

## Schedule 1: Designer Information

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

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                                                                                                               |                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------|-------------------------------|
| <b>A. Project Information</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                              |                                                                                                               |                               |
| Building number, street name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                              |                                                                                                               | Unit no.                      |
| Municipality<br>BRAMPTON                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                              |                                                                                                               | Postal code                   |
| Plan number/ other description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                              |                                                                                                               | Lot/con.                      |
| <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                                                                                                                                                                                                                                                                                                                                                                                            |                              | <b>Model:</b> 7001<br>OPT IN-LAW - LAUN<br><b>Project:</b> VALES OF HUMBER SOUTH                              |                               |
| <b>D. Declaration of Designer</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                              |                                                                                                               |                               |
| I, <u>MICHAEL O'ROURKE</u> (print name)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                              | declare that (choose one as appropriate):                                                                     |                               |
| <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.                                                                                                                                                                                                                                                                                                                                                                                                      |                              |                                                                                                               |                               |
| July 9, 2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                              | <br>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: VALES OF HUMBER SOUTH |  |  |           |       |     |           |      |      |           | OPT IN-LAW - LAUN |     |           |      |      |           |     |      |           |      | DATE Jul-24 |           |     |      |           |     |    |           |      |      | WINTER NATURAL AIR CHANGE RATE 0.241 |     |     |           |      |   |           |  |  |           | HEAT LOSS AT °F. 74                  |  |  |  |  |  |  |  |  |  | CSA-F280-12         |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
|----------------------------------|--|--|-----------|-------|-----|-----------|------|------|-----------|-------------------|-----|-----------|------|------|-----------|-----|------|-----------|------|-------------|-----------|-----|------|-----------|-----|----|-----------|------|------|--------------------------------------|-----|-----|-----------|------|---|-----------|--|--|-----------|--------------------------------------|--|--|--|--|--|--|--|--|--|---------------------|--|--|--|--|--|--|--|--|--|-------------------|--|--|--|--|--|--|--|--|--|
| BUILDER: ROYAL PINE HOMES        |  |  |           |       |     |           |      |      |           | TYPE: 7001        |     |           |      |      |           |     |      |           |      | GFA: 5543   |           |     |      |           |     |    |           |      |      | LO# 95298                            |     |     |           |      |   |           |  |  |           | SUMMER NATURAL AIR CHANGE RATE 0.078 |  |  |  |  |  |  |  |  |  | HEAT GAIN AT °F. 11 |  |  |  |  |  |  |  |  |  | SB-12 PERFORMANCE |  |  |  |  |  |  |  |  |  |
| ROOM USE                         |  |  | GREAT     |       |     | KIT       |      |      | PANT      |                   |     | DIN       |      |      | LIV       |     |      | FOY       |      |             | IN-LAW    |     |      | PWD-1     |     |    | PWD-2     |      |      | MD/LN                                |     |     |           |      |   |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| EXP. WALL                        |  |  | 48        |       |     | 32        |      |      | 20        |                   |     | 26        |      |      | 30        |     |      | 20        |      |             | 22        |     |      | 3         |     |    | 8         |      |      | 33                                   |     |     |           |      |   |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| CLG. HT.                         |  |  | 21        |       |     | 11        |      |      | 11        |                   |     | 11        |      |      | 11        |     |      | 23        |      |             | 11        |     |      | 11        |     |    | 11        |      |      | 12                                   |     |     |           |      |   |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| FACTORS                          |  |  |           |       |     |           |      |      |           |                   |     |           |      |      |           |     |      |           |      |             |           |     |      |           |     |    |           |      |      |                                      |     |     |           |      |   |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| GRS.WALL AREA                    |  |  | 1008      |       |     | 352       |      |      | 220       |                   |     | 286       |      |      | 330       |     |      | 460       |      |             | 242       |     |      | 33        |     |    | 88        |      |      | 396                                  |     |     |           |      |   |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| GLAZING                          |  |  | LOSS GAIN |       |     | LOSS GAIN |      |      | LOSS GAIN |                   |     | LOSS GAIN |      |      | LOSS GAIN |     |      | LOSS GAIN |      |             | LOSS GAIN |     |      | LOSS GAIN |     |    | LOSS GAIN |      |      | LOSS GAIN                            |     |     | LOSS GAIN |      |   | LOSS GAIN |  |  | LOSS GAIN |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| NORTH                            |  |  | 20.8      | 15.5  | 0   | 0         | 0    | 0    | 0         | 0                 | 0   | 0         | 0    | 0    | 0         | 0   | 0    | 0         | 0    | 0           | 0         | 0   | 0    | 0         | 0   | 0  | 0         | 0    | 25   | 519                                  | 387 |     |           |      |   |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| EAST                             |  |  | 20.8      | 41.0  | 0   | 0         | 0    | 0    | 0         | 0                 | 0   | 0         | 0    | 0    | 41        | 852 | 1683 | 56        | 1163 | 2299        | 41        | 852 | 1683 | 0         | 0   | 0  | 0         | 0    | 0    | 0                                    | 0   | 0   | 0         | 0    | 0 |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| SOUTH                            |  |  | 20.8      | 24.4  | 0   | 0         | 0    | 0    | 0         | 0                 | 0   | 0         | 39   | 810  | 951       | 0   | 0    | 0         | 0    | 0           | 0         | 0   | 0    | 0         | 0   | 0  | 0         | 0    | 0    | 0                                    | 0   | 0   | 0         | 0    |   |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| WEST                             |  |  | 20.8      | 41.0  | 192 | 3989      | 7881 | 112  | 2327      | 4597              | 0   | 0         | 0    | 0    | 0         | 0   | 0    | 0         | 0    | 0           | 0         | 0   | 0    | 0         | 0   | 0  | 0         | 0    | 0    | 0                                    | 0   | 0   | 0         | 0    | 0 |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| SKYLT.                           |  |  | 34.1      | 100.3 | 0   | 0         | 0    | 0    | 0         | 0                 | 0   | 0         | 0    | 0    | 0         | 0   | 0    | 0         | 0    | 0           | 0         | 0   | 0    | 0         | 0   | 0  | 0         | 0    | 0    | 0                                    | 0   | 0   | 0         | 0    | 0 |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| DOORS                            |  |  | 24.7      | 3.7   | 0   | 0         | 0    | 15   | 370       | 55                | 0   | 0         | 0    | 0    | 0         | 0   | 0    | 45        | 1109 | 164         | 0         | 0   | 0    | 0         | 0   | 0  | 0         | 0    | 0    | 0                                    | 0   | 40  | 986       | 146  |   |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| NET EXPOSED WALL                 |  |  | 3.5       | 0.5   | 816 | 2829      | 419  | 225  | 780       | 116               | 220 | 763       | 113  | 247  | 856       | 127 | 289  | 1002      | 149  | 359         | 1245      | 185 | 201  | 697       | 103 | 33 | 114       | 17   | 88   | 305                                  | 45  | 331 | 1148      | 170  |   |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| NET EXPOSED BSMT WALL ABOVE GR   |  |  | 3.5       | 0.5   | 0   | 0         | 0    | 0    | 0         | 0                 | 0   | 0         | 0    | 0    | 0         | 0   | 0    | 0         | 0    | 0           | 0         | 0   | 0    | 0         | 0   | 0  | 0         | 0    | 0    | 0                                    | 0   | 0   | 0         | 0    | 0 |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| EXPOSED CLG                      |  |  | 1.3       | 0.6   | 503 | 630       | 280  | 0    | 0         | 0                 | 0   | 0         | 0    | 0    | 0         | 0   | 0    | 0         | 0    | 0           | 0         | 0   | 0    | 0         | 0   | 0  | 0         | 0    | 0    | 0                                    | 0   | 0   | 0         | 0    | 0 |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| NO ATTIC EXPOSED CLG             |  |  | 2.7       | 1.2   | 10  | 27        | 12   | 0    | 0         | 0                 | 0   | 0         | 0    | 0    | 0         | 0   | 80   | 215       | 95   | 0           | 0         | 0   | 0    | 0         | 0   | 0  | 0         | 0    | 0    | 0                                    | 0   | 0   | 0         | 0    | 0 |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| EXPOSED FLOOR                    |  |  | 2.5       | 0.4   | 0   | 0         | 0    | 0    | 0         | 0                 | 0   | 0         | 0    | 0    | 0         | 0   | 0    | 0         | 0    | 0           | 0         | 0   | 0    | 0         | 0   | 0  | 0         | 0    | 0    | 0                                    | 0   | 0   | 0         | 0    | 0 |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| BASEMENT/CRAWL HEAT LOSS         |  |  |           |       |     | 0         |      |      | 0         |                   |     | 0         |      |      | 0         |     |      | 0         |      |             | 0         |     |      | 0         |     |    | 0         |      |      | 0                                    |     |     | 0         |      |   | 0         |  |  | 0         |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| SLAB ON GRADE HEAT LOSS          |  |  |           |       |     | 0         |      |      | 0         |                   |     | 0         |      |      | 0         |     |      | 0         |      |             | 0         |     |      | 0         |     |    | 0         |      |      | 0                                    |     |     | 0         |      |   | 0         |  |  | 0         |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| SUBTOTAL HT LOSS                 |  |  |           |       |     | 7475      |      |      | 3477      |                   |     | 763       |      |      | 1667      |     |      | 1854      |      |             | 3732      |     |      | 1549      |     |    | 114       |      |      | 305                                  |     |     | 2653      |      |   |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| SUB TOTAL HT GAIN                |  |  |           |       |     | 8593      |      |      | 4768      |                   |     | 113       |      |      | 1078      |     |      | 1832      |      |             | 2743      |     |      | 1786      |     |    | 17        |      |      | 45                                   |     |     | 703       |      |   |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| LEVEL FACTOR / MULTIPLIER        |  |  | 0.30      | 0.37  |     |           |      | 0.30 | 0.37      |                   |     |           | 0.30 | 0.37 |           |     |      | 0.30      | 0.37 |             |           |     | 0.30 | 0.37      |     |    |           | 0.30 | 0.37 |                                      |     |     | 0.30      | 0.37 |   |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| AIR CHANGE HEAT LOSS             |  |  |           |       |     | 2737      |      |      | 1273      |                   |     | 279       |      |      | 610       |     |      | 679       |      |             | 1366      |     |      | 567       |     |    | 42        |      |      | 112                                  |     |     | 971       |      |   |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| AIR CHANGE HEAT GAIN             |  |  |           |       |     | 421       |      |      | 233       |                   |     | 6         |      |      | 53        |     |      | 90        |      |             | 134       |     |      | 87        |     |    | 1         |      |      | 2                                    |     |     | 34        |      |   |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| DUCT LOSS                        |  |  |           |       |     | 0         |      |      | 0         |                   |     | 0         |      |      | 0         |     |      | 0         |      |             | 0         |     |      | 0         |     |    | 0         |      |      | 0                                    |     |     | 0         |      |   | 0         |  |  | 0         |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| DUCT GAIN                        |  |  |           |       |     | 0         |      |      | 0         |                   |     | 0         |      |      | 0         |     |      | 0         |      |             | 0         |     |      | 0         |     |    | 0         |      |      | 0                                    |     |     | 0         |      |   | 0         |  |  | 0         |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| HEAT GAIN PEOPLE                 |  |  | 240       |       | 0   |           | 0    | 0    | 0         | 0                 | 0   | 0         | 0    | 0    | 0         | 0   | 0    | 0         | 0    | 1           | 240       |     | 0    | 0         | 0   | 0  | 0         | 0    | 0    | 0                                    | 0   | 0   | 0         | 0    | 0 |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| HEAT GAIN APPLIANCES/LIGHTS      |  |  |           |       |     | 955       |      |      | 955       |                   |     | 0         |      |      | 955       |     |      | 955       |      |             | 0         |     |      | 955       |     |    | 0         |      |      | 0                                    |     |     | 0         |      |   | 955       |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| TOTAL HT LOSS BTU/H              |  |  |           |       |     | 10212     |      |      | 4750      |                   |     | 1042      |      |      | 2277      |     |      | 2533      |      |             | 5099      |     |      | 2116      |     |    | 156       |      |      | 417                                  |     |     | 3624      |      |   |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |
| TOTAL HT GAIN x 1.3 BTU/H        |  |  |           |       |     | 12959     |      |      | 7743      |                   |     | 154       |      |      | 2712      |     |      | 3739      |      |             | 3741      |     |      | 3989      |     |    | 23        |      |      | 62                                   |     |     | 2200      |      |   |           |  |  |           |                                      |  |  |  |  |  |  |  |  |  |                     |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |

| ROOM USE                       | EXP. WALL | CLG. HT. | I-ENS |     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------|-----------|----------|-------|-----|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
|                                |           |          | 11    |     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                |           |          | 11    |     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| FACTORS                        |           |          |       |     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| GRS.WALL AREA                  | LOSS      | GAIN     | 121   |     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| GLAZING                        | LOSS      | GAIN     |       |     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NORTH                          | 20.8      | 15.5     | 0     | 0   | 0  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| EAST                           | 20.8      | 41.0     | 0     | 0   | 0  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| SOUTH                          | 20.8      | 24.4     | 0     | 0   | 0  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| WEST                           | 20.8      | 41.0     | 0     | 0   | 0  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| SKYLT.                         | 34.1      | 100.3    | 0     | 0   | 0  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DOORS                          | 24.7      | 3.7      | 0     | 0   | 0  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NET EXPOSED WALL               | 3.5       | 0.5      | 121   | 420 | 62 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NET EXPOSED BSMT WALL ABOVE GR | 3.5       | 0.5      | 0     | 0   | 0  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| EXPOSED CLG                    | 1.3       | 0.6      | 0     | 0   | 0  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NO ATTIC EXPOSED CLG           | 2.7       | 1.2      | 0     | 0   | 0  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| EXPOSED FLOOR                  | 2.5       | 0.4      | 0     | 0   | 0  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| BASEMENT/CRAWL HEAT LOSS       |           |          | 0     |     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| SLAB ON GRADE HEAT LOSS        |           |          | 0     |     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| SUBTOTAL HT LOSS               |           |          |       |     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| SUB TOTAL HT GAIN              |           |          |       |     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| LEVEL FACTOR / MULTIPLIER      | 0.30      | 0.37     |       |     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| AIR CHANGE HEAT LOSS           |           |          |       |     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| AIR CHANGE HEAT GAIN           |           |          |       |     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DUCT LOSS                      |           |          | 0     |     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DUCT GAIN                      |           |          |       |     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HEAT GAIN PEOPLE               | 240       |          | 0     |     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HEAT GAIN APPLIANCES/LIGHTS    |           |          |       |     |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TOTAL HT LOSS BTU/H            |           |          |       | 573 |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TOTAL HT GAIN x 1.3 BTU/H      |           |          |       |     | 85 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

TOTAL HEAT GAIN BTU/H: 71936 TONS: 5.99 LOSS DUE TO VENTILATION LOAD BTU/H: 6010 STRUCTURAL HEAT LOSS: 85620 TOTAL COMBINED HEAT LOSS BTU/H: 91630

| SITE NAME: VALES OF HUMBER SOUTH |  |  |      |       |      |      |      |       |     | OPT IN-LAW - LAUN |       |     |      |       |     |      |       |      |      | DATE Jul-24 |     |      |      | WINTER NATURAL AIR CHANGE RATE 0.241 |      |       |     |                                      |       |     |      |      |     | HEAT LOSS ΔT °F. 74 |      |  |      | CSA-F280-12         |  |      |  |                   |  |  |  |
|----------------------------------|--|--|------|-------|------|------|------|-------|-----|-------------------|-------|-----|------|-------|-----|------|-------|------|------|-------------|-----|------|------|--------------------------------------|------|-------|-----|--------------------------------------|-------|-----|------|------|-----|---------------------|------|--|------|---------------------|--|------|--|-------------------|--|--|--|
| BUILDER: ROYAL PINE HOMES        |  |  |      |       |      |      |      |       |     | TYPE: 7001        |       |     |      |       |     |      |       |      |      | GFA: 5543   |     |      |      | LO# 95298                            |      |       |     | SUMMER NATURAL AIR CHANGE RATE 0.078 |       |     |      |      |     |                     |      |  |      | HEAT GAIN ΔT °F. 11 |  |      |  | SB-12 PERFORMANCE |  |  |  |
| ROOM USE                         |  |  | PRI  |       | ENS  |      |      | DRESS |     |                   | BED-2 |     |      | BED-3 |     |      | BED-4 |      |      | BED-5       |     |      | RETR |                                      |      | ENS-2 |     |                                      | ENS-3 |     |      |      |     |                     |      |  |      |                     |  |      |  |                   |  |  |  |
| EXP. WALL                        |  |  | 25   |       | 27   |      |      | 11    |     |                   | 13    |     |      | 35    |     |      | 24    |      |      | 30          |     |      | 10   |                                      |      | 6     |     |                                      | 8     |     |      |      |     |                     |      |  |      |                     |  |      |  |                   |  |  |  |
| CLG. HT.                         |  |  | 10   |       | 10   |      |      | 10    |     |                   | 10    |     |      | 11    |     |      | 10    |      |      | 10          |     |      | 10   |                                      |      | 10    |     |                                      | 10    |     |      |      |     |                     |      |  |      |                     |  |      |  |                   |  |  |  |
| FACTORS                          |  |  |      |       |      |      |      |       |     |                   |       |     |      |       |     |      |       |      |      |             |     |      |      |                                      |      |       |     |                                      |       |     |      |      |     |                     |      |  |      |                     |  |      |  |                   |  |  |  |
| GRS.WALL AREA                    |  |  | LOSS |       | 250  |      |      | 270   |     |                   | 110   |     |      | 130   |     |      | 385   |      |      | 240         |     |      | 300  |                                      |      | 100   |     |                                      | 60    |     |      | 80   |     |                     |      |  |      |                     |  |      |  |                   |  |  |  |
| GLAZING                          |  |  |      |       | LOSS |      |      | GAIN  |     |                   | LOSS  |     |      | GAIN  |     |      | LOSS  |      |      | GAIN        |     |      | LOSS |                                      |      | GAIN  |     |                                      | LOSS  |     |      | GAIN |     |                     | LOSS |  |      | GAIN                |  |      |  |                   |  |  |  |
| NORTH                            |  |  | 20.8 | 15.5  | 0    | 0    | 0    | 0     | 0   | 0                 | 0     | 0   | 0    | 0     | 0   | 0    | 0     | 0    | 0    | 0           | 0   | 0    | 0    | 0                                    | 0    | 0     | 0   | 9                                    | 187   | 139 | 0    | 0    | 0   |                     |      |  |      |                     |  |      |  |                   |  |  |  |
| EAST                             |  |  | 20.8 | 41.0  | 0    | 0    | 0    | 0     | 0   | 0                 | 0     | 0   | 0    | 0     | 0   | 0    | 83    | 1724 | 3407 | 40          | 831 | 1642 | 40   | 831                                  | 1642 | 0     | 0   | 0                                    | 0     | 0   | 0    | 0    | 0   | 0                   |      |  |      |                     |  |      |  |                   |  |  |  |
| SOUTH                            |  |  | 20.8 | 24.4  | 0    | 0    | 0    | 32    | 665 | 781               | 8     | 166 | 195  | 0     | 0   | 0    | 0     | 0    | 0    | 0           | 0   | 0    | 0    | 0                                    | 0    | 18    | 374 | 439                                  | 0     | 0   | 0    | 0    | 0   | 0                   |      |  |      |                     |  |      |  |                   |  |  |  |
| WEST                             |  |  | 20.8 | 41.0  | 54   | 1122 | 2217 | 23    | 478 | 944               | 0     | 0   | 0    | 0     | 0   | 0    | 0     | 0    | 0    | 0           | 0   | 0    | 0    | 0                                    | 0    | 0     | 0   | 0                                    | 0     | 0   | 0    | 0    | 0   | 0                   |      |  |      |                     |  |      |  |                   |  |  |  |
| SKYLT.                           |  |  | 34.1 | 100.3 | 0    | 0    | 0    | 0     | 0   | 0                 | 0     | 0   | 0    | 0     | 0   | 0    | 0     | 0    | 0    | 0           | 0   | 0    | 0    | 0                                    | 0    | 0     | 0   | 0                                    | 0     | 0   | 0    | 0    | 0   | 0                   |      |  |      |                     |  |      |  |                   |  |  |  |
| DOORS                            |  |  | 24.7 | 3.7   | 0    | 0    | 0    | 0     | 0   | 0                 | 0     | 0   | 0    | 0     | 0   | 0    | 0     | 0    | 0    | 0           | 0   | 0    | 0    | 0                                    | 0    | 0     | 0   | 0                                    | 0     | 0   | 0    | 0    | 0   | 0                   |      |  |      |                     |  |      |  |                   |  |  |  |
| NET EXPOSED WALL                 |  |  | 3.5  | 0.5   | 196  | 680  | 101  | 215   | 745 | 111               | 102   | 354 | 52   | 103   | 357 | 53   | 302   | 1047 | 155  | 200         | 693 | 103  | 260  | 901                                  | 134  | 82    | 284 | 42                                   | 51    | 177 | 26   | 80   | 277 | 41                  |      |  |      |                     |  |      |  |                   |  |  |  |
| NET EXPOSED BSMT WALL ABOVE GR   |  |  | 3.5  | 0.5   | 0    | 0    | 0    | 0     | 0   | 0                 | 0     | 0   | 0    | 0     | 0   | 0    | 0     | 0    | 0    | 0           | 0   | 0    | 0    | 0                                    | 0    | 0     | 0   | 0                                    | 0     | 0   | 0    | 0    | 0   | 0                   |      |  |      |                     |  |      |  |                   |  |  |  |
| EXPOSED CLG                      |  |  | 1.3  | 0.6   | 546  | 684  | 304  | 180   | 226 | 100               | 165   | 207 | 92   | 325   | 407 | 181  | 368   | 461  | 205  | 317         | 397 | 177  | 216  | 271                                  | 120  | 310   | 388 | 173                                  | 66    | 83  | 37   | 66   | 83  | 37                  |      |  |      |                     |  |      |  |                   |  |  |  |
| NO ATTIC EXPOSED CLG             |  |  | 2.7  | 1.2   | 0    | 0    | 0    | 0     | 0   | 0                 | 0     | 0   | 0    | 0     | 0   | 0    | 50    | 134  | 60   | 0           | 0   | 0    | 0    | 0                                    | 0    | 0     | 0   | 0                                    | 0     | 0   | 0    | 0    | 0   | 0                   |      |  |      |                     |  |      |  |                   |  |  |  |
| EXPOSED FLOOR                    |  |  | 2.5  | 0.4   | 0    | 0    | 0    | 0     | 0   | 0                 | 0     | 0   | 0    | 20    | 50  | 7    | 418   | 1041 | 154  | 30          | 75  | 11   | 0    | 0                                    | 0    | 0     | 0   | 0                                    | 66    | 164 | 24   | 66   | 164 | 24                  |      |  |      |                     |  |      |  |                   |  |  |  |
| BASEMENT/CRAWL HEAT LOSS         |  |  |      |       | 0    |      | 0    |       |     | 0                 |       |     | 0    |       |     | 0    |       |      | 0    |             |     | 0    |      |                                      | 0    |       |     | 0                                    |       |     | 0    |      |     | 0                   |      |  | 0    |                     |  |      |  |                   |  |  |  |
| SLAB ON GRADE HEAT LOSS          |  |  |      |       | 0    |      | 0    |       |     | 0                 |       |     | 0    |       |     | 0    |       |      | 0    |             |     | 0    |      |                                      | 0    |       |     | 0                                    |       |     | 0    |      |     | 0                   |      |  | 0    |                     |  |      |  |                   |  |  |  |
| SUBTOTAL HT LOSS                 |  |  |      |       | 2486 |      | 2114 |       |     | 727               |       |     | 1375 |       |     | 4408 |       |      | 1996 |             |     | 2003 |      |                                      | 1047 |       |     | 611                                  |       |     | 524  |      |     |                     |      |  |      |                     |  |      |  |                   |  |  |  |
| SUB TOTAL HT GAIN                |  |  |      |       | 2622 |      | 1936 |       |     | 340               |       |     | 659  |       |     | 3981 |       |      | 1932 |             |     | 1896 |      |                                      | 654  |       |     | 227                                  |       |     | 102  |      |     |                     |      |  |      |                     |  |      |  |                   |  |  |  |
| LEVEL FACTOR / MULTIPLIER        |  |  | 0.20 |       | 0.32 |      | 0.20 |       |     | 0.32              |       |     | 0.20 |       |     | 0.32 |       |      | 0.20 |             |     | 0.32 |      |                                      | 0.20 |       |     | 0.32                                 |       |     | 0.20 |      |     | 0.32                |      |  | 0.20 |                     |  | 0.32 |  |                   |  |  |  |
| AIR CHANGE HEAT LOSS             |  |  |      |       | 785  |      | 668  |       |     | 230               |       |     | 434  |       |     | 1393 |       |      | 631  |             |     | 633  |      |                                      | 331  |       |     | 193                                  |       |     | 166  |      |     |                     |      |  |      |                     |  |      |  |                   |  |  |  |
| AIR CHANGE HEAT GAIN             |  |  |      |       | 128  |      | 95   |       |     | 17                |       |     | 32   |       |     | 195  |       |      | 95   |             |     | 93   |      |                                      | 32   |       |     | 11                                   |       |     | 5    |      |     |                     |      |  |      |                     |  |      |  |                   |  |  |  |
| DUCT LOSS                        |  |  |      |       | 0    |      | 0    |       |     | 0                 |       |     | 181  |       |     | 580  |       |      | 263  |             |     | 0    |      |                                      | 0    |       |     | 80                                   |       |     | 69   |      |     |                     |      |  |      |                     |  |      |  |                   |  |  |  |
| DUCT GAIN                        |  |  |      |       | 0    |      | 0    |       |     | 0                 |       |     | 189  |       |     | 537  |       |      | 322  |             |     | 240  |      |                                      | 0    |       |     | 24                                   |       |     | 11   |      |     |                     |      |  |      |                     |  |      |  |                   |  |  |  |
| HEAT GAIN PEOPLE                 |  |  | 240  |       | 2    |      | 480  |       |     | 0                 |       |     | 0    |       |     | 1    |       |      | 240  |             |     | 1    |      |                                      | 240  |       |     | 1                                    |       |     | 0    |      |     | 0                   |      |  | 0    |                     |  | 0    |  |                   |  |  |  |
| HEAT GAIN APPLIANCES/LIGHTS      |  |  |      |       | 955  |      | 0    |       |     | 0                 |       |     | 955  |       |     | 955  |       |      | 955  |             |     | 955  |      |                                      | 955  |       |     | 955                                  |       |     | 0    |      |     | 0                   |      |  | 0    |                     |  |      |  |                   |  |  |  |
| TOTAL HT LOSS BTU/H              |  |  |      |       | 3271 |      | 2781 |       |     | 956               |       |     | 1990 |       |     | 6380 |       |      | 2890 |             |     | 2636 |      |                                      | 1377 |       |     | 884                                  |       |     | 759  |      |     |                     |      |  |      |                     |  |      |  |                   |  |  |  |
| TOTAL HT GAIN x 1.3 BTU/H        |  |  |      |       | 5440 |      | 2639 |       |     | 463               |       |     | 2698 |       |     | 7681 |       |      | 4608 |             |     | 4139 |      |                                      | 2133 |       |     | 340                                  |       |     | 153  |      |     |                     |      |  |      |                     |  |      |  |                   |  |  |  |

