

| SITE NAME: RUSSEL GARDENS PHASE 3 |  |           |       | LOT 260             |      |         |      | DATE: Oct-20 |     |      |      | WINTER NATURAL AIR CHANGE RATE 0.319 |      |       |      | HEAT LOSS AT °F. 71                  |      |       |      | CSA-F280-12         |     |      |      |                  |      |       |     |     |     |
|-----------------------------------|--|-----------|-------|---------------------|------|---------|------|--------------|-----|------|------|--------------------------------------|------|-------|------|--------------------------------------|------|-------|------|---------------------|-----|------|------|------------------|------|-------|-----|-----|-----|
| BUILDER: GREENPARK HOMES          |  |           |       | TYPE: MOUNTAINASH 6 |      |         |      | GFA: 3360    |     |      |      | LOF 87760                            |      |       |      | SUMMER NATURAL AIR CHANGE RATE 0.114 |      |       |      | HEAT GAIN AT °F. 13 |     |      |      | SB-12 PACKAGE A1 |      |       |     |     |     |
| ROOM USE                          |  | EXP. WALL |       | CLG. HT.            |      | FACTORS |      | MBR          |     | ENS  |      | WIC                                  |      | BED-2 |      | BED-3                                |      | BED-4 |      | S-ENS               |     | FLEX |      | WIC-3            |      | ENS-3 |     |     |     |
|                                   |  |           |       |                     |      |         |      | 34           |     | 29   |      | 8                                    |      | 34    |      | 33                                   |      | 25    |      | 0                   |     | 11   |      | 8                |      | 6     |     |     |     |
|                                   |  |           |       |                     |      |         |      | 9            |     | 9    |      | 9                                    |      | 9     |      | 9                                    |      | 9     |      | 9                   |     | 9    |      | 9                |      | 9     |     |     |     |
| GRS.WALL AREA                     |  | LOSS      |       | GAIN                |      | 306     |      | 261          |     | 72   |      | 306                                  |      | 297   |      | 234                                  |      | 0     |      | 99                  |     | 72   |      | 54               |      |       |     |     |     |
| GLAZING                           |  | LOSS      |       | GAIN                |      | LOSS    |      | GAIN         |     | LOSS |      | GAIN                                 |      | LOSS  |      | GAIN                                 |      | LOSS  |      | GAIN                |     | LOSS |      | GAIN             |      |       |     |     |     |
| NORTH                             |  | 19.8      | 16.0  | 0                   | 0    | 0       | 14   | 277          | 224 | 0    | 0    | 0                                    | 0    | 0     | 14   | 277                                  | 224  | 0     | 0    | 0                   | 0   | 0    | 0    | 0                | 0    | 0     | 0   | 0   |     |
| EAST                              |  | 19.8      | 41.6  | 0                   | 0    | 0       | 0    | 0            | 0   | 0    | 0    | 0                                    | 45   | 890   | 1870 | 64                                   | 1265 | 2659  | 0    | 0                   | 0   | 0    | 0    | 32               | 633  | 1330  | 0   | 0   |     |
| SOUTH                             |  | 19.8      | 24.9  | 0                   | 0    | 0       | 0    | 0            | 0   | 0    | 0    | 0                                    | 0    | 0     | 0    | 0                                    | 0    | 11    | 217  | 274                 | 0   | 0    | 0    | 0                | 0    | 7     | 138 | 174 |     |
| WEST                              |  | 19.8      | 41.6  | 32                  | 633  | 1330    | 14   | 277          | 582 | 0    | 0    | 0                                    | 0    | 0     | 0    | 0                                    | 0    | 0     | 0    | 0                   | 0   | 0    | 0    | 0                | 0    | 0     | 0   | 0   |     |
| SKYLT.                            |  | 34.6      | 101.5 | 0                   | 0    | 0       | 0    | 0            | 0   | 0    | 0    | 0                                    | 0    | 0     | 0    | 0                                    | 0    | 0     | 0    | 0                   | 0   | 0    | 0    | 0                | 0    | 0     | 0   | 0   |     |
| DOORS                             |  | 23.5      | 4.3   | 0                   | 0    | 0       | 0    | 0            | 0   | 0    | 0    | 0                                    | 0    | 0     | 0    | 0                                    | 0    | 0     | 0    | 0                   | 0   | 0    | 0    | 0                | 0    | 0     | 0   | 0   |     |
| NET EXPOSED WALL                  |  | 4.1       | 0.8   | 274                 | 1136 | 206     | 233  | 966          | 175 | 72   | 298  | 54                                   | 261  | 1082  | 196  | 219                                  | 908  | 165   | 223  | 324                 | 168 | 0    | 0    | 0                | 38   | 365   | 65  | 40  | 166 |
| NET EXPOSED BSMT WALL ABOVE GR    |  | 3.3       | 0.6   | 0                   | 0    | 0       | 0    | 0            | 0   | 0    | 0    | 0                                    | 0    | 0     | 0    | 0                                    | 0    | 0     | 0    | 0                   | 0   | 0    | 0    | 0                | 0    | 0     | 0   | 0   |     |
