


## 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.                             |
| Municipality<br>VAUGHAN (WOODBIDGE)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                     |                                                                                                               | Postal code                          |
| Plan number/ other description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                     |                                                                                                               | Lot/con.                             |
| <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>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                     |                                                                                                               |                                      |
| <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <input type="checkbox"/> House<br/> <input type="checkbox"/> Small Buildings<br/> <input type="checkbox"/> Large Buildings<br/> <input type="checkbox"/> Complex Buildings </div> <div style="width: 30%;"> <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 </div> <div style="width: 30%;"> <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 </div> </div> |                                     |                                                                                                               |                                      |
| 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> 5005 - KNIGHTSWOOD<br><br>OPT. ELEVATOR - 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><div style="text-align: center;">(print name)</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                     |                                                                                                               |                                      |
| <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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                     |                                                                                                               |                                      |
| September 11, 2018                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                     | <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 OPT. ELEVATOR - WOB DATE: Sep-18 WINTER NATURAL AIR CHANGE RATE 0.416 HEAT LOSS AT °F. 76 CSA-P280-12  
BUILDER: GOLD PARK HOMES TYPE: 6005 - KNIGHTSWOOD LO# 78933 SUMMER NATURAL AIR CHANGE RATE 0.139 HEAT GAIN AT °F. 13 SB-12 PACKAGE A1

| ROOM USE                       | LIB  | DIN   | KIT/IGT | CAB  | LAUN | PWD  | FOY  | MUD  | ENS-2 | WIC-2 | ENS-3 | ENS-4 | WOB  | BAS   |
|--------------------------------|------|-------|---------|------|------|------|------|------|-------|-------|-------|-------|------|-------|
| EXP. WALL                      | 31   | 32    | 87      | 46   | 0    | 6    | 36   | 18   | 6     | 9     | 4     | 7     | 82   | 188   |
| CLG. HT.                       | 11   | 11    | 11      | 11   | 10   | 11   | 11   | 12   | 10    | 10    | 10    | 10    | 10   | 10    |
| FACTORS                        |      |       |         |      |      |      |      |      |       |       |       |       |      |       |
| GRS.WALL AREA                  | 606  | 360   | 130     | 352  | 560  | 190  | 80   | 216  | 80    | 90    | 40    | 70    | 520  | 1302  |
| GLAZING                        |      |       |         |      |      |      |      |      |       |       |       |       |      |       |
| NORTH                          | 21.3 | 15.4  | 6       | 18   | 383  | 0    | 0    | 0    | 8     | 170   | 124   | 0     | 0    | 6     |
| EAST                           | 21.3 | 39.9  | 0       | 70   | 1480 | 0    | 0    | 0    | 0     | 0     | 0     | 0     | 0    | 0     |
| SOUTH                          | 21.3 | 24.0  | 0       | 0    | 28   | 596  | 0    | 0    | 0     | 0     | 0     | 0     | 46   | 979   |
| WEST                           | 21.3 | 39.9  | 0       | 0    | 0    | 32   | 681  | 0    | 0     | 0     | 0     | 0     | 106  | 2286  |
| SKYL.T.                        | 37.2 | 101.5 | 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     |
| NET EXPOSED WALL               | 4.5  | 0.8   | 124     | 264  | 449  | 168  | 119  | 62   | 232   | 39    | 40    | 179   | 30   | 62    |
| NET EXPOSED BSMT WALL ABOVE GR | 3.6  | 0.6   | 0       | 0    | 0    | 0    | 0    | 0    | 0     | 0     | 0     | 0     | 0    | 0     |
| EXPOSED CLG                    | 1.3  | 0.6   | 247     | 317  | 348  | 285  | 366  | 60   | 77    | 35    | 48    | 62    | 28   | 140   |
| NO A T T I C EXPOSED CLG       | 2.7  | 1.3   | 0       | 24   | 66   | 30   | 84   | 231  | 106   | 0     | 0     | 0     | 0    | 0     |
| EXPOSED FLOOR                  | 2.5  | 0.4   | 154     | 383  | 66   | 278  | 709  | 119  | 104   | 265   | 45    | 0     | 0    | 0     |
| BASEMENT/CRAWL HEAT LOSS       |      |       |         |      |      |      |      |      |       |       |       |       |      |       |
| SLAB ON GRADE HEAT LOSS        |      |       |         |      |      |      |      |      |       |       |       |       |      |       |
| SUB TOTAL HT LOSS              | 3783 | 2593  | 1381    | 4152 | 4898 | 1752 | 1054 | 632  | 224   | 868   | 419   | 662   | 741  | 5746  |
| SUB TOTAL HT GAIN              | 2662 | 1792  | 397     | 3570 | 4234 | 0.20 | 0.36 | 0.20 | 0.36  | 0.20  | 0.36  | 0.20  | 0.36 | 0.80  |
| LEVEL FACTOR / MULTIPLIER      | 0.20 | 0.36  | 0.20    | 0.36 | 0.20 | 0.36 | 0.20 | 0.36 | 0.20  | 0.36  | 0.20  | 0.36  | 0.20 | 0.80  |
| AIR CHANGE HEAT LOSS           | 1384 | 935   | 502     | 1497 | 1803 | 632  | 85   | 211  | 228   | 211   | 161   | 210   | 6775 | 19080 |
| AIR CHANGE HEAT GAIN           | 214  | 145   | 32      | 288  | 342  | 0    | 86   | 80   | 18    | 9     | 87    | 0     | 0    | 0     |
| DUCT LOSS                      | 0    | 0     | 189     | 565  | 680  | 0    | 0    | 0    | 86    | 80    | 87    | 0     | 0    | 0     |
| DUCT GAIN                      | 0    | 0     | 112     | 479  | 551  | 0    | 0    | 0    | 24    | 13    | 13    | 0     | 0    | 0     |
| HEAT GAIN PEOPLE               | 2    | 480   | 0       | 1    | 240  | 1    | 240  | 0    | 0     | 0     | 0     | 0     | 0    | 0     |
| HEAT GAIN APPLIANCES/LIGHTS    | 692  | 0     | 682     | 692  | 692  | 2384 | 692  | 0    | 0     | 0     | 628   | 791   | 0    | 692   |
| TOTAL HT LOSS BTU/H            | 6147 | 3528  | 2082    | 8244 | 7481 | 2384 | 2653 | 877  | 946   | 877   | 628   | 791   | 6775 | 24826 |
| TOTAL HT GAIN x 1.3 BTU/H      |      |       |         |      |      |      |      |      |       |       |       |       |      |       |