| ROOM USE                       |      |       | ENS-4 |     |      | SHARED |     |      | LAUN |      |      | HALL |      |      |      |   |      |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------|------|-------|-------|-----|------|--------|-----|------|------|------|------|------|------|------|------|---|------|--|--|--|--|--|--|--|--|--|--|--|
| EXP. WALL                      |      |       | 0     |     |      | 6      |     |      | 0    |      |      | 0    |      |      |      |   |      |  |  |  |  |  |  |  |  |  |  |  |
| CLG. HT.                       |      |       | 10    |     |      | 10     |     |      | 10   |      |      | 10   |      |      |      |   |      |  |  |  |  |  |  |  |  |  |  |  |
| GRS.WALL AREA                  | LOSS | GAIN  | 0     |     |      | 60     |     |      | 0    |      |      | 0    |      |      |      |   |      |  |  |  |  |  |  |  |  |  |  |  |
| GLAZING                        |      |       | LOSS  |     | GAIN | LOSS   |     | GAIN | LOSS |      | GAIN | LOSS |      | GAIN | LOSS |   | GAIN |  |  |  |  |  |  |  |  |  |  |  |
| NORTH                          | 20.8 | 15.5  | 0     | 0   | 0    | 0      | 0   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0 | 0    |  |  |  |  |  |  |  |  |  |  |  |
| EAST                           | 20.8 | 41.0  | 0     | 0   | 0    | 0      | 0   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0 | 0    |  |  |  |  |  |  |  |  |  |  |  |
| SOUTH                          | 20.8 | 24.4  | 0     | 0   | 0    | 9      | 187 | 220  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0 | 0    |  |  |  |  |  |  |  |  |  |  |  |
| WEST                           | 20.8 | 41.0  | 0     | 0   | 0    | 0      | 0   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0 | 0    |  |  |  |  |  |  |  |  |  |  |  |
| SKYLT.                         | 34.1 | 100.3 | 0     | 0   | 0    | 0      | 0   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0 | 0    |  |  |  |  |  |  |  |  |  |  |  |
| DOORS                          | 24.7 | 3.7   | 0     | 0   | 0    | 0      | 0   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0 | 0    |  |  |  |  |  |  |  |  |  |  |  |
| NET EXPOSED WALL               | 3.5  | 0.5   | 0     | 0   | 0    | 51     | 177 | 26   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0 | 0    |  |  |  |  |  |  |  |  |  |  |  |
| NET EXPOSED BSMT WALL ABOVE GR | 3.5  | 0.5   | 0     | 0   | 0    | 0      | 0   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0 | 0    |  |  |  |  |  |  |  |  |  |  |  |
| EXPOSED CLG                    | 1.3  | 0.6   | 70    | 88  | 39   | 90     | 113 | 50   | 77   | 96   | 43   | 397  | 497  | 221  |      |   |      |  |  |  |  |  |  |  |  |  |  |  |
| NO ATTIC EXPOSED CLG           | 2.7  | 1.2   | 0     | 0   | 0    | 0      | 0   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0 | 0    |  |  |  |  |  |  |  |  |  |  |  |
| EXPOSED FLOOR                  | 2.5  | 0.4   | 40    | 100 | 15   | 0      | 0   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0 | 0    |  |  |  |  |  |  |  |  |  |  |  |
| BASEMENT/CRAWL HEAT LOSS       |      |       |       |     |      |        |     |      |      |      |      |      |      |      |      |   |      |  |  |  |  |  |  |  |  |  |  |  |
| SLAB ON GRADE HEAT LOSS        |      |       |       |     |      |        |     |      |      |      |      |      |      |      |      |   |      |  |  |  |  |  |  |  |  |  |  |  |
| SUBTOTAL HT LOSS               |      |       |       |     | 187  |        |     | 477  |      |      | 96   |      |      | 497  |      |   |      |  |  |  |  |  |  |  |  |  |  |  |
| SUB TOTAL HT GAIN              |      |       |       |     | 54   |        |     | 296  |      |      | 43   |      |      | 221  |      |   |      |  |  |  |  |  |  |  |  |  |  |  |
| LEVEL FACTOR / MULTIPLIER      |      |       | 0.20  |     | 0.32 |        |     | 0.20 |      | 0.32 |      |      | 0.20 |      | 0.32 |   |      |  |  |  |  |  |  |  |  |  |  |  |
| AIR CHANGE HEAT LOSS           |      |       |       |     | 59   |        |     | 151  |      |      | 30   |      |      | 157  |      |   |      |  |  |  |  |  |  |  |  |  |  |  |
| AIR CHANGE HEAT GAIN           |      |       |       |     | 3    |        |     | 14   |      |      | 2    |      |      | 11   |      |   |      |  |  |  |  |  |  |  |  |  |  |  |
| DUCT LOSS                      |      |       |       |     | 25   |        |     | 0    |      |      | 0    |      |      | 0    |      |   |      |  |  |  |  |  |  |  |  |  |  |  |
| DUCT GAIN                      |      |       |       |     | 6    |        |     | 0    |      |      | 0    |      |      | 0    |      |   |      |  |  |  |  |  |  |  |  |  |  |  |
| HEAT GAIN PEOPLE               | 240  |       | 0     |     | 0    |        |     | 0    |      |      | 0    |      |      | 0    |      |   |      |  |  |  |  |  |  |  |  |  |  |  |
| HEAT GAIN APPLIANCES/LIGHTS    |      |       |       |     | 0    |        |     | 0    |      |      | 955  |      |      | 0    |      |   |      |  |  |  |  |  |  |  |  |  |  |  |
| TOTAL HT LOSS BTU/H            |      |       |       |     | 271  |        |     | 627  |      |      | 127  |      |      | 655  |      |   |      |  |  |  |  |  |  |  |  |  |  |  |
| TOTAL HT GAIN x 1.3 BTU/H      |      |       |       |     | 81   |        |     | 404  |      |      | 1300 |      |      | 302  |      |   |      |  |  |  |  |  |  |  |  |  |  |  |

TOTAL HEAT GAIN BTU/H: 71936

TONS: 5.99

LOSS DUE TO VENTILATION LOAD BTU/H: 6010

STRUCTURAL HEAT LOSS: 85620

TOTAL COMBINED HEAT LOSS BTU/H: 91630

SITE NAME: VALES OF HUMBER SOUTH  
BUILDER: ROYAL PINE HOMES

TYPE: 7001  
OPT IN-LAW - LAUN

DATE: Jul-24

GFA: 5543 LO# 95298

FURNACE 1

HEATING CFM 1265  
TOTAL HEAT LOSS 60,015  
AIR FLOW RATE CFM 21.08

COOLING CFM 1265  
TOTAL HEAT GAIN 39,111  
AIR FLOW RATE CFM 32.34

**FACTORY  
INSTALLED**

furnace pressure 0.6  
furnace filter 0  
a/c coil pressure 0.27  
available pressure for s/a & r/a 0.33

**FURNACE HEAT LOSS +  
HRV / ERV HEAT LOSS  
= 63020 BTUH**

**59SC6A080M17--16**

**CARRIER**

**80**

AFUE = 97 %  
INPUT (BTU/H) = 80,000  
OUTPUT (BTU/H) = **78,000**

| RUN COUNT | 4th | 3rd | 2nd | 1st | Bas |
|-----------|-----|-----|-----|-----|-----|
| S/A       | 0   | 0   | 0   | 21  | 8   |
| R/A       | 0   | 0   | 0   | 5   | 1   |

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

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

plenum pressure s/a 0.17  
max s/a dif press. loss 0.02  
min adjusted pressure s/a 0.15

r/a pressure 0.16

r/a grille press. Loss 0.02

adjusted pressure r/a 0.14

FAN SPEED LOW 0  
MEDLOW 1105  
MEDIUM 1265  
MEDIUM HIGH 0  
HIGH 0

DESIGN CFM = **1265**  
CFM @ .6" E.S.P.

