

## Schedule 1: Designer Information

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

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                                                                                      |                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|--------------------------------------------------------------------------------------|-------------------------------|
| <b>A. Project Information</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                              |                                                                                      |                               |
| Building number, street name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                              | Unit no.                                                                             | Lot/con.                      |
| Municipality<br>RICHMOND HILL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Postal code                  | Plan number/ other description                                                       |                               |
| <b>B. Individual who reviews and takes responsibility for design activities</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                                                                                      |                               |
| Name<br>MICHAEL O'ROURKE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                              | Firm<br>HVAC DESIGNS LTD.                                                            |                               |
| Street address<br>375 FINLEY AVE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                              | Unit no.<br>202                                                                      | Lot/con.<br>N/A               |
| Municipality<br>AJAX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Postal code<br>L1S 2E2       | Province<br>ONTARIO                                                                  | E-mail<br>info@hvacdesigns.ca |
| Telephone number<br>(905) 619-2300                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Fax number<br>(905) 619-2375 | Cell number<br>( )                                                                   |                               |
| <b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                              |                                                                                      |                               |
| <input type="checkbox"/> House<br><input type="checkbox"/> Small Buildings<br><input type="checkbox"/> Large Buildings<br><input type="checkbox"/> Complex Buildings <input checked="" type="checkbox"/> HVAC – House<br><input type="checkbox"/> Building Services<br><input type="checkbox"/> Detection, Lighting and Power<br><input type="checkbox"/> Fire Protection <input type="checkbox"/> Building Structural<br><input type="checkbox"/> Plumbing – House<br><input type="checkbox"/> Plumbing – All Buildings<br><input type="checkbox"/> On-site Sewage Systems |                              |                                                                                      |                               |
| Description of designer's work<br>HEAT LOSS / GAIN CALCULATIONS<br>DUCT SIZING<br>RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY<br>RESIDENTIAL SYSTEM DESIGN per CSA-F280-12                                                                                                                                                                                                                                                                                                                                                                                            |                              | Model: 4504 FLANKAGE<br><br>Project: CENTREFIELD (WEST GORMLEY)                      |                               |
| <b>D. Declaration of Designer</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                              |                                                                                      |                               |
| I, <u>MICHAEL O'ROURKE</u> declare that (choose one as appropriate):<br>(print name)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                                                                                      |                               |
| <input type="checkbox"/> I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.<br>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>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.                                                                                                                                                                                                                                                                                                                                                                                                      |                              |                                                                                      |                               |
| June 7, 2021                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                              |  |                               |
| Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              | Signature of Designer                                                                |                               |

**NOTE:**

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

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

|                                       |      |       |     |      |      |      |      |     |      |              |     |                                      |      |                     |      |                   |     |
|---------------------------------------|------|-------|-----|------|------|------|------|-----|------|--------------|-----|--------------------------------------|------|---------------------|------|-------------------|-----|
| SITE NAME: CENTREFIELD (WEST GORMLEY) |      |       |     |      |      |      |      |     |      | DATE: Jun-21 |     | WINTER NATURAL AIR CHANGE RATE 0.219 |      | HEAT LOSS ΔT °F. 78 |      | CSA-F280-12       |     |
| BUILDER: ROYAL PINE HOMES             |      |       |     |      |      |      |      |     |      | LO# 87515    |     | SUMMER NATURAL AIR CHANGE RATE 0.068 |      | HEAT GAIN ΔT °F. 13 |      | SB-12 PERFORMANCE |     |
| TYPE: 4504 FLANKAGE                   |      |       |     |      |      |      |      |     |      | GFA: 3309    |     |                                      |      |                     |      |                   |     |
| ROOM USE                              |      |       |     |      |      |      |      |     |      |              |     |                                      |      |                     |      |                   |     |
| EXP. WALL                             |      |       |     |      |      |      |      |     |      |              |     |                                      |      |                     |      |                   |     |
| CLG. HT.                              |      |       |     |      |      |      |      |     |      |              |     |                                      |      |                     |      |                   |     |
| FACTORS                               |      |       |     |      |      |      |      |     |      |              |     |                                      |      |                     |      |                   |     |
| GRS.WALL AREA                         | LOSS | GAIN  |     |      |      |      |      |     |      |              |     |                                      |      |                     |      |                   |     |
| GLAZING                               |      |       |     |      |      |      |      |     |      |              |     |                                      |      |                     |      |                   |     |
| NORTH                                 | 21.8 | 16.0  | 0   | 0    | 0    | 0    | 0    | 0   | 0    | 0            | 0   | 0                                    | 0    | 0                   | 0    | 0                 | 0   |
| EAST                                  | 21.8 | 41.6  | 0   | 0    | 0    | 0    | 0    | 0   | 0    | 0            | 0   | 0                                    | 0    | 0                   | 0    | 0                 | 0   |
| SOUTH                                 | 21.8 | 24.9  | 0   | 0    | 0    | 19   | 414  | 473 | 0    | 0            | 0   | 0                                    | 0    | 0                   | 0    | 0                 | 0   |
| WEST                                  | 21.8 | 41.6  | 36  | 784  | 1496 | 0    | 0    | 0   | 0    | 0            | 0   | 0                                    | 0    | 0                   | 0    | 0                 | 0   |
| SKYLT.                                | 35.8 | 101.2 | 0   | 0    | 0    | 0    | 0    | 0   | 0    | 0            | 0   | 0                                    | 0    | 0                   | 0    | 0                 | 0   |
| DOORS                                 | 25.8 | 4.3   | 0   | 0    | 0    | 0    | 0    | 0   | 0    | 0            | 0   | 0                                    | 0    | 0                   | 0    | 0                 | 0   |
| NET EXPOSED WALL                      | 4.2  | 0.7   | 300 | 1262 | 208  | 197  | 828  | 136 | 226  | 950          | 156 | 292                                  | 1228 | 202                 | 96   | 404               | 66  |
| NET EXPOSED BSMT WALL ABOVE GR        | 3.7  | 0.6   | 0   | 0    | 0    | 0    | 0    | 0   | 0    | 0            | 0   | 0                                    | 0    | 0                   | 0    | 0                 | 0   |
| EXPOSED CLG                           | 1.3  | 0.6   | 428 | 562  | 252  | 180  | 237  | 106 | 280  | 368          | 165 | 280                                  | 368  | 165                 | 289  | 380               | 170 |
| NO ATTIC EXPOSED CLG                  | 2.8  | 1.3   | 0   | 0    | 0    | 0    | 0    | 0   | 0    | 0            | 0   | 0                                    | 0    | 0                   | 0    | 0                 | 0   |
| EXPOSED FLOOR                         | 2.6  | 0.4   | 0   | 0    | 0    | 0    | 0    | 0   | 280  | 731          | 120 | 0                                    | 0    | 0                   | 0    | 0                 | 0   |
| BASEMENT/CRAWL HEAT LOSS              |      |       |     |      |      |      |      |     |      |              |     |                                      |      |                     |      |                   |     |
| SLAB ON GRADE HEAT LOSS               |      |       |     |      |      |      |      |     |      |              |     |                                      |      |                     |      |                   |     |
| SUBTOTAL HT LOSS                      |      |       |     |      |      |      |      |     |      |              |     |                                      |      |                     |      |                   |     |
| SUB TOTAL HT GAIN                     |      |       |     |      |      |      |      |     |      |              |     |                                      |      |                     |      |                   |     |
| LEVEL FACTOR / MULTIPLIER             | 0.20 | 0.19  |     |      |      | 0.20 | 0.19 |     | 0.20 | 0.19         |     | 0.20                                 | 0.19 |                     | 0.20 | 0.19              |     |
| AIR CHANGE HEAT LOSS                  |      |       |     |      |      |      |      |     |      |              |     |                                      |      |                     |      |                   |     |
| AIR CHANGE HEAT GAIN                  |      |       |     |      |      |      |      |     |      |              |     |                                      |      |                     |      |                   |     |
| DUCT LOSS                             |      |       |     |      |      |      |      |     |      |              |     |                                      |      |                     |      |                   |     |
| DUCT GAIN                             |      |       |     |      |      |      |      |     |      |              |     |                                      |      |                     |      |                   |     |
| HEAT GAIN PEOPLE                      | 240  |       |     |      |      |      |      |     |      |              |     |                                      |      |                     |      |                   |     |
| HEAT GAIN APPLIANCES/LIGHTS           |      |       |     |      |      |      |      |     |      |              |     |                                      |      |                     |      |                   |     |
| TOTAL HT LOSS BTU/H                   |      |       |     |      |      |      |      |     |      |              |     |                                      |      |                     |      |                   |     |
| TOTAL HT GAIN x 1.3 BTU/H             |      |       |     |      |      |      |      |     |      |              |     |                                      |      |                     |      |                   |     |