| ROOM USE                       | LIB  | DIN   | KIT/IGT | CAB  | LAUN | PWD  | FOY  | MUD  | ENS-2 | WIC-2 | ENS-3 | ENS-4 | WOB  | BAS   |
|--------------------------------|------|-------|---------|------|------|------|------|------|-------|-------|-------|-------|------|-------|
| EXP. WALL                      | 31   | 32    | 87      | 46   | 0    | 6    | 36   | 18   | 6     | 9     | 4     | 7     | 82   | 188   |
| CLG. HT.                       | 11   | 11    | 11      | 11   | 10   | 11   | 11   | 12   | 10    | 10    | 10    | 10    | 10   | 10    |
| FACTORS                        |      |       |         |      |      |      |      |      |       |       |       |       |      |       |
| GRS.WALL AREA                  | 341  | 352   | 987     | 495  | 0    | 55   | 385  | 216  | 385   | 216   | 40    | 70    | 520  | 1302  |
| GLAZING                        |      |       |         |      |      |      |      |      |       |       |       |       |      |       |
| NORTH                          | 21.3 | 15.4  | 0       | 0    | 0    | 0    | 0    | 0    | 0     | 0     | 0     | 0     | 0    | 6     |
| EAST                           | 21.3 | 39.9  | 0       | 0    | 0    | 0    | 0    | 0    | 0     | 0     | 0     | 0     | 0    | 0     |
| SOUTH                          | 21.3 | 24.0  | 0       | 0    | 0    | 0    | 0    | 0    | 0     | 0     | 0     | 0     | 46   | 979   |
| WEST                           | 21.3 | 39.9  | 0       | 0    | 0    | 0    | 0    | 0    | 0     | 0     | 0     | 0     | 106  | 2286  |
| SKYL.T.                        | 37.2 | 101.5 | 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     |
| NET EXPOSED WALL               | 4.5  | 0.8   | 105     | 264  | 449  | 168  | 119  | 62   | 232   | 39    | 40    | 179   | 30   | 62    |
| NET EXPOSED BSMT WALL ABOVE GR | 3.6  | 0.6   | 0       | 0    | 0    | 0    | 0    | 0    | 0     | 0     | 0     | 0     | 0    | 0     |
| EXPOSED CLG                    | 1.3  | 0.6   | 247     | 317  | 348  | 285  | 366  | 60   | 77    | 35    | 48    | 62    | 28   | 140   |
| NO A T T I C EXPOSED CLG       | 2.7  | 1.3   | 0       | 24   | 66   | 30   | 84   | 231  | 106   | 0     | 0     | 0     | 0    | 0     |
| EXPOSED FLOOR                  | 2.5  | 0.4   | 154     | 383  | 66   | 278  | 709  | 119  | 104   | 265   | 45    | 0     | 0    | 0     |
| BASEMENT/CRAWL HEAT LOSS       |      |       |         |      |      |      |      |      |       |       |       |       |      |       |
| SLAB ON GRADE HEAT LOSS        |      |       |         |      |      |      |      |      |       |       |       |       |      |       |
| SUB TOTAL HT LOSS              | 2464 | 2143  | 7354    | 4886 | 274  | 807  | 3120 | 1380 | 3120  | 232   | 419   | 662   | 741  | 5746  |
| SUB TOTAL HT GAIN              | 2450 | 1055  | 6008    | 4559 | 84   | 224  | 568  | 232  | 568   | 232   | 419   | 662   | 6034 | 19080 |
| LEVEL FACTOR / MULTIPLIER      | 0.30 | 0.52  | 0.30    | 0.52 | 0.20 | 0.36 | 0.30 | 0.52 | 0.30  | 0.52  | 0.30  | 0.52  | 0.30 | 0.80  |
| AIR CHANGE HEAT LOSS           | 1291 | 1123  | 3853    | 2560 | 99   | 265  | 1634 | 723  | 1634  | 723   | 161   | 210   | 6775 | 19080 |
| AIR CHANGE HEAT GAIN           | 188  | 85    | 485     | 368  | 7    | 18   | 45   | 19   | 45    | 19    | 87    | 0     | 0    | 0     |
| DUCT LOSS                      | 0    | 0     | 0       | 0    | 0    | 0    | 0    | 0    | 0     | 0     | 0     | 0     | 0    | 0     |
| DUCT GAIN                      | 0    | 0     | 0       | 0    | 0    | 0    | 0    | 0    | 0     | 0     | 0     | 0     | 0    | 0     |
| HEAT GAIN PEOPLE               | 0    | 0     | 0       | 0    | 0    | 0    | 0    | 0    | 0     | 0     | 0     | 0     | 0    | 0     |
| HEAT GAIN APPLIANCES/LIGHTS    | 692  | 692   | 692     | 692  | 692  | 2384 | 692  | 0    | 0     | 0     | 628   | 791   | 0    | 692   |
| TOTAL HT LOSS BTU/H            | 3764 | 3265  | 11207   | 7446 | 410  | 772  | 4764 | 2102 | 4764  | 2102  | 628   | 791   | 6775 | 24826 |
| TOTAL HT GAIN x 1.3 BTU/H      |      |       |         |      |      |      |      |      |       |       |       |       |      |       |

TOTAL HEAT GAIN BTU/H: 61346 TONS: 5.11 LOSS DUE TO VENTILATION LOAD BTU/H: 3181

STRUCTURAL HEAT LOSS: 95390

TOTAL COMBINED HEAT LOSS BTU/H: 88570

*Michael O'Rourke*

INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

SITE NAME: PINE VALLEY & TESTON  
BUILDER: GOLD PARK HOMES

OPT. ELEVATOR - WOB

DATE: Sep-18

GFA: 4483

LO# 79983

HEATING CFM 1955 COOLING CFM 1955  
TOTAL HEAT LOSS 95,390 TOTAL HEAT GAIN 60,810  
AIR FLOW RATE CFM 20.49 AIR FLOW RATE CFM 32.15

AFUE = 96 %  
INPUT (BTU/H) = 110,000  
OUTPUT (BTU/H) = 106,000  
DESIGN CFM = 1955  
CFM @ 8" E.S.P.

| RUN COUNT | 4th | 3rd | 2nd | 1st | Bas |
|-----------|-----|-----|-----|-----|-----|
| S/A       | 0   | 0   | 18  | 13  | 8   |
| R/A       | 0   | 0   | 5   | 3   | 1   |

