  | 10 | x | 8  | 378 |
| DROP    | 1255 | 0.05 | 17.2 | 24 | x | 12 | 628 |



TYPE: 4003 THE BROOKSIDE  
SITE NAME: PINE VALLEY & TESTON

LO # 80232  
WOB

**RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY**

| COMBUSTION APPLIANCES |                                                                               | 9.32.3.1(1) |
|-----------------------|-------------------------------------------------------------------------------|-------------|
| a)                    | <input checked="" type="checkbox"/> Direct vent (sealed combustion) only      |             |
| b)                    | <input type="checkbox"/> Positive venting induced draft (except fireplaces)   |             |
| c)                    | <input type="checkbox"/> Natural draft, B-vent or induced draft gas fireplace |             |
| d)                    | <input type="checkbox"/> Solid Fuel (including fireplaces)                    |             |
| e)                    | <input type="checkbox"/> No Combustion Appliances                             |             |

| HEATING SYSTEM                                 |                                         |
|------------------------------------------------|-----------------------------------------|
| <input checked="" type="checkbox"/> Forced Air | <input type="checkbox"/> Non Forced Air |
| <input type="checkbox"/> Electric Space Heat   |                                         |

| HOUSE TYPE                            |                                                      | 9.32.1(2) |
|---------------------------------------|------------------------------------------------------|-----------|
| <input checked="" type="checkbox"/> I | Type a) or b) appliance only, no solid fuel          |           |
| <input type="checkbox"/> II           | Type I except with solid fuel (including fireplaces) |           |
| <input type="checkbox"/> III          | Any Type c) appliance                                |           |
| <input type="checkbox"/> IV           | Type I, or II with electric space heat               |           |
| <input type="checkbox"/>              | Other: Type I, II or IV no forced air                |           |

| SYSTEM DESIGN OPTIONS                 |                                               | O.N.H.W.P. |
|---------------------------------------|-----------------------------------------------|------------|
| <input type="checkbox"/> 1            | Exhaust only/Forced Air System                |            |
| <input type="checkbox"/> 2            | HRV with Ducting/Forced Air System            |            |
| <input checked="" type="checkbox"/> 3 | HRV Simplified/connected to forced air system |            |
| <input type="checkbox"/> 4            | HRV with Ducting/non forced air system        |            |
| <input type="checkbox"/>              | Part 6 Design                                 |            |

| TOTAL VENTILATION CAPACITY |                     | 9.32.3.3(1)      |
|----------------------------|---------------------|------------------|
| Basement + Master Bedroom  | <u>2</u> @ 21.2 cfm | <u>42.4</u> cfm  |
| Other Bedrooms             | <u>3</u> @ 10.6 cfm | <u>31.8</u> cfm  |
| Kitchen & Bathrooms        | <u>5</u> @ 10.6 cfm | <u>53</u> cfm    |
| Other Rooms                | <u>5</u> @ 10.6 cfm | <u>53.0</u> cfm  |
| Table 9.32.3.A.            | TOTAL               | <u>180.2</u> cfm |

| PRINCIPAL VENTILATION CAPACITY REQUIRED |      | 9.32.3.4.(1)    |
|-----------------------------------------|------|-----------------|
| 1 Bedroom                               | 31.8 | cfm             |
| 2 Bedroom                               | 47.7 | cfm             |
| 3 Bedroom                               | 63.6 | cfm             |
| 4 Bedroom                               | 79.5 | cfm             |
| 5 Bedroom                               | 95.4 | cfm             |
| TOTAL                                   |      | <u>79.5</u> cfm |

| SUPPLEMENTAL VENTILATION CAPACITY |              | 9.32.3.5. |
|-----------------------------------|--------------|-----------|
| Total Ventilation Capacity        | <u>180.2</u> | cfm       |
| Less Principal Ventil. Capacity   | <u>155</u>   | cfm       |
| Required Supplemental Capacity    | <u>25.2</u>  | cfm       |

| PRINCIPAL EXHAUST FAN CAPACITY                   |                  |        |        |
|--------------------------------------------------|------------------|--------|--------|
| Model:                                           | VANEE 65H        |        |        |
| Location:                                        | BSMT             |        |        |
| <u>155.0</u> cfm                                 | <u>3.0</u> sones |        |        |
| <input checked="" type="checkbox"/> HVI Approved |                  |        |        |
| PRINCIPAL EXHAUST HEAT LOSS CALCULATION          |                  |        |        |
| CFM                                              | $\Delta T$ °F    | FACTOR | % LOSS |
| 155.0 CFM                                        | X 76 F           | X 1.08 | X 0.25 |

| SUPPLEMENTAL FANS |           | NUTONE |                                     |       |
|-------------------|-----------|--------|-------------------------------------|-------|
| Location          | Model     | cfm    | HVI                                 | Sones |
| ENS               | QTXEN050C | 50     | <input checked="" type="checkbox"/> | 0.3   |
| BATH              | QTXEN050C | 50     | <input checked="" type="checkbox"/> | 0.3   |
| ENS-2             | QTXEN050C | 50     | <input checked="" type="checkbox"/> | 0.3   |
| W/R               | QTXEN050C | 50     | <input checked="" type="checkbox"/> | 0.3   |

