

## Schedule 1: Designer Information

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

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                                                                                      |                               |          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|--------------------------------------------------------------------------------------|-------------------------------|----------|
| <b>A. Project Information</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                              |                                                                                      |                               |          |
| Building number, street name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                              |                                                                                      | Unit no.                      | Lot/con. |
| Municipality<br>VAUGHAN (WOODBIDGE)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Postal code                  | Plan number/ other description                                                       |                               |          |
| <b>B. Individual who reviews and takes responsibility for design activities</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                                                                                      |                               |          |
| Name<br>MICHAEL O'ROURKE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                              | Firm<br>HVAC DESIGNS LTD.                                                            |                               |          |
| Street address<br>375 FINLEY AVE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                              | Unit no.<br>202                                                                      | Lot/con.<br>N/A               |          |
| Municipality<br>AJAX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Postal code<br>L1S 2E2       | Province<br>ONTARIO                                                                  | E-mail<br>info@hvacdesigns.ca |          |
| Telephone number<br>(905) 619-2300                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Fax number<br>(905) 619-2375 | Cell number<br>( )                                                                   |                               |          |
| <b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                              |                                                                                      |                               |          |
| <input type="checkbox"/> House<br><input type="checkbox"/> Small Buildings<br><input type="checkbox"/> Large Buildings<br><input type="checkbox"/> Complex Buildings <input checked="" type="checkbox"/> HVAC – House<br><input type="checkbox"/> Building Services<br><input type="checkbox"/> Detection, Lighting and Power<br><input type="checkbox"/> Fire Protection <input type="checkbox"/> Building Structural<br><input type="checkbox"/> Plumbing – House<br><input type="checkbox"/> Plumbing – All Buildings<br><input type="checkbox"/> On-site Sewage Systems |                              |                                                                                      |                               |          |
| Description of designer's work<br>HEAT LOSS / GAIN CALCULATIONS<br>DUCT SIZING<br>RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY<br>RESIDENTIAL SYSTEM DESIGN per CSA-F280-12                                                                                                                                                                                                                                                                                                                                                                                            |                              | Model: 4204 THE BROOKVALLEY<br><br>OPT. 5 BED<br><br>Project: PINE VALLEY & TESTON   |                               |          |
| <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><br>Individual BCIN: _____<br>Firm BCIN: _____                                                                                                                                                                                                                                                              |                              |                                                                                      |                               |          |
| <input checked="" type="checkbox"/> I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code.<br><br>Individual BCIN: <u>19669</u><br>Basis for exemption from registration and qualification: <u>O.B.C SENTENCE 3.2.4.1 (4)</u>                                                                                                                                                                                                                     |                              |                                                                                      |                               |          |
| <input type="checkbox"/> The design work is exempt from the registration and qualification requirements of the Building Code.<br>Basis for exemption from registration and qualification: _____                                                                                                                                                                                                                                                                                                                                                                             |                              |                                                                                      |                               |          |
| I certify that:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                                                                                      |                               |          |
| 1. The information contained in this schedule is true to the best of my knowledge.<br>2. I have submitted this application with the knowledge and consent of the firm.                                                                                                                                                                                                                                                                                                                                                                                                      |                              |                                                                                      |                               |          |
| January 24, 2018                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                              |  |                               |          |
| Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              | Signature of Designer                                                                |                               |          |