|                                |      |       |     |     |      |      |      |     |      |      |     |      |      |     |      |      |    |
|--------------------------------|------|-------|-----|-----|------|------|------|-----|------|------|-----|------|------|-----|------|------|----|
| ROOM USE                       |      |       |     |     |      |      |      |     |      |      |     |      |      |     |      |      |    |
| EXP. WALL                      |      |       |     |     |      |      |      |     |      |      |     |      |      |     |      |      |    |
| CLG. HT.                       |      |       |     |     |      |      |      |     |      |      |     |      |      |     |      |      |    |
| FACTORS                        |      |       |     |     |      |      |      |     |      |      |     |      |      |     |      |      |    |
| GRS.WALL AREA                  | LOSS | GAIN  |     |     |      |      |      |     |      |      |     |      |      |     |      |      |    |
| GLAZING                        |      |       |     |     |      |      |      |     |      |      |     |      |      |     |      |      |    |
| NORTH                          | 21.8 | 16.0  | 0   | 0   | 0    | 0    | 0    | 0   | 0    | 0    | 0   | 0    | 0    | 0   | 0    | 0    | 0  |
| EAST                           | 21.8 | 41.6  | 37  | 806 | 1537 | 0    | 0    | 0   | 0    | 0    | 0   | 0    | 0    | 0   | 0    | 0    | 0  |
| SOUTH                          | 21.8 | 24.9  | 23  | 501 | 573  | 34   | 741  | 847 | 0    | 0    | 0   | 0    | 0    | 0   | 0    | 0    | 0  |
| WEST                           | 21.8 | 41.6  | 0   | 0   | 0    | 0    | 0    | 0   | 0    | 0    | 0   | 0    | 0    | 0   | 0    | 0    | 0  |
| SKYLT.                         | 35.8 | 101.2 | 0   | 0   | 0    | 0    | 0    | 0   | 0    | 0    | 0   | 0    | 0    | 0   | 0    | 0    | 0  |
| DOORS                          | 25.8 | 4.3   | 0   | 0   | 0    | 0    | 0    | 0   | 0    | 0    | 0   | 0    | 0    | 0   | 0    | 0    | 0  |
| NET EXPOSED WALL               | 4.2  | 0.7   | 190 | 799 | 131  | 246  | 1035 | 170 | 496  | 2086 | 343 | 207  | 871  | 143 | 51   | 214  | 35 |
| NET EXPOSED BSMT WALL ABOVE GR | 3.7  | 0.6   | 0   | 0   | 0    | 0    | 0    | 0   | 0    | 0    | 0   | 0    | 0    | 0   | 0    | 0    | 0  |
| EXPOSED CLG                    | 1.3  | 0.6   | 0   | 0   | 0    | 0    | 0    | 0   | 0    | 0    | 0   | 106  | 139  | 62  | 0    | 0    | 0  |
| NO ATTIC EXPOSED CLG           | 2.8  | 1.3   | 0   | 0   | 0    | 0    | 0    | 0   | 0    | 0    | 0   | 0    | 0    | 0   | 0    | 0    | 0  |
| EXPOSED FLOOR                  | 2.6  | 0.4   | 0   | 0   | 0    | 0    | 0    | 0   | 0    | 0    | 0   | 38   | 99   | 16  | 0    | 0    | 0  |
| BASEMENT/CRAWL HEAT LOSS       |      |       |     |     |      |      |      |     |      |      |     |      |      |     |      |      |    |
| SLAB ON GRADE HEAT LOSS        |      |       |     |     |      |      |      |     |      |      |     |      |      |     |      |      |    |
| SUBTOTAL HT LOSS               |      |       |     |     |      |      |      |     |      |      |     |      |      |     |      |      |    |
| SUB TOTAL HT GAIN              |      |       |     |     |      |      |      |     |      |      |     |      |      |     |      |      |    |
| LEVEL FACTOR / MULTIPLIER      | 0.30 | 0.27  |     |     |      | 0.30 | 0.27 |     | 0.30 | 0.27 |     | 0.20 | 0.19 |     | 0.30 | 0.27 |    |
| AIR CHANGE HEAT LOSS           |      |       |     |     |      |      |      |     |      |      |     |      |      |     |      |      |    |
| AIR CHANGE HEAT GAIN           |      |       |     |     |      |      |      |     |      |      |     |      |      |     |      |      |    |
| DUCT LOSS                      |      |       |     |     |      |      |      |     |      |      |     |      |      |     |      |      |    |
| DUCT GAIN                      |      |       |     |     |      |      |      |     |      |      |     |      |      |     |      |      |    |
| HEAT GAIN PEOPLE               | 240  |       |     |     |      |      |      |     |      |      |     |      |      |     |      |      |    |
| HEAT GAIN APPLIANCES/LIGHTS    |      |       |     |     |      |      |      |     |      |      |     |      |      |     |      |      |    |
| TOTAL HT LOSS BTU/H            |      |       |     |     |      |      |      |     |      |      |     |      |      |     |      |      |    |
| TOTAL HT GAIN x 1.3 BTU/H      |      |       |     |     |      |      |      |     |      |      |     |      |      |     |      |      |    |

TOTAL HEAT GAIN BTU/H:

41067

TONS: 3.42

LOSS DUE TO VENTILATION LOAD BTU/H: 1670

STRUCTURAL HEAT LOSS: 49919

TOTAL COMBINED HEAT LOSS BTU/H: 51589

SITE NAME: CENTREFIELD (WEST GORMLEY)  
BUILDER: ROYAL PINE HOMES

TYPE: 4504 FLANKAGE

DATE: Jun-21

GFA: 3309 LO# 87515

HEATING CFM 1370 COOLING CFM 1370  
TOTAL HEAT LOSS 49,919 TOTAL HEAT GAIN 40,793  
AIR FLOW RATE CFM 27.44 AIR FLOW RATE CFM 33.58

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

**\*\*CARRIER**  
**59TN6A-060-14V**  
**FAN SPEED 60**

AFUE = 97 %  
INPUT (BTU/H) = 60,000  
OUTPUT (BTU/H) = **58,000**

| RUN COUNT | 4th | 3rd | 2nd | 1st | Bas |
|-----------|-----|-----|-----|-----|-----|
| S/A       | 0   | 0   | 14  | 10  | 5   |
| R/A       | 0   | 0   | 5   | 3   | 1   |

plenium pressure s/a 0.18  
max s/a dif press. loss 0.02  
min adjusted pressure s/a 0.16  
r/a pressure 0.17  
r/a grille press. Loss 0.02  
adjusted pressure r/a 0.15

LOW 820  
MEDLOW 0  
MEDIUM 0  
MEDIUM HIGH 1370  
HIGH 1520

DESIGN CFM = **1370**  
CFM @ .6" E.S.P.