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   | 13   | 14     | 15     | 16     | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   |
|---------------------------|------|------|------|-------|-------|-------|-------|-------|-------|------|-------|------|------|--------|--------|--------|------|------|------|------|------|------|------|------|
| ROOM NAME                 | MBR  | ENS  | WIC  | BED-2 | BED-3 | BED-4 | ENS-2 | WIC-2 | ENS-3 | MBR  | ENS-4 | LIB  | DIN  | KIT/GT | KIT/GT | KIT/GT | LAUN | PWD  | FOY  | MUD  | BAS  | BAS  | BAS  | BAS  |
| RM LOSS MBH               | 2.57 | 2.78 | 2.08 | 2.07  | 2.49  | 2.38  | 0.95  | 0.88  | 0.63  | 2.57 | 0.79  | 1.88 | 3.27 | 2.80   | 2.80   | 2.80   | 0.41 | 0.77 | 4.75 | 2.10 | 3.95 | 3.95 | 3.95 | 3.95 |
| CFM PER RUN HEAT          | 53   | 57   | 43   | 42    | 51    | 49    | 19    | 18    | 13    | 53   | 16    | 38   | 67   | 57     | 57     | 57     | 8    | 16   | 97   | 43   | 81   | 81   | 81   | 81   |
| RM GAIN MBH               | 2.63 | 2.24 | 1.60 | 2.28  | 2.63  | 2.69  | 0.35  | 0.18  | 0.19  | 2.63 | 0.42  | 2.17 | 2.38 | 2.34   | 2.34   | 2.34   | 1.12 | 0.31 | 0.78 | 1.23 | 0.76 | 0.76 | 0.76 | 0.76 |
| CFM PER RUN COOLING       | 84   | 72   | 52   | 73    | 84    | 87    | 11    | 6     | 6     | 84   | 14    | 70   | 77   | 75     | 75     | 75     | 36   | 10   | 25   | 39   | 24   | 24   | 24   | 24   |
| ADJUSTED PRESSURE         | 0.15 | 0.16 | 0.16 | 0.16  | 0.15  | 0.15  | 0.16  | 0.16  | 0.16  | 0.15 | 0.16  | 0.16 | 0.16 | 0.16   | 0.16   | 0.16   | 0.16 | 0.16 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| EQUIVALENT LENGTH         | 200  | 200  | 170  | 160   | 170   | 160   | 160   | 150   | 170   | 170  | 150   | 140  | 103  | 120    | 140    | 110    | 200  | 170  | 210  | 180  | 150  | 120  | 150  | 90   |
| TOTAL EFFECTIVE LENGTH    | 270  | 270  | 223  | 209   | 245   | 208   | 207   | 198   | 223   | 234  | 209   | 197  | 132  | 172    | 209    | 184    | 236  | 243  | 250  | 207  | 227  | 180  | 219  | 128  |
| ADJUSTED PRESSURE         | 0.05 | 0.06 | 0.07 | 0.07  | 0.06  | 0.07  | 0.08  | 0.08  | 0.07  | 0.06 | 0.07  | 0.08 | 0.12 | 0.09   | 0.07   | 0.1    | 0.07 | 0.08 | 0.08 | 0.08 | 0.06 | 0.08 | 0.07 | 0.11 |
| ROUND DUCT SIZE           | 6    | 6    | 5    | 5     | 6     | 6     | 4     | 4     | 4     | 6    | 4     | 5    | 5    | 5      | 5      | 5      | 4    | 4    | 6    | 4    | 6    | 5    | 6    | 5    |
| HEATING VELOCITY (ft/min) | 270  | 291  | 316  | 308   | 260   | 250   | 218   | 207   | 149   | 270  | 184   | 279  | 492  | 419    | 419    | 419    | 92   | 184  | 495  | 493  | 413  | 595  | 413  | 595  |
| COOLING VELOCITY (ft/min) | 428  | 367  | 382  | 536   | 428   | 444   | 126   | 69    | 69    | 428  | 161   | 514  | 555  | 551    | 551    | 551    | 413  | 115  | 127  | 447  | 122  | 176  | 122  | 176  |
| OUTLET GRILL SIZE         | 4X10 | 4X10 | 3X10 | 3X10  | 4X10  | 4X10  | 3X10  | 3X10  | 3X10  | 4X10 | 3X10  | 3X10 | 3X10 | 3X10   | 3X10   | 3X10   | 3X10 | 3X10 | 4X10 | 3X10 | 4X10 | 3X10 | 4X10 | 3X10 |
| TRUNK                     | D    | C    | C    | G     | F     | E     | C     | G     | G     | A    | E     | F    | E    | D      | B      | C      | G    | A    | F    | C    | A    | B    | D    | E    |

TEMPERATURE RISE 50 °F

| RUN #                     | 25   | 26   | 27    | 28    | 29    | 30    | 31   | 32     | 33   | 34   | 35   | 36   | 37   | 38   | 39   |
|---------------------------|------|------|-------|-------|-------|-------|------|--------|------|------|------|------|------|------|------|
| ROOM NAME                 | BAS  | BAS  | BED-2 | BED-2 | BED-3 | BED-3 | LIB  | KIT/GT | CAB  | CAB  | CAB  | ENS  | ENS  | BAS  | BAS  |
| RM LOSS MBH               | 3.95 | 3.95 | 2.07  | 2.07  | 2.49  | 2.49  | 1.88 | 2.80   | 2.48 | 2.48 | 2.48 | 0.38 | 0.38 | 3.95 | 3.95 |
| CFM PER RUN HEAT          | 81   | 81   | 42    | 42    | 51    | 51    | 38   | 57     | 51   | 51   | 51   | 8    | 8    | 81   | 81   |
| RM GAIN MBH               | 0.76 | 0.76 | 2.28  | 2.28  | 2.63  | 2.63  | 2.17 | 2.34   | 2.44 | 2.44 | 2.44 | 0.14 | 0.14 | 0.76 | 0.76 |
| CFM PER RUN COOLING       | 24   | 24   | 73    | 73    | 84    | 84    | 70   | 75     | 78   | 78   | 78   | 4    | 4    | 24   | 24   |
| ADJUSTED PRESSURE         | 0.15 | 0.15 | 0.16  | 0.16  | 0.15  | 0.15  | 0.16 | 0.16   | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.15 | 0.15 |
| EQUIVALENT LENGTH         | 110  | 150  | 170   | 160   | 170   | 200   | 160  | 120    | 150  | 130  | 140  | 200  | 190  | 140  | 170  |
| TOTAL EFFECTIVE LENGTH    | 144  | 200  | 222   | 215   | 250   | 263   | 211  | 175    | 219  | 201  | 222  | 256  | 248  | 163  | 228  |
| ADJUSTED PRESSURE         | 0.1  | 0.07 | 0.07  | 0.07  | 0.06  | 0.06  | 0.07 | 0.09   | 0.07 | 0.08 | 0.07 | 0.06 | 0.06 | 0.09 | 0.06 |
| ROUND DUCT SIZE           | 5    | 6    | 5     | 5     | 6     | 6     | 5    | 5      | 6    | 5    | 6    | 4    | 4    | 5    | 6    |
| HEATING VELOCITY (ft/min) | 595  | 413  | 308   | 308   | 280   | 260   | 279  | 419    | 260  | 374  | 260  | 92   | 92   | 595  | 413  |
| COOLING VELOCITY (ft/min) | 176  | 122  | 536   | 536   | 428   | 428   | 514  | 551    | 398  | 573  | 398  | 46   | 46   | 176  | 122  |
| OUTLET GRILL SIZE         | 3X10 | 4X10 | 3X10  | 3X10  | 4X10  | 4X10  | 3X10 | 3X10   | 4X10 | 3X10 | 4X10 | 3X10 | 3X10 | 3X10 | 4X10 |
| TRUNK                     | G    | F    | G     | G     | F     | F     | F    | B      | A    | A    | A    | C    | C    | E    | C    |