TEMPERATURE RISE 57 °F

| 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                 | GREAT | GREAT | GREAT | GREAT | GREAT | KIT  | KIT  | KIT  | PANT | DIN  | DIN  | LIV  | LIV  | FOY  | FOY  | IN-LAW | IN-LAW | PWD-1 | PWD-2 | MD/LN | BAS  | BAS  | BAS  | BAS  |
| RM LOSS MBH.              | 2.04  | 2.04  | 2.04  | 2.04  | 2.04  | 1.58 | 1.58 | 1.58 | 1.04 | 1.14 | 1.14 | 1.27 | 1.27 | 2.55 | 2.55 | 1.06   | 1.06   | 0.16  | 0.42  | 3.62  | 3.40 | 3.40 | 3.40 | 3.40 |
| CFM PER RUN HEAT          | 43    | 43    | 43    | 43    | 43    | 33   | 33   | 33   | 22   | 24   | 24   | 27   | 27   | 54   | 54   | 22     | 22     | 3     | 9     | 76    | 72   | 72   | 72   | 72   |
| RM GAIN MBH.              | 2.59  | 2.59  | 2.59  | 2.59  | 2.59  | 2.58 | 2.58 | 2.58 | 0.15 | 1.36 | 1.36 | 1.87 | 1.87 | 1.87 | 1.87 | 1.99   | 1.99   | 0.02  | 0.06  | 2.20  | 0.21 | 0.21 | 0.21 | 0.21 |
| CFM PER RUN COOLING       | 84    | 84    | 84    | 84    | 84    | 83   | 83   | 83   | 5    | 44   | 44   | 60   | 60   | 60   | 60   | 65     | 65     | 1     | 2     | 71    | 7    | 7    | 7    | 7    |
| ADJUSTED PRESSURE         | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15 | 0.15 | 0.15 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16   | 0.16   | 0.16  | 0.16  | 0.16  | 0.16 | 0.16 | 0.16 | 0.16 |
| ACTUAL DUCT LGH.          | 31    | 25    | 21    | 23    | 28    | 35   | 47   | 53   | 55   | 50   | 62   | 78   | 74   | 78   | 82   | 81     | 87     | 31    | 11    | 18    | 53   | 38   | 21   | 25   |
| EQUIVALENT LENGTH         | 100   | 100   | 120   | 140   | 120   | 110  | 90   | 110  | 100  | 120  | 110  | 100  | 120  | 150  | 130  | 120    | 130    | 120   | 170   | 140   | 110  | 100  | 130  | 130  |
| TOTAL EFFECTIVE LENGTH    | 131   | 125   | 141   | 163   | 148   | 145  | 137  | 163  | 155  | 170  | 172  | 178  | 194  | 228  | 212  | 201    | 217    | 151   | 181   | 158   | 163  | 138  | 151  | 155  |
| ADJUSTED PRESSURE         | 0.12  | 0.12  | 0.11  | 0.09  | 0.1   | 0.1  | 0.11 | 0.09 | 0.1  | 0.1  | 0.09 | 0.08 | 0.08 | 0.07 | 0.08 | 0.08   | 0.07   | 0.11  | 0.09  | 0.1   | 0.1  | 0.12 | 0.11 | 0.1  |
| ROUND DUCT SIZE           | 6     | 6     | 6     | 6     | 6     | 6    | 6    | 6    | 4    | 4    | 4    | 5    | 5    | 5    | 5    | 5      | 5      | 4     | 4     | 6     | 5    | 5    | 5    | 5    |
| HEATING VELOCITY (ft/min) | 219   | 219   | 219   | 219   | 219   | 168  | 168  | 168  | 252  | 275  | 275  | 198  | 198  | 396  | 396  | 162    | 162    | 34    | 103   | 388   | 529  | 529  | 529  | 529  |
| COOLING VELOCITY (ft/min) | 428   | 428   | 428   | 428   | 428   | 423  | 423  | 423  | 57   | 505  | 505  | 441  | 441  | 441  | 441  | 477    | 477    | 11    | 23    | 362   | 51   | 51   | 51   | 51   |
| OUTLET GRILL SIZE         | 4X10  | 4X10  | 4X10  | 4X10  | 4X10  | 4X10 | 4X10 | 4X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10   | 3X10   | 3X10  | 3X10  | 4X10  | 3X10 | 3X10 | 3X10 | 3X10 |
| TRUNK                     | F     | F     | F     | E     | E     | E    | E    | D    | D    | C    | C    | A    | A    | A    | B    | B      | B      | E     | E     | F     | D    | E    | E    | F    |

| RUN #                     | 25   | 26   | 27   | 28   | 29    |
|---------------------------|------|------|------|------|-------|
| ROOM NAME                 | BAS  | BAS  | BAS  | BAS  | I-ENS |
| RM LOSS MBH.              | 3.40 | 3.40 | 3.40 | 3.40 | 0.57  |
| CFM PER RUN HEAT          | 72   | 72   | 72   | 72   | 12    |
| RM GAIN MBH.              | 0.21 | 0.21 | 0.21 | 0.21 | 0.08  |
| CFM PER RUN COOLING       | 7    | 7    | 7    | 7    | 3     |
| ADJUSTED PRESSURE         | 0.16 | 0.16 | 0.16 | 0.16 | 0.16  |
| ACTUAL DUCT LGH.          | 52   | 58   | 71   | 78   | 60    |
| EQUIVALENT LENGTH         | 110  | 110  | 110  | 100  | 120   |
| TOTAL EFFECTIVE LENGTH    | 162  | 168  | 181  | 178  | 180   |
| ADJUSTED PRESSURE         | 0.1  | 0.1  | 0.09 | 0.09 | 0.09  |
| ROUND DUCT SIZE           | 5    | 5    | 5    | 5    | 4     |
| HEATING VELOCITY (ft/min) | 529  | 529  | 529  | 529  | 138   |
| COOLING VELOCITY (ft/min) | 51   | 51   | 51   | 51   | 34    |
| OUTLET GRILL SIZE         | 3X10 | 3X10 | 3X10 | 3X10 | 3X10  |
| TRUNK                     | C    | C    | A    | B    | B     |

| SUPPLY AIR TRUNK SIZE |        |       |      |          |   |   |     |  |  | RETURN AIR TRUNK SIZE |        |       |      |          |   |   |   |  |  |
|-----------------------|--------|-------|------|----------|---|---|-----|--|--|-----------------------|--------|-------|------|----------|---|---|---|--|--|
| TRUNK                 | STATIC | ROUND | RECT | VELOCITY |   |   |     |  |  | TRUNK                 | STATIC | ROUND | RECT | VELOCITY |   |   |   |  |  |
| CFM                   | PRESS. | DUCT  | DUCT |          |   |   |     |  |  | CFM                   | PRESS. | DUCT  | DUCT |          |   |   |   |  |  |
| TRUNK A               | 180    | 0.07  | 7.6  | 8        | x | 8 | 405 |  |  | TRUNK G               | 0      | 0.00  | 0    | 0        | x | 8 | 0 |  |  |
| TRUNK B               | 182    | 0.07  | 7.7  | 8        | x | 8 | 410 |  |  | TRUNK H               | 0      | 0.00  | 0    | 0        | x | 8 | 0 |  |  |
| TRUNK C               | 554    | 0.07  | 11.6 | 16       | x | 8 | 623 |  |  | TRUNK I               | 0      | 0.00  | 0    | 0        | x | 8 | 0 |  |  |
| TRUNK D               | 127    | 0.09  | 6.3  | 8        | x | 8 | 286 |  |  | TRUNK J               | 0      | 0.00  | 0    | 0        | x | 8 | 0 |  |  |
| TRUNK E               | 989    | 0.07  | 14.4 | 24       | x | 8 | 742 |  |  | TRUNK K               | 0      | 0.00  | 0    | 0        | x | 8 | 0 |  |  |
| TRUNK F               | 277    | 0.10  | 8.2  | 10       | x | 8 | 499 |  |  | TRUNK L               | 0      | 0.00  | 0    | 0        | x | 8 | 0 |  |  |

| RETURN AIR #       | 1    | 2    | 3    | 4    | 5    | BR    |       |       |       |       |       |       |       |       |       |       |      |     |  |
|--------------------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-----|--|
| AIR VOLUME         | 330  | 155  | 360  | 130  | 130  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0    | 160 |  |
| PLENUM PRESSURE    | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14  | 0.14  | 0.14  | 0.14  | 0.14  | 0.14  | 0.14  | 0.14  | 0.14  | 0.14  | 0.14  | 0.14 |     |  |
| ACTUAL DUCT LGH.   | 15   | 55   | 55   | 63   | 60   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 16   |     |  |
| EQUIVALENT LENGTH  | 145  | 205  | 200  | 205  | 165  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 185  |     |  |
| TOTAL EFFECTIVE LH | 160  | 260  | 255  | 268  | 225  | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 201  |     |  |
| ADJUSTED PRESSURE  | 0.09 | 0.05 | 0.05 | 0.05 | 0.06 | 13.84 | 13.84 | 13.84 | 13.84 | 13.84 | 13.84 | 13.84 | 13.84 | 13.84 | 13.84 | 13.84 | 0.07 |     |  |
| ROUND DUCT SIZE    | 9    | 7.8  | 10.8 | 7.3  | 7    | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 7.3  |     |  |
| INLET GRILL SIZE   | 8    | 8    | 8    | 8    | 8    | 0     | 0     | 0     | 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   | 30   | 24   | 30   | 14   | 14   | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 14   |     |  |

SITE NAME: VALES OF HUMBER SOUTH  
BUILDER: ROYAL PINE HOMES

TYPE: 7001  
OPT IN-LAW - LAUN

DATE: Jul-24

GFA: 5543

LO# 95298

FURNACE 2

HEATING CFM 925  
TOTAL HEAT LOSS 25,606  
AIR FLOW RATE CFM 36.12  
COOLING CFM 925  
TOTAL HEAT GAIN 32,380  
AIR FLOW RATE CFM 28.57

**FACTORY  
INSTALLED**

furnace pressure 0.6  
furnace filter 0  
a/c coil pressure 0.26  
available pressure for s/a & r/a 0.34

**FURNACE HEAT LOSS +  
HRV / ERV HEAT LOSS  
= 28611 BTUH**
**59SC6A040M14--10**
**CARRIER**
**40**

AFUE = 96 %  
INPUT (BTU/H) = 40,000  
OUTPUT (BTU/H) = **39,000**

DESIGN CFM = **925**  
CFM @ .6" E.S.P.