**NOTE:**

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

| SITE NAME: PINE VALLEY & TESTON<br>BUILDER: GOLD PARK HOMES |                                |                                |                                |                                |                                |                                |                                |                                |                                | DATE: Jan-18<br>LO# 77470 |                   | WINTER NATURAL AIR CHANGE RATE 0.340<br>SUMMER NATURAL AIR CHANGE RATE 0.114 |                  | HEAT LOSS AT °F. 76<br>HEAT GAIN AT °F. 13 |                  | CSA-F280-12<br>SB-12 PACKAGE A1 |                  |
|-------------------------------------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|---------------------------|-------------------|------------------------------------------------------------------------------|------------------|--------------------------------------------|------------------|---------------------------------|------------------|
| OPT. 5 BED<br>TYPE: 4204 THE BROOKVALEY                     |                                |                                |                                |                                |                                |                                |                                |                                |                                | GFA: 3646                 |                   | BTH-2<br>BTH-3<br>BTH-5                                                      |                  | BTH-2<br>BTH-3<br>BTH-5                    |                  | BTH-2<br>BTH-3<br>BTH-5         |                  |
| ROOM USE<br>EXP. WALL<br>CLG. HT.                           | EXP. WALL<br>CLG. HT.          | EXP. WALL<br>CLG. HT.          | EXP. WALL<br>CLG. HT.          | EXP. WALL<br>CLG. HT.          | EXP. WALL<br>CLG. HT.          | EXP. WALL<br>CLG. HT.          | EXP. WALL<br>CLG. HT.          | EXP. WALL<br>CLG. HT.          | EXP. WALL<br>CLG. HT.          | ENS-2/3<br>7<br>9         | ENS-2/3<br>7<br>9 | BED-4<br>41<br>9                                                             | BED-4<br>41<br>9 | BED-5<br>12<br>9                           | BED-5<br>12<br>9 | BED-5<br>12<br>9                | BED-5<br>12<br>9 |
| GRS.WALL AREA<br>GLAZING                                    | GRS.WALL AREA<br>GLAZING       | GRS.WALL AREA<br>GLAZING       | GRS.WALL AREA<br>GLAZING       | GRS.WALL AREA<br>GLAZING       | GRS.WALL AREA<br>GLAZING       | GRS.WALL AREA<br>GLAZING       | GRS.WALL AREA<br>GLAZING       | GRS.WALL AREA<br>GLAZING       | GRS.WALL AREA<br>GLAZING       | ENS-2/3<br>7<br>9         | ENS-2/3<br>7<br>9 | BED-4<br>41<br>9                                                             | BED-4<br>41<br>9 | BED-5<br>12<br>9                           | BED-5<br>12<br>9 | BED-5<br>12<br>9                | BED-5<br>12<br>9 |
| NORTH                                                       | NORTH                          | NORTH                          | NORTH                          | NORTH                          | NORTH                          | NORTH                          | NORTH                          | NORTH                          | NORTH                          | 63                        | 63                | 369                                                                          | 369              | 108                                        | 108              | 36                              | 36               |
| EAST                                                        | EAST                           | EAST                           | EAST                           | EAST                           | EAST                           | EAST                           | EAST                           | EAST                           | EAST                           | 8                         | 8                 | 0                                                                            | 0                | 0                                          | 0                | 0                               | 0                |
| SOUTH                                                       | SOUTH                          | SOUTH                          | SOUTH                          | SOUTH                          | SOUTH                          | SOUTH                          | SOUTH                          | SOUTH                          | SOUTH                          | 170                       | 170               | 0                                                                            | 0                | 0                                          | 0                | 0                               | 0                |
| WEST                                                        | WEST                           | WEST                           | WEST                           | WEST                           | WEST                           | WEST                           | WEST                           | WEST                           | WEST                           | 0                         | 0                 | 45                                                                           | 45               | 958                                        | 958              | 1120                            | 1120             |
| SKYL.T.                                                     | SKYL.T.                        | SKYL.T.                        | SKYL.T.                        | SKYL.T.                        | SKYL.T.                        | SKYL.T.                        | SKYL.T.                        | SKYL.T.                        | SKYL.T.                        | 0                         | 0                 | 0                                                                            | 0                | 0                                          | 0                | 0                               | 0                |
| DOORS                                                       | DOORS                          | DOORS                          | DOORS                          | DOORS                          | DOORS                          | DOORS                          | DOORS                          | DOORS                          | DOORS                          | 0                         | 0                 | 0                                                                            | 0                | 0                                          | 0                | 0                               | 0                |
| NET EXPOSED WALL                                            | NET EXPOSED WALL               | NET EXPOSED WALL               | NET EXPOSED WALL               | NET EXPOSED WALL               | NET EXPOSED WALL               | NET EXPOSED WALL               | NET EXPOSED WALL               | NET EXPOSED WALL               | NET EXPOSED WALL               | 55                        | 55                | 245                                                                          | 245              | 41                                         | 41               | 27                              | 27               |
| NET EXPOSED BSMT WALL ABOVE GR                              | NET EXPOSED BSMT WALL ABOVE GR | NET EXPOSED BSMT WALL ABOVE GR | NET EXPOSED BSMT WALL ABOVE GR | NET EXPOSED BSMT WALL ABOVE GR | NET EXPOSED BSMT WALL ABOVE GR | NET EXPOSED BSMT WALL ABOVE GR | NET EXPOSED BSMT WALL ABOVE GR | NET EXPOSED BSMT WALL ABOVE GR | NET EXPOSED BSMT WALL ABOVE GR | 0                         | 0                 | 0                                                                            | 0                | 0                                          | 0                | 0                               | 0                |
| EXPOSED CLG                                                 | EXPOSED CLG                    | EXPOSED CLG                    | EXPOSED CLG                    | EXPOSED CLG                    | EXPOSED CLG                    | EXPOSED CLG                    | EXPOSED CLG                    | EXPOSED CLG                    | EXPOSED CLG                    | 0                         | 0                 | 0                                                                            | 0                | 0                                          | 0                | 0                               | 0                |
| NO ATTIC EXPOSED CLG                                        | NO ATTIC EXPOSED CLG           | NO ATTIC EXPOSED CLG           | NO ATTIC EXPOSED CLG           | NO ATTIC EXPOSED CLG           | NO ATTIC EXPOSED CLG           | NO ATTIC EXPOSED CLG           | NO ATTIC EXPOSED CLG           | NO ATTIC EXPOSED CLG           | NO ATTIC EXPOSED CLG           | 77                        | 77                | 99                                                                           | 99               | 45                                         | 45               | 330                             | 330              |
| EXPOSED FLOOR                                               | EXPOSED FLOOR                  | EXPOSED FLOOR                  | EXPOSED FLOOR                  | EXPOSED FLOOR                  | EXPOSED FLOOR                  | EXPOSED FLOOR                  | EXPOSED FLOOR                  | EXPOSED FLOOR                  | EXPOSED FLOOR                  | 0                         | 0                 | 0                                                                            | 0                | 0                                          | 0                | 0                               | 0                |
| BASEMENT/CRAWL HEAT LOSS                                    | BASEMENT/CRAWL HEAT LOSS       | BASEMENT/CRAWL HEAT LOSS       | BASEMENT/CRAWL HEAT LOSS       | BASEMENT/CRAWL HEAT LOSS       | BASEMENT/CRAWL HEAT LOSS       | BASEMENT/CRAWL HEAT LOSS       | BASEMENT/CRAWL HEAT LOSS       | BASEMENT/CRAWL HEAT LOSS       | BASEMENT/CRAWL HEAT LOSS       | 36                        | 36                | 92                                                                           | 92               | 15                                         | 15               | 0                               | 0                |
| SLAB ON GRADE HEAT LOSS                                     | SLAB ON GRADE HEAT LOSS        | SLAB ON GRADE HEAT LOSS        | SLAB ON GRADE HEAT LOSS        | SLAB ON GRADE HEAT LOSS        | SLAB ON GRADE HEAT LOSS        | SLAB ON GRADE HEAT LOSS        | SLAB ON GRADE HEAT LOSS        | SLAB ON GRADE HEAT LOSS        | SLAB ON GRADE HEAT LOSS        | 0                         | 0                 | 0                                                                            | 0                | 0                                          | 0                | 0                               | 0                |
| SUBTOTAL HT LOSS                                            | SUBTOTAL HT LOSS               | SUBTOTAL HT LOSS               | SUBTOTAL HT LOSS               | SUBTOTAL HT LOSS               | SUBTOTAL HT LOSS               | SUBTOTAL HT LOSS               | SUBTOTAL HT LOSS               | SUBTOTAL HT LOSS               | SUBTOTAL HT LOSS               | 606                       | 606               | 3591                                                                         | 3591             | 1745                                       | 1745             | 233                             | 233              |
| SUB TOTAL HT GAIN                                           | SUB TOTAL HT GAIN              | SUB TOTAL HT GAIN              | SUB TOTAL HT GAIN              | SUB TOTAL HT GAIN              | SUB TOTAL HT GAIN              | SUB TOTAL HT GAIN              | SUB TOTAL HT GAIN              | SUB TOTAL HT GAIN              | SUB TOTAL HT GAIN              | 230                       | 230               | 0.20                                                                         | 0.20             | 0.20                                       | 0.20             | 0.20                            | 0.20             |
| LEVEL FACTOR / MULTIPLE                                     | LEVEL FACTOR / MULTIPLE        | LEVEL FACTOR / MULTIPLE        | LEVEL FACTOR / MULTIPLE        | LEVEL FACTOR / MULTIPLE        | LEVEL FACTOR / MULTIPLE        | LEVEL FACTOR / MULTIPLE        | LEVEL FACTOR / MULTIPLE        | LEVEL FACTOR / MULTIPLE        | LEVEL FACTOR / MULTIPLE        | 180                       | 180               | 1088                                                                         | 1088             | 519                                        | 519              | 69                              | 69               |
| AIR CHANGE HEAT LOSS                                        | AIR CHANGE HEAT LOSS           | AIR CHANGE HEAT LOSS           | AIR CHANGE HEAT LOSS           | AIR CHANGE HEAT LOSS           | AIR CHANGE HEAT LOSS           | AIR CHANGE HEAT LOSS           | AIR CHANGE HEAT LOSS           | AIR CHANGE HEAT LOSS           | AIR CHANGE HEAT LOSS           | 16                        | 16                | 0                                                                            | 0                | 0                                          | 0                | 4                               | 4                |
| AIR CHANGE HEAT GAIN                                        | AIR CHANGE HEAT GAIN           | AIR CHANGE HEAT GAIN           | AIR CHANGE HEAT GAIN           | AIR CHANGE HEAT GAIN           | AIR CHANGE HEAT GAIN           | AIR CHANGE HEAT GAIN           | AIR CHANGE HEAT GAIN           | AIR CHANGE HEAT GAIN           | AIR CHANGE HEAT GAIN           | 79                        | 79                | 0                                                                            | 0                | 0                                          | 0                | 138                             | 138              |
| DUCT LOSS                                                   | DUCT LOSS                      | DUCT LOSS                      | DUCT LOSS                      | DUCT LOSS                      | DUCT LOSS                      | DUCT LOSS                      | DUCT LOSS                      | DUCT LOSS                      | DUCT LOSS                      | 25                        | 25                | 0                                                                            | 0                | 0                                          | 0                | 0                               | 0                |
| DUCT GAIN                                                   | DUCT GAIN                      | DUCT GAIN                      | DUCT GAIN                      | DUCT GAIN                      | DUCT GAIN                      | DUCT GAIN                      | DUCT GAIN                      | DUCT GAIN                      | DUCT GAIN                      | 0                         | 0                 | 240                                                                          | 240              | 0                                          | 0                | 0                               | 0                |
| HEAT GAIN PEOPLE                                            | HEAT GAIN PEOPLE               | HEAT GAIN PEOPLE               | HEAT GAIN PEOPLE               | HEAT GAIN PEOPLE               | HEAT GAIN PEOPLE               | HEAT GAIN PEOPLE               | HEAT GAIN PEOPLE               | HEAT GAIN PEOPLE               | HEAT GAIN PEOPLE               | 0                         | 0                 | 0                                                                            | 0                | 0                                          | 0                | 0                               | 0                |
| HEAT GAIN APPLIANCES/LIGHTS                                 | HEAT GAIN APPLIANCES/LIGHTS    | HEAT GAIN APPLIANCES/LIGHTS    | HEAT GAIN APPLIANCES/LIGHTS    | HEAT GAIN APPLIANCES/LIGHTS    | HEAT GAIN APPLIANCES/LIGHTS    | HEAT GAIN APPLIANCES/LIGHTS    | HEAT GAIN APPLIANCES/LIGHTS    | HEAT GAIN APPLIANCES/LIGHTS    | HEAT GAIN APPLIANCES/LIGHTS    | 865                       | 865               | 4659                                                                         | 4659             | 623                                        | 623              | 0                               | 0                |
| TOTAL HT LOSS BTU/H                                         | TOTAL HT LOSS BTU/H            | TOTAL HT LOSS BTU/H            | TOTAL HT LOSS BTU/H            | TOTAL HT LOSS BTU/H            | TOTAL HT LOSS BTU/H            | TOTAL HT LOSS BTU/H            | TOTAL HT LOSS BTU/H            | TOTAL HT LOSS BTU/H            | TOTAL HT LOSS BTU/H            | 352                       | 352               | 4659                                                                         | 4659             | 623                                        | 623              | 1517                            | 1517             |
| TOTAL HT GAIN x 1.3 BTU/H                                   | TOTAL HT GAIN x 1.3 BTU/H      | TOTAL HT GAIN x 1.3 BTU/H      | TOTAL HT GAIN x 1.3 BTU/H      | TOTAL HT GAIN x 1.3 BTU/H      | TOTAL HT GAIN x 1.3 BTU/H      | TOTAL HT GAIN x 1.3 BTU/H      | TOTAL HT GAIN x 1.3 BTU/H      | TOTAL HT GAIN x 1.3 BTU/H      | TOTAL HT GAIN x 1.3 BTU/H      | 3071                      | 3071              | 2264                                                                         | 2264             | 302                                        | 302              | 84                              | 84               |