**SUPPLY AIR TRUNK SIZE**

| TRUNK   | CFM  | STATIC PRESS. | ROUND DUCT | RECT DUCT | VELOCITY (ft/min) | TRUNK   | CFM  | STATIC PRESS. | ROUND DUCT | RECT DUCT | VELOCITY (ft/min) | TRUNK   | CFM | STATIC PRESS. | ROUND DUCT | RECT DUCT | VELOCITY (ft/min) |
|---------|------|---------------|------------|-----------|-------------------|---------|------|---------------|------------|-----------|-------------------|---------|-----|---------------|------------|-----------|-------------------|
| TRUNK A | 250  | 0.06          | 9          | 10        | 450               | TRUNK G | 653  | 0.06          | 12.8       | 20        | 588               | TRUNK O | 0   | 0.05          | 0          | 0         | 8                 |
| TRUNK B | 195  | 0.07          | 7.9        | 8         | 439               | TRUNK H | 1952 | 0.05          | 20.3       | 38        | 740               | TRUNK P | 0   | 0.05          | 0          | 0         | 8                 |
| TRUNK C | 761  | 0.06          | 13.6       | 22        | 623               | TRUNK I | 0    | 0.00          | 0          | 0         | 0                 | TRUNK Q | 0   | 0.05          | 0          | 0         | 8                 |
| TRUNK D | 244  | 0.05          | 9.3        | 10        | 439               | TRUNK J | 0    | 0.00          | 0          | 0         | 0                 | TRUNK R | 0   | 0.05          | 0          | 0         | 8                 |
| TRUNK E | 1299 | 0.05          | 17.4       | 28        | 688               | TRUNK K | 0    | 0.00          | 0          | 0         | 0                 | TRUNK S | 0   | 0.05          | 0          | 0         | 8                 |
| TRUNK F | 407  | 0.06          | 10.8       | 14        | 523               | TRUNK L | 0    | 0.00          | 0          | 0         | 0                 | TRUNK T | 0   | 0.05          | 0          | 0         | 8                 |

**RETURN AIR #**

| TRUNK   | CFM  | STATIC PRESS. | ROUND DUCT | RECT DUCT | VELOCITY (ft/min) | TRUNK   | CFM  | STATIC PRESS. | ROUND DUCT | RECT DUCT | VELOCITY (ft/min) | TRUNK   | CFM | STATIC PRESS. | ROUND DUCT | RECT DUCT | VELOCITY (ft/min) |
|---------|------|---------------|------------|-----------|-------------------|---------|------|---------------|------------|-----------|-------------------|---------|-----|---------------|------------|-----------|-------------------|
| TRUNK A | 250  | 0.06          | 9          | 10        | 450               | TRUNK G | 653  | 0.06          | 12.8       | 20        | 588               | TRUNK O | 0   | 0.05          | 0          | 0         | 8                 |
| TRUNK B | 195  | 0.07          | 7.9        | 8         | 439               | TRUNK H | 1952 | 0.05          | 20.3       | 38        | 740               | TRUNK P | 0   | 0.05          | 0          | 0         | 8                 |
| TRUNK C | 761  | 0.06          | 13.6       | 22        | 623               | TRUNK I | 0    | 0.00          | 0          | 0         | 0                 | TRUNK Q | 0   | 0.05          | 0          | 0         | 8                 |
| TRUNK D | 244  | 0.05          | 9.3        | 10        | 439               | TRUNK J | 0    | 0.00          | 0          | 0         | 0                 | TRUNK R | 0   | 0.05          | 0          | 0         | 8                 |
| TRUNK E | 1299 | 0.05          | 17.4       | 28        | 688               | TRUNK K | 0    | 0.00          | 0          | 0         | 0                 | TRUNK S | 0   | 0.05          | 0          | 0         | 8                 |
| TRUNK F | 407  | 0.06          | 10.8       | 14        | 523               | TRUNK L | 0    | 0.00          | 0          | 0         | 0                 | TRUNK T | 0   | 0.05          | 0          | 0         | 8                 |

TYPE: 5005 - KNIGHTSWOOD  
SITE NAME: PINE VALLEY & TESTON

LO # 79983  
OPT. ELEVATOR - 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  | 2 @ 21.2 cfm | 42.4 cfm    |
| Other Bedrooms             | 3 @ 10.6 cfm | 31.8 cfm    |
| Kitchen & Bathrooms        | 7 @ 10.6 cfm | 74.2 cfm    |
| Other Rooms                | 8 @ 10.6 cfm | 84.8 cfm    |
| Table 9.32.3.A.            | TOTAL        | 233.2 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        | 233.2 | cfm       |
| Less Principal Ventil. Capacity   | 155   | cfm       |
| Required Supplemental Capacity    | 78.2  | cfm       |

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

| PRINCIPAL EXHAUST HEAT LOSS CALCULATION |        |        |        |
|-----------------------------------------|--------|--------|--------|
| CFM                                     | ΔT °F  | FACTOR | % LOSS |
| 155.0 CFM                               | X 76 F | X 1.08 | X 0.25 |

| SUPPLEMENTAL FANS |           | NUTONE |                                     |
|-------------------|-----------|--------|-------------------------------------|
| Location          | Model     | cfm    | HVI                                 |
| ENS               | QTXEN050C | 50     | <input checked="" type="checkbox"/> |
| ENS-2             | QTXEN050C | 50     | <input checked="" type="checkbox"/> |
| ENS-4             | QTXEN050C | 50     | <input checked="" type="checkbox"/> |
| PWD               | QTXEN050C | 50     | <input checked="" type="checkbox"/> |

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

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

| BUILDER:        |        |
|-----------------|--------|
| GOLD PARK HOMES |        |
| 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:                                                                                                         | September-18            |