| EXPOSED CLG                       |  | 1.2       | 0.6   | 285                 | 340  | 167     | 204  | 243          | 120 | 130  | 155  | 76                                   | 272  | 324   | 160  | 198                                  | 235  | 116   | 180  | 215                 | 106 | 123  | 147  | 72               | 208  | 249   | 123 | 46  | 55  |
| NO ATTIC EXPOSED CLG              |  | 2.6       | 1.3   | 0                   | 0    | 0       | 0    | 0            | 0   | 0    | 0    | 0                                    | 0    | 0     | 0    | 30                                   | 77   | 38    | 0    | 0                   | 0   | 0    | 0    | 0                | 10   | 25    | 13  | 0   | 0   |
| EXPOSED FLOOR                     |  | 2.4       | 0.4   | 0                   | 0    | 0       | 0    | 0            | 0   | 0    | 0    | 0                                    | 286  | 678   | 123  | 30                                   | 71   | 13    | 0    | 0                   | 0   | 123  | 291  | 53               | 0    | 0     | 56  | 133 |     |
| BASEMENT/CRAWL HEAT LOSS          |  |           |       |                     |      |         |      |              |     |      |      |                                      |      |       |      |                                      |      |       |      |                     |     |      |      |                  |      |       |     |     |     |
| SLAB ON GRADE HEAT LOSS           |  |           |       |                     |      |         |      |              |     |      |      |                                      |      |       |      |                                      |      |       |      |                     |     |      |      |                  |      |       |     |     |     |
| SUBTOTAL HT LOSS                  |  |           |       |                     |      |         |      |              |     |      |      |                                      |      |       |      |                                      |      |       |      |                     |     |      |      |                  |      |       |     |     |     |
| SUB TOTAL HT GAIN                 |  |           |       |                     |      |         |      |              |     |      |      |                                      |      |       |      |                                      |      |       |      |                     |     |      |      |                  |      |       |     |     |     |
| LEVEL FACTOR / MULTIPLIER         |  | 0.20      | 0.25  |                     |      |         | 0.20 | 0.25         |     | 0.20 | 0.25 |                                      | 0.20 | 0.25  |      | 0.20                                 | 0.25 |       | 0.20 | 0.25                |     | 0.20 | 0.25 |                  | 0.20 | 0.25  |     |     |     |
| AIR CHANGE HEAT LOSS              |  |           |       |                     |      |         |      |              |     |      |      |                                      |      |       |      |                                      |      |       |      |                     |     |      |      |                  |      |       |     |     |     |
| AIR CHANGE HEAT GAIN              |  |           |       |                     |      |         |      |              |     |      |      |                                      |      |       |      |                                      |      |       |      |                     |     |      |      |                  |      |       |     |     |     |
| DUCT LOSS                         |  |           |       |                     |      |         |      |              |     |      |      |                                      |      |       |      |                                      |      |       |      |                     |     |      |      |                  |      |       |     |     |     |
| DUCT GAIN                         |  |           |       |                     |      |         |      |              |     |      |      |                                      |      |       |      |                                      |      |       |      |                     |     |      |      |                  |      |       |     |     |     |
| HEAT GAIN PEOPLE                  |  | 240       |       | 2                   |      |         |      |              |     |      |      |                                      |      |       |      |                                      |      |       |      |                     |     |      |      |                  |      |       |     |     |     |
| HEAT GAIN APPLIANCES/LIGHTS       |  |           |       |                     |      |         |      |              |     |      |      |                                      |      |       |      |                                      |      |       |      |                     |     |      |      |                  |      |       |     |     |     |
| TOTAL HT LOSS BTU/H               |  |           |       |                     |      |         |      |              |     |      |      |                                      |      |       |      |                                      |      |       |      |                     |     |      |      |                  |      |       |     |     |     |
| TOTAL HT GAIN x 1.3 BTU/H         |  |           |       |                     |      |         |      |              |     |      |      |                                      |      |       |      |                                      |      |       |      |                     |     |      |      |                  |      |       |     |     |     |