TEMPERATURE RISE 39 °F

| RUN COUNT | 4th | 3rd | 2nd | 1st | Bas |
|-----------|-----|-----|-----|-----|-----|
| S/A       | 0   | 0   | 23  | 0   | 0   |
| R/A       | 0   | 0   | 7   | 0   | 0   |

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   |
|---------------------------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|------|------|
| ROOM NAME                 | PRI  | PRI  | PRI  | ENS  | ENS  | DRESS | BED-2 | BED-2 | ENS-2 | BED-3 | BED-3 | BED-3 | BED-3 | ENS-3 | BED-4 | BED-4 | ENS-4 | BED-5 | BED-5 | SHARED | RETR | LAUN |
| RM LOSS MBH.              | 1.09 | 1.09 | 1.09 | 2.09 | 0.70 | 0.96  | 1.00  | 1.00  | 0.88  | 1.60  | 1.60  | 1.60  | 1.60  | 0.76  | 1.44  | 1.44  | 0.27  | 1.32  | 1.32  | 0.63   | 1.38 | 0.13 |
| CFM PER RUN HEAT          | 39   | 39   | 39   | 75   | 25   | 35    | 36    | 36    | 32    | 58    | 58    | 58    | 58    | 27    | 52    | 52    | 10    | 48    | 48    | 23     | 50   | 5    |
| RM GAIN MBH.              | 1.81 | 1.81 | 1.81 | 1.98 | 0.66 | 0.46  | 1.35  | 1.35  | 0.34  | 1.92  | 1.92  | 1.92  | 1.92  | 0.15  | 2.30  | 2.30  | 0.08  | 2.07  | 2.07  | 0.40   | 2.13 | 1.30 |
| CFM PER RUN COOLING       | 52   | 52   | 52   | 57   | 19   | 13    | 39    | 39    | 10    | 55    | 55    | 55    | 55    | 4     | 66    | 66    | 2     | 59    | 59    | 12     | 61   | 37   |
| ADJUSTED PRESSURE         | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17  | 0.17  | 0.17  | 0.17  | 0.17  | 0.17  | 0.17  | 0.17  | 0.17  | 0.17  | 0.17  | 0.17  | 0.17  | 0.17  | 0.17   | 0.17 | 0.17 |
| ACTUAL DUCT LGH.          | 84   | 69   | 63   | 90   | 85   | 85    | 43    | 38    | 33    | 41    | 37    | 42    | 49    | 39    | 64    | 58    | 39    | 94    | 88    | 80     | 92   | 62   |
| EQUIVALENT LENGTH         | 190  | 200  | 210  | 160  | 170  | 200   | 180   | 180   | 110   | 110   | 120   | 130   | 130   | 120   | 190   | 220   | 110   | 170   | 170   | 170    | 190  | 220  |
| TOTAL EFFECTIVE LENGTH    | 274  | 269  | 273  | 250  | 255  | 285   | 223   | 218   | 143   | 151   | 157   | 172   | 179   | 159   | 254   | 278   | 149   | 264   | 258   | 250    | 282  | 282  |
| ADJUSTED PRESSURE         | 0.06 | 0.06 | 0.06 | 0.07 | 0.07 | 0.06  | 0.07  | 0.08  | 0.12  | 0.11  | 0.11  | 0.1   | 0.09  | 0.1   | 0.07  | 0.06  | 0.11  | 0.06  | 0.06  | 0.07   | 0.06 | 0.06 |
| ROUND DUCT SIZE           | 5    | 5    | 5    | 6    | 4    | 5     | 4     | 4     | 4     | 5     | 5     | 5     | 5     | 4     | 6     | 6     | 4     | 6     | 6     | 4      | 6    | 5    |
| HEATING VELOCITY (ft/min) | 286  | 286  | 286  | 382  | 287  | 257   | 413   | 413   | 367   | 426   | 426   | 426   | 426   | 310   | 265   | 265   | 115   | 245   | 245   | 264    | 255  | 37   |
| COOLING VELOCITY (ft/min) | 382  | 382  | 382  | 291  | 218  | 95    | 447   | 447   | 115   | 404   | 404   | 404   | 404   | 46    | 337   | 337   | 23    | 301   | 301   | 138    | 311  | 272  |
| OUTLET GRILL SIZE         | 3X10 | 3X10 | 3X10 | 4X10 | 3X10 | 3X10  | 3X10  | 3X10  | 3X10  | 3X10  | 3X10  | 3X10  | 3X10  | 3X10  | 4X10  | 4X10  | 3X10  | 4X10  | 4X10  | 3X10   | 4X10 | 3X10 |
| TRUNK                     | A    | A    | A    | A    | A    | A     | B     | B     | B     | D     | D     | B     | B     | B     | C     | C     | D     | C     | C     | C      | C    | C    |

| RUN #                     | 42   |
|---------------------------|------|
| ROOM NAME                 | HALL |
| RM LOSS MBH.              | 0.65 |
| CFM PER RUN HEAT          | 24   |
| RM GAIN MBH.              | 0.30 |
| CFM PER RUN COOLING       | 9    |
| ADJUSTED PRESSURE         | 0.17 |
| ACTUAL DUCT LGH.          | 54   |
| EQUIVALENT LENGTH         | 180  |
| TOTAL EFFECTIVE LENGTH    | 234  |
| ADJUSTED PRESSURE         | 0.07 |
| ROUND DUCT SIZE           | 4    |
| HEATING VELOCITY (ft/min) | 275  |
| COOLING VELOCITY (ft/min) | 103  |
| OUTLET GRILL SIZE         | 3X10 |
| TRUNK                     | C    |

**SUPPLY AIR TRUNK SIZE**

|         | TRUNK | STATIC | ROUND | RECT |   |   | VELOCITY |         | TRUNK | STATIC | ROUND | RECT |   | VELOCITY |   |
|---------|-------|--------|-------|------|---|---|----------|---------|-------|--------|-------|------|---|----------|---|
|         | CFM   | PRESS. | DUCT  | DUCT |   |   | (ft/min) |         | CFM   | PRESS. | DUCT  | DUCT |   | (ft/min) |   |
| TRUNK A | 252   | 0.06   | 9     | 10   | x | 8 | 454      | TRUNK G | 0     | 0.00   | 0     | 0    | x | 8        | 0 |
| TRUNK B | 499   | 0.06   | 11.6  | 16   | x | 8 | 561      | TRUNK H | 0     | 0.00   | 0     | 0    | x | 8        | 0 |
| TRUNK C | 302   | 0.06   | 9.6   | 12   | x | 8 | 453      | TRUNK I | 0     | 0.00   | 0     | 0    | x | 8        | 0 |
| TRUNK D | 428   | 0.06   | 11    | 18   | x | 8 | 428      | TRUNK J | 0     | 0.00   | 0     | 0    | x | 8        | 0 |
| TRUNK E | 0     | 0.00   | 0     | 0    | x | 8 | 0        | 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 | 925   | 0.05   | 15.3  | 28   | x | 8        | 595 |
| TRUNK Y | 510   | 0.05   | 12.3  | 18   | x | 8        | 510 |
| TRUNK Z | 210   | 0.05   | 8.8   | 10   | x | 8        | 378 |
| DROP    | 925   | 0.05   | 15.3  | 24   | x | 10       | 555 |

| RETURN AIR #       | 1    | 2    | 3    | 4    | 5    | 6    | 7    |       |       |       |       |       |       |       |       | BR    |
|--------------------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| AIR VOLUME         | 225  | 95   | 200  | 105  | 105  | 75   | 120  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
| PLENUM PRESSURE    | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14  | 0.14  | 0.14  | 0.14  | 0.14  | 0.14  | 0.14  | 0.14  | 0.14  |
| ACTUAL DUCT LGH.   | 46   | 42   | 54   | 66   | 89   | 60   | 53   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| EQUIVALENT LENGTH  | 175  | 165  | 245  | 205  | 210  | 215  | 205  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
| TOTAL EFFECTIVE LH | 221  | 207  | 299  | 271  | 299  | 275  | 258  | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| ADJUSTED PRESSURE  | 0.06 | 0.07 | 0.05 | 0.05 | 0.05 | 0.05 | 0.06 | 14.32 | 14.32 | 14.32 | 14.32 | 14.32 | 14.32 | 14.32 | 14.32 | 14.32 |
| ROUND DUCT SIZE    | 8.6  | 6    | 8.6  | 6.8  | 6.8  | 6    | 6.8  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
| INLET GRILL SIZE   | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|                    | X    | X    | X    | X    | X    | X    | X    | X     | X     | X     | X     | X     | X     | X     | X     | X     |
| INLET GRILL SIZE   | 30   | 14   | 30   | 14   | 14   | 14   | 14   | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |

TYPE: 7001  
SITE NAME: VALES OF HUMBER SOUTH

LO # 95298  
OPT IN-LAW - LAUN

**RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY**

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

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

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

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

| TOTAL VENTILATION CAPACITY |                     | 9.32.3.3(1)      |
|----------------------------|---------------------|------------------|
| Basement + Master Bedroom  | <u>2</u> @ 21.2 cfm | <u>42.4</u> cfm  |
| Other Bedrooms             | <u>5</u> @ 10.6 cfm | <u>53</u> cfm    |
| Kitchen & Bathrooms        | <u>9</u> @ 10.6 cfm | <u>95.4</u> cfm  |
| Other Rooms                | <u>7</u> @ 10.6 cfm | <u>74.2</u> cfm  |
| Table 9.32.3.A.            | TOTAL               | <u>265.0</u> cfm |

| PRINCIPAL VENTILATION CAPACITY REQUIRED       |  | 9.32.3.4.(1)     |
|-----------------------------------------------|--|------------------|
| 6 Bedrooms                                    |  |                  |
| As Per Ashrea 62.2 Dwelling- Unit Ventilation |  |                  |
| 4.1.1 Total Ventilation Rate                  |  |                  |
| $Q_{tot}=0.03A_{floor}+7.5(N_{br}+1)$         |  |                  |
| TOTAL                                         |  | <u>218.8</u> cfm |

| SUPPLEMENTAL VENTILATION CAPACITY |              | 9.32.3.5. |
|-----------------------------------|--------------|-----------|
| Total Ventilation Capacity        | <u>265</u>   | cfm       |
| Less Principal Ventil. Capacity   | <u>150</u>   | cfm       |
| Required Supplemental Capacity    | <u>115.0</u> | cfm       |

| PRINCIPAL EXHAUST FAN CAPACITY |                                                  |
|--------------------------------|--------------------------------------------------|
| Model:                         | VANEE V150H                                      |
| Location:                      | BSMT                                             |
| <u>150.0</u> cfm               | <input checked="" type="checkbox"/> HVI Approved |

| PRINCIPAL EXHAUST HEAT LOSS CALCULATION |               |        |        |      |
|-----------------------------------------|---------------|--------|--------|------|
| CFM                                     | $\Delta T$ °F | FACTOR | % LOSS |      |
| 150.0 CFM                               | X 74 F        | X 1.08 | X      | 0.25 |

| SUPPLEMENTAL FANS |                          | BY INSTALLING CONTRACTOR |                                     |       |
|-------------------|--------------------------|--------------------------|-------------------------------------|-------|
| Location          | Model                    | cfm                      | HVI                                 | Sones |
| ENS               | BY INSTALLING CONTRACTOR | 50                       | <input checked="" type="checkbox"/> | 3.5   |
| ENS-2             | BY INSTALLING CONTRACTOR | 50                       | <input checked="" type="checkbox"/> | 3.5   |
| ENS-3             | BY INSTALLING CONTRACTOR | 50                       | <input checked="" type="checkbox"/> | 3.5   |
| ENS-4             | BY INSTALLING CONTRACTOR | 50                       | <input checked="" type="checkbox"/> | 3.5   |

| HEAT RECOVERY VENTILATOR |                                             | 9.32.3.11.                                       |
|--------------------------|---------------------------------------------|--------------------------------------------------|
| Model:                   | VANEE V150H                                 | INSTALL 2 HRV / ERV's                            |
| <u>150</u>               | cfm high                                    | <u>35</u> cfm low                                |
| <u>75</u>                | % Sensible Efficiency @ 32 deg F ( 0 deg C) | <input checked="" type="checkbox"/> HVI Approved |