TEMPERATURE RISE 39 °F

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

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

| RUN #                     | 1    | 2    | 3    | 4     | 5     | 6     | 7    | 8     | 9     | 10   | 11    | 12   | 13   | 14    | 15    | 16    | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   |
|---------------------------|------|------|------|-------|-------|-------|------|-------|-------|------|-------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|
| ROOM NAME                 | MBR  | ENS  | ENS  | BED-2 | BED-3 | BED-4 | BATH | BED-2 | BED-3 | MBR  | ENS-2 | LIV  | LIV  | KT/GT | KT/GT | KT/GT | LAUN | W/R  | FOY  | MUD  | BAS  | BAS  | BAS  | BAS  |
| RM LOSS MBH.              | 1.56 | 0.88 | 0.88 | 2.12  | 1.84  | 1.56  | 0.25 | 2.12  | 1.84  | 1.56 | 0.75  | 1.34 | 1.34 | 2.22  | 2.22  | 2.22  | 0.31 | 0.52 | 2.47 | 1.85 | 3.02 | 3.02 | 3.02 | 3.02 |
| CFM PER RUN HEAT          | 43   | 24   | 24   | 58    | 50    | 43    | 7    | 58    | 50    | 43   | 21    | 37   | 37   | 61    | 61    | 61    | 9    | 14   | 68   | 51   | 83   | 83   | 83   | 83   |
| RM GAIN MBH.              | 2.12 | 0.48 | 0.48 | 2.71  | 2.59  | 2.41  | 0.07 | 2.71  | 2.59  | 2.12 | 0.33  | 2.01 | 2.01 | 2.87  | 2.87  | 2.87  | 1.19 | 0.35 | 0.74 | 0.32 | 0.27 | 0.27 | 0.27 | 0.27 |
| CFM PER RUN COOLING       | 71   | 16   | 16   | 91    | 87    | 81    | 2    | 91    | 87    | 71   | 11    | 67   | 67   | 97    | 97    | 97    | 40   | 12   | 25   | 11   | 9    | 9    | 9    | 9    |
| ADJUSTED PRESSURE         | 0.17 | 0.17 | 0.17 | 0.16  | 0.16  | 0.16  | 0.17 | 0.16  | 0.16  | 0.17 | 0.17  | 0.17 | 0.17 | 0.16  | 0.16  | 0.16  | 0.17 | 0.17 | 0.17 | 0.17 | 0.16 | 0.16 | 0.16 | 0.16 |
| ACTUAL DUCT LGH.          | 53   | 57   | 64   | 41    | 61    | 59    | 47   | 46    | 57    | 64   | 61    | 54   | 48   | 40    | 35    | 44    | 31   | 43   | 35   | 41   | 36   | 46   | 21   | 40   |
| EQUIVALENT LENGTH         | 200  | 160  | 150  | 180   | 180   | 210   | 170  | 200   | 150   | 220  | 140   | 140  | 170  | 170   | 130   | 160   | 190  | 120  | 160  | 160  | 90   | 100  | 130  | 110  |
| TOTAL EFFECTIVE LENGTH    | 253  | 217  | 214  | 221   | 241   | 269   | 217  | 246   | 207   | 284  | 201   | 194  | 218  | 210   | 165   | 204   | 221  | 163  | 195  | 201  | 126  | 146  | 151  | 150  |
| ADJUSTED PRESSURE         | 0.07 | 0.08 | 0.08 | 0.07  | 0.07  | 0.06  | 0.08 | 0.07  | 0.08  | 0.06 | 0.09  | 0.09 | 0.08 | 0.08  | 0.1   | 0.08  | 0.08 | 0.11 | 0.09 | 0.09 | 0.13 | 0.11 | 0.11 | 0.11 |
| ROUND DUCT SIZE           | 6    | 4    | 4    | 6     | 6     | 6     | 4    | 6     | 6     | 6    | 4     | 5    | 5    | 6     | 6     | 6     | 4    | 4    | 5    | 5    | 6    | 6    | 6    | 6    |
| HEATING VELOCITY (ft/min) | 219  | 275  | 275  | 296   | 255   | 219   | 80   | 296   | 255   | 219  | 241   | 272  | 272  | 311   | 311   | 311   | 103  | 161  | 499  | 374  | 423  | 423  | 423  | 423  |
| COOLING VELOCITY (ft/min) | 362  | 184  | 184  | 464   | 444   | 413   | 23   | 464   | 444   | 362  | 126   | 492  | 492  | 495   | 495   | 495   | 459  | 138  | 184  | 81   | 46   | 46   | 46   | 46   |
| OUTLET GRILL SIZE         | 4X10 | 3X10 | 3X10 | 4X10  | 4X10  | 4X10  | 3X10 | 4X10  | 4X10  | 4X10 | 3X10  | 3X10 | 3X10 | 4X10  | 4X10  | 4X10  | 3X10 | 3X10 | 3X10 | 3X10 | 4X10 | 4X10 | 4X10 | 4X10 |
| TRUNK                     | C    | C    | C    | B     | A     | B     | B    | B     | A     | C    | D     | A    | A    | C     | C     | C     | B    | B    | A    | D    | D    | D    | D    | B    |

| RUN #                     | 25   | 26   | 27   | 28    | 29   |
|---------------------------|------|------|------|-------|------|
| ROOM NAME                 | BAS  | DIN  | DEN  | WIC-4 | BATH |
| RM LOSS MBH.              | 3.02 | 2.26 | 1.75 | 0.69  | 0.25 |
| CFM PER RUN HEAT          | 83   | 62   | 48   | 19    | 7    |
| RM GAIN MBH.              | 0.27 | 2.35 | 2.46 | 0.71  | 0.07 |
| CFM PER RUN COOLING       | 9    | 79   | 83   | 24    | 2    |
| ADJUSTED PRESSURE         | 0.16 | 0.17 | 0.16 | 0.17  | 0.17 |
| ACTUAL DUCT LGH.          | 39   | 33   | 43   | 26    | 47   |
| EQUIVALENT LENGTH         | 150  | 140  | 210  | 140   | 150  |
| TOTAL EFFECTIVE LENGTH    | 189  | 173  | 253  | 166   | 197  |
| ADJUSTED PRESSURE         | 0.09 | 0.1  | 0.06 | 0.1   | 0.09 |
| ROUND DUCT SIZE           | 6    | 6    | 6    | 4     | 4    |
| HEATING VELOCITY (ft/min) | 423  | 316  | 245  | 218   | 80   |
| COOLING VELOCITY (ft/min) | 46   | 403  | 423  | 275   | 23   |
| OUTLET GRILL SIZE         | 4X10 | 4X10 | 4X10 | 3X10  | 3X10 |
| TRUNK                     | A    | B    | C    | E     | B    |