| HEAT RECOVERY VENTILATOR                              |                                                  | 9.32.3.11. |
|-------------------------------------------------------|--------------------------------------------------|------------|
| Model:                                                | VANEE 65H                                        |            |
| <u>155</u> cfm high                                   | <u>64</u> cfm low                                |            |
| <u>75</u> % Sensible Efficiency @ 32 deg F ( 0 deg C) | <input checked="" type="checkbox"/> HVI Approved |            |

| LOCATION OF INSTALLATION |                   |
|--------------------------|-------------------|
| Lot:                     | Concession        |
| Township                 | Plan:             |
| Address                  |                   |
| Roll #                   | Building Permit # |

| BUILDER:     |        | GOLD PARKHOMES |
|--------------|--------|----------------|
| Name:        |        |                |
| Address:     |        |                |
| City:        |        |                |
| Telephone #: | Fax #: |                |

| INSTALLING CONTRACTOR |        |
|-----------------------|--------|
| Name:                 |        |
| Address:              |        |
| City:                 |        |
| Telephone #:          | Fax #: |

| DESIGNER CERTIFICATION                                                                                        |                         |
|---------------------------------------------------------------------------------------------------------------|-------------------------|
| I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code. |                         |
| Name:                                                                                                         | HVAC Designs Ltd.       |
| Signature:                                                                                                    | <i>Michael O'Rourke</i> |
| HRAI #                                                                                                        | 001820                  |
| Date:                                                                                                         | February-20             |

| CSA F280-12 Residential Heat Loss and Heat Gain Calculations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                           |                                                           |                                                                                                                                                                                                                      |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-------------------|--------------|------|------|----|-------|-------|------|----|-------|--------|------|---|---------|-------|---|---|---|--------|---|---|---|--------|--|--|--------------|--------|--|--|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------|-------|--------------------------------|-------|-------------------------------|--|--|--|--|--|--------|---------|-------|-------|-------------|----|-----|----|----|-------------|----|----|---|----|
| Formula Sheet (For Air Leakage / Ventilation Calculation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |                                                           |                                                                                                                                                                                                                      |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| LO#: 80232                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Model: 4003 THE BROOKSIDE | Builder: GOLD PARKHOMES                                   | Date: 2020-02-26                                                                                                                                                                                                     |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| <b>Volume Calculation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |                                                           | <b>Air Change &amp; Delta T Data</b>                                                                                                                                                                                 |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| <b>House Volume</b><br><table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> </thead> <tbody> <tr><td>Bsmt</td><td>1530</td><td>10</td><td>15300</td></tr> <tr><td>First</td><td>1530</td><td>11</td><td>16830</td></tr> <tr><td>Second</td><td>1782</td><td>9</td><td>16216.2</td></tr> <tr><td>Third</td><td>0</td><td>9</td><td>0</td></tr> <tr><td>Fourth</td><td>0</td><td>9</td><td>0</td></tr> <tr><td colspan="3" style="text-align: right;">Total:</td><td>48,346.2 ft³</td></tr> <tr><td colspan="3" style="text-align: right;">Total:</td><td>1369.0 m³</td></tr> </tbody> </table> |                           |                                                           | Level                                                                                                                                                                                                                | Floor Area (ft²)                                             | Floor Height (ft) | Volume (ft³) | Bsmt | 1530 | 10 | 15300 | First | 1530 | 11 | 16830 | Second | 1782 | 9 | 16216.2 | Third | 0 | 9 | 0 | Fourth | 0 | 9 | 0 | Total: |  |  | 48,346.2 ft³ | Total: |  |  | 1369.0 m³ | <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 20%; text-align: center;">0.408</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.137</td> </tr> </table><br><table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="5" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTDh</td> <td style="text-align: center;">22</td> <td style="text-align: center;">-20</td> <td style="text-align: center;">42</td> <td style="text-align: center;">76</td> </tr> <tr> <td>Summer DTDc</td> <td style="text-align: center;">24</td> <td style="text-align: center;">31</td> <td style="text-align: center;">7</td> <td style="text-align: center;">13</td> </tr> </table> |  | WINTER NATURAL AIR CHANGE RATE | 0.408 | SUMMER NATURAL AIR CHANGE RATE | 0.137 | Design Temperature Difference |  |  |  |  |  | Tin °C | Tout °C | ΔT °C | ΔT °F | Winter DTDh | 22 | -20 | 42 | 76 | Summer DTDc | 24 | 31 | 7 | 13 |
| Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Floor Area (ft²)          | Floor Height (ft)                                         | Volume (ft³)                                                                                                                                                                                                         |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Bsmt                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1530                      | 10                                                        | 15300                                                                                                                                                                                                                |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| First                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1530                      | 11                                                        | 16830                                                                                                                                                                                                                |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Second                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1782                      | 9                                                         | 16216.2                                                                                                                                                                                                              |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Third                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0                         | 9                                                         | 0                                                                                                                                                                                                                    |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Fourth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0                         | 9                                                         | 0                                                                                                                                                                                                                    |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Total:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                           |                                                           | 48,346.2 ft³                                                                                                                                                                                                         |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Total:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                           |                                                           | 1369.0 m³                                                                                                                                                                                                            |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| WINTER NATURAL AIR CHANGE RATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.408                     |                                                           |                                                                                                                                                                                                                      |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| SUMMER NATURAL AIR CHANGE RATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.137                     |                                                           |                                                                                                                                                                                                                      |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Design Temperature Difference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                           |                                                           |                                                                                                                                                                                                                      |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Tin °C                    | Tout °C                                                   | ΔT °C                                                                                                                                                                                                                | ΔT °F                                                        |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Winter DTDh                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 22                        | -20                                                       | 42                                                                                                                                                                                                                   | 76                                                           |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Summer DTDc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 24                        | 31                                                        | 7                                                                                                                                                                                                                    | 13                                                           |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| <b>5.2.3.1 Heat Loss due to Air Leakage</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                           |                                                           | <b>6.2.6 Sensible Gain due to Air Leakage</b>                                                                                                                                                                        |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| $HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ <p>0.408      x      380.28      x      42 °C      x      1.2      =      7857 W</p> <p style="text-align: right;">=      26808 Btu/h</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                                                           | $HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ <p>=      0.137      x      380.28      x      7 °C      x      1.2      =      444 W</p> <p style="text-align: right;">=      1515 Btu/h</p> |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| <b>5.2.3.2 Heat Loss due to Mechanical Ventilation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                           |                                                           | <b>6.2.7 Sensible heat Gain due to Ventilation</b>                                                                                                                                                                   |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| $HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>155 CFM      x      76 °F      x      1.08      x      0.25      =      3181 Btu/h</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                           |                                                           | $HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>155 CFM      x      13 °F      x      1.08      x      0.25      =      536 Btu/h</p>                                                                   |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| <b>5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                           |                                                           |                                                                                                                                                                                                                      |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| $HL_{airr} = Level\ Factor \times HL_{airbv} \times \{ (HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel}) \}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                           |                                                           |                                                                                                                                                                                                                      |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Level Factor (LF)         | HLairve Air Leakage +<br>Ventilation Heat Loss<br>(Btu/h) | Level Conductive Heat<br>Loss: (HL <sub>clevel</sub> )                                                                                                                                                               | Air Leakage Heat Loss Multiplier (LF x<br>HLairbv / HLlevel) |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0.5                       | 26,808                                                    | 8,776                                                                                                                                                                                                                | 1.527                                                        |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0.3                       |                                                           | 15,159                                                                                                                                                                                                               | 0.531                                                        |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0.2                       |                                                           | 13,894                                                                                                                                                                                                               | 0.386                                                        |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0                         |                                                           | 0                                                                                                                                                                                                                    | 0.000                                                        |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0                         |                                                           | 0                                                                                                                                                                                                                    | 0.000                                                        |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| <p>*HLairbv = Air leakage heat loss + ventilation heat loss</p> <p>*For a balanced or supply only ventilation system HLairve = 0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                           |                                                           |                                                                                                                                                                                                                      |                                                              |                   |              |      |      |    |       |       |      |    |       |        |      |   |         |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |

**HEAT LOSS AND GAIN SUMMARY SHEET**

|                                  |                  |                                   |
|----------------------------------|------------------|-----------------------------------|
| <b>MODEL:</b> 4003 THE BROOKSIDE | <b>WOB</b>       | <b>BUILDER:</b> GOLD PARKHOMES    |
| <b>SFQT:</b> 3296                | <b>LO#</b> 80232 | <b>SITE:</b> PINE VALLEY & TESTON |

**DESIGN ASSUMPTIONS**

|                      |    |                                |    |
|----------------------|----|--------------------------------|----|
| HEATING              | °F | COOLING                        | °F |
| OUTDOOR DESIGN TEMP. | -4 | OUTDOOR DESIGN TEMP.           | 88 |
| INDOOR DESIGN TEMP.  | 72 | INDOOR DESIGN TEMP. (MAX 75°F) | 75 |

**BUILDING DATA**

|                                                  |                 |                           |          |
|--------------------------------------------------|-----------------|---------------------------|----------|
| ATTACHMENT:                                      | DETACHED        | # OF STORIES (+BASEMENT): | 3        |
| FRONT FACES:                                     | EAST            | ASSUMED (Y/N):            | Y        |
| AIR CHANGES PER HOUR:                            | 3.57            | ASSUMED (Y/N):            | Y        |
| AIR TIGHTNESS CATEGORY:                          | AVERAGE         | ASSUMED (Y/N):            | Y        |
| WIND EXPOSURE:                                   | SHELTERED       | ASSUMED (Y/N):            | Y        |
| HOUSE VOLUME (ft <sup>3</sup> ):                 | 48346.2         | ASSUMED (Y/N):            | Y        |
| INTERNAL SHADING:                                | BLINDS/CURTAINS | ASSUMED OCCUPANTS:        | 5        |
| INTERIOR LIGHTING LOAD (Btu/h/ft <sup>2</sup> ): | 1.27            | DC BRUSHLESS MOTOR (Y/N): | Y        |
| FOUNDATION CONFIGURATION                         | BCIN_1          | DEPTH BELOW GRADE:        | 7.0 ft   |
| LENGTH: 59.0 ft                                  | WIDTH: 32.0 ft  | EXPOSED PERIMETER:        | 140.0 ft |
| WOB INSULATION CONFIGURATION                     | SCB_9           | WOB EXPOSED PERIMETER     | 42.0 ft  |