|                                                                                                                                      |                   |                                                     |                                                    |                                                           |   |                 |   |             |  |
|--------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------------------------------------------|----------------------------------------------------|-----------------------------------------------------------|---|-----------------|---|-------------|--|
| <b>CSA F280-12 Residential Heat Loss and Heat Gain Calculations</b>                                                                  |                   |                                                     |                                                    |                                                           |   |                 |   |             |  |
| <b>Formula Sheet (For Air Leakage / Ventilation Calculation)</b>                                                                     |                   |                                                     |                                                    |                                                           |   |                 |   |             |  |
| LO#: 79983                                                                                                                           |                   | Model: 5005 - KNIGHTSWOOD                           |                                                    | Builder: GOLD PARK HOMES                                  |   | Date: 9/11/2018 |   |             |  |
| <b>Volume Calculation</b>                                                                                                            |                   |                                                     |                                                    |                                                           |   |                 |   |             |  |
| <b>House Volume</b>                                                                                                                  |                   |                                                     |                                                    |                                                           |   |                 |   |             |  |
| Level                                                                                                                                | Floor Area (ft²)  | Floor Height (ft)                                   | Volume (ft³)                                       |                                                           |   |                 |   |             |  |
| Bsmt                                                                                                                                 | 2052              | 10                                                  | 20520                                              |                                                           |   |                 |   |             |  |
| First                                                                                                                                | 2052              | 11                                                  | 22572                                              |                                                           |   |                 |   |             |  |
| Second                                                                                                                               | 2439              | 10                                                  | 24390                                              |                                                           |   |                 |   |             |  |
| Third                                                                                                                                | 0                 | 9                                                   | 0                                                  |                                                           |   |                 |   |             |  |
| Fourth                                                                                                                               | 0                 | 9                                                   | 0                                                  |                                                           |   |                 |   |             |  |
| Total:                                                                                                                               |                   | 67,482.0 ft³                                        |                                                    |                                                           |   |                 |   |             |  |
| Total:                                                                                                                               |                   | 1910.9 m³                                           |                                                    |                                                           |   |                 |   |             |  |
| <b>Design Temperature Difference</b>                                                                                                 |                   |                                                     |                                                    |                                                           |   |                 |   |             |  |
| Winter DTDh                                                                                                                          |                   | Tin °C                                              |                                                    | Tout °C                                                   |   | ΔT °C           |   | ΔT °F       |  |
| Summer DTDc                                                                                                                          |                   | 22                                                  |                                                    | -20                                                       |   | 42              |   | 76          |  |
|                                                                                                                                      |                   | 24                                                  |                                                    | 31                                                        |   | 7               |   | 13          |  |
| <b>WINTER NATURAL AIR CHANGE RATE</b>                                                                                                |                   |                                                     |                                                    |                                                           |   |                 |   |             |  |
| <b>SUMMER NATURAL AIR CHANGE RATE</b>                                                                                                |                   |                                                     |                                                    |                                                           |   |                 |   |             |  |
| <b>0.416</b>                                                                                                                         |                   |                                                     |                                                    |                                                           |   |                 |   |             |  |
| <b>0.139</b>                                                                                                                         |                   |                                                     |                                                    |                                                           |   |                 |   |             |  |
| <b>6.2.6 Sensible Gain due to Air Leakage</b>                                                                                        |                   |                                                     |                                                    |                                                           |   |                 |   |             |  |
| $HG_{salb} = LR_{airb} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$                                                               |                   |                                                     |                                                    |                                                           |   |                 |   |             |  |
| 0.416                                                                                                                                | x                 | 530.80                                              | x                                                  | 42 °C                                                     | x | 1.2             | = | 11184 W     |  |
|                                                                                                                                      |                   |                                                     |                                                    |                                                           |   |                 | = | 38161 Btu/h |  |
| <b>5.2.3.1 Heat Loss due to Air Leakage</b>                                                                                          |                   |                                                     |                                                    |                                                           |   |                 |   |             |  |
| $HL_{airb} = LR_{airb} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$                                                               |                   |                                                     |                                                    |                                                           |   |                 |   |             |  |
| 0.416                                                                                                                                | x                 | 530.80                                              | x                                                  | 42 °C                                                     | x | 1.2             | = | 11184 W     |  |
|                                                                                                                                      |                   |                                                     |                                                    |                                                           |   |                 | = | 38161 Btu/h |  |
| <b>5.2.3.2 Heat Loss due to Mechanical Ventilation</b>                                                                               |                   |                                                     |                                                    |                                                           |   |                 |   |             |  |
| $HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$                                                                           |                   |                                                     |                                                    |                                                           |   |                 |   |             |  |
| 155 CFM                                                                                                                              | x                 | 76 °F                                               | x                                                  | 1.08                                                      | x | 0.25            | = | 3181 Btu/h  |  |
|                                                                                                                                      |                   |                                                     |                                                    |                                                           |   |                 | = | 536 Btu/h   |  |
| <b>5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)</b>                                          |                   |                                                     |                                                    |                                                           |   |                 |   |             |  |
| $HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{ugcr} + HL_{bgcr}) \div (HL_{uglevel} + HL_{bglevel})\}$                   |                   |                                                     |                                                    |                                                           |   |                 |   |             |  |
| Level                                                                                                                                | Level Factor (LF) | HLairbv Air Leakage + Ventilation Heat Loss (Btu/h) | Level Conductive Heat Loss: (HL <sub>level</sub> ) | Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel) |   |                 |   |             |  |
| 1                                                                                                                                    | 0.5               | 38,161                                              | 11,779                                             | 1.620                                                     |   |                 |   |             |  |
| 2                                                                                                                                    | 0.3               |                                                     | 21,853                                             | 0.524                                                     |   |                 |   |             |  |
| 3                                                                                                                                    | 0.2               |                                                     | 21,161                                             | 0.361                                                     |   |                 |   |             |  |
| 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 HLairbv = 0</p> |                   |                                                     |                                                    |                                                           |   |                 |   |             |  |

**HEAT LOSS AND GAIN SUMMARY SHEET**

|                                  |                            |                                   |
|----------------------------------|----------------------------|-----------------------------------|
| <b>MODEL:</b> 5005 - KNIGHTSWOOD | <b>OPT. ELEVATOR - WOB</b> | <b>BUILDER:</b> GOLD PARK HOMES   |
| <b>SFQT:</b> 4483                | <b>LO#</b> 79983           | <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 (ft³):                 | 67482.0         | ASSUMED (Y/N):            | Y        |
| INTERNAL SHADING:                   | BLINDS/CURTAINS | ASSUMED OCCUPANTS:        | 5        |
| INTERIOR LIGHTING LOAD (Btu/h/ft²): | 1.27            | DC BRUSHLESS MOTOR (Y/N): | Y        |
| FOUNDATION CONFIGURATION            | BCIN_1          | DEPTH BELOW GRADE:        | 7.0 ft   |
| LENGTH: 77.0 ft                     | WIDTH: 42.0 ft  | EXPOSED PERIMETER:        | 186.0 ft |
| WOB INSULATION CONFIGURATION        | SCB_9           | WOB EXPOSED PERIMETER     | 52.0 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                   | -         |

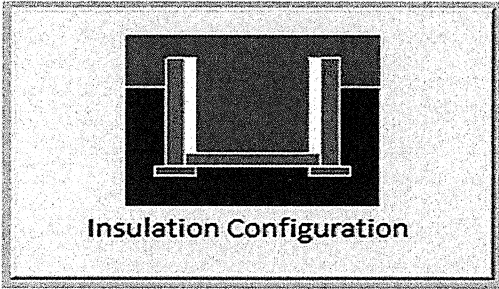
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



## Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

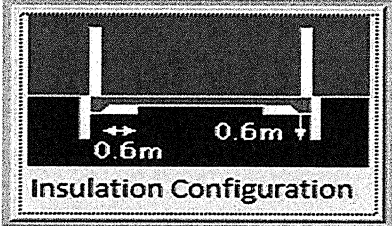
| Weather Station Description    |                                           |                                                                                                                 |
|--------------------------------|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| 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):               | 12.8                                      |                                                                                                                 |
| Exposed Perimeter (m):         | 56.7                                      |                                                                                                                 |
| Wall Height (m):               | 3.0                                       |                                                                                                                 |
| Depth Below Grade (m):         | 1.84                                      |                                                                                                                 |
| Window Area (m <sup>2</sup> ): | 1.1                                       |                                                                                                                 |
| 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>872</b>                                                                                                      |

TYPE: 5005 - KNIGHTSWOOD  
LO# 79983

OPT. ELEVATOR - 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                                       | <br>Insulation Configuration |
| Width (m):                   | 12.8                                      |                                                                                                                 |
| Exposed Perimeter (m):       | 15.8                                      |                                                                                                                 |
| Radiant Slab                 |                                           |                                                                                                                 |
| Heated Fraction of the Slab: | 0                                         |                                                                                                                 |
| Fluid Temperature (°C):      | 33                                        |                                                                                                                 |
| Design Months                |                                           |                                                                                                                 |
| Heating Month                | 1                                         |                                                                                                                 |
| Results                      |                                           |                                                                                                                 |
| Heating Load (Watts):        |                                           | <b>217</b>                                                                                                      |