**SUPPLY AIR TRUNK SIZE**

|         | TRUNK | STATIC | ROUND | RECT | VELOCITY |     | TRUNK   | STATIC | ROUND | RECT | VELOCITY |
|---------|-------|--------|-------|------|----------|-----|---------|--------|-------|------|----------|
|         | CFM   | PRESS. | DUCT  | DUCT | (ft/min) |     | CFM     | PRESS. | DUCT  | DUCT | (ft/min) |
| TRUNK A | 325   | 0.07   | 9.5   | 12   | x 8      | 488 | TRUNK G | 0      | 0.00  | 0    | 0 x 8 0  |
| TRUNK B | 666   | 0.06   | 12.9  | 20   | x 8      | 599 | TRUNK H | 0      | 0.00  | 0    | 0 x 8 0  |
| TRUNK C | 365   | 0.06   | 10.3  | 16   | x 8      | 411 | TRUNK I | 0      | 0.00  | 0    | 0 x 8 0  |
| TRUNK D | 686   | 0.06   | 13.1  | 20   | x 8      | 617 | TRUNK J | 0      | 0.00  | 0    | 0 x 8 0  |
| TRUNK E | 1370  | 0.06   | 17    | 26   | x 10     | 759 | TRUNK K | 0      | 0.00  | 0    | 0 x 8 0  |
| TRUNK F | 0     | 0.00   | 0     | 0    | x 8      | 0   | TRUNK L | 0      | 0.00  | 0    | 0 x 8 0  |

**RETURN AIR TRUNK SIZE**

|         | TRUNK | STATIC | ROUND | RECT | VELOCITY |
|---------|-------|--------|-------|------|----------|
|         | CFM   | PRESS. | DUCT  | DUCT | (ft/min) |
| TRUNK O | 0     | 0.05   | 0     | 0    | x 8 0    |
| TRUNK P | 0     | 0.05   | 0     | 0    | x 8 0    |
| TRUNK Q | 0     | 0.05   | 0     | 0    | x 8 0    |
| TRUNK R | 0     | 0.05   | 0     | 0    | x 8 0    |
| TRUNK S | 0     | 0.05   | 0     | 0    | x 8 0    |
| TRUNK T | 0     | 0.05   | 0     | 0    | x 8 0    |
| TRUNK U | 0     | 0.05   | 0     | 0    | x 8 0    |
| TRUNK V | 0     | 0.05   | 0     | 0    | x 8 0    |
| TRUNK W | 0     | 0.05   | 0     | 0    | x 8 0    |
| TRUNK X | 1025  | 0.05   | 15.9  | 30   | x 8 615  |
| TRUNK Y | 0     | 0.05   | 0     | 0    | x 8 0    |
| TRUNK Z | 0     | 0.05   | 0     | 0    | x 8 0    |
| DROP    | 1370  | 0.05   | 17.7  | 24   | x 12 685 |

| RETURN AIR #       | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17   | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|--------------------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|----|----|----|----|----|----|----|
| AIR VOLUME         | 115  | 115  | 105  | 115  | 135  | 125  | 370  | 125  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 165  |    |    |    |    |    |    |    |
| PLENUM PRESSURE    | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15 |    |    |    |    |    |    |    |
| ACTUAL DUCT LGH.   | 53   | 47   | 73   | 45   | 42   | 48   | 23   | 57   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 14   |    |    |    |    |    |    |    |
| EQUIVALENT LENGTH  | 215  | 175  | 255  | 255  | 135  | 215  | 260  | 175  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 260  |    |    |    |    |    |    |    |
| TOTAL EFFECTIVE LH | 268  | 222  | 328  | 300  | 177  | 263  | 283  | 232  | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 274  |    |    |    |    |    |    |    |
| ADJUSTED PRESSURE  | 0.06 | 0.07 | 0.05 | 0.05 | 0.08 | 0.06 | 0.05 | 0.06 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 0.05 |    |    |    |    |    |    |    |
| ROUND DUCT SIZE    | 6.7  | 6.5  | 6.8  | 7    | 6.6  | 6.9  | 10.9 | 6.9  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 8    |    |    |    |    |    |    |    |
| INLET GRILL SIZE   | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 8    |    |    |    |    |    |    |    |
|                    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X     | X     | X     | X     | X     | X     | X     | X    |    |    |    |    |    |    |    |
| INLET GRILL SIZE   | 14   | 14   | 14   | 14   | 14   | 14   | 30   | 14   | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 24   |    |    |    |    |    |    |    |

TYPE: 4504 FLANKAGE  
SITE NAME: CENTREFIELD (WEST GORMLEY)

LO # 87515

**RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY**

|                                                                                  |                    |
|----------------------------------------------------------------------------------|--------------------|
| <b>COMBUSTION APPLIANCES</b>                                                     | <b>9.32.3.1(1)</b> |
| 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                             |                    |

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

|                                                                                   |                  |
|-----------------------------------------------------------------------------------|------------------|
| <b>HOUSE TYPE</b>                                                                 | <b>9.32.1(2)</b> |
| <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                    |                  |

|                                                                                     |                   |
|-------------------------------------------------------------------------------------|-------------------|
| <b>SYSTEM DESIGN OPTIONS</b>                                                        | <b>O.N.H.W.P.</b> |
| <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                                              |                   |

|                                                               |                    |
|---------------------------------------------------------------|--------------------|
| <b>TOTAL VENTILATION CAPACITY</b>                             | <b>9.32.3.3(1)</b> |
| Basement + Master Bedroom <u>2</u> @ 21.2 cfm <u>42.4</u> cfm |                    |
| Other Bedrooms <u>3</u> @ 10.6 cfm <u>31.8</u> cfm            |                    |
| Kitchen & Bathrooms <u>5</u> @ 10.6 cfm <u>53</u> cfm         |                    |
| Other Rooms <u>6</u> @ 10.6 cfm <u>63.6</u> cfm               |                    |
| Table 9.32.3.A. TOTAL <u>190.8</u> cfm                        |                    |

|                                                |                     |
|------------------------------------------------|---------------------|
| <b>PRINCIPAL VENTILATION CAPACITY REQUIRED</b> | <b>9.32.3.4.(1)</b> |
| 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                             |                     |
| <b>TOTAL 79.5 cfm</b>                          |                     |

|                                          |              |                  |
|------------------------------------------|--------------|------------------|
| <b>SUPPLEMENTAL VENTILATION CAPACITY</b> |              | <b>9.32.3.5.</b> |
| Total Ventilation Capacity               | <u>190.8</u> | cfm              |
| Less Principal Ventil. Capacity          | <u>79.5</u>  | cfm              |
| Required Supplemental Capacity           | <u>111.3</u> | cfm              |

|                                       |                                                  |
|---------------------------------------|--------------------------------------------------|
| <b>PRINCIPAL EXHAUST FAN CAPACITY</b> |                                                  |
| Model: VANEE 65H                      | Location: BSMT                                   |
| <u>79.5</u> cfm                       | <input checked="" type="checkbox"/> HVI Approved |

|                                                |               |        |        |      |
|------------------------------------------------|---------------|--------|--------|------|
| <b>PRINCIPAL EXHAUST HEAT LOSS CALCULATION</b> |               |        |        |      |
| CFM                                            | $\Delta T$ °F | FACTOR | % LOSS |      |
| 79.5 CFM                                       | X 78 F        | X 1.08 | X      | 0.25 |

|                          |                          |                                 |                                     |       |
|--------------------------|--------------------------|---------------------------------|-------------------------------------|-------|
| <b>SUPPLEMENTAL FANS</b> |                          | <b>BY INSTALLING CONTRACTOR</b> |                                     |       |
| Location                 | Model                    | cfm                             | HVI                                 | Sones |
| ENS                      | BY INSTALLING CONTRACTOR | 50                              | <input checked="" type="checkbox"/> | 3.5   |
| BATH                     | BY INSTALLING CONTRACTOR | 50                              | <input checked="" type="checkbox"/> | 3.5   |
| ENS-2                    | BY INSTALLING CONTRACTOR | 50                              | <input checked="" type="checkbox"/> | 3.5   |
| W/R                      | BY INSTALLING CONTRACTOR | 50                              | <input checked="" type="checkbox"/> | 3.5   |