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

OPT. 5 BED

TYPE: 4204 THE BROOKVALEY

DATE: Jan-18

GFA: 3646 LO# 77470

HEATING CFM 1525 COOLING CFM 1525  
TOTAL HEAT LOSS 70,928  
AIR FLOW RATE CFM 21.5

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

plenum pressure s/a 0.18  
max s/a diff press. loss 0.03  
min adjusted pressure s/a 0.15

EL298UH090XE48C  
FAN SPEED  
LOW 0  
MEDIUM 1105  
HIGH 1255

AFUE = 96 %  
INPUT (BTU/H) = 88,000  
OUTPUT (BTU/H) = 85,000  
DESIGN CFM = 1525  
CFM @ 0" E.S.P.

| RUN COUNT | 4th | 3rd | 2nd | 1st | Bas |
|-----------|-----|-----|-----|-----|-----|
| S/A       | 0   | 0   | 15  | 10  | 5   |
| R/A       | 0   | 0   | 5   | 3   | 1   |

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

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

| RUN #                     | 1    | 2    | 3    | 4     | 5     | 6     | 7     | 8     | 9     | 10   | 11    | 12   | 13    | 14    | 15    | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   |
|---------------------------|------|------|------|-------|-------|-------|-------|-------|-------|------|-------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|
| ROOM NAME                 | MBR  | ENS  | WIC  | BED-3 | BED-4 | BED-5 | BTH-2 | BED-3 | BED-4 | MBR  | BTH-3 | DIN  | KT/GT | KT/GT | KT/GT | LIB  | LAUN | PWD  | FOY  | MUD  | BAS  | BAS  | BAS  | BAS  |
| RM LOSS MBH               | 1.12 | 3.10 | 1.79 | 1.87  | 2.33  | 1.13  | 1.52  | 1.87  | 2.33  | 1.12 | 0.30  | 2.74 | 2.35  | 2.35  | 2.35  | 2.63 | 0.23 | 1.09 | 5.88 | 2.48 | 4.38 | 4.38 | 4.38 | 4.38 |
| CFM PER RUN HEAT          | 24   | 67   | 39   | 40    | 50    | 24    | 33    | 40    | 50    | 24   | 6     | 59   | 51    | 51    | 51    | 56   | 5    | 23   | 126  | 53   | 94   | 94   | 94   | 94   |
| RM GAIN MBH               | 2.18 | 3.15 | 0.92 | 2.33  | 2.93  | 1.54  | 0.95  | 2.33  | 2.93  | 2.18 | 0.08  | 2.52 | 2.37  | 2.37  | 2.37  | 2.48 | 0.97 | 0.18 | 2.80 | 1.23 | 0.34 | 0.34 | 0.34 | 0.34 |
| CFM PER RUN COOLING       | 68   | 98   | 29   | 73    | 91    | 48    | 29    | 73    | 91    | 68   | 3     | 78   | 74    | 74    | 74    | 77   | 30   | 6    | 87   | 38   | 10   | 10   | 10   | 10   |
| ADJUSTED PRESSURE         | 0.17 | 0.16 | 0.17 | 0.17  | 0.16  | 0.17  | 0.17  | 0.17  | 0.16  | 0.17 | 0.17  | 0.17 | 0.17  | 0.17  | 0.17  | 0.17 | 0.17 | 0.17 | 0.15 | 0.17 | 0.16 | 0.16 | 0.16 | 0.16 |
| ACTUAL DUCT LGH.          | 58   | 47   | 55   | 52    | 74    | 45    | 50    | 56    | 63    | 56   | 35    | 26   | 26    | 26    | 43    | 53   | 42   | 34   | 36   | 10   | 41   | 21   | 16   | 52   |
| EQUIVALENT LENGTH         | 200  | 200  | 140  | 150   | 200   | 160   | 140   | 160   | 190   | 180  | 150   | 100  | 110   | 110   | 150   | 110  | 190  | 100  | 150  | 140  | 130  | 100  | 100  | 100  |
| TOTAL EFFECTIVE LENGTH    | 258  | 247  | 195  | 202   | 274   | 205   | 190   | 216   | 253   | 236  | 185   | 126  | 136   | 136   | 193   | 163  | 232  | 134  | 186  | 150  | 171  | 121  | 116  | 152  |
| ADJUSTED PRESSURE         | 0.07 | 0.09 | 0.09 | 0.09  | 0.06  | 0.08  | 0.09  | 0.08  | 0.06  | 0.07 | 0.09  | 0.14 | 0.13  | 0.13  | 0.09  | 0.11 | 0.07 | 0.13 | 0.08 | 0.11 | 0.09 | 0.13 | 0.14 | 0.11 |
| ROUND DUCT SIZE           | 5    | 6    | 4    | 5     | 6     | 4     | 4     | 5     | 6     | 5    | 4     | 5    | 5     | 5     | 5     | 5    | 4    | 4    | 6    | 4    | 6    | 5    | 5    | 5    |
| HEATING VELOCITY (ft/min) | 176  | 342  | 447  | 294   | 255   | 275   | 379   | 294   | 255   | 176  | 69    | 433  | 374   | 374   | 374   | 411  | 57   | 264  | 642  | 608  | 479  | 690  | 690  | 690  |
| COOLING VELOCITY (ft/min) | 499  | 500  | 333  | 536   | 464   | 551   | 333   | 536   | 464   | 499  | 34    | 573  | 543   | 543   | 543   | 565  | 344  | 69   | 444  | 436  | 51   | 73   | 73   | 73   |
| OUTLET GRILL SIZE         | 3X10 | 4X10 | 3X10 | 3X10  | 4X10  | 3X10  | 3X10  | 3X10  | 4X10  | 3X10 | 3X10  | 3X10 | 3X10  | 3X10  | 3X10  | 3X10 | 3X10 | 3X10 | 4X10 | 3X10 | 4X10 | 3X10 | 3X10 | 3X10 |
| TRUNK                     | E    | A    | E    | C     | B     | A     | C     | C     | B     | E    | D     | A    | D     | E     | A     | B    | C    | C    | C    | E    | A    | E    | D    | B    |