**2012 OBC - COMPLIANCE PACKAGE**

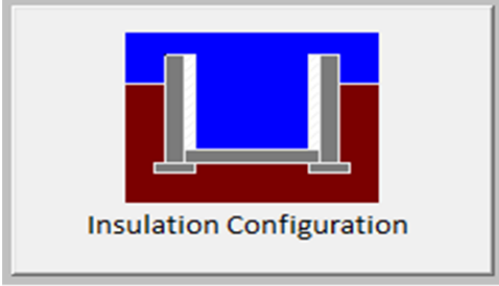
| Component                                                                  | Compliance Package A1 |           |
|----------------------------------------------------------------------------|-----------------------|-----------|
|                                                                            | Nominal               | Min. Eff. |
| Ceiling with Attic Space Minimum RSI (R)-Value                             | 60                    | 59.22     |
| Ceiling Without Attic Space Minimum RSI (R)-Value                          | 31                    | 27.65     |
| Exposed Floor Minimum RSI (R)-Value                                        | 31                    | 29.80     |
| Walls Above Grade Minimum RSI (R)-Value                                    | 22                    | 17.03     |
| Basement Walls Minimum RSI (R)-Value                                       | 20 ci                 | 21.12     |
| Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value | -                     | -         |
| Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value        | 10                    | 10        |
| Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value             | 10                    | 11.13     |
| Windows and Sliding Glass Doors Maximum U-Value                            | 0.28                  | -         |
| Skylights Maximum U-Value                                                  | 0.49                  | -         |
| Space Heating Equipment Minimum AFUE                                       | 0.96                  | -         |
| HRV Minimum Efficiency                                                     | 75%                   | -         |
| Domestic Hot Water Heater Minimum EF                                       | 0.8                   | -         |

INDIVIDUAL BCIN: 19669  
MICHAEL O'ROURKE



## Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

| Weather Station Description    |                                           |                                                                                                                 |
|--------------------------------|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Province:                      | Ontario                                   |                                                                                                                 |
| Region:                        | Vaughan (Woodbridge)                      |                                                                                                                 |
| Site Description               |                                           |                                                                                                                 |
| Soil Conductivity:             | Normal conductivity: dry sand, loam, clay |                                                                                                                 |
| Water Table:                   | Normal (7-10 m, 23-33 ft)                 |                                                                                                                 |
| Foundation Dimensions          |                                           |                                                                                                                 |
| Floor Length (m):              | 4.6                                       | <br>Insulation Configuration |
| Floor Width (m):               | 9.8                                       |                                                                                                                 |
| Exposed Perimeter (m):         | 42.7                                      |                                                                                                                 |
| Wall Height (m):               | 3.0                                       |                                                                                                                 |
| Depth Below Grade (m):         | 1.79                                      |                                                                                                                 |
| Window Area (m <sup>2</sup> ): | 0.6                                       |                                                                                                                 |
| Door Area (m <sup>2</sup> ):   | 1.9                                       |                                                                                                                 |
| Radiant Slab                   |                                           |                                                                                                                 |
| Heated Fraction of the Slab:   | 0                                         |                                                                                                                 |
| Fluid Temperature (°C):        | 33                                        |                                                                                                                 |
| Design Months                  |                                           |                                                                                                                 |
| Heating Month                  | 1                                         |                                                                                                                 |
| Foundation Loads               |                                           |                                                                                                                 |
| Heating Load (Watts):          |                                           | <b>712</b>                                                                                                      |

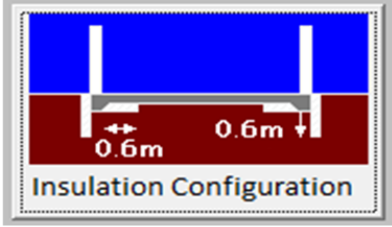
TYPE: 4003 THE BROOKSIDE  
LO# 80232

WOB



## Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

| Weather Station Description  |                                           |                                                                                     |
|------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------|
| Province:                    | Ontario                                   |                                                                                     |
| Region:                      | Vaughan (Woodbridge)                      |                                                                                     |
| Site Description             |                                           |                                                                                     |
| Soil Conductivity:           | Normal conductivity: dry sand, loam, clay |                                                                                     |
| Water Table:                 | Normal (7-10 m, 23-33 ft)                 |                                                                                     |
| Foundation Dimensions        |                                           |                                                                                     |
| Length (m):                  | 1.5                                       |  |
| Width (m):                   | 9.8                                       |                                                                                     |
| Exposed Perimeter (m):       | 12.8                                      |                                                                                     |
| Radiant Slab                 |                                           |                                                                                     |
| Heated Fraction of the Slab: | 0                                         |                                                                                     |
| Fluid Temperature (°C):      | 33                                        |                                                                                     |
| Design Months                |                                           |                                                                                     |
| Heating Month                | 1                                         |                                                                                     |
| Results                      |                                           |                                                                                     |
| Heating Load (Watts):        |                                           | 156                                                                                 |