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

| BUILDER:         |        |
|------------------|--------|
| ROYAL PINE HOMES |        |
| Name:            |        |
| Address:         |        |
| City:            |        |
| Telephone #:     | Fax #: |

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

| DESIGNER CERTIFICATION                                                                                        |                         |
|---------------------------------------------------------------------------------------------------------------|-------------------------|
| I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code. |                         |
| Name:                                                                                                         | HVAC Designs Ltd.       |
| Signature:                                                                                                    | <i>Michael O'Rourke</i> |
| HRAI #                                                                                                        | 001820                  |
| Date:                                                                                                         | July-24                 |

| CSA F280-12 Residential Heat Loss and Heat Gain Calculations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                   |                                                     |                                                                                                                                         |                                                           |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------|--------------|------|------|----|-------|-------|------|----|-------|--------|------|----|-------|-------|---|---|---|--------|---|---|---|--------|--|--|--------------|--------|--|--|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------|-------|--------------------------------|-------|-------------------------------|--|--|--|--|--|--------|---------|-------|-------|-------------|----|-----|----|----|-------------|----|----|---|----|
| Formula Sheet (For Air Leakage / Ventilation Calculation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                   |                                                     |                                                                                                                                         |                                                           |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| LO#: 95298                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Model: 7001       | Builder: ROYAL PINE HOMES                           | Date: 7/9/2024                                                                                                                          |                                                           |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| <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>2786</td> <td>10</td> <td>27860</td> </tr> <tr> <td>First</td> <td>2786</td> <td>11</td> <td>30646</td> </tr> <tr> <td>Second</td> <td>3296</td> <td>10</td> <td>32960</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>91,466.0 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>2590.0 m³</td> </tr> </tbody> </table> |                   |                                                     | Level                                                                                                                                   | Floor Area (ft²)                                          | Floor Height (ft) | Volume (ft³) | Bsmt | 2786 | 10 | 27860 | First | 2786 | 11 | 30646 | Second | 3296 | 10 | 32960 | Third | 0 | 9 | 0 | Fourth | 0 | 9 | 0 | Total: |  |  | 91,466.0 ft³ | Total: |  |  | 2590.0 m³ | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 30%; text-align: center;">0.241</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.078</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;">-19</td> <td style="text-align: center;">41</td> <td style="text-align: center;">74</td> </tr> <tr> <td>Summer DTDc</td> <td style="text-align: center;">24</td> <td style="text-align: center;">30</td> <td style="text-align: center;">6</td> <td style="text-align: center;">11</td> </tr> </table> |  | WINTER NATURAL AIR CHANGE RATE | 0.241 | SUMMER NATURAL AIR CHANGE RATE | 0.078 | Design Temperature Difference |  |  |  |  |  | Tin °C | Tout °C | ΔT °C | ΔT °F | Winter DTDh | 22 | -19 | 41 | 74 | Summer DTDc | 24 | 30 | 6 | 11 |
| Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Floor Area (ft²)  | Floor Height (ft)                                   | Volume (ft³)                                                                                                                            |                                                           |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Bsmt                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2786              | 10                                                  | 27860                                                                                                                                   |                                                           |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| First                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2786              | 11                                                  | 30646                                                                                                                                   |                                                           |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Second                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 3296              | 10                                                  | 32960                                                                                                                                   |                                                           |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Third                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0                 | 9                                                   | 0                                                                                                                                       |                                                           |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Fourth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0                 | 9                                                   | 0                                                                                                                                       |                                                           |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Total:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                   |                                                     | 91,466.0 ft³                                                                                                                            |                                                           |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Total:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                   |                                                     | 2590.0 m³                                                                                                                               |                                                           |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| WINTER NATURAL AIR CHANGE RATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.241             |                                                     |                                                                                                                                         |                                                           |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| SUMMER NATURAL AIR CHANGE RATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.078             |                                                     |                                                                                                                                         |                                                           |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Design Temperature Difference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                   |                                                     |                                                                                                                                         |                                                           |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Tin °C            | Tout °C                                             | ΔT °C                                                                                                                                   | ΔT °F                                                     |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Winter DTDh                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 22                | -19                                                 | 41                                                                                                                                      | 74                                                        |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| Summer DTDc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 24                | 30                                                  | 6                                                                                                                                       | 11                                                        |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| <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>0.241 x 719.45 x 41 °C x 1.2 = 8587 W</p> <p>= 29300 Btu/h</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                   |                                                     | $HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ <p>= 0.078 x 719.45 x 6 °C x 1.2 = 414 W</p> <p>= 1412 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>                                                                                      |                                                           |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| $HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E) \times 2 \text{ HRV / ERV's}$ <p>300 CFM x 74 °F x 1.08 x 0.25 = 6010 Btu/h</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                   |                                                     | $HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>300 CFM x 11 °F x 1.08 x 0.25 = 891 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               | 29,300                                              | 12,566                                                                                                                                  | 1.166                                                     |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0.3               |                                                     | 24,009                                                                                                                                  | 0.366                                                     |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0.2               |                                                     | 18,548                                                                                                                                  | 0.316                                                     |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
| 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>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                   |                                                     |                                                                                                                                         |                                                           |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                                                     |                                                                                                                                         | Michael O'Rourke<br>BCIN# 19669<br>                       |                   |              |      |      |    |       |       |      |    |       |        |      |    |       |       |   |   |   |        |   |   |   |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                |       |                                |       |                               |  |  |  |  |  |        |         |       |       |             |    |     |    |    |             |    |    |   |    |

**HEAT LOSS AND GAIN SUMMARY SHEET**

|                    |                          |                                    |
|--------------------|--------------------------|------------------------------------|
| <b>MODEL:</b> 7001 | <b>OPT IN-LAW - LAUN</b> | <b>BUILDER:</b> ROYAL PINE HOMES   |
| <b>SFQT:</b> 5543  | <b>LO#</b> 95298         | <b>SITE:</b> VALES OF HUMBER SOUTH |

**DESIGN ASSUMPTIONS**

|                      |    |                                |      |
|----------------------|----|--------------------------------|------|
| HEATING              | °F | COOLING                        | °F   |
| OUTDOOR DESIGN TEMP. | -2 | OUTDOOR DESIGN TEMP.           | 86   |
| INDOOR DESIGN TEMP.  | 72 | INDOOR DESIGN TEMP. (MAX 75°F) | 75   |
|                      |    | WINDOW SHGC                    | 0.60 |

**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> ):                 | 91466.0         | ASSUMED (Y/N):            | Y        |
| INTERNAL SHADING:                                | BLINDS/CURTAINS | ASSUMED OCCUPANTS:        | 7        |
| INTERIOR LIGHTING LOAD (Btu/h/ft <sup>2</sup> ): | 1.40            | DC BRUSHLESS MOTOR (Y/N): | Y        |
| FOUNDATION CONFIGURATION                         | BCIN_1          | DEPTH BELOW GRADE:        | 7.0 ft   |
| LENGTH: 63.0 ft                                  | WIDTH: 62.0 ft  | EXPOSED PERIMETER:        | 250.0 ft |

**2012 OBC - COMPLIANCE PACKAGE****Component****Compliance Package  
SB-12 PERFORMANCE****Nominal Min. Eff.**

|                                                                            |        |       |
|----------------------------------------------------------------------------|--------|-------|
| Ceiling with Attic Space Minimum RSI (R)-Value                             | 60     | 59.22 |
| Ceiling Without Attic Space Minimum RSI (R)-Value                          | 31     | 27.65 |
| Exposed Floor Minimum RSI (R)-Value                                        | 31     | 29.80 |
| Walls Above Grade Minimum RSI (R)-Value                                    | 22+1.5 | 21.40 |
| 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                                       | 0.9    | -     |

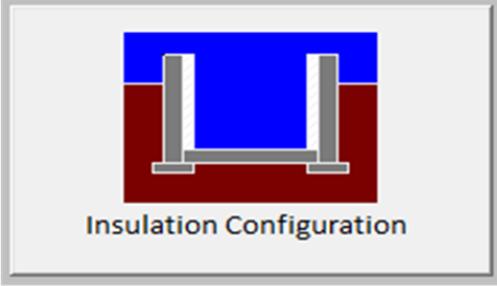
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



# Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

| Weather Station Description    |                                           |                                                                                                                 |
|--------------------------------|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Province:                      | Ontario                                   |                                                                                                                 |
| Region:                        | Brampton                                  |                                                                                                                 |
| Site Description               |                                           |                                                                                                                 |
| Soil Conductivity:             | Normal conductivity: dry sand, loam, clay |                                                                                                                 |
| Water Table:                   | Normal (7-10 m, 23-33 ft)                 |                                                                                                                 |
| Foundation Dimensions          |                                           |                                                                                                                 |
| Floor Length (m):              | 19.2                                      | <br>Insulation Configuration |
| Floor Width (m):               | 18.9                                      |                                                                                                                 |
| Exposed Perimeter (m):         | 0.0                                       |                                                                                                                 |
| Wall Height (m):               | 3.0                                       |                                                                                                                 |
| Depth Below Grade (m):         | 2.13                                      |                                                                                                                 |
| Window Area (m <sup>2</sup> ): | 2.2                                       |                                                                                                                 |
| 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):          |                                           | 2619                                                                                                            |

TYPE: 7001  
LO# 95298

OPT IN-LAW - LAUN

# Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

| Weather Station Description       |                                |    |                        |    |
|-----------------------------------|--------------------------------|----|------------------------|----|
| Province:                         | Ontario                        |    |                        |    |
| Region:                           | Brampton                       |    |                        |    |
| Weather Station Location:         | Open flat terrain, grass       |    |                        |    |
| Anemometer height (m):            | 10                             |    |                        |    |
| Local Shielding                   |                                |    |                        |    |
| Building Site:                    | Suburban, forest               |    |                        |    |
| Walls:                            | Heavy                          |    |                        |    |
| Flue:                             | Heavy                          |    |                        |    |
| Highest Ceiling Height (m):       | 7.32                           |    |                        |    |
| Building Configuration            |                                |    |                        |    |
| Type:                             | Detached                       |    |                        |    |
| Number of Stories:                | Two                            |    |                        |    |
| Foundation:                       | Full                           |    |                        |    |
| House Volume (m <sup>3</sup> ):   | 2590.0                         |    |                        |    |
| Air Leakage/Ventilation           |                                |    |                        |    |
| Air Tightness Type:               | Energy Star Detached (2.5 ACH) |    |                        |    |
| Custom BDT Data:                  | ELA @ 10 Pa.                   |    | 2417.8 cm <sup>2</sup> |    |
|                                   | 2.50                           |    | ACH @ 50 Pa            |    |
| Mechanical Ventilation (L/s):     | Total Supply                   |    | Total Exhaust          |    |
|                                   | 70.8                           |    | 70.8                   |    |
| Flue Size                         |                                |    |                        |    |
| Flue #:                           | #1                             | #2 | #3                     | #4 |
| Diameter (mm):                    | 0                              | 0  | 0                      | 0  |
| Natural Infiltration Rates        |                                |    |                        |    |
| Heating Air Leakage Rate (ACH/H): | 0.241                          |    |                        |    |
| Cooling Air Leakage Rate (ACH/H): | 0.078                          |    |                        |    |