| RUN #                     | 25    | 26   | 27      | 28    | 29    | 30   |
|---------------------------|-------|------|---------|-------|-------|------|
| ROOM NAME                 | BED-5 | LIB  | ENS-2/3 | BED-2 | BED-2 | BAS  |
| RM LOSS MBH               | 1.13  | 2.63 | 2.35    | 0.87  | 1.48  | 4.38 |
| CFM PER RUN HEAT          | 24    | 56   | 51      | 19    | 32    | 94   |
| RM GAIN MBH               | 1.54  | 2.48 | 2.37    | 0.35  | 1.81  | 0.34 |
| CFM PER RUN COOLING       | 48    | 77   | 74      | 11    | 56    | 10   |
| ADJUSTED PRESSURE         | 0.17  | 0.17 | 0.17    | 0.17  | 0.17  | 0.16 |
| ACTUAL DUCT LGH.          | 51    | 52   | 37      | 45    | 22    | 30   |
| EQUIVALENT LENGTH         | 150   | 140  | 150     | 160   | 160   | 120  |
| TOTAL EFFECTIVE LENGTH    | 201   | 192  | 187     | 205   | 182   | 150  |
| ADJUSTED PRESSURE         | 0.09  | 0.09 | 0.09    | 0.08  | 0.09  | 0.11 |
| ROUND DUCT SIZE           | 5     | 5    | 5       | 4     | 5     | 5    |
| HEATING VELOCITY (ft/min) | 275   | 411  | 374     | 218   | 235   | 690  |
| COOLING VELOCITY (ft/min) | 551   | 565  | 543     | 126   | 411   | 73   |
| OUTLET GRILL SIZE         | 3X10  | 3X10 | 3X10    | 3X10  | 3X10  | 3X10 |
| TRUNK                     | A     | B    | A       | C     | E     | D    |

| SUPPLY AIR TRUNK SIZE | TRUNK | STATIC PRESS. | ROUND DUCT | RECT DUCT | VELOCITY (ft/min) | TRUNK CFM | STATIC PRESS. | ROUND DUCT | RECT DUCT | VELOCITY (ft/min) | TRUNK CFM | STATIC PRESS. | ROUND DUCT | RECT DUCT | VELOCITY (ft/min) |
|-----------------------|-------|---------------|------------|-----------|-------------------|-----------|---------------|------------|-----------|-------------------|-----------|---------------|------------|-----------|-------------------|
| TRUNK A               | 370   | 0.07          | 10         | 12        | 8                 | 0         | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 8                 |
| TRUNK B               | 306   | 0.06          | 9.7        | 12        | 8                 | 0         | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 8                 |
| TRUNK C               | 592   | 0.06          | 12.4       | 18        | 8                 | 0         | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 8                 |
| TRUNK D               | 1207  | 0.06          | 16.2       | 30        | 8                 | 0         | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 8                 |
| TRUNK E               | 317   | 0.07          | 9.4        | 10        | 8                 | 0         | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 8                 |
| TRUNK F               | 0     | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 8                 |

| RETURN AIR # | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | BR |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--------------|-----|-----|-----|-----|-----|-----|-----|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AIR VOLUME   | 130 | 125 | 125 | 125 | 135 | 360 | 165 | 130 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 | 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 |

TYPE: 4204 THE BROOKVALLEY  
SITE NAME: PINE VALLEY & TESTON

LO # 77470  
OPT. 5 BED

**RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY**

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

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

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

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

| TOTAL VENTILATION CAPACITY |              | 9.32.3.3(1) |
|----------------------------|--------------|-------------|
| Basement + Master Bedroom  | 2 @ 21.2 cfm | 42.4 cfm    |
| Other Bedrooms             | 4 @ 10.6 cfm | 42.4 cfm    |
| Kitchen & Bathrooms        | 6 @ 10.6 cfm | 63.6 cfm    |
| Other Rooms                | 6 @ 10.6 cfm | 63.6 cfm    |
| Table 9.32.3.A. TOTAL      |              | 212.0 cfm   |

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

| SUPPLEMENTAL VENTILATION CAPACITY |      | 9.32.3.5. |
|-----------------------------------|------|-----------|
| Total Ventilation Capacity        | 212  | cfm       |
| Less Principal Ventil. Capacity   | 155  | cfm       |
| Required Supplemental Capacity    | 57.0 | cfm       |

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

| SUPPLEMENTAL FANS |           | NUTONE |                                     |
|-------------------|-----------|--------|-------------------------------------|
| Location          | Model     | cfm    | HVI                                 |
| ENS               | QTXEN050C | 50     | <input checked="" type="checkbox"/> |
| ENS-2/3           | QTXEN050C | 50     | <input checked="" type="checkbox"/> |
| BTH-2             | QTXEN050C | 50     | <input checked="" type="checkbox"/> |
| PWD               | QTXEN050C | 50     | <input checked="" type="checkbox"/> |

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

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

| BUILDER:     |        | GOLD PARK HOMES |
|--------------|--------|-----------------|
| Name:        |        |                 |
| Address:     |        |                 |
| City:        |        |                 |
| Telephone #: | Fax #: |                 |