TYPE: 4003 THE BROOKSIDE  
LO# 80232

WOB

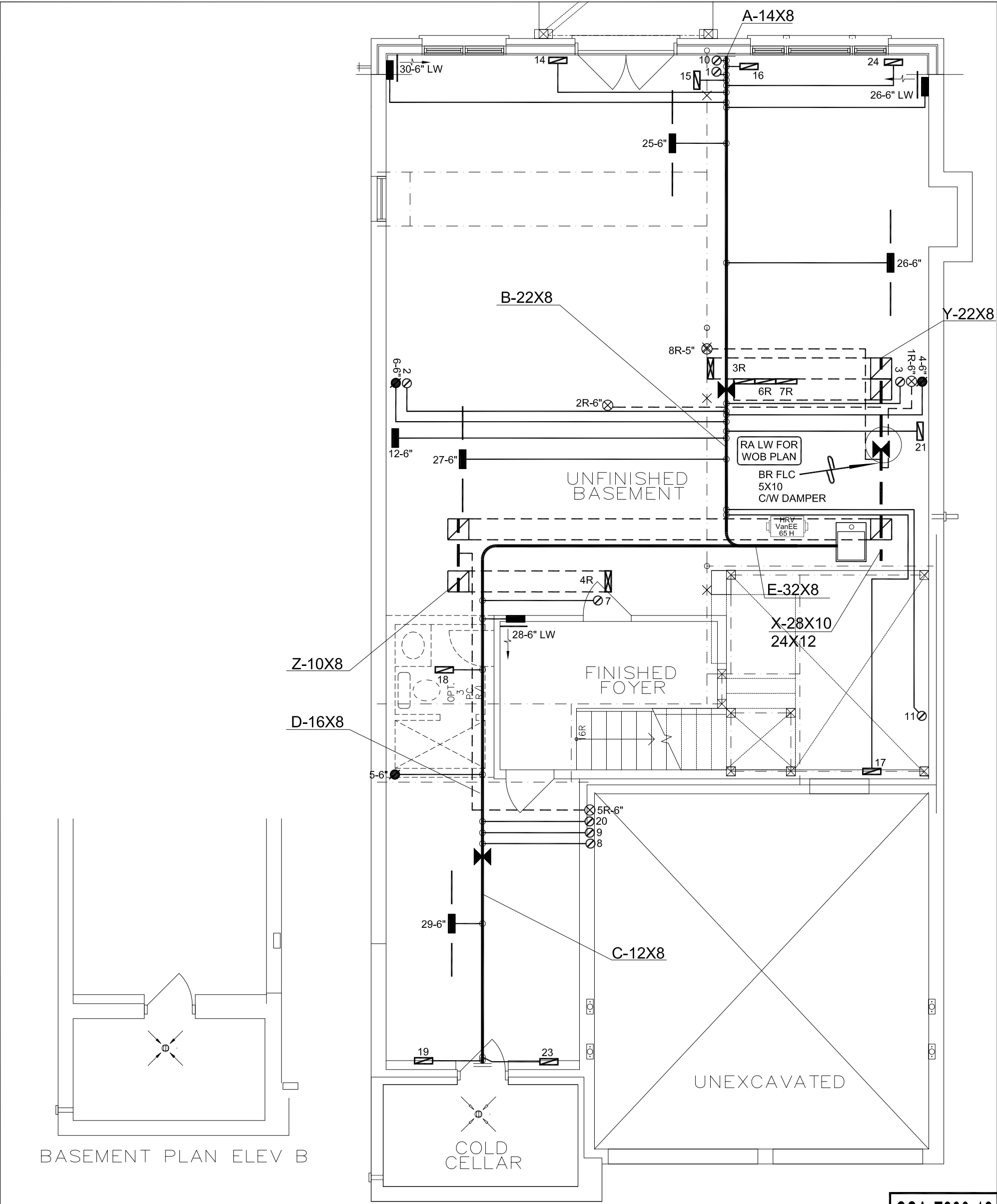
# Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

| Weather Station Description       |                            |                        |    |    |
|-----------------------------------|----------------------------|------------------------|----|----|
| Province:                         | Ontario                    |                        |    |    |
| Region:                           | Vaughan (Woodbridge)       |                        |    |    |
| Weather Station Location:         | Open flat terrain, grass   |                        |    |    |
| Anemometer height (m):            | 10                         |                        |    |    |
| Local Shielding                   |                            |                        |    |    |
| Building Site:                    | Suburban, forest           |                        |    |    |
| Walls:                            | Heavy                      |                        |    |    |
| Flue:                             | Heavy                      |                        |    |    |
| Highest Ceiling Height (m):       | 9.17                       |                        |    |    |
| Building Configuration            |                            |                        |    |    |
| Type:                             | Detached                   |                        |    |    |
| Number of Stories:                | Two                        |                        |    |    |
| Foundation:                       | Full                       |                        |    |    |
| House Volume (m <sup>3</sup> ):   | 1369.0                     |                        |    |    |
| Air Leakage/Ventilation           |                            |                        |    |    |
| Air Tightness Type:               | Present (1961-) (3.57 ACH) |                        |    |    |
| Custom BDT Data:                  | ELA @ 10 Pa.               | 1824.9 cm <sup>2</sup> |    |    |
|                                   | 3.57                       | ACH @ 50 Pa            |    |    |
| Mechanical Ventilation (L/s):     | Total Supply               | Total Exhaust          |    |    |
|                                   | 73.2                       | 73.2                   |    |    |
| Flue Size                         |                            |                        |    |    |
| Flue #:                           | #1                         | #2                     | #3 | #4 |
| Diameter (mm):                    | 0                          | 0                      | 0  | 0  |
| Natural Infiltration Rates        |                            |                        |    |    |
| Heating Air Leakage Rate (ACH/H): | 0.408                      |                        |    |    |
| Cooling Air Leakage Rate (ACH/H): | 0.137                      |                        |    |    |