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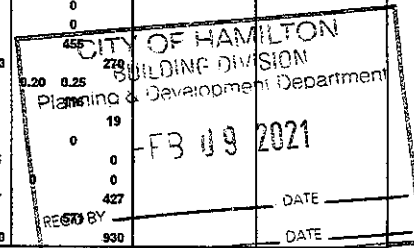
CITY OF HAMILTON  
BUILDING DIVISION  
Planning & Development Department

FB 09 2021

REGD BY

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| ROOM USE                       | EXP. WALL | CLG. HT. | FACTORS | L/D  | FAM  | K/B  | L/H  | LND  | F-WIC | FOY  | MUD  | WUB | BAS  |
|--------------------------------|-----------|----------|---------|------|------|------|------|------|-------|------|------|-----|------|
|                                |           |          |         | 50   | 35   | 44   | 10   | 7    | 12    | 16   | 24   | 18  | 170  |
|                                |           |          |         | 11   | 11   | 11   | 11   | 9    | 11    | 12   | 12   | 9   | 9    |
| GRS.WALL AREA                  | LOSS      | GAIN     |         | 550  | 385  | 484  | 110  | 63   | 132   | 192  | 288  | 162 | 1020 |
| GLAZING                        | LOSS      | GAIN     |         |      |      |      |      |      |       |      |      |     |      |
| NORTH                          | 19.8      | 16.0     | 0       | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0   | 0    |
| EAST                           | 19.8      | 41.6     | 0       | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0   | 0    |
| SOUTH                          | 19.8      | 24.9     | 36      | 712  | 896  | 0    | 0    | 0    | 0     | 0    | 0    | 0   | 0    |
| WEST                           | 19.8      | 41.6     | 0       | 0    | 0    | 46   | 909  | 1911 | 33    | 652  | 1371 | 0   | 0    |
| SKYLT.                         | 34.6      | 101.5    | 0       | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0   | 0    |
| DOORS                          | 23.5      | 4.3      | 0       | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0   | 0    |
| NET EXPOSED WALL               | 4.1       | 0.8      | 514     | 2131 | 386  | 339  | 1405 | 255  | 407   | 1687 | 306  | 92  | 381  |
| NET EXPOSED BSMT WALL ABOVE GR | 3.3       | 0.6      | 0       | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0   | 0    |
| EXPOSED CLG                    | 1.2       | 0.6      | 0       | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0   | 0    |
| NO ATTIC EXPOSED CLG           | 2.6       | 1.3      | 0       | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0   | 0    |
| EXPOSED FLOOR                  | 2.4       | 0.4      | 0       | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0   | 0    |
| BASEMENT/CRAWL HEAT LOSS       |           |          |         |      |      |      |      |      |       |      |      |     |      |
| SLAB ON GRADE HEAT LOSS        |           |          |         |      |      |      |      |      |       |      |      |     |      |
| SUBTOTAL HT LOSS               |           |          |         | 2842 |      | 2315 |      | 3318 |       | 737  |      | 521 |      |
| SUB TOTAL HT GAIN              |           |          |         |      | 1283 |      | 2166 |      | 357   |      | 228  |     | 711  |
| LEVEL FACTOR / MULTIPLIER      | 0.30      | 0.41     |         | 0.30 | 0.41 |      | 0.30 | 0.41 |       | 0.30 | 0.41 |     | 0.30 |
| AIR CHANGE HEAT LOSS           |           |          |         | 1170 |      | 953  |      | 1365 |       | 303  |      | 132 |      |
| AIR CHANGE HEAT GAIN           |           |          |         |      | 91   |      | 163  |      | 163   |      | 25   |     | 16   |
| DUCT LOSS                      |           |          |         | 0    |      | 0    |      | 0    |       | 0    |      | 0   |      |
| DUCT GAIN                      |           |          |         | 0    |      | 0    |      | 0    |       | 0    |      | 0   |      |
| HEAT GAIN PEOPLE               | 240       |          | 0       | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0   | 0    |
| HEAT GAIN APPLIANCES/LIGHTS    |           |          |         | 427  |      | 427  |      | 427  |       | 427  |      | 427 |      |
| TOTAL HT LOSS BTU/H            |           |          |         | 4012 |      | 3267 |      | 4683 |       | 1041 |      | 653 |      |
| TOTAL HT GAIN x 1.3 BTU/H      |           |          |         | 2340 |      | 3670 |      | 3764 |       | 1062 |      | 872 |      |