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

| DESIGNER CERTIFICATION                                                                                        |                         |
|---------------------------------------------------------------------------------------------------------------|-------------------------|
| I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code. |                         |
| Name:                                                                                                         | HVAC Designs Ltd.       |
| Signature:                                                                                                    | <i>Michael O'Rourke</i> |
| HRAI #                                                                                                        | 001820                  |
| Date:                                                                                                         | January-18              |

| <b>CSA F280-12 Residential Heat Loss and Heat Gain Calculations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                     |                                                     |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------|--------------------|---------------------|--------|-------------|-------|-----|-------|-------------|-------|----|-------|--------|-------|---|-------|--------|-------|---|----|---------------|-------|--|--------------------------------|---------------|--|--|-----------------------------|
| <b>Formula Sheet (For Air Leakage / Ventilation Calculation)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                     |                                                     |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| LO#: 77470                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Model: 4204 THE BROOKVALLEY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Builder: GOLD PARK HOMES                            | Date: 01/24/2018                                    |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| <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;"> <tr> <th>Level</th> <th>Floor Area (ft<sup>2</sup>)</th> <th>Floor Height (ft)</th> <th>Volume (ft<sup>3</sup>)</th> </tr> <tr> <td>Bsmt</td> <td>1673</td> <td>10</td> <td>16730</td> </tr> <tr> <td>First</td> <td>1673</td> <td>11</td> <td>18403</td> </tr> <tr> <td>Second</td> <td>2047</td> <td>9</td> <td>18423</td> </tr> <tr> <td>Third</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Fourth</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td><b>Total:</b></td> <td></td> <td></td> <td><b>53,556.0 ft<sup>3</sup></b></td> </tr> <tr> <td><b>Total:</b></td> <td></td> <td></td> <td><b>1516.5 m<sup>3</sup></b></td> </tr> </table> |                                                     |                                                     | Level                                                                               | Floor Area (ft <sup>2</sup> ) | Floor Height (ft)                                   | Volume (ft <sup>3</sup> )                           | Bsmt                                                                                | 1673               | 10                  | 16730  | First       | 1673  | 11  | 18403 | Second      | 2047  | 9  | 18423 | Third  | 0     | 0 | 0     | Fourth | 0     | 0 | 0  | <b>Total:</b> |       |  | <b>53,556.0 ft<sup>3</sup></b> | <b>Total:</b> |  |  | <b>1516.5 m<sup>3</sup></b> |
| Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Floor Area (ft <sup>2</sup> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Floor Height (ft)                                   | Volume (ft <sup>3</sup> )                           |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| Bsmt                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1673                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 10                                                  | 16730                                               |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| First                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1673                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 11                                                  | 18403                                               |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| Second                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2047                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 9                                                   | 18423                                               |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| Third                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                                                   | 0                                                   |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| Fourth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                                                   | 0                                                   |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| <b>Total:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                     | <b>53,556.0 ft<sup>3</sup></b>                      |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| <b>Total:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                     | <b>1516.5 m<sup>3</sup></b>                         |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="4" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>T<sub>in</sub> °C</th> <th>T<sub>out</sub> °C</th> <th>ΔT °C</th> </tr> <tr> <td>Winter DTDh</td> <td>22</td> <td>-20</td> <td>42</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>31</td> <td>7</td> </tr> <tr> <td></td> <td></td> <td></td> <td>ΔT °F</td> </tr> <tr> <td></td> <td></td> <td></td> <td>76</td> </tr> <tr> <td></td> <td></td> <td></td> <td>13</td> </tr> </table>                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                     |                                                     | Design Temperature Difference                                                       |                               |                                                     |                                                     |                                                                                     | T <sub>in</sub> °C | T <sub>out</sub> °C | ΔT °C  | Winter DTDh | 22    | -20 | 42    | Summer DTDc | 24    | 31 | 7     |        |       |   | ΔT °F |        |       |   | 76 |               |       |  | 13                             |               |  |  |                             |
| Design Temperature Difference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                     |                                                     |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | T <sub>in</sub> °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | T <sub>out</sub> °C                                 | ΔT °C                                               |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| Winter DTDh                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | -20                                                 | 42                                                  |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| Summer DTDc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 31                                                  | 7                                                   |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                     | ΔT °F                                               |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                     | 76                                                  |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                     | 13                                                  |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| <b>6.2.6 Sensible Gain due to Air Leakage</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                     |                                                     |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| $HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                     |                                                     |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| 0.340                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | x                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 421.26                                              | x 7 °C x 1.2 = 411 W                                |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                     | = 1402 Btu/h                                        |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| <b>6.2.7 Sensible Heat Gain due to Ventilation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                     |                                                     |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| $HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                     |                                                     |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| 155 CFM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | x                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 13 °F                                               | x 1.08 x 0.25 = 536 Btu/h                           |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| <b>5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                     |                                                     |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| $HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                     |                                                     |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HL<sub>airbv</sub> + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL<sub>clevel</sub>)</th> <th>Air Leakage Heat Loss Multiplier (LF x HL<sub>airbv</sub> / HL<sub>clevel</sub>)</th> </tr> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">24,764</td> <td>9,518</td> <td>1.301</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>19,413</td> <td>0.383</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>16,655</td> <td>0.297</td> </tr> <tr> <td>4</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> </table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                     |                                                     | Level                                                                               | Level Factor (LF)             | HL <sub>airbv</sub> + Ventilation Heat Loss (Btu/h) | Level Conductive Heat Loss: (HL <sub>clevel</sub> ) | Air Leakage Heat Loss Multiplier (LF x HL <sub>airbv</sub> / HL <sub>clevel</sub> ) | 1                  | 0.5                 | 24,764 | 9,518       | 1.301 | 2   | 0.3   | 19,413      | 0.383 | 3  | 0.2   | 16,655 | 0.297 | 4 | 0     | 0      | 0.000 | 5 | 0  | 0             | 0.000 |  |                                |               |  |  |                             |
| Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Level Factor (LF)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | HL <sub>airbv</sub> + Ventilation Heat Loss (Btu/h) | Level Conductive Heat Loss: (HL <sub>clevel</sub> ) | Air Leakage Heat Loss Multiplier (LF x HL <sub>airbv</sub> / HL <sub>clevel</sub> ) |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 24,764                                              | 9,518                                               | 1.301                                                                               |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                     | 19,413                                              | 0.383                                                                               |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                     | 16,655                                              | 0.297                                                                               |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                     | 0                                                   | 0.000                                                                               |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                     | 0                                                   | 0.000                                                                               |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |
| <p>*HL<sub>airbv</sub> = Air leakage heat loss + ventilation heat loss</p> <p>*For a balanced or supply only ventilation system HL<sub>airbv</sub> = 0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                     |                                                     |                                                                                     |                               |                                                     |                                                     |                                                                                     |                    |                     |        |             |       |     |       |             |       |    |       |        |       |   |       |        |       |   |    |               |       |  |                                |               |  |  |                             |

**HEAT LOSS AND GAIN SUMMARY SHEET**

|                                    |                   |                                   |
|------------------------------------|-------------------|-----------------------------------|
| <b>MODEL:</b> 4204 THE BROOKVALLEY | <b>OPT. 5 BED</b> | <b>BUILDER:</b> GOLD PARK HOMES   |
| <b>SFQT:</b> 3646                  | <b>LO#</b> 77470  | <b>SITE:</b> PINE VALLEY & TESTON |

**DESIGN ASSUMPTIONS**

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

**BUILDING DATA**

|                                     |                 |                           |          |
|-------------------------------------|-----------------|---------------------------|----------|
| ATTACHMENT:                         | DETACHED        | # OF STORIES (+BASEMENT): | 3        |
| FRONT FACES:                        | EAST            | ASSUMED (Y/N):            | Y        |
| AIR CHANGES PER HOUR:               | 3.57            | ASSUMED (Y/N):            | Y        |
| AIR TIGHTNESS CATEGORY:             | AVERAGE         | ASSUMED (Y/N):            | Y        |
| WIND EXPOSURE:                      | SHELTERED       | ASSUMED (Y/N):            | Y        |
| HOUSE VOLUME (ft³):                 | 53556.0         | ASSUMED (Y/N):            | Y        |
| INTERNAL SHADING:                   | BLINDS/CURTAINS | ASSUMED OCCUPANTS:        | 6        |
| INTERIOR LIGHTING LOAD (Btu/h/ft²): | 1.27            | DC BRUSHLESS MOTOR (Y/N): | Y        |
| FOUNDATION CONFIGURATION            | BCIN_1          | DEPTH BELOW GRADE:        | 7.0 ft   |
| LENGTH: 62.0 ft                     | WIDTH: 35.0 ft  | EXPOSED PERIMETER:        | 194.0 ft |