TYPE: 4003 THE BROOKSIDE  
LO# 80232

WOB



1

MICHAEL O'ROURKE HAVE REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

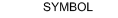


Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

BASEMENT PLAN ELEV A

CSA-F280-12

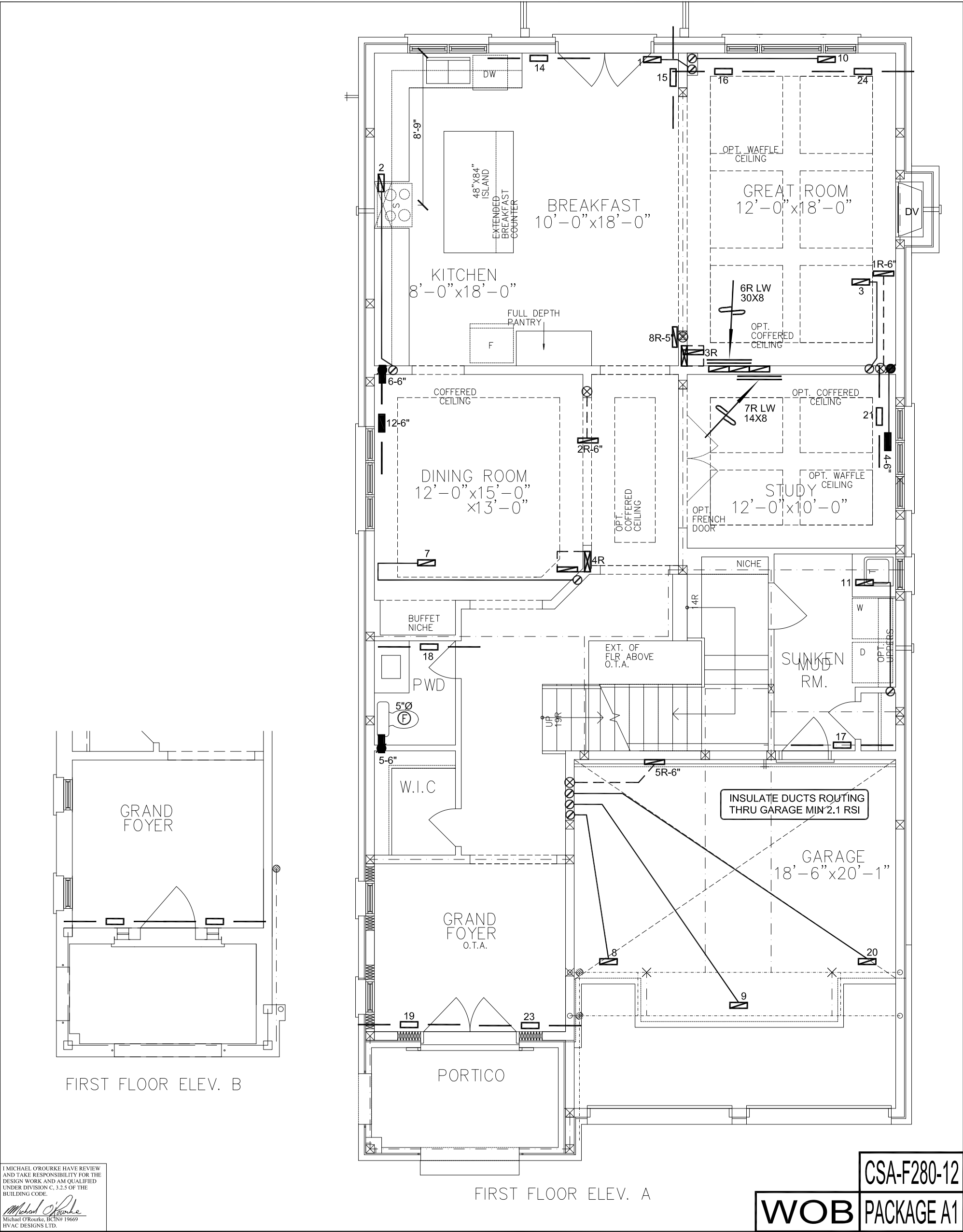
WOB PACKAGE A1

| HVAC LEGEND                                                                        |                                 |                                                                                     |                                 |                                                                                     |                              |                                                                                       |                            | 3.        |                               |          |
|------------------------------------------------------------------------------------|---------------------------------|-------------------------------------------------------------------------------------|---------------------------------|-------------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------|----------------------------|-----------|-------------------------------|----------|
| SYMBOL                                                                             | DESCRIPTION                     | SYMBOL                                                                              | DESCRIPTION                     | SYMBOL                                                                              | DESCRIPTION                  | SYMBOL                                                                                | DESCRIPTION                | 2.        | REVISED AS PER ARCHITECTURALS | FEB/2020 |
|  | FLOOR SUPPLY AIR GRILLE         |  | 6" SUPPLY AIR BOOT ABOVE        |  | 14"x8" RETURN AIR GRILLE     |  | RETURN AIR STACK ABOVE     | 1.        | RETURN #8 ADDED TO HALL       | NOV/2018 |
|  | FLOOR SUPPLY AIR GRILLE 6" BOOT |  | SUPPLY AIR STACK FROM 2nd FLOOR |  | 30"x8" RETURN AIR GRILLE     |  | RETURN AIR STACK 2nd FLOOR | No.       | Description                   | Date     |
|  | SUPPLY AIR BOOT ABOVE           |  | 6" SUPPLY AIR STACK 2nd FLOOR   |  | FRA- FLOOR RETURN AIR GRILLE |  | REDUCER                    | REVISIONS |                               |          |