TOTAL HEAT GAIN BTU/H: 41969 TONS: 3.50 LOSS DUE TO VENTILATION LOAD BTU/H: 1515 STRUCTURAL HEAT LOSS: 67451 TOTAL COMBINED HEAT LOSS BTU/H: 68966

*Michael O'Rourke*

SITE NAME: RUSSEL GARDENS PHASE 3  
BUILDER: GREENPARK HOMES

LOT 260  
TYPE: MOUNTAINASH 6

DATE: Oct-20

GFA: 3360 LO# 87760

HEATING CFM 1504 COOLING CFM 1504  
TOTAL HEAT LOSS 57,451 TOTAL HEAT GAIN 41,694  
AIR FLOW RATE CFM 26.18 AIR FLOW RATE CFM 36.07

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

#\*GOODMAN  
GMEC960804CNA 80  
FAN SPEED

AFUE = 96 %  
INPUT (BTU/H) = 80,000  
OUTPUT (BTU/H) = 76,800

| RUN COUNT | 4th | 3rd | 2nd | 1st | Bas |
|-----------|-----|-----|-----|-----|-----|
| S/A       | 0   | 0   | 17  | 10  | 5   |
| R/A       | 0   | 0   | 6   | 3   | 1   |

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

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

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

LOW 868  
MEDLOW 978  
MEDIUM 1112  
MEDIUM HIGH 1504  
HIGH 1615

DESIGN CFM = 1504  
CFM @ .5" E.S.P.