**2012 OBC - COMPLIANCE PACKAGE****Component****Compliance Package  
A1****Nominal Min. Eff.**

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

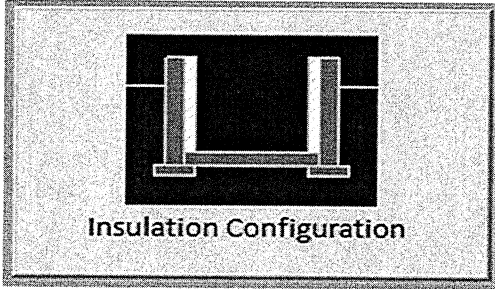
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



## Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

| Weather Station Description    |                                           |                                                                                                                 |
|--------------------------------|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Province:                      | Ontario                                   |                                                                                                                 |
| Region:                        | Vaughan (Woodbridge)                      |                                                                                                                 |
| Site Description               |                                           |                                                                                                                 |
| Soil Conductivity:             | Normal conductivity: dry sand, loam, clay |                                                                                                                 |
| Water Table:                   | Normal (7-10 m, 23-33 ft)                 |                                                                                                                 |
| Foundation Dimensions          |                                           |                                                                                                                 |
| Floor Length (m):              | 18.9                                      | <br>Insulation Configuration |
| Floor Width (m):               | 10.7                                      |                                                                                                                 |
| Exposed Perimeter (m):         | 0.0                                       |                                                                                                                 |
| Wall Height (m):               | 3.0                                       |                                                                                                                 |
| Depth Below Grade (m):         | 2.13                                      |                                                                                                                 |
| Window Area (m <sup>2</sup> ): | 1.1                                       |                                                                                                                 |
| Door Area (m <sup>2</sup> ):   | 1.9                                       |                                                                                                                 |
| Radiant Slab                   |                                           |                                                                                                                 |
| Heated Fraction of the Slab:   | 0                                         |                                                                                                                 |
| Fluid Temperature (°C):        | 33                                        |                                                                                                                 |
| Design Months                  |                                           |                                                                                                                 |
| Heating Month                  | 1                                         |                                                                                                                 |
| Foundation Loads               |                                           |                                                                                                                 |
| Heating Load (Watts):          | 1952                                      |                                                                                                                 |

TYPE: 4204 THE BROOKVALLEY  
LO# 77470

OPT. 5 BED

# Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

| Weather Station Description       |                            |                        |    |    |
|-----------------------------------|----------------------------|------------------------|----|----|
| Province:                         | Ontario                    |                        |    |    |
| Region:                           | Vaughan (Woodbridge)       |                        |    |    |
| Weather Station Location:         | Open flat terrain, grass   |                        |    |    |
| Anemometer height (m):            | 10                         |                        |    |    |
| Local Shielding                   |                            |                        |    |    |
| Building Site:                    | Suburban, forest           |                        |    |    |
| Walls:                            | Heavy                      |                        |    |    |
| Flue:                             | Heavy                      |                        |    |    |
| Highest Ceiling Height (m):       | 7.01                       |                        |    |    |
| Building Configuration            |                            |                        |    |    |
| Type:                             | Detached                   |                        |    |    |
| Number of Stories:                | Two                        |                        |    |    |
| Foundation:                       | Full                       |                        |    |    |
| House Volume (m <sup>3</sup> ):   | 1516.5                     |                        |    |    |
| Air Leakage/Ventilation           |                            |                        |    |    |
| Air Tightness Type:               | Present (1961-) (3.57 ACH) |                        |    |    |
| Custom BDT Data:                  | ELA @ 10 Pa.               | 2021.6 cm <sup>2</sup> |    |    |
|                                   | 3.57                       | ACH @ 50 Pa            |    |    |
| Mechanical Ventilation (L/s):     | Total Supply               | Total Exhaust          |    |    |
|                                   | 73.2                       | 73.2                   |    |    |
| Flue Size                         |                            |                        |    |    |
| Flue #:                           | #1                         | #2                     | #3 | #4 |
| Diameter (mm):                    | 0                          | 0                      | 0  | 0  |
| Natural Infiltration Rates        |                            |                        |    |    |
| Heating Air Leakage Rate (ACH/H): | 0.340                      |                        |    |    |
| Cooling Air Leakage Rate (ACH/H): | 0.114                      |                        |    |    |