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

|                                 |                   |
|---------------------------------|-------------------|
| <b>LOCATION OF INSTALLATION</b> |                   |
| Lot:                            | Concession        |
| Township                        | Plan:             |
| Address                         |                   |
| Roll #                          | Building Permit # |

|                 |                  |
|-----------------|------------------|
| <b>BUILDER:</b> | ROYAL PINE HOMES |
| Name:           |                  |
| Address:        |                  |
| City:           |                  |
| Telephone #:    | Fax #:           |

|                              |        |
|------------------------------|--------|
| <b>INSTALLING CONTRACTOR</b> |        |
| Name:                        |        |
| Address:                     |        |
| City:                        |        |
| Telephone #:                 | Fax #: |

|                                                                                                               |                         |
|---------------------------------------------------------------------------------------------------------------|-------------------------|
| <b>DESIGNER CERTIFICATION</b>                                                                                 |                         |
| 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:                                                                                                         | June-21                 |

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.  
INDIVIDUAL BCIN: 19669 *Michael O'Rourke* MICHAEL O'ROURKE

| CSA F280-12 Residential Heat Loss and Heat Gain Calculations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                      |                                                     |                                                                                                                                                                   |                                                           |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------|--------------|------|------|---|-------|-------|------|----|-------|--------|------|---|-------|-------|---|---|---|--------|---|---|---|--------|--|--|--------------|--------|--|--|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------|-------|--------------------------------|-------|-------------------------------|--|--|--|--|--|--------|---------|-------|-------|-------------|----|-----|----|----|-------------|----|----|---|----|
| Formula Sheet (For Air Leakage / Ventilation Calculation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                      |                                                     |                                                                                                                                                                   |                                                           |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| LO#: 87515                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Model: 4504 FLANKAGE | Builder: ROYAL PINE HOMES                           | Date: 6/7/2021                                                                                                                                                    |                                                           |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| <b>Volume Calculation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                      |                                                     | <b>Air Change &amp; Delta T Data</b>                                                                                                                              |                                                           |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| <b>House Volume</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> </thead> <tbody> <tr> <td>Bsmt</td> <td>1496</td> <td>9</td> <td>13464</td> </tr> <tr> <td>First</td> <td>1496</td> <td>10</td> <td>14960</td> </tr> <tr> <td>Second</td> <td>1813</td> <td>8</td> <td>14504</td> </tr> <tr> <td>Third</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td>Fourth</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>42,928.0 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>1215.6 m³</td> </tr> </tbody> </table> |                      |                                                     | Level                                                                                                                                                             | Floor Area (ft²)                                          | Floor Height (ft) | Volume (ft³) | Bsmt | 1496 | 9 | 13464 | First | 1496 | 10 | 14960 | Second | 1813 | 8 | 14504 | Third | 0 | 9 | 0 | Fourth | 0 | 9 | 0 | Total: |  |  | 42,928.0 ft³ | Total: |  |  | 1215.6 m³ | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 20%; text-align: center;">0.219</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.068</td> </tr> </table><br><table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="5" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTDh</td> <td style="text-align: center;">22</td> <td style="text-align: center;">-21</td> <td style="text-align: center;">43</td> <td style="text-align: center;">78</td> </tr> <tr> <td>Summer DTDc</td> <td style="text-align: center;">24</td> <td style="text-align: center;">31</td> <td style="text-align: center;">7</td> <td style="text-align: center;">13</td> </tr> </table> |  | WINTER NATURAL AIR CHANGE RATE | 0.219 | SUMMER NATURAL AIR CHANGE RATE | 0.068 | Design Temperature Difference |  |  |  |  |  | Tin °C | Tout °C | ΔT °C | ΔT °F | Winter DTDh | 22 | -21 | 43 | 78 | Summer DTDc | 24 | 31 | 7 | 13 |
| Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Floor Area (ft²)     | Floor Height (ft)                                   | Volume (ft³)                                                                                                                                                      |                                                           |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Bsmt                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1496                 | 9                                                   | 13464                                                                                                                                                             |                                                           |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| First                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1496                 | 10                                                  | 14960                                                                                                                                                             |                                                           |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Second                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1813                 | 8                                                   | 14504                                                                                                                                                             |                                                           |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Third                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0                    | 9                                                   | 0                                                                                                                                                                 |                                                           |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Fourth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0                    | 9                                                   | 0                                                                                                                                                                 |                                                           |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Total:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                      |                                                     | 42,928.0 ft³                                                                                                                                                      |                                                           |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Total:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                      |                                                     | 1215.6 m³                                                                                                                                                         |                                                           |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| WINTER NATURAL AIR CHANGE RATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0.219                |                                                     |                                                                                                                                                                   |                                                           |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| SUMMER NATURAL AIR CHANGE RATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0.068                |                                                     |                                                                                                                                                                   |                                                           |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Design Temperature Difference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |                                                     |                                                                                                                                                                   |                                                           |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Tin °C               | Tout °C                                             | ΔT °C                                                                                                                                                             | ΔT °F                                                     |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Winter DTDh                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 22                   | -21                                                 | 43                                                                                                                                                                | 78                                                        |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Summer DTDc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 24                   | 31                                                  | 7                                                                                                                                                                 | 13                                                        |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| <b>5.2.3.1 Heat Loss due to Air Leakage</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                      |                                                     | <b>6.2.6 Sensible Gain due to Air Leakage</b>                                                                                                                     |                                                           |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| $HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ <p>0.219 x 337.66 x 43 °C x 1.2 = 3831 W</p> <p style="text-align: right;">= 13072 Btu/h</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                      |                                                     | $HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ <p>= 0.068 x 337.66 x 7 °C x 1.2 = 196 W</p> <p style="text-align: right;">= 670 Btu/h</p> |                                                           |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| <b>5.2.3.2 Heat Loss due to Mechanical Ventilation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                      |                                                     | <b>6.2.7 Sensible heat Gain due to Ventilation</b>                                                                                                                |                                                           |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| $HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>80 CFM x 78 °F x 1.08 x 0.25 = 1670 Btu/h</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                      |                                                     | $HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>80 CFM x 13 °F x 1.08 x 0.25 = 275 Btu/h</p>                                                        |                                                           |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| <b>5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                      |                                                     |                                                                                                                                                                   |                                                           |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| $HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                      |                                                     |                                                                                                                                                                   |                                                           |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Level Factor (LF)    | HLairve Air Leakage + Ventilation Heat Loss (Btu/h) | Level Conductive Heat Loss: (HL <sub>clevel</sub> )                                                                                                               | Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel) |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.5                  | 13,072                                              | 8,583                                                                                                                                                             | 0.762                                                     |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.3                  |                                                     | 14,275                                                                                                                                                            | 0.275                                                     |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.2                  |                                                     | 13,508                                                                                                                                                            | 0.194                                                     |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0                    |                                                     | 0                                                                                                                                                                 | 0.000                                                     |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0                    |                                                     | 0                                                                                                                                                                 | 0.000                                                     |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| <p>*HLairbv = Air leakage heat loss + ventilation heat loss</p> <p>*For a balanced or supply only ventilation system HLairve = 0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                      |                                                     |                                                                                                                                                                   |                                                           |                   |              |      |      |   |       |       |      |    |       |        |      |   |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |

**HEAT LOSS AND GAIN SUMMARY SHEET**

|                             |                                         |
|-----------------------------|-----------------------------------------|
| <b>MODEL:</b> 4504 FLANKAGE | <b>BUILDER:</b> ROYAL PINE HOMES        |
| <b>SFQT:</b> 3309           | <b>SITE:</b> CENTREFIELD (WEST GORMLEY) |
| <b>LO#</b> 87515            |                                         |

**DESIGN ASSUMPTIONS**

|                      |    |                                |    |
|----------------------|----|--------------------------------|----|
| HEATING              | °F | COOLING                        | °F |
| OUTDOOR DESIGN TEMP. | -6 | 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:                            | 2.50            | ASSUMED (Y/N):            | Y        |
| AIR TIGHTNESS CATEGORY:                          | TIGHT           | ASSUMED (Y/N):            | Y        |
| WIND EXPOSURE:                                   | SHELTERED       | ASSUMED (Y/N):            | Y        |
| HOUSE VOLUME (ft <sup>3</sup> ):                 | 42928.0         | ASSUMED (Y/N):            | Y        |
| INTERNAL SHADING:                                | BLINDS/CURTAINS | ASSUMED OCCUPANTS:        | 5        |
| INTERIOR LIGHTING LOAD (Btu/h/ft <sup>2</sup> ): | 1.40            | DC BRUSHLESS MOTOR (Y/N): | Y        |
| FOUNDATION CONFIGURATION                         | BCIN_1          | DEPTH BELOW GRADE:        | 6.0 ft   |
| LENGTH: 46.0 ft                                  | WIDTH: 39.0 ft  | EXPOSED PERIMETER:        | 170.0 ft |

**2012 OBC - COMPLIANCE PACKAGE**

| Component                                                                  | Compliance Package<br>SB-12 PERFORMANCE |           |
|----------------------------------------------------------------------------|-----------------------------------------|-----------|
|                                                                            | Nominal                                 | Min. Eff. |
| Ceiling with Attic Space Minimum RSI (R)-Value                             | 60                                      | 59.20     |
| Ceiling Without Attic Space Minimum RSI (R)-Value                          | 31                                      | 27.70     |
| Exposed Floor Minimum RSI (R)-Value                                        | 31                                      | 29.80     |
| Walls Above Grade Minimum RSI (R)-Value                                    | 22+1.5                                  | 18.50     |
| Basement Walls Minimum RSI (R)-Value                                       | 20                                      | 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                            | 1.6                                     | -         |
| Skylights Maximum U-Value                                                  | 2.6                                     | -         |
| Space Heating Equipment Minimum AFUE                                       | 0.96                                    | -         |
| HRV Minimum Efficiency                                                     | 75%                                     | -         |
| Domestic Hot Water Heater Minimum EF                                       | TE=94%                                  | -         |

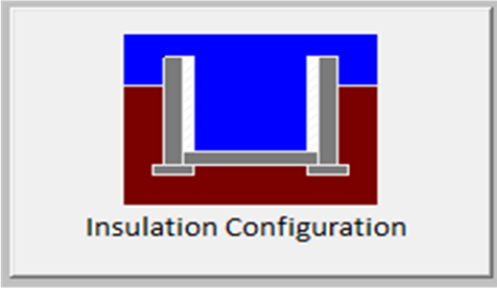
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



# Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

| Weather Station Description    |                                           |                                                                                     |
|--------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------|
| Province:                      | Ontario                                   |                                                                                     |
| Region:                        | Richmond Hill                             |                                                                                     |
| Site Description               |                                           |                                                                                     |
| Soil Conductivity:             | Normal conductivity: dry sand, loam, clay |                                                                                     |
| Water Table:                   | Normal (7-10 m, 23-33 ft)                 |                                                                                     |
| Foundation Dimensions          |                                           |                                                                                     |
| Floor Length (m):              | 14.0                                      |  |
| Floor Width (m):               | 11.9                                      |                                                                                     |
| Exposed Perimeter (m):         | 0.0                                       |                                                                                     |
| Wall Height (m):               | 2.7                                       |                                                                                     |
| Depth Below Grade (m):         | 1.83                                      |                                                                                     |
| Window Area (m <sup>2</sup> ): | 1.9                                       |                                                                                     |
| 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):          |                                           | 1685                                                                                |

TYPE: 4504 FLANKAGE

LO# 87515

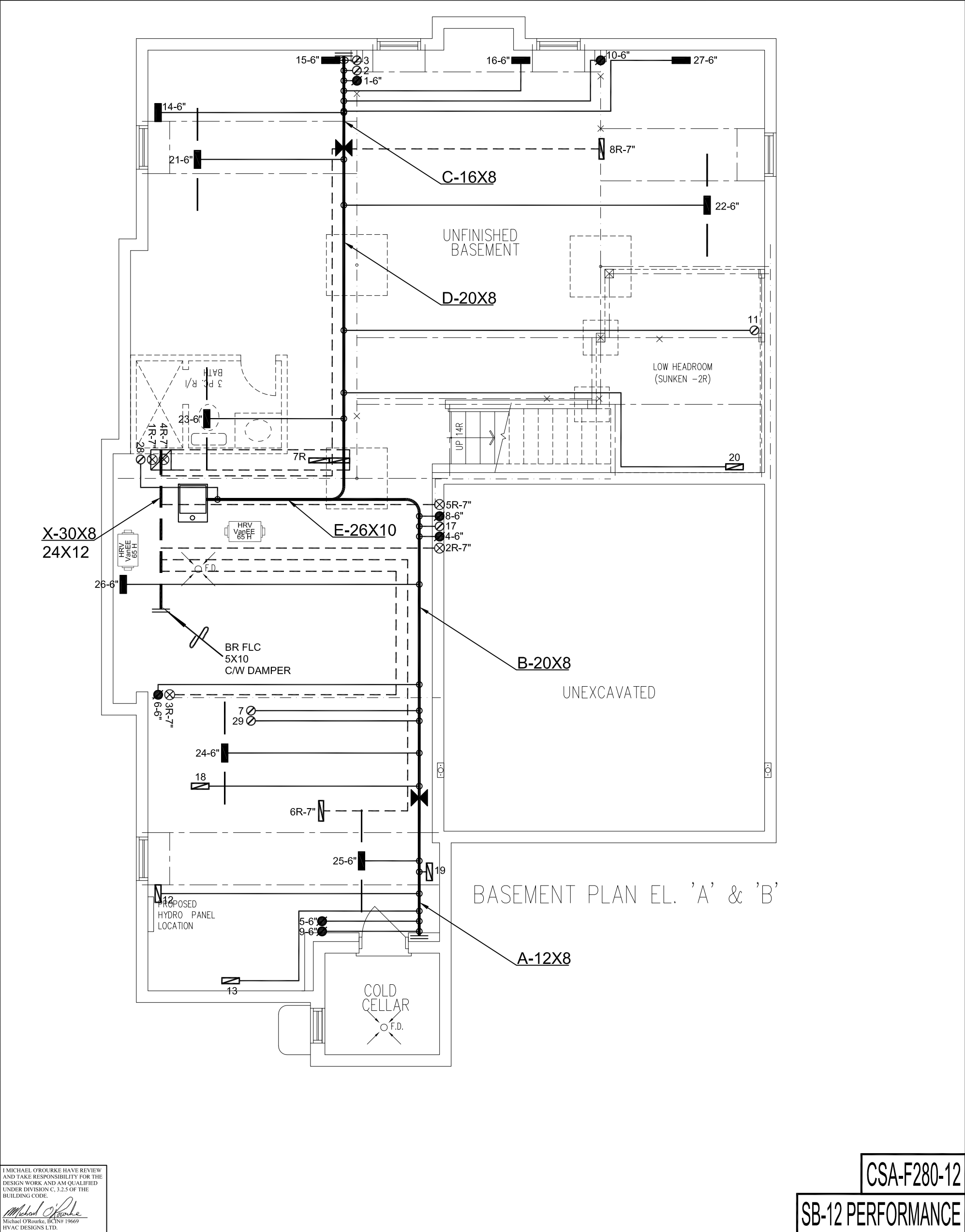
# Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