TYPE: 7001  
LO# 95298

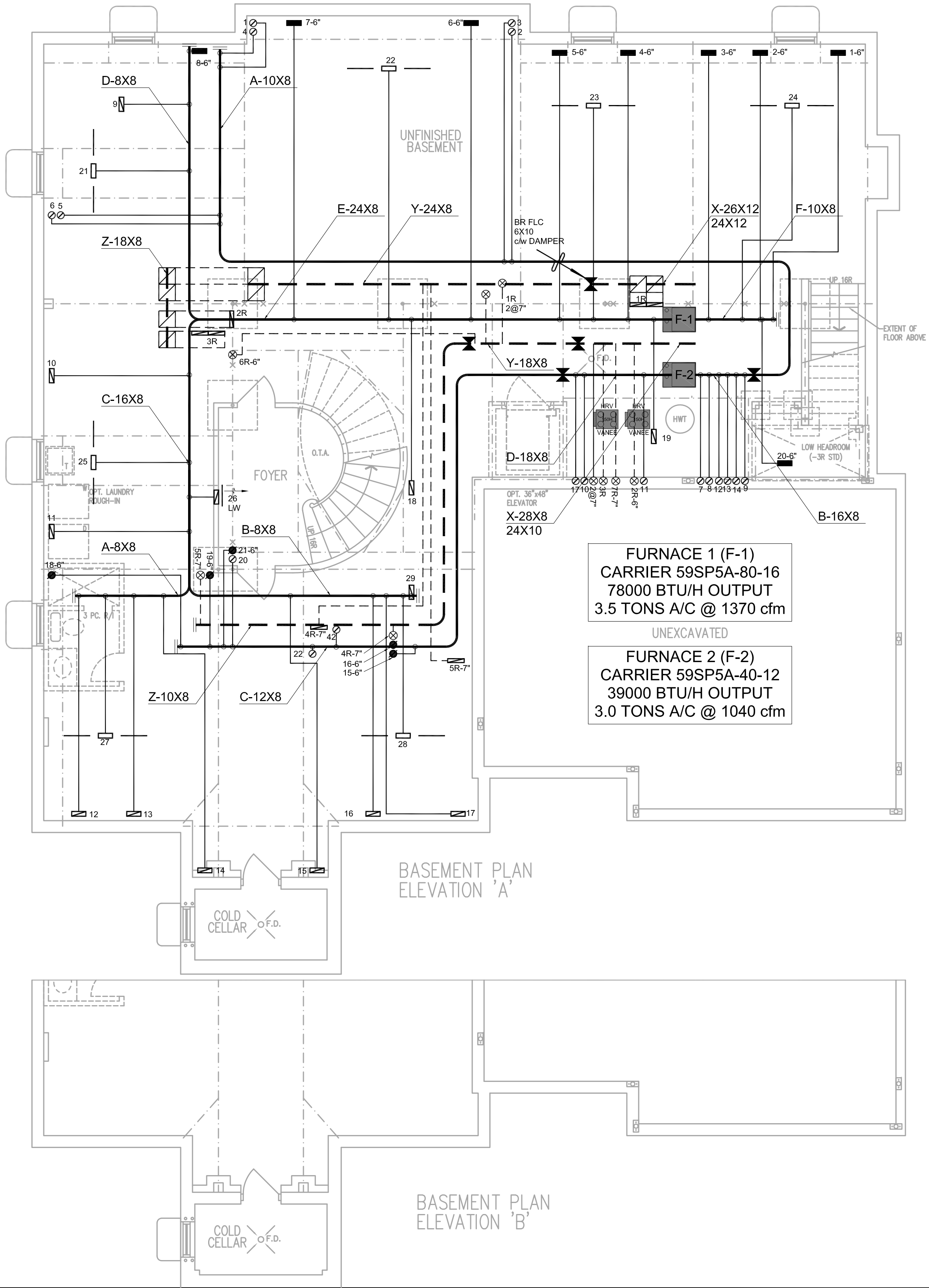
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ALL S/A DIFFUSERS "4x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

SUPPLEMENTAL EXHAUST FAN (MINIMUM 100 CFM) DISCHARGING DIRECTLY TO THE EXTERIOR WILL BE PROVIDED IN THE KITCHEN. EXHAUST DUCTS SERVING THE KITCHEN SHALL NOT BE SMALLER THAN RECOMMENDED BY THE MANUFACTURER OF THE FANS AND MUST AT LEAST MEET O.B.C. STATED MINIMUMS.



| HVAC LEGEND |                                  |
|-------------|----------------------------------|
|             | SUPPLY AIR GRILLE                |
|             | SUPPLY AIR GRILLE 6" BOOT        |
|             | LINEAR BAR or LINEAR SLOT GRILLE |
|             | SUPPLY AIR BOOT ABOVE            |
|             | 6" SUPPLY AIR BOOT ABOVE         |
|             | SUPPLY AIR STACK                 |
|             | 6" SUPPLY AIR STACK              |
|             | 14X8 RETURN AIR GRILLE           |
|             | 30X8 RETURN AIR GRILLE           |
|             | FLOOR RETURN AIR GRILLE          |
|             | RETURN STACK ABOVE               |
|             | RETURN AIR STACK                 |
|             | REDUCER                          |
|             | SUPPLY DUCTWORK                  |
|             | RETURN DUCTWORK                  |
|             | FLEX DUCT                        |
|             | EXHAUST FAN                      |
|             | LINT TRAP by REVERSOMATIC        |
|             | DIRECT VENT                      |
|             | LOW WALL                         |
|             | HIGH WALL                        |
|             | CEILING                          |
|             | MOTORIZED ZONE DAMPER            |
|             | MOTORIZED DAMPER                 |
|             | EXHAUST PIPE                     |
|             | CONCENTRIC VENT KIT              |
|             | CONCENTRIC HRV or ERV VENT KIT   |
|             | SINGLE WALL BOX by REVERSOMATIC  |
|             | DOUBLE WALL BOX by REVERSOMATIC  |
|             | TRIPLE WALL BOX by REVERSOMATIC  |
|             | DRYER BOOSTER FAN                |

|     |                             |          |    |
|-----|-----------------------------|----------|----|
| 3   | UPDATED EQUIPMENT           | JUL/2024 | JW |
| 2   | REVISED TO PERFORMANCE PATH | APR/2022 | KB |
| 1   | ISSUED FOR PERMIT           | MAR/2022 | EG |
| No. | Revision                    | Date     | By |

SB-12 PERFORMANCE PACKAGE

I Michael O'Rourke have reviewed and take responsibility for the design work and am qualified under division C3.2.5 of the building code.

*Michael O'Rourke*  
Michael O'Rourke BCIN # 15689  
HVAC Designs Ltd.

|     | S/A | R/A | FANS |
|-----|-----|-----|------|
| 2ND | 23  | 7   | 7    |
| 1ST | 20  | 5   | 4    |
| BAS | 8   | 1   | 0    |

**HVACDESIGNS LTD.**

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Email: info@hvacadesigns.ca  
Web: www.hvacadesigns.ca  
Specializing in Residential Mechanical Design Services

Client **ROYAL PINE HOMES**

Project Name **VALES OF HUMBER SOUTH  
BRAMPTON, ONTARIO**

**7001**  
OPT IN-LAW - LAUN

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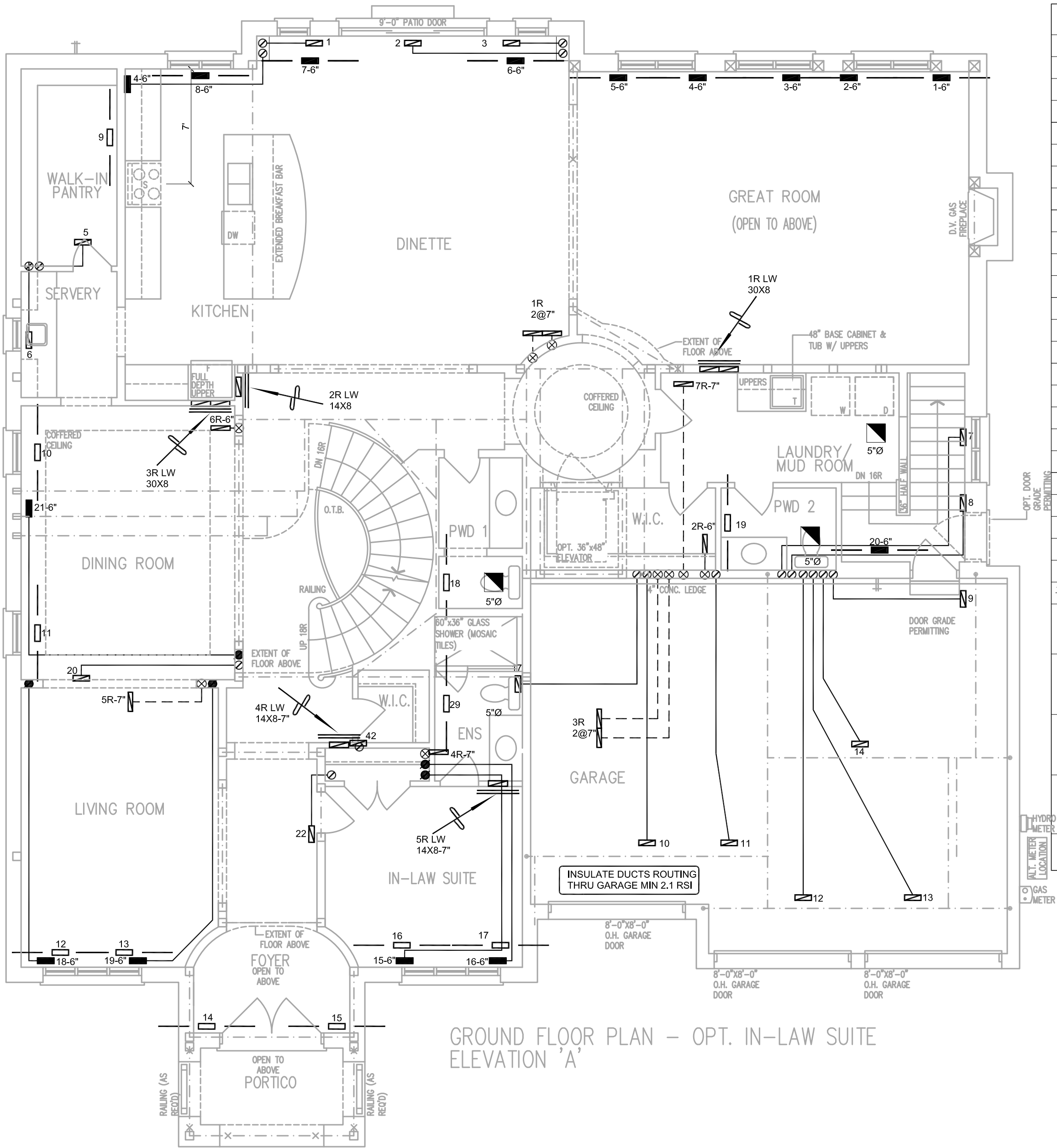
| Sheet Title | BASEMENT    | HEATING LAYOUT |
|-------------|-------------|----------------|
| Drawn By    | EG          | Checked By MO  |
| Scale       | 3/16"=1'-0" | Sheet No.      |
| Date        | MARCH 2022  | 1              |
| LO #        | 95298       | 3              |