TEMPERATURE RISE 47 °F

| RUN #                     | 1    | 2    | 3    | 4     | 5     | 6     | 7     | 8    | 9     | 10   | 11    | 12   | 13   | 14   | 15   | 16   | 17   | 18    | 19   | 20   | 21   | 22   | 23   | 24   |
|---------------------------|------|------|------|-------|-------|-------|-------|------|-------|------|-------|------|------|------|------|------|------|-------|------|------|------|------|------|------|
| ROOM NAME                 | MBR  | ENS  | WIC  | BED-2 | BED-3 | BED-4 | S-ENS | FLEX | WIC-3 | MBR  | ENS-3 | L/D  | FAM  | K/B  | K/B  | L/H  | LND  | F-WIC | FOY  | MUD  | BAS  | BAS  | BAS  | BAS  |
| RM LOSS MBH               | 1.32 | 1.11 | 0.57 | 2.05  | 1.30  | 1.70  | 0.30  | 1.04 | 1.40  | 1.32 | 0.57  | 2.01 | 1.63 | 2.34 | 2.34 | 1.04 | 0.65 | 1.10  | 2.96 | 2.23 | 3.75 | 3.75 | 3.75 | 3.75 |
| CFM PER RUN HEAT          | 35   | 29   | 15   | 54    | 34    | 45    | 8     | 27   | 37    | 35   | 15    | 53   | 43   | 61   | 61   | 27   | 17   | 29    | 78   | 58   | 98   | 98   | 98   | 98   |
| RM GAIN MBH               | 1.77 | 1.04 | 0.74 | 2.27  | 1.96  | 1.63  | 0.40  | 1.20 | 2.79  | 1.77 | 0.93  | 1.17 | 1.79 | 1.88 | 1.88 | 1.05 | 0.87 | 0.99  | 1.83 | 0.95 | 0.44 | 0.44 | 0.44 | 0.44 |
| CFM PER RUN COOLING       | 64   | 38   | 27   | 82    | 71    | 59    | 14    | 43   | 101   | 84   | 34    | 42   | 64   | 68   | 68   | 38   | 31   | 36    | 66   | 34   | 16   | 16   | 16   | 16   |
| ADJUSTED PRESSURE         | 0.17 | 0.17 | 0.17 | 0.16  | 0.17  | 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  | 0.17 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 |
| ACTUAL DUCT LGH           | 37   | 35   | 22   | 65    | 67    | 49    | 44    | 34   | 56    | 26   | 45    | 35   | 26   | 31   | 24   | 19   | 49   | 53    | 46   | 23   | 37   | 22   | 33   | 33   |
| EQUIVALENT LENGTH         | 120  | 150  | 160  | 150   | 200   | 190   | 170   | 150  | 160   | 140  | 180   | 120  | 110  | 140  | 130  | 100  | 180  | 140   | 130  | 120  | 120  | 120  | 120  | 180  |
| TOTAL EFFECTIVE LENGTH    | 157  | 185  | 182  | 215   | 267   | 239   | 214   | 184  | 216   | 166  | 225   | 155  | 136  | 171  | 154  | 119  | 229  | 193   | 176  | 143  | 157  | 142  | 153  | 213  |
| ADJUSTED PRESSURE         | 0.11 | 0.09 | 0.09 | 0.08  | 0.06  | 0.07  | 0.08  | 0.09 | 0.08  | 0.1  | 0.08  | 0.11 | 0.13 | 0.1  | 0.11 | 0.14 | 0.08 | 0.09  | 0.1  | 0.12 | 0.1  | 0.11 | 0.11 | 0.08 |
| ROUND DUCT SIZE           | 5    | 4    | 4    | 6     | 6     | 5     | 4     | 4    | 6     | 5    | 4     | 5    | 5    | 5    | 5    | 4    | 4    | 4     | 5    | 5    | 6    | 6    | 6    | 6    |
| HEATING VELOCITY (ft/min) | 257  | 333  | 172  | 275   | 173   | 330   | 92    | 310  | 189   | 257  | 172   | 389  | 316  | 448  | 448  | 310  | 195  | 333   | 573  | 426  | 500  | 500  | 500  | 500  |
| COOLING VELOCITY (ft/min) | 470  | 436  | 310  | 418   | 362   | 433   | 161   | 493  | 515   | 470  | 390   | 308  | 470  | 499  | 499  | 436  | 356  | 413   | 485  | 250  | 82   | 82   | 82   | 82   |
| OUTLET GRILL SIZE         | 3X10 | 3X10 | 3X10 | 4X10  | 4X10  | 3X10  | 3X10  | 3X10 | 4X10  | 3X10 | 3X10  | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10  | 3X10 | 3X10 | 4X10 | 4X10 | 4X10 | 4X10 |
| TRUNK                     | D    | F    | F    | C     | A     | C     | B     | C    | B     | D    | C     | B    | F    | D    | D    | F    | C    | A     | A    | F    | D    | C    | A    | A    |