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|                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                           |           |                                    |                                                                                                                                               |                        |   |             |                               |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---|-------------|-------------------------------|----------|
| Client                                                                                                                                                                                                                                                  | <div></div> <div>375 Finley Ave - Suite 202 - Ajax, Ontario<br/>L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375<br/>Email: info@hvacdesigns.ca<br/>Web: www.hvacdesigns.ca<br/>Specializing in Residential Mechanical Design Services</div> |           | HEAT LOSS 69106 BTU/H<br>UNIT DATA |                                                                                                                                               | # OF RUNS S/A R/A FANS |   |             | Sheet Title                   |          |
| GOLD PARK HOMES                                                                                                                                                                                                                                         | <div>Project Name</div> <div>PINE VALLEY &amp; TESTON<br/>VAUGHAN, ONTARIO</div> <div>THE BROOKSIDE<br/>4003 - WOB</div> <div>3296 sqft</div>                                                                                                                                                                                             |           | MAKE                               | LENNOX                                                                                                                                        | 3RD FLOOR              |   |             | BASEMENT<br>HEATING<br>LAYOUT |          |
| MODEL                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                           |           | EL296UH090XE48C                    | 2ND FLOOR                                                                                                                                     | 12                     | 6 | 3           |                               |          |
| INPUT                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                           |           | 88 MBTU/H                          | 1ST FLOOR                                                                                                                                     | 10                     | 2 | 2           |                               |          |
| OUTPUT                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                           |           | 85 MBTU/H                          | BASEMENT                                                                                                                                      | 6                      | 1 | 0           | Date                          | OCT/2018 |
| Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed. |                                                                                                                                                                                                                                                                                                                                           | COOLING   | 3.5 TONS                           | ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A |                        |   | Scale       | 3/16" = 1'-0"                 |          |
|                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                           | FAN SPEED | 1255 cfm @ 0.6" w.c.               |                                                                                                                                               |                        |   | BCIN# 19669 |                               |          |
|                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                           |           |                                    |                                                                                                                                               |                        |   | LO#         | 80232                         |          |

Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.



I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

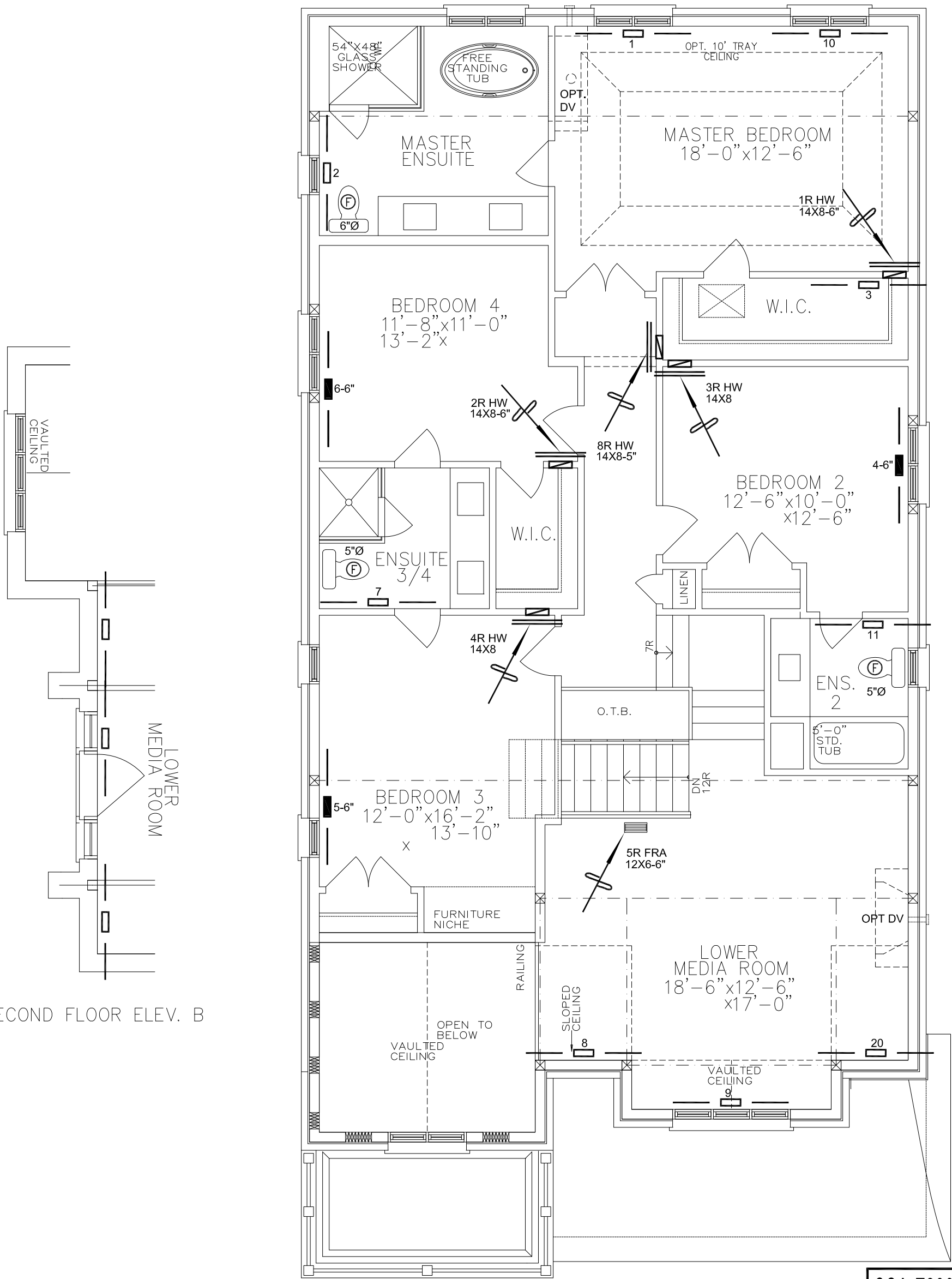
*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