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|             | HIGH WALL                        |
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|             | TRIPLE WALL BOX by REVERSOMATIC  |
|             | DRYER BOOSTER FAN                |

|     |                             |          |    |
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|-----|-----|-----|------|
| 2ND | 23  | 7   | 7    |
| 1ST | 20  | 5   | 4    |
| BAS | 8   | 1   | 0    |

**HVACDESIGNS LTD.**

375 Finley Ave - Unit 202 - Ajax, Ontario L1S 2E2  
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Specializing in Residential Mechanical Design Services

Client **ROYAL PINE HOMES**

Project Name **VALES OF HUMBER SOUTH  
BRAMPTON, ONTARIO**

**7001**  
OPT IN-LAW - LAUN

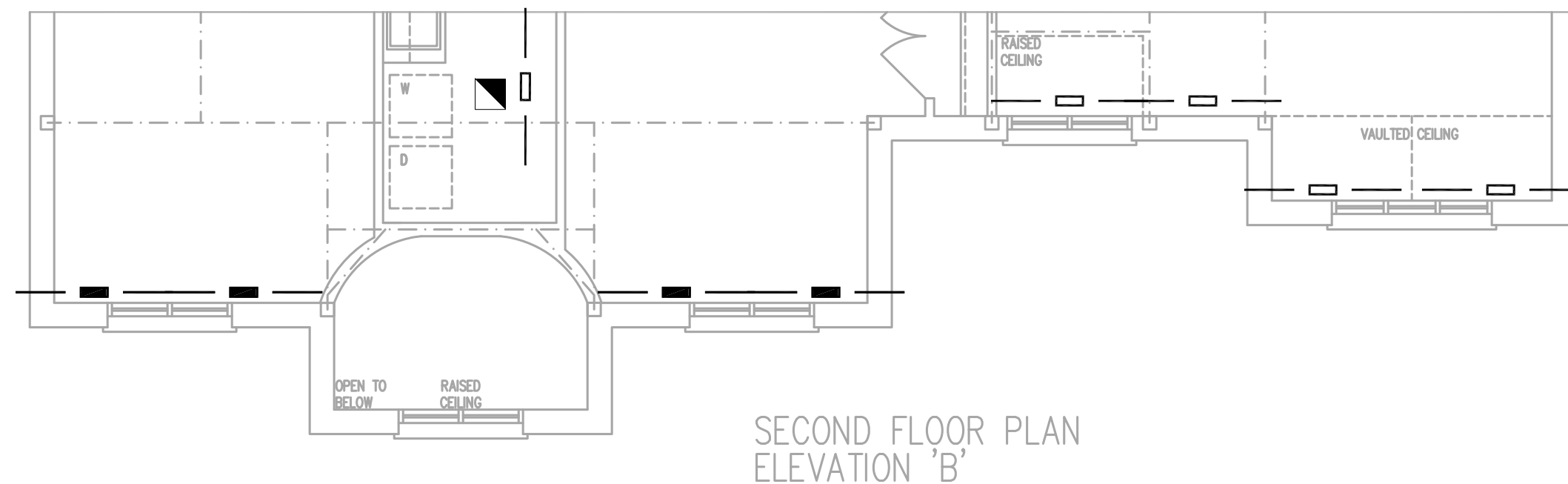
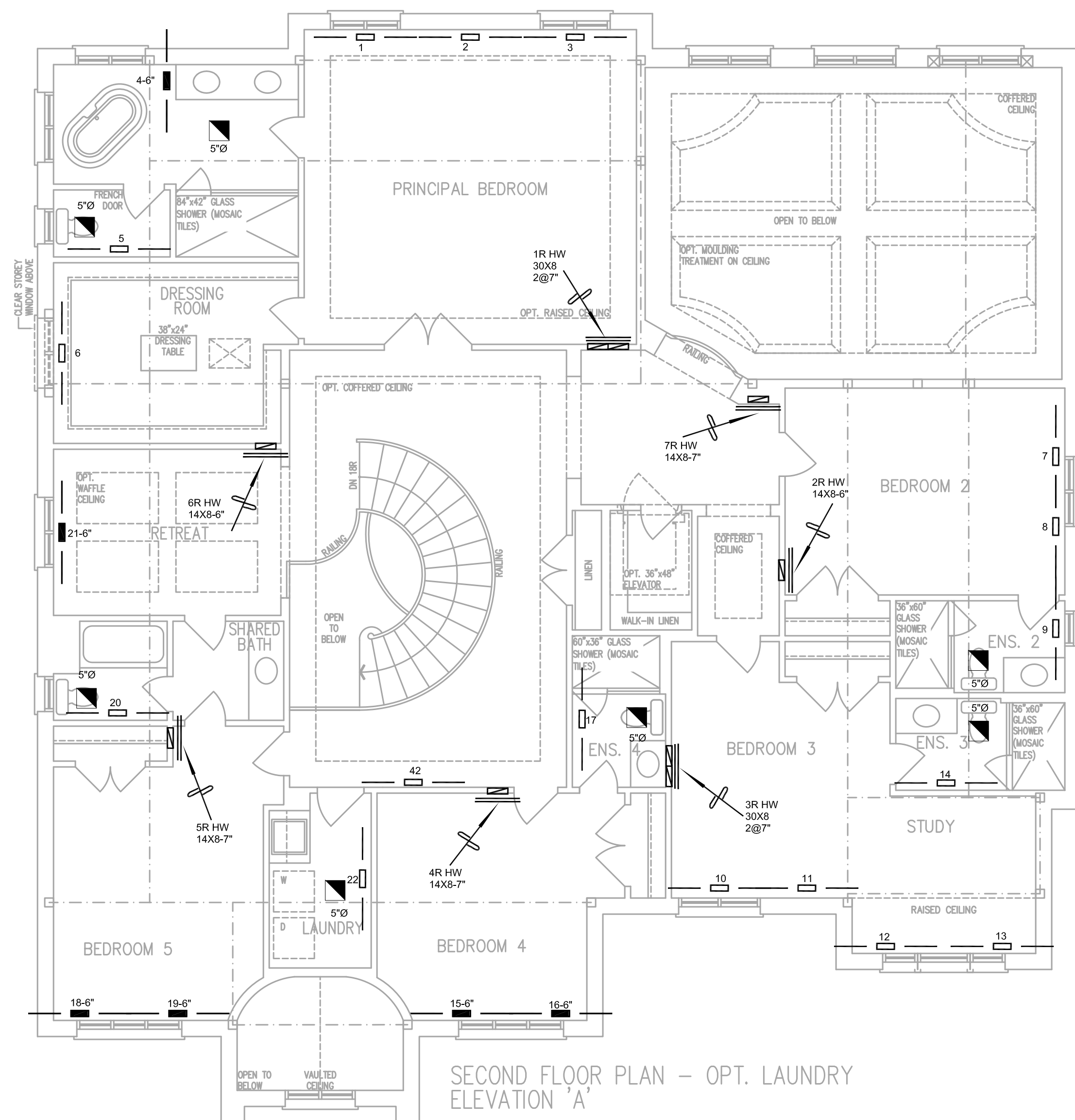
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| Sheet Title | FIRST FLOOR | HEATING LAYOUT |
|-------------|-------------|----------------|
| Drawn By    | EG          | Checked By MO  |
| Scale       | 3/16"=1'-0" | Sheet No.      |
| Date        | MARCH 2022  | 2              |
| LO #        | 95298       | 3              |

INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE. ALL SUPPLY BRANCH OUTLETS SHALL BE EQUIPPED WITH MANUAL BALANCING DAMPER. DUCTWORK WHICH PASSES THROUGH THE GARAGE OR UNHEATED SPACES SHALL BE ADEQUATELY INSULATED AND GAS-PROOFED

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

SUPPLEMENTAL EXHAUST FAN (MINIMUM 100 CFM) DISCHARGING DIRECTLY TO THE EXTERIOR WILL BE PROVIDED IN THE KITCHEN. EXHAUST DUCTS SERVING THE KITCHEN SHALL NOT BE SMALLER THAN RECOMMENDED BY THE MANUFACTURER OF THE FANS AND MUST AT LEAST MEET O.B.C. STATED MINIMUMS.



| HVAC LEGEND |                                  |
|-------------|----------------------------------|
|             | SUPPLY AIR GRILLE                |
|             | SUPPLY AIR GRILLE 6" BOOT        |
|             | LINEAR BAR or LINEAR SLOT GRILLE |
|             | SUPPLY AIR BOOT ABOVE            |
|             | 6" SUPPLY AIR BOOT ABOVE         |
|             | SUPPLY AIR STACK                 |
|             | 6" SUPPLY AIR STACK              |
|             | 14X8 RETURN AIR GRILLE           |
|             | 30X8 RETURN AIR GRILLE           |
|             | FLOOR RETURN AIR GRILLE          |
|             | RETURN STACK ABOVE               |
|             | RETURN AIR STACK                 |
|             | REDUCER                          |
|             | SUPPLY DUCTWORK                  |
|             | RETURN DUCTWORK                  |
|             | FLEX DUCT                        |
|             | EXHAUST FAN                      |
|             | LINT TRAP by REVERSOMATIC        |
| DV          | DIRECT VENT                      |
| LW          | LOW WALL                         |
| HW          | HIGH WALL                        |
| CLG.        | CEILING                          |
| Z.D.        | MOTORIZED ZONE DAMPER            |
| M.D.        | MOTORIZED DAMPER                 |
|             | EXHAUST PIPE                     |
|             | CONCENTRIC VENT KIT              |
|             | CONCENTRIC HRV or ERV VENT KIT   |
|             | SINGLE WALL BOX by REVERSOMATIC  |
|             | DOUBLE WALL BOX by REVERSOMATIC  |
|             | TRIPLE WALL BOX by REVERSOMATIC  |
|             | DRYER BOOSTER FAN                |

|     |                             |          |    |
|-----|-----------------------------|----------|----|
| 3   | UPDATED EQUIPMENT           | JUL/2024 | JW |
| 2   | REVISED TO PERFORMANCE PATH | APR/2022 | KB |
| 1   | ISSUED FOR PERMIT           | MAR/2022 | EG |
| No. | Revision                    | Date     | By |

## SB-12 PERFORMANCE PACKAGE

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

|     | S/A | R/A | FANS |
|-----|-----|-----|------|
| 2ND | 23  | 7   | 7    |
| 1ST | 20  | 5   | 4    |
| BAS | 8   | 1   | 0    |

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BRAMPTON, ONTARIO

**7001**  
OPT IN-LAW - LAUN

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|             |              |  |                |           |
|-------------|--------------|--|----------------|-----------|
| Sheet Title | SECOND FLOOR |  | HEATING LAYOUT |           |
| Drawn By    | EG           |  | Checked By     | MO        |
| Scale       | 3/16"=1'-0"  |  |                | Sheet No. |
| Date        | MARCH 2022   |  |                | 3         |
| LO #        | 95298        |  |                | 3         |