TYPE: 5005 - KNIGHTSWOOD  
LO# 79983

OPT. ELEVATOR - WOB



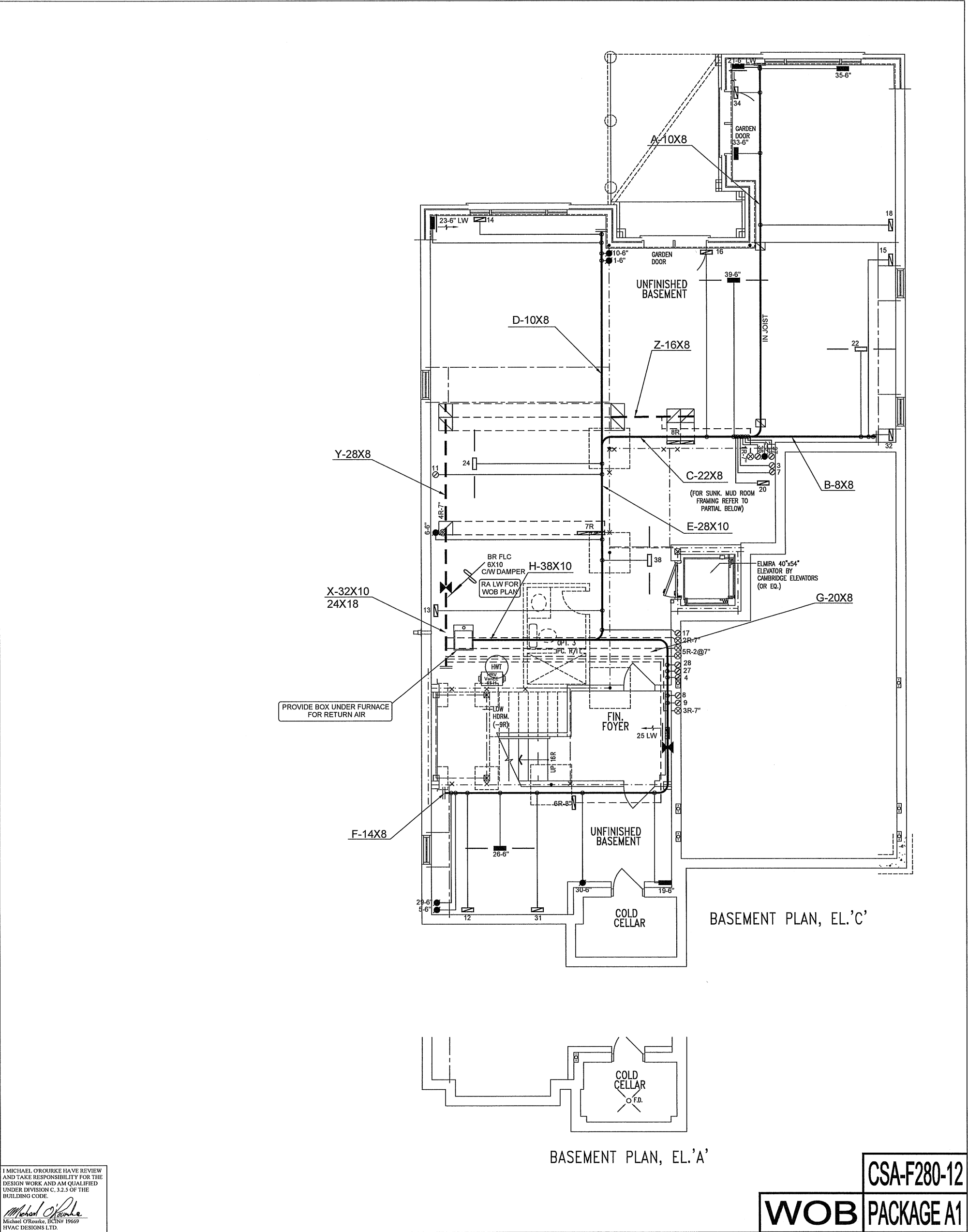
## Air Infiltration Residential Load Calculator

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):       | 9.45                       |                        |    |    |
| Building Configuration            |                            |                        |    |    |
| Type:                             | Detached                   |                        |    |    |
| Number of Stories:                | Two                        |                        |    |    |
| Foundation:                       | Full                       |                        |    |    |
| House Volume (m <sup>3</sup> ):   | 1910.9                     |                        |    |    |
| Air Leakage/Ventilation           |                            |                        |    |    |
| Air Tightness Type:               | Present (1961-) (3.57 ACH) |                        |    |    |
| Custom BDT Data:                  | ELA @ 10 Pa.               | 2547.3 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): | 0.416                      |                        |    |    |
| Cooling Air Leakage Rate (ACH/H): | 0.139                      |                        |    |    |

TYPE: 5005 - KNIGHTSWOOD  
LO# 79983

OPT. ELEVATOR - WOB



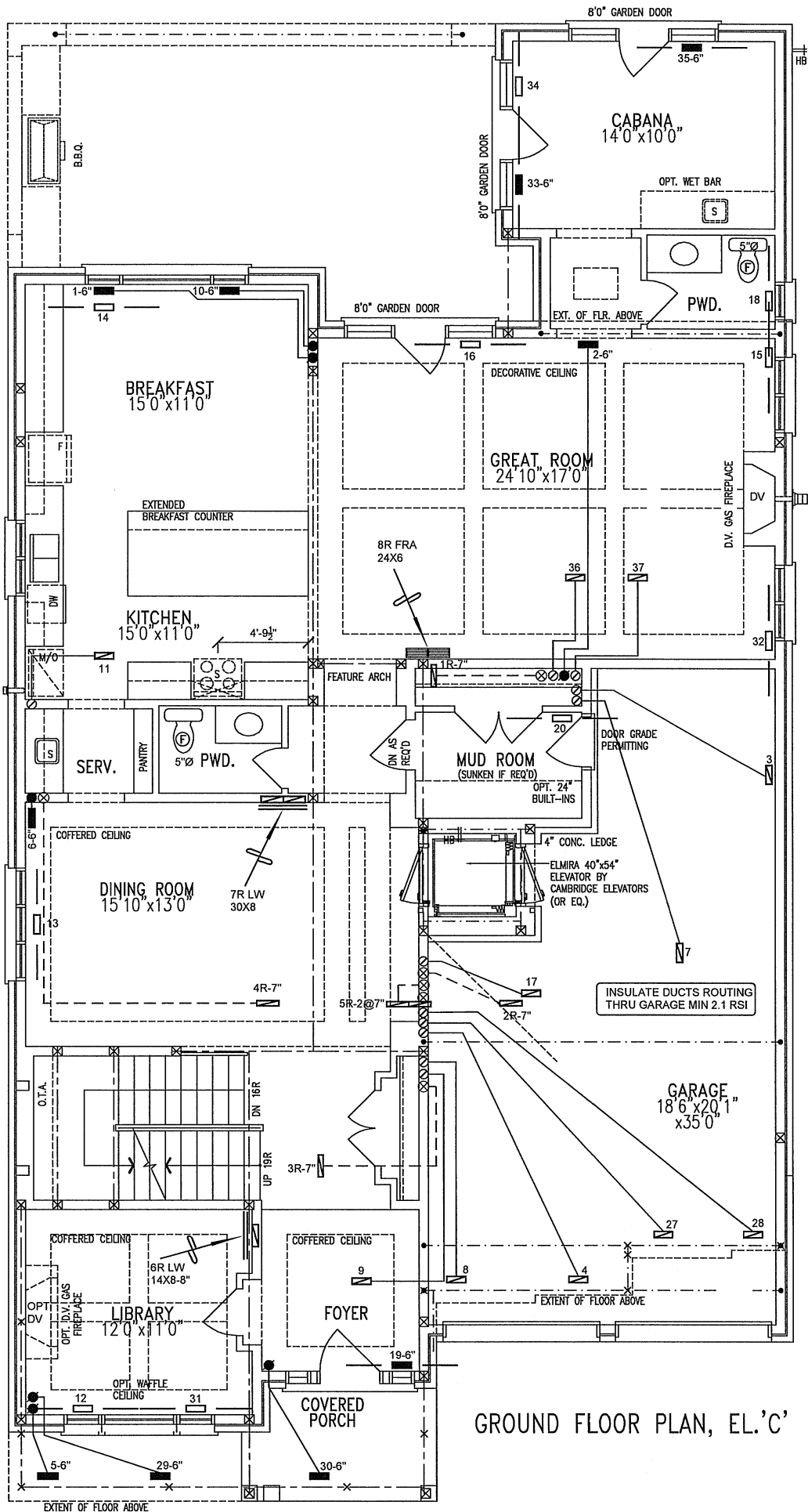
I MICHAEL O'ROURKE HAVE REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C. 3.2.5 OF THE BUILDING CODE.