TYPE: 4204 THE BROOKVALLEY  
LO# 77470

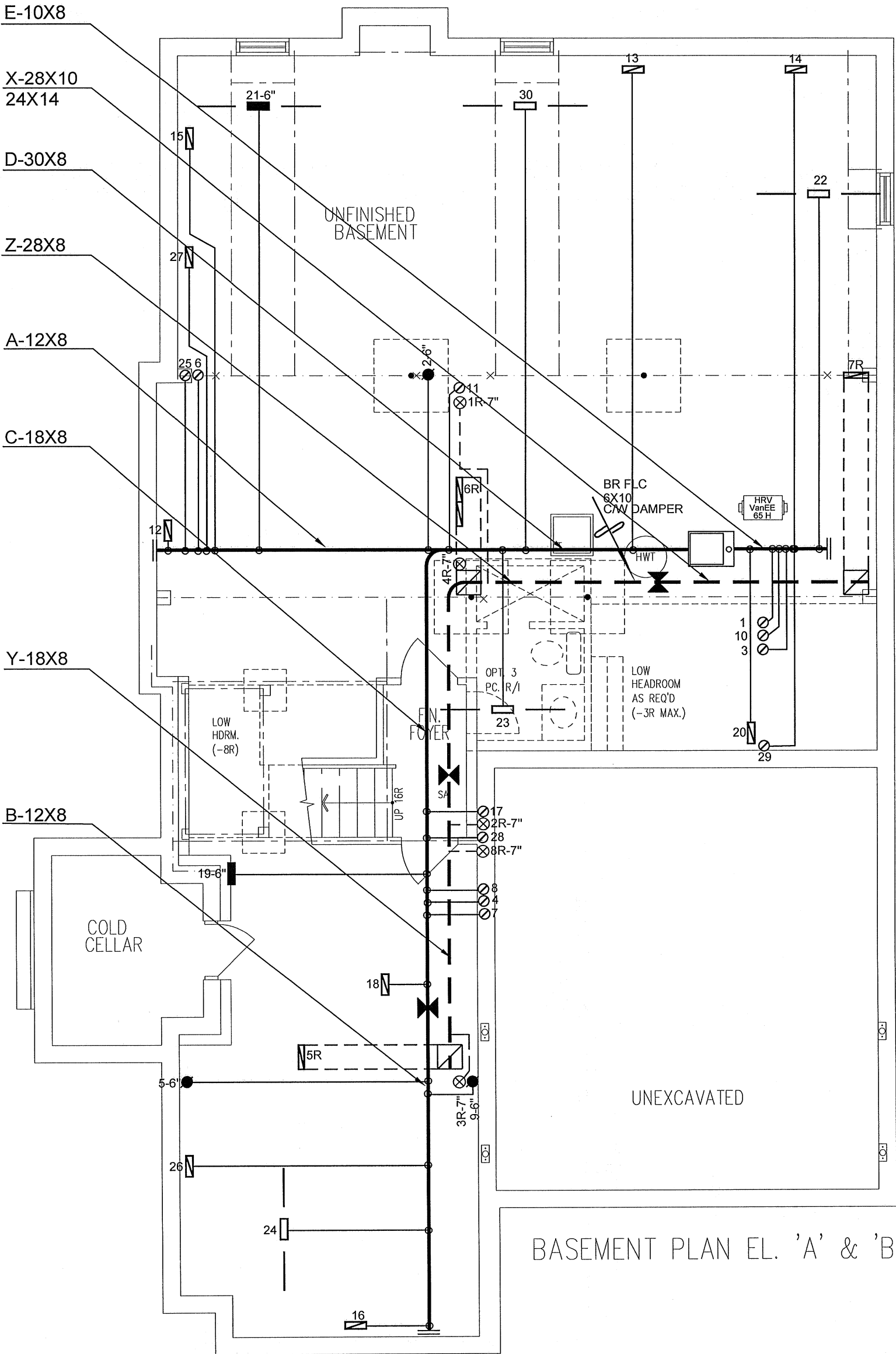
OPT. 5 BED

CSA-F280-12  
PACKAGE A1

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

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

| HVAC LEGEND |                                 |        | 3.   |
|-------------|---------------------------------|--------|------|
| SYMBOL      | DESCRIPTION                     | SYMBOL | 2.   |
|             | SUPPLY AIR GRILLE               |        | 1.   |
|             | SUPPLY AIR GRILLE 6" BOOT       |        | No.  |
|             | SUPPLY AIR BOOT ABOVE           |        |      |
|             | SUPPLY AIR STACK FROM 2ND FLOOR |        |      |
|             | SUPPLY AIR STACK 2ND FLOOR      |        |      |
|             | FRA FLOOR RETURN AIR GRILLE     |        |      |
|             | REDUCER                         |        |      |
| REVISIONS   |                                 |        |      |
| Description |                                 |        | Date |



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Client  
**GOLD PARK HOMES**

Project Name  
**PINE VALLEY & TESTON  
VAUGHAN, ONTARIO  
OPT. 5 BED  
THE BROOKVALLEY  
4204 CNR 3646 sqft**

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

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

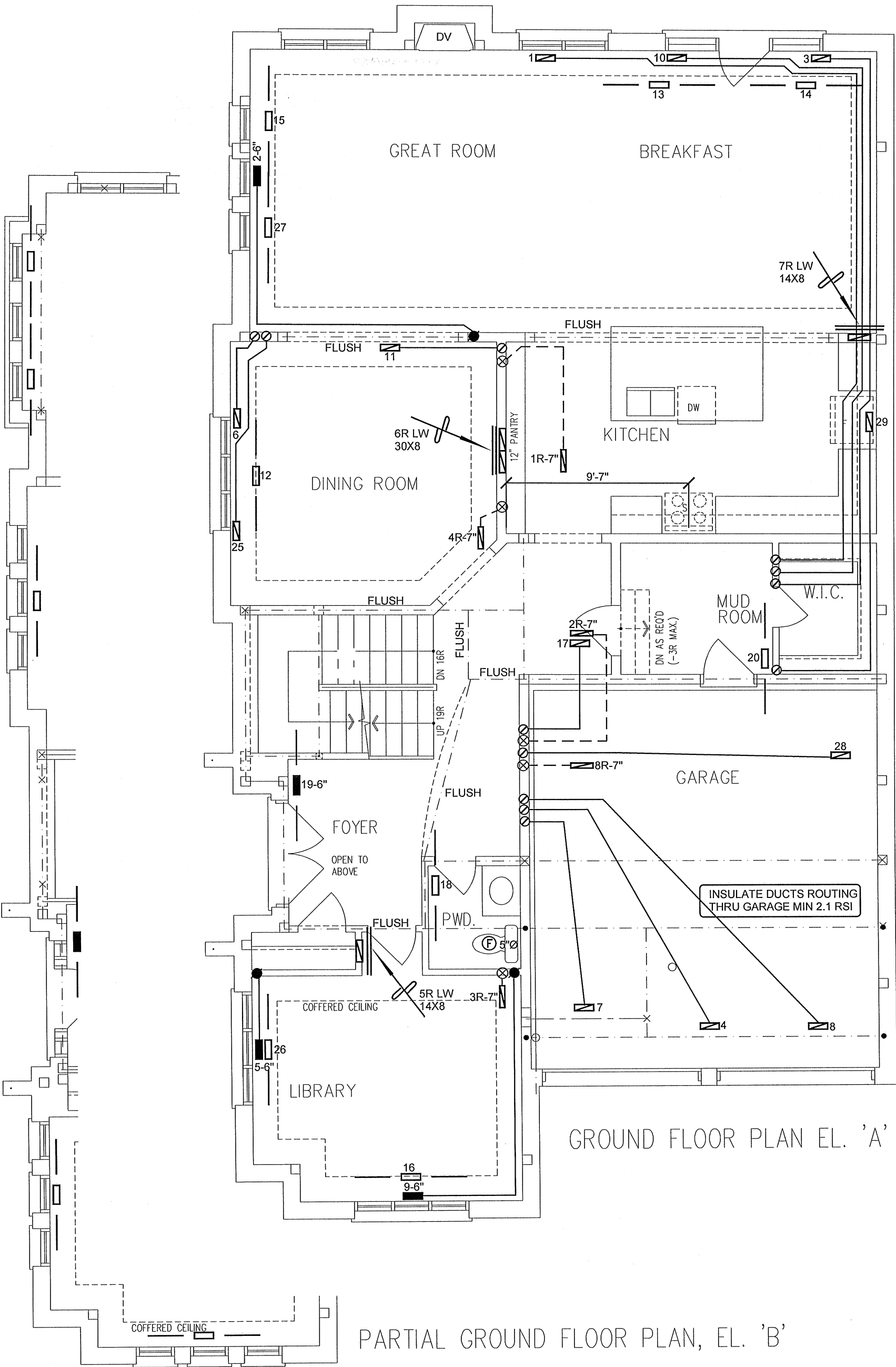
|                                    |                                                                                                                                               |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| HEAT LOSS 74109 BTU/H<br>UNIT DATA | # OF RUNS S/A R/A FANS                                                                                                                        |
| MAKE LENNOX                        | 3RD FLOOR                                                                                                                                     |
| MODEL EL296UH090XE48C              | 2ND FLOOR 15 5 5                                                                                                                              |
| INPUT 88 MBTU/H                    | 1ST FLOOR 10 3 2                                                                                                                              |
| OUTPUT 85 MBTU/H                   | BASEMENT 5 1 0                                                                                                                                |
| COOLING 4.0 TONS                   | ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A |
| FAN SPEED 1525 cfm @ 0.6" w.c.     |                                                                                                                                               |

|                                |               |
|--------------------------------|---------------|
| Sheet Title                    |               |
| <b>BASEMENT HEATING LAYOUT</b> |               |
| Date                           | JAN/2018      |
| Scale                          | 3/16" = 1'-0" |
| BCIN#                          | 19669         |
| LO#                            | 77470         |

CSA-F280-12  
PACKAGE A1

I MICHAEL O'ROURKE HAVE REVIEW  
AND TAKE RESPONSIBILITY FOR THE  
DESIGN WORK AND AM QUALIFIED  
UNDER DIVISION C, 3.2.5 OF THE  
BUILDING CODE.  
*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