| Weather Station Description       |                                |                        |    |    |
|-----------------------------------|--------------------------------|------------------------|----|----|
| Province:                         | Ontario                        |                        |    |    |
| Region:                           | Richmond Hill                  |                        |    |    |
| 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):       | 6.40                           |                        |    |    |
| Building Configuration            |                                |                        |    |    |
| Type:                             | Detached                       |                        |    |    |
| Number of Stories:                | Two                            |                        |    |    |
| Foundation:                       | Full                           |                        |    |    |
| House Volume (m <sup>3</sup> ):   | 1215.6                         |                        |    |    |
| Air Leakage/Ventilation           |                                |                        |    |    |
| Air Tightness Type:               | Energy Star Detached (2.5 ACH) |                        |    |    |
| Custom BDT Data:                  | ELA @ 10 Pa.                   | 1134.7 cm <sup>2</sup> |    |    |
|                                   | 2.50                           | ACH @ 50 Pa            |    |    |
| Mechanical Ventilation (L/s):     | Total Supply                   | Total Exhaust          |    |    |
|                                   | 37.5                           | 37.5                   |    |    |
| Flue Size                         |                                |                        |    |    |
| Flue #:                           | #1                             | #2                     | #3 | #4 |
| Diameter (mm):                    | 0                              | 0                      | 0  | 0  |
| Natural Infiltration Rates        |                                |                        |    |    |
| Heating Air Leakage Rate (ACH/H): | 0.219                          |                        |    |    |
| Cooling Air Leakage Rate (ACH/H): | 0.068                          |                        |    |    |

TYPE: 4504 FLANKAGE

LO# 87515



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

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

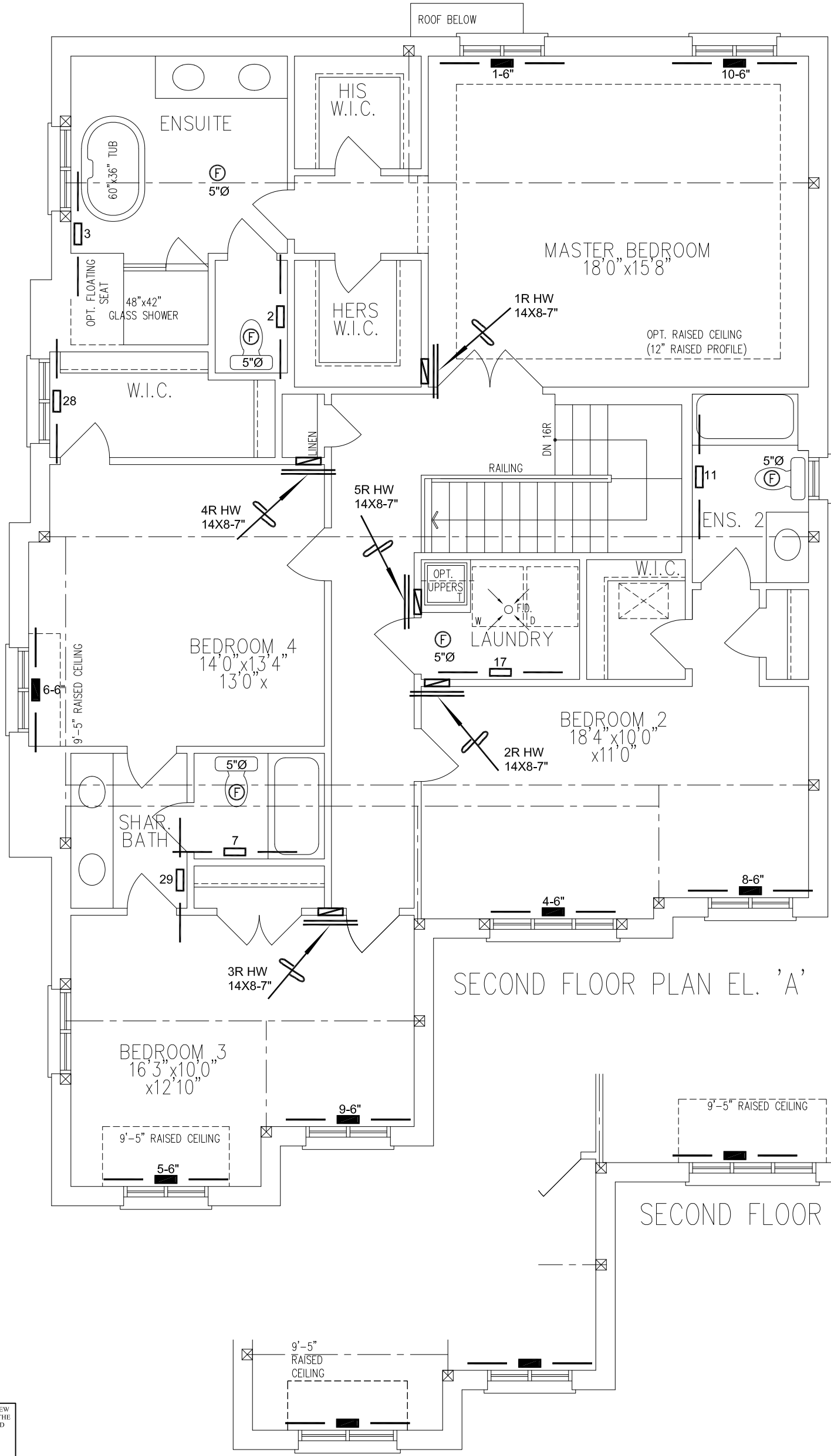
CSA-F280-12

SB-12 PERFORMANCE

| HVAC LEGEND |                           |        |                                 |        |                              |        |                            | 3.        | REVISED AS PER CAD            | JUNE/2021 |
|-------------|---------------------------|--------|---------------------------------|--------|------------------------------|--------|----------------------------|-----------|-------------------------------|-----------|
| SYMBOL      | DESCRIPTION               | SYMBOL | DESCRIPTION                     | SYMBOL | DESCRIPTION                  | SYMBOL | DESCRIPTION                | 2.        | REVISED AS PER ARCHITECTURALS | APR/2021  |
|             | SUPPLY AIR GRILLE         |        | 6" SUPPLY AIR BOOT ABOVE        |        | 14"x8" RETURN AIR GRILLE     |        | RETURN AIR STACK ABOVE     | 1.        | REVISED TO PERFORMANCE        | SEPT/2020 |
|             | 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 |                               |           |