| HVAC LEGEND                                                                        |                                 |                                                                                     |                                 |                                                                                     |                              |                                                                                       |                            | 3.        |                               |          |
|------------------------------------------------------------------------------------|---------------------------------|-------------------------------------------------------------------------------------|---------------------------------|-------------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------|----------------------------|-----------|-------------------------------|----------|
| SYMBOL                                                                             | DESCRIPTION                     | SYMBOL                                                                              | DESCRIPTION                     | SYMBOL                                                                              | DESCRIPTION                  | SYMBOL                                                                                | DESCRIPTION                | 2.        | REVISED AS PER ARCHITECTURALS | FEB/2020 |
|  | FLOOR SUPPLY AIR GRILLE         |  | 6" SUPPLY AIR BOOT ABOVE        |  | 14"x8" RETURN AIR GRILLE     |  | RETURN AIR STACK ABOVE     | 1.        | RETURN #8 ADDED TO HALL       | NOV/2018 |
|  | FLOOR SUPPLY AIR GRILLE 6" BOOT |  | SUPPLY AIR STACK FROM 2nd FLOOR |  | 30"x8" RETURN AIR GRILLE     |  | RETURN AIR STACK 2nd FLOOR | No.       | Description                   | Date     |
|  | SUPPLY AIR BOOT ABOVE           |  | 6" SUPPLY AIR STACK 2nd FLOOR   |  | FRA- FLOOR RETURN AIR GRILLE |  | REDUCER                    | REVISIONS |                               |          |

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|                                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                            |               |
|---------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------|
| Client                                |  | <div></div> <div>375 Finley Ave - Suite 202 - Ajax, Ontario<br/>L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375<br/>Email: info@hvacdesigns.ca<br/>Web: www.hvacdesigns.ca<br/>Specializing in Residential Mechanical Design Services</div> <div>Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.</div> | Sheet Title                |               |
| GOLD PARK HOMES                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | FIRST FLOOR HEATING LAYOUT |               |
| Project Name                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Date                       | OCT/2018      |
| PINE VALLEY & TESTON VAUGHAN, ONTARIO |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Scale                      | 3/16" = 1'-0" |
| THE BROOKSIDE 4003 - WOB              |  | BCIN# 19669                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                            |               |
| 3296 sqft                             |  | LO#                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 80232                      |               |

SECOND FLOOR ELEV. B



SECOND FLOOR ELEV. A

CSA-F280-12

WOB PACKAGE A1

I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

| HVAC LEGEND |                                 |        |                                 |        |                              |        |                            | 3.        |                               |          |
|-------------|---------------------------------|--------|---------------------------------|--------|------------------------------|--------|----------------------------|-----------|-------------------------------|----------|
| SYMBOL      | DESCRIPTION                     | SYMBOL | DESCRIPTION                     | SYMBOL | DESCRIPTION                  | SYMBOL | DESCRIPTION                | 2.        | REVISED AS PER ARCHITECTURALS | FEB/2020 |
|             | FLOOR SUPPLY AIR GRILLE         |        | 6" SUPPLY AIR BOOT ABOVE        |        | 14"x8" RETURN AIR GRILLE     |        | RETURN AIR STACK ABOVE     | 1.        | RETURN #8 ADDED TO HALL       | NOV/2018 |
|             | FLOOR SUPPLY AIR GRILLE 6" BOOT |        | SUPPLY AIR STACK FROM 2nd FLOOR |        | 30"x8" RETURN AIR GRILLE     |        | RETURN AIR STACK 2nd FLOOR | No.       | Description                   | Date     |
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|                                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |               |
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| GOLD PARK HOMES                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | SECOND FLOOR HEATING LAYOUT |               |
| Project Name                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Date                        | OCT/2018      |
| PINE VALLEY & TESTON VAUGHAN, ONTARIO |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Scale                       | 3/16" = 1'-0" |
| THE BROOKSIDE 4003 - WOB 3296 sqft    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | BCIN# 19669                 |               |
|                                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | LO#                         | 80232         |