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

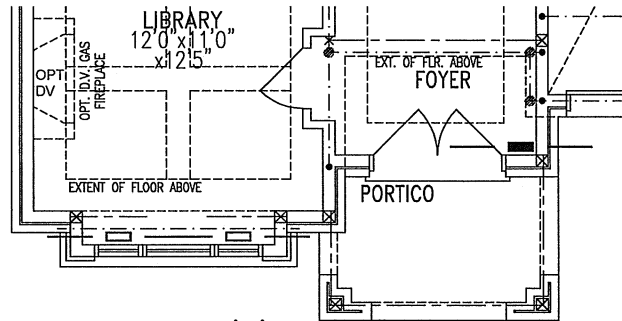
| HVAC LEGEND |                                 |        |                                 |        |                              |        |                            | 3.        |             |      |
|-------------|---------------------------------|--------|---------------------------------|--------|------------------------------|--------|----------------------------|-----------|-------------|------|
| SYMBOL      | DESCRIPTION                     | SYMBOL | DESCRIPTION                     | SYMBOL | DESCRIPTION                  | SYMBOL | DESCRIPTION                | 2.        |             |      |
|             | FLOOR SUPPLY AIR GRILLE         |        | 6" SUPPLY AIR BOOT ABOVE        |        | 14"x8" RETURN AIR GRILLE     |        | RETURN AIR STACK ABOVE     | 1.        |             |      |
|             | 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>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></div> | HEAT LOSS 98570 BTU/H<br>UNIT DATA |                         | # OF RUNS S/A R/A FANS                                                                                                                                       |    |   | Sheet Title |                               |             |              |
| GOLDPARK HOMES                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | MAKE                               | LENNOX                  | 3RD FLOOR                                                                                                                                                    |    |   |             | BASEMENT<br>HEATING<br>LAYOUT |             |              |
| Project Name                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | MODEL                              | EL296UH110XE60C         | 2ND FLOOR                                                                                                                                                    | 18 | 5 | 7           |                               |             |              |
| PINE VALLEY & TESTON<br>VAUGHAN, ONTARIO |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | INPUT                              | 110 MBTU/H              | 1ST FLOOR                                                                                                                                                    | 13 | 3 | 3           |                               |             |              |
| OPT. ELEVATOR                            |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | OUTPUT                             | 106 MBTU/H              | BASEMENT                                                                                                                                                     | 8  | 1 | 0           | Date                          | SEPT/2018   |              |
| KNIGHTSWOOD - WOB                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | COOLING                            | 5.0 TONS                | ALL S/A DIFFUSERS 4 "x10"<br>UNLESS NOTED OTHERWISE<br>ON LAYOUT. ALL S/A RUNS 5"Ø<br>UNLESS NOTED OTHERWISE<br>ON LAYOUT. UNDERCUT<br>DOORS 1" min. FOR R/A |    |   |             |                               | Scale       | 1/8" = 1'-0" |
| 5005 4483 sqft                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | FAN SPEED                          | 1955 cfm @<br>0.6" w.c. |                                                                                                                                                              |    |   |             |                               | BCIN# 19669 |              |
|                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                    |                         |                                                                                                                                                              |    |   | LO#         | 79983                         |             |              |



GROUND FLOOR PLAN, EL.'C'



GROUND FLOOR PLAN, EL.'A'