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

|                                                      |  |                                                                                                                                                                                                                                                                                |                       |           |                                                                                                                                               |  |  |                                                  |  |
|------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------|--|--|--------------------------------------------------|--|
| Client                                               |  | <div><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></div> | HEAT LOSS 51589 BTU/H |           | # OF RUNS S/A R/A FANS                                                                                                                        |  |  | Sheet Title<br><br>BASEMENT<br>HEATING<br>LAYOUT |  |
| ROYAL PINE HOMES                                     |  |                                                                                                                                                                                                                                                                                | UNIT DATA             |           | 3RD FLOOR                                                                                                                                     |  |  |                                                  |  |
| Project Name                                         |  |                                                                                                                                                                                                                                                                                | MAKE CARRIER          |           | 2ND FLOOR 14 5 5                                                                                                                              |  |  |                                                  |  |
| CENTREFIELD (WEST GORMLEY)<br>RICHMOND HILL, ONTARIO |  |                                                                                                                                                                                                                                                                                | MODEL 59TN6A-060-14V  |           | 1ST FLOOR 10 3 2                                                                                                                              |  |  | Date SEPT/2020                                   |  |
| 4504 FLANKAGE 3309 sqft                              |  |                                                                                                                                                                                                                                                                                | INPUT 60 MBTU/H       |           | BASEMENT 5 1 0                                                                                                                                |  |  | Scale 3/16" = 1'-0"                              |  |
|                                                      |  |                                                                                                                                                                                                                                                                                | OUTPUT 58 MBTU/H      |           | ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A |  |  | BCIN# 19669                                      |  |
|                                                      |  | COOLING 3.5 TONS                                                                                                                                                                                                                                                               |                       | LO# 87515 |                                                                                                                                               |  |  |                                                  |  |
|                                                      |  | FAN SPEED 1370 cfm @ 0.6" w.c.                                                                                                                                                                                                                                                 |                       |           |                                                                                                                                               |  |  |                                                  |  |



SECOND FLOOR PLAN EL. 'A'

SECOND FLOOR PLAN EL. 'B'

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

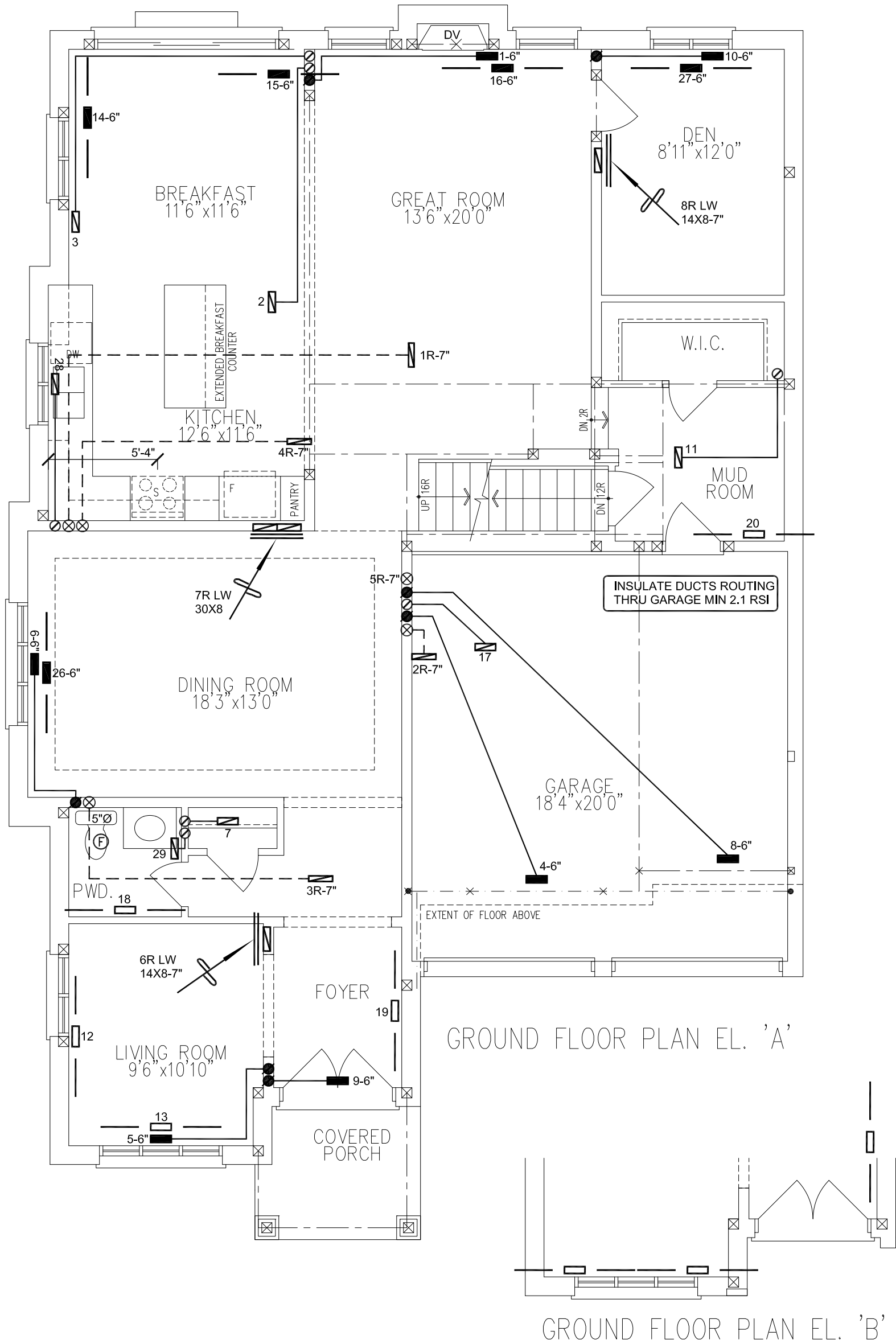
CSA-F280-12

SB-12 PERFORMANCE

| HVAC LEGEND |                           |        |                                 |        |                              |        |                            | 3.        | REVISED AS PER CAD            | JUNE/2021 |
|-------------|---------------------------|--------|---------------------------------|--------|------------------------------|--------|----------------------------|-----------|-------------------------------|-----------|
| SYMBOL      | DESCRIPTION               | SYMBOL | DESCRIPTION                     | SYMBOL | DESCRIPTION                  | SYMBOL | DESCRIPTION                | 2.        | REVISED AS PER ARCHITECTURALS | APR/2021  |
|             | SUPPLY AIR GRILLE         |        | 6" SUPPLY AIR BOOT ABOVE        |        | 14"x8" RETURN AIR GRILLE     |        | RETURN AIR STACK ABOVE     | 1.        | REVISED TO PERFORMANCE        | SEPT/2020 |
|             | 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                 |               |
| ROYAL PINE HOMES                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | SECOND FLOOR HEATING LAYOUT |               |
| Project Name                                         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Date                        | SEPT/2020     |
| CENTREFIELD (WEST GORMLEY)<br>RICHMOND HILL, ONTARIO |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Scale                       | 3/16" = 1'-0" |
| 4504 FLANKAGE 3309 sqft                              |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | BCIN# 19669                 |               |
|                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | LO#                         | 87515         |



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

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

CSA-F280-12

SB-12 PERFORMANCE

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|                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |               |
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| ROYAL PINE HOMES                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | FIRST FLOOR HEATING LAYOUT |               |
| Project Name                                         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Date                       | SEPT/2020     |
| CENTREFIELD (WEST GORMLEY)<br>RICHMOND HILL, ONTARIO |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Scale                      | 3/16" = 1'-0" |
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