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



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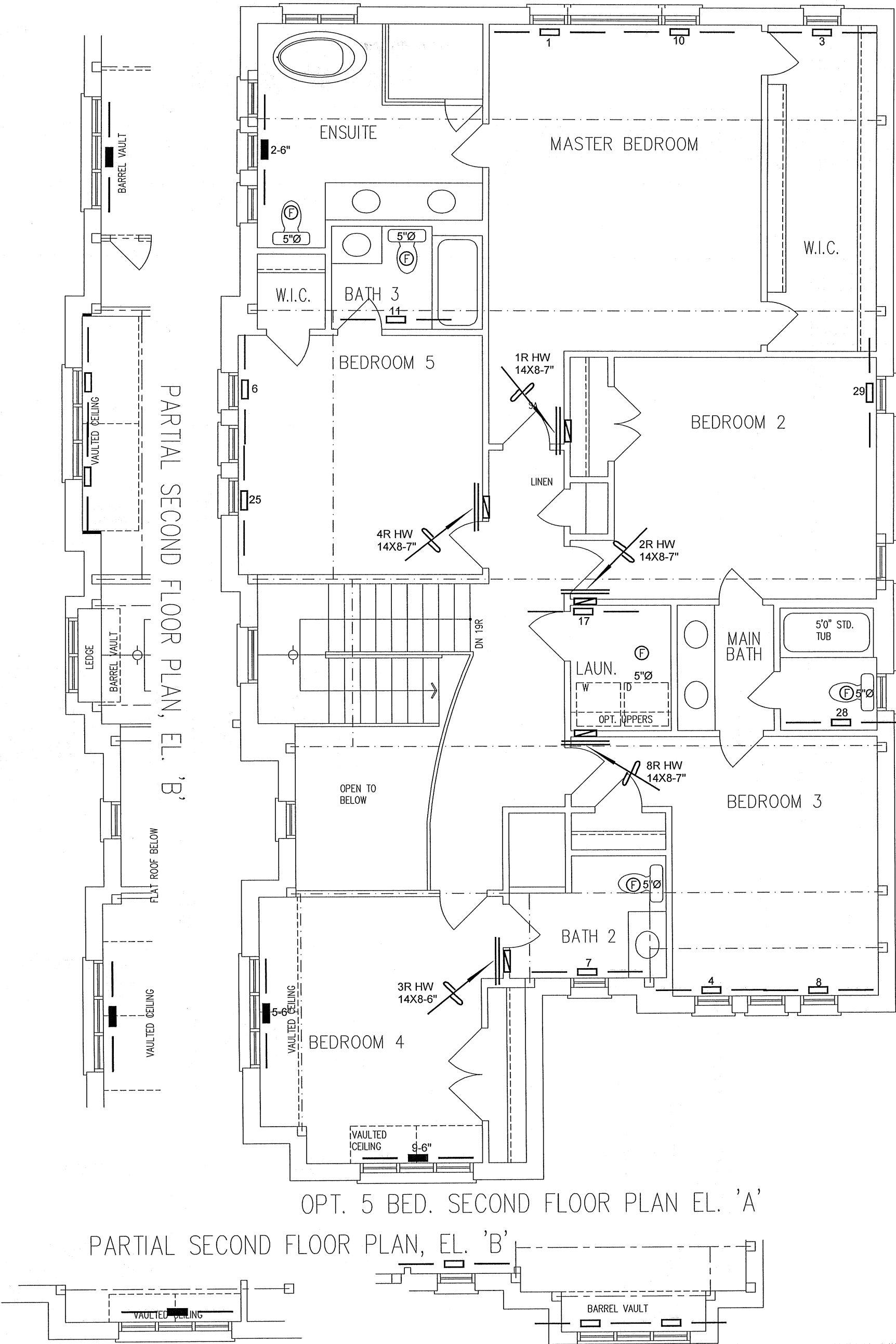
|                                                                                                                 |  |                                                                                                                                                                                                                                                                      |                                                 |                        |
|-----------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|------------------------|
| Client<br>GOLD PARK HOMES                                                                                       |  | <div>HVACDESIGNS LTD.</div> <div>375 Finley Ave. Suite 202 - Ajax, Ontario<br/>L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375<br/>Email: info@hvacdesigns.ca<br/>Web: www.hvacdesigns.ca<br/>Specializing in Residential Mechanical Design Services</div> | Sheet Title<br>FIRST FLOOR<br>HEATING<br>LAYOUT |                        |
| Project Name<br>PINE VALLEY & TESTON<br>VAUGHAN, ONTARIO<br>OPT. 5 BED<br>THE BROOKVALLEY<br>4204 CNR 3646 sqft |  |                                                                                                                                                                                                                                                                      | Date<br>JAN/2018                                | Scale<br>3/16" = 1'-0" |
|                                                                                                                 |  | BCIN# 19669                                                                                                                                                                                                                                                          |                                                 |                        |
|                                                                                                                 |  | LO#                                                                                                                                                                                                                                                                  | 77470                                           |                        |

CSA-F280-12  
PACKAGE A1

I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.32.5 OF THE BUILDING CODE.

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

| HVAC LEGEND |                            |        |                                 |             |
|-------------|----------------------------|--------|---------------------------------|-------------|
| SYMBOL      | DESCRIPTION                | SYMBOL | DESCRIPTION                     |             |
|             | SUPPLY AIR GRILLE          |        | 6" SUPPLY AIR BOOT ABOVE        | 1.          |
|             | SUPPLY AIR GRILLE 6" BOOT  |        | SUPPLY AIR STACK FROM 2ND FLOOR | No.         |
|             | SUPPLY AIR BOOT ABOVE      |        | 6" SUPPLY AIR STACK AND FLOOR   | Description |
|             | SUPPLY AIR STACK AND FLOOR |        | FRA-FLOOR RETURN AIR GRILLE     | Date        |
|             | RETURN AIR STACK ABOVE     |        | REDUCER                         |             |
|             | RETURN AIR STACK AND FLOOR |        |                                 |             |



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|                                                                                                                                                     |  |                                                                                                                                                                                                                                                                         |                                                           |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|--|
| Client<br><b>GOLD PARK HOMES</b>                                                                                                                    |  | <div><b>HVAC</b>DESIGNS LTD.</div> <p>375 Finley Ave. Suite 202 - Ajax, Ontario<br/>L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375<br/>Email: info@hvacdesigns.ca<br/>Web: www.hvacdesigns.ca<br/>Specializing in Residential Mechanical Design Services</p> | Sheet Title<br><b>SECOND FLOOR<br/>HEATING<br/>LAYOUT</b> |  |
| Project Name<br><b>PINE VALLEY &amp; TESTON<br/>VAUGHAN, ONTARIO<br/>OPT. 5 BED<br/>THE BROOKVALLEY<br/>4204 CNR                      3646 sqft</b> |  |                                                                                                                                                                                                                                                                         | Date<br>JAN/2018                                          |  |
|                                                                                                                                                     |  | Scale<br>3/16" = 1'-0"                                                                                                                                                                                                                                                  |                                                           |  |
|                                                                                                                                                     |  | BCIN# 19669                                                                                                                                                                                                                                                             |                                                           |  |
|                                                                                                                                                     |  | LO#                                                                                                                                                                                                                                                                     | 77470                                                     |  |