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

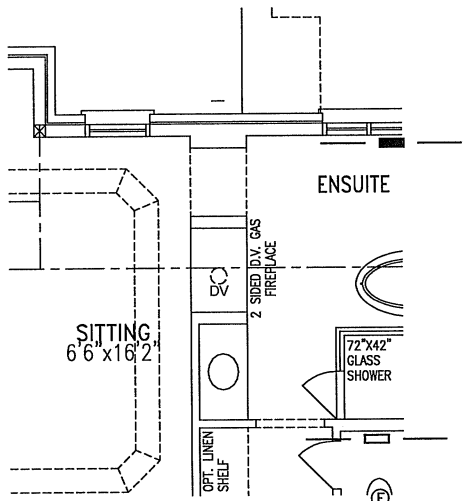
CSA-F280-12

WOB PACKAGE A1

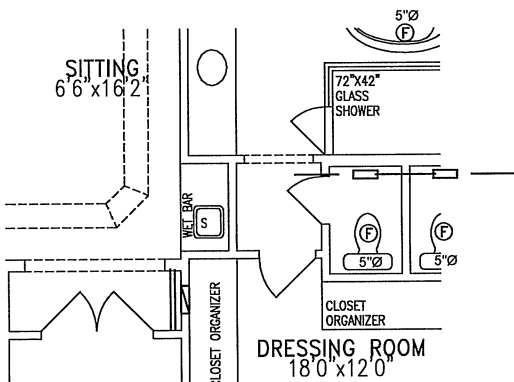
| HVAC LEGEND |                                 |        |                                 |        |                               |        |                            | 3.        |             |      |
|-------------|---------------------------------|--------|---------------------------------|--------|-------------------------------|--------|----------------------------|-----------|-------------|------|
| SYMBOL      | DESCRIPTION                     | SYMBOL | DESCRIPTION                     | SYMBOL | DESCRIPTION                   | SYMBOL | DESCRIPTION                | 2.        |             |      |
|             | FLOOR SUPPLY AIR GRILLE         |        | 6" SUPPLY AIR BOOT ABOVE        |        | 14"x8" RETURN AIR GRILLE      |        | RETURN AIR STACK ABOVE     | 1.        |             |      |
|             | 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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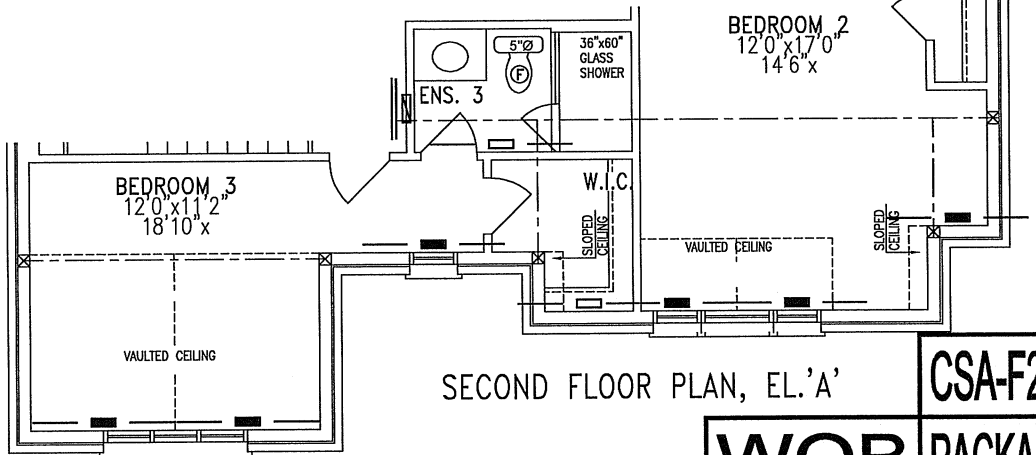
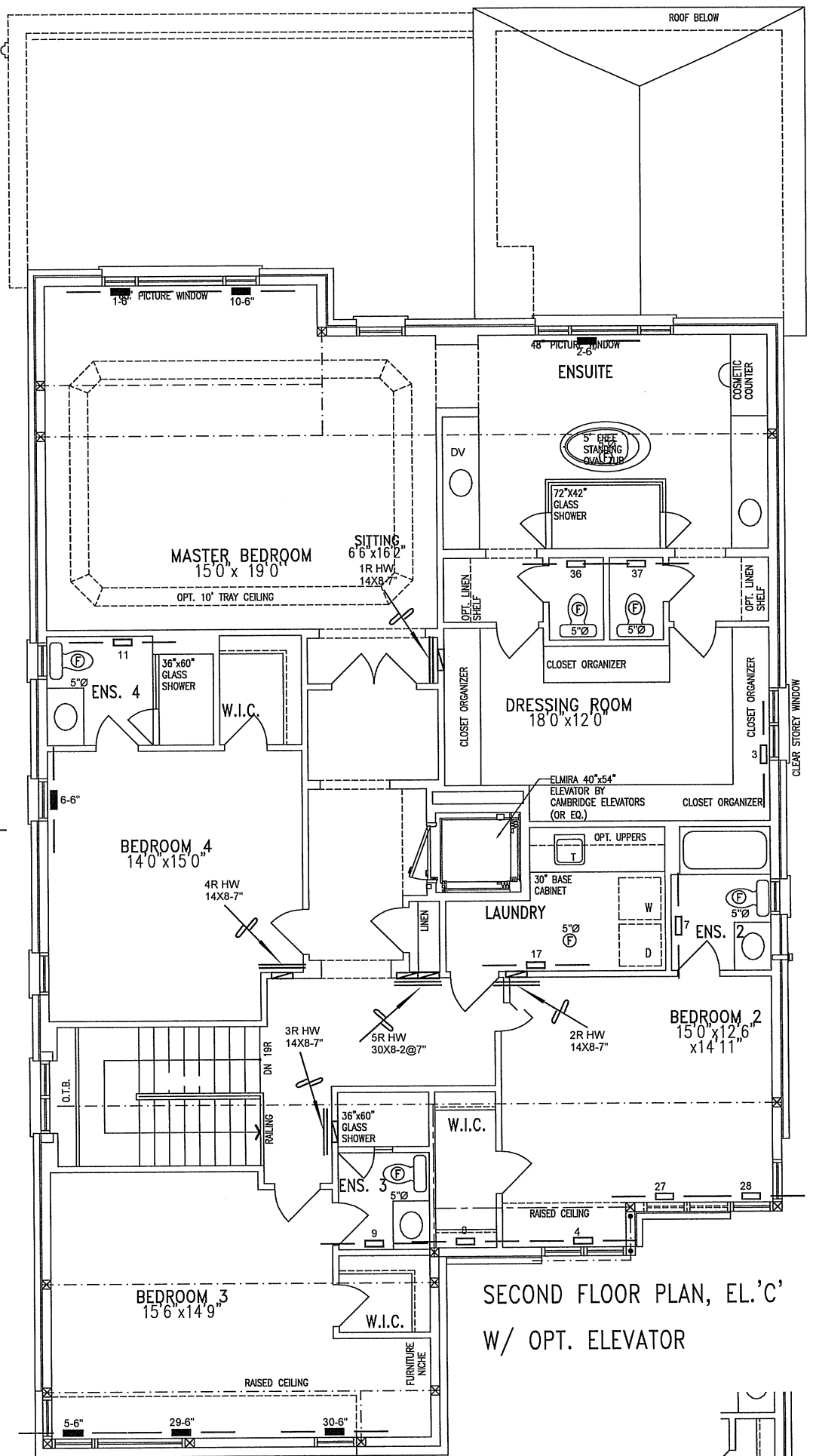
|                                       |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |              |
|---------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------------|
| 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                |              |
| GOLDPARK HOMES                        |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | FIRST FLOOR HEATING LAYOUT |              |
| Project Name                          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Date                       | SEPT/2018    |
| PINE VALLEY & TESTON VAUGHAN, ONTARIO |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Scale                      | 1/8" = 1'-0" |
| OPT. ELEVATOR KNIGHTSWOOD - WOB       |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | BCIN# 19669                |              |
| 5005                                  | 4483 sqft |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | LO#                        | 79983        |



PART. SECOND FLOOR PLAN  
OPT. SITTING AREA FIREPLACE



PART. SECOND FLOOR PLAN  
OPT. SITTING AREA WET BAR



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

| HVAC LEGEND |                                 |  |                                 |  |                              |  | 3.                         |     |                  |
|-------------|---------------------------------|--|---------------------------------|--|------------------------------|--|----------------------------|-----|------------------|
|             | FLOOR SUPPLY AIR GRILLE         |  | 6" SUPPLY AIR BOOT ABOVE        |  | 14"x8" RETURN AIR GRILLE     |  | RETURN AIR STACK ABOVE     | 2.  |                  |
|             | FLOOR SUPPLY AIR GRILLE 6" BOOT |  | SUPPLY AIR STACK FROM 2nd FLOOR |  | 30"x8" RETURN AIR GRILLE     |  | RETURN AIR STACK 2nd FLOOR | 1.  |                  |
|             | SUPPLY AIR BOOT ABOVE           |  | 6" SUPPLY AIR STACK 2nd FLOOR   |  | FRA- FLOOR RETURN AIR GRILLE |  | REDUCER                    | No. | Description Date |
|             |                                 |  |                                 |  |                              |  | REVISIONS                  |     |                  |

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|                                                                                                                  |  |                                                                                                                                                                                                                                                                      |                                                  |                       |
|------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-----------------------|
| Client<br>GOLDPARK HOMES                                                                                         |  | <div>HVACDESIGNS LTD.</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> | Sheet Title<br>SECOND FLOOR<br>HEATING<br>LAYOUT |                       |
| Project Name<br>PINE VALLEY & TESTON<br>VAUGHAN, ONTARIO<br>OPT. ELEVATOR<br>KNIGHTSWOOD - WOB<br>5005 4483 sqft |  |                                                                                                                                                                                                                                                                      | Date<br>SEPT/2018                                | Scale<br>1/8" = 1'-0" |
|                                                                                                                  |  | 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.              | BCIN# 19669                                      |                       |
|                                                                                                                  |  |                                                                                                                                                                                                                                                                      | LO#                                              | 79983                 |