| RUN #                     | 25    | 26    | 27   | 28    | 29   | 30   | 31   | 32    |
|---------------------------|-------|-------|------|-------|------|------|------|-------|
| ROOM NAME                 | BED-2 | BED-3 | ENS  | S-ENS | FAM  | L/D  | BAS  | BED-3 |
| RM LOSS MBH               | 2.05  | 1.30  | 1.11 | 0.30  | 1.63 | 2.01 | 3.75 | 1.30  |
| CFM PER RUN HEAT          | 54    | 34    | 29   | 8     | 43   | 53   | 98   | 34    |
| RM GAIN MBH               | 2.27  | 1.96  | 1.04 | 0.40  | 1.79 | 1.17 | 0.44 | 1.96  |
| CFM PER RUN COOLING       | 82    | 71    | 38   | 14    | 64   | 42   | 16   | 71    |
| ADJUSTED PRESSURE         | 0.16  | 0.17  | 0.17 | 0.17  | 0.17 | 0.17 | 0.16 | 0.17  |
| ACTUAL DUCT LGH           | 60    | 74    | 30   | 40    | 14   | 49   | 46   | 70    |
| EQUIVALENT LENGTH         | 180   | 200   | 120  | 180   | 150  | 170  | 160  | 200   |
| TOTAL EFFECTIVE LENGTH    | 240   | 274   | 150  | 220   | 164  | 219  | 206  | 270   |
| ADJUSTED PRESSURE         | 0.07  | 0.06  | 0.11 | 0.08  | 0.1  | 0.08 | 0.08 | 0.06  |
| ROUND DUCT SIZE           | 6     | 6     | 4    | 4     | 5    | 5    | 6    | 6     |
| HEATING VELOCITY (ft/min) | 275   | 173   | 333  | 92    | 316  | 389  | 500  | 173   |
| COOLING VELOCITY (ft/min) | 418   | 362   | 436  | 161   | 470  | 308  | 82   | 362   |
| OUTLET GRILL SIZE         | 4X10  | 4X10  | 3X10 | 3X10  | 3X10 | 4X10 | 4X10 | 4X10  |
| TRUNK                     | E     | A     | F    | B     | F    | A    | A    | A     |

| SUPPLY AIR TRUNK SIZE | TRUNK | STATIC | ROUND | RECT | VELOCITY | TRUNK | STATIC | ROUND | RECT | VELOCITY |
|-----------------------|-------|--------|-------|------|----------|-------|--------|-------|------|----------|
|                       | CFM   | PRESS. | DUCT  | DUCT | (ft/min) | CFM   | PRESS. | DUCT  | DUCT | (ft/min) |
| TRUNK A               | 458   | 0.06   | 11.2  | 14   | x 8      | 589   |        |       |      |          |
| TRUNK B               | 618   | 0.06   | 12.6  | 20   | x 8      | 556   |        |       |      |          |
| TRUNK C               | 874   | 0.06   | 14.3  | 24   | x 8      | 656   |        |       |      |          |
| TRUNK D               | 290   | 0.10   | 8.3   | 8    | x 8      | 653   |        |       |      |          |
| TRUNK E               | 1164  | 0.06   | 16    | 30   | x 8      | 698   |        |       |      |          |
| TRUNK F               | 342   | 0.09   | 9.1   | 10   | x 8      | 616   |        |       |      |          |
| TRUNK G               | 0     | 0.00   | 0     | 0    | x 8      | 0     |        |       |      |          |
| TRUNK H               | 0     | 0.00   | 0     | 0    | x 8      | 0     |        |       |      |          |
| TRUNK I               | 0     | 0.00   | 0     | 0    | x 8      | 0     |        |       |      |          |
| TRUNK J               | 0     | 0.00   | 0     | 0    | x 8      | 0     |        |       |      |          |
| TRUNK K               | 0     | 0.00   | 0     | 0    | x 8      | 0     |        |       |      |          |
| TRUNK L               | 0     | 0.00   | 0     | 0    | x 8      | 0     |        |       |      |          |

| RETURN AIR #       | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    | 21    | 22    | 23    | 24    |
|--------------------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| AIR VOLUME         | 75   | 75   | 135  | 115  | 75   | 75   | 185  | 400  | 135  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
| PLENUM PRESSURE    | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  |
| ACTUAL DUCT LGH    | 68   | 68   | 57   | 74   | 67   | 69   | 21   | 23   | 38   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| EQUIVALENT LENGTH  | 245  | 235  | 215  | 235  | 220  | 215  | 155  | 160  | 285  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
| TOTAL EFFECTIVE LH | 313  | 303  | 272  | 309  | 287  | 284  | 176  | 183  | 323  | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| ADJUSTED PRESSURE  | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 |
| ROUND DUCT SIZE    | 6    | 6    | 7.5  | 7    | 6    | 6    | 7.5  | 9.9  | 7.5  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
| INLET GRILL SIZE   | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
| INLET GRILL SIZE   | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X     | X     | X     | X     | X     | X     | X     | X     | X     | X     | X     | X     | X     | X     |
| INLET GRILL SIZE   | 14   | 14   | 14   | 14   | 14   | 14   | 14   | 30   | 14   | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |

TYPE: MOUNTAINASH 6  
SITE NAME: RUSSEL GARDENS PHASE 3

LO # 87760  
LOT 280

**RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY**

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

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

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

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

| TOTAL VENTILATION CAPACITY |              | 9.32.3.3(1) |
|----------------------------|--------------|-------------|
| Basement + Master Bedroom  | 2 @ 21.2 cfm | 42.4 cfm    |
| Other Bedrooms             | 3 @ 10.6 cfm | 31.8 cfm    |
| Kitchen & Bathrooms        | 6 @ 10.6 cfm | 63.6 cfm    |
| Other Rooms                | 9 @ 10.6 cfm | 95.4 cfm    |
| Table 9.32.3.A.            | TOTAL        | 233.2 cfm   |

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

| SUPPLEMENTAL VENTILATION CAPACITY |       | 9.32.3.5. |
|-----------------------------------|-------|-----------|
| Total Ventilation Capacity        | 233.2 | cfm       |
| Less Principal Ventil. Capacity   | 79.5  | cfm       |
| Required Supplemental Capacity    | 153.7 | cfm       |

| PRINCIPAL EXHAUST FAN CAPACITY      |              |
|-------------------------------------|--------------|
| Model:                              | VANEE 65H    |
| Location:                           | BSMT         |
| 79.5 cfm                            | 3.0 sones    |
| <input checked="" type="checkbox"/> | HVI Approved |

| PRINCIPAL EXHAUST HEAT LOSS CALCULATION |        |
|-----------------------------------------|--------|
| CFM                                     | ΔT °F  |
| 79.5 CFM                                | 71 F   |
| X                                       | X      |
| FACTOR                                  | % LOSS |
| 1.08                                    | 0.25   |
| X                                       | X      |

| SUPPLEMENTAL FANS |             | PANASONIC |     |
|-------------------|-------------|-----------|-----|
| Location          | Model       | cfm       | HVI |
| ENS               | FV-05-11VK1 | 50        | ✓   |
| S-ENS             | FV-05-11VK1 | 50        | ✓   |
| ENS-3             | FV-05-11VK1 | 50        | ✓   |
| F-WIC             | FV-05-11VK1 | 50        | ✓   |

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

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

| BUILDER:        |        |
|-----------------|--------|
| GREENPARK 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:                                                                                                         | October-20              |

| CSA F280-12 Residential Heat Loss and Heat Gain Calculations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                      |                                                                |                                                                                                                                         |                                                                                     |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------|-------------------|----------------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------|--------------|------|--------|-------|-------|-------|------|--------|-------|--------|------|--------|-------|-------|---|---|-------|--------|---|---|-------|--------|--|--|--------------|--------|--|--|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------|-------|--------------------------------|-------|-------------------------------|--|--|--|--|--|--------------------|---------------------|-------|-------|-------------------------|----|-----|----|----|-------------------------|----|----|---|----|
| Formula Sheet (For Air Leakage / Ventilation Calculation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |                                                                |                                                                                                                                         |                                                                                     |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| LO#: 87760                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Model: MOUNTAINASH 6 | Builder: GREENPARK HOMES                                       | Date: 05/10/2020                                                                                                                        |                                                                                     |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| <b>Volume Calculation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |                                                                | <b>Air Change &amp; Delta T Data</b>                                                                                                    |                                                                                     |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4">House Volume</th> </tr> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> </thead> <tbody> <tr> <td>Bsmt</td> <td>1480</td> <td>9</td> <td>13320</td> </tr> <tr> <td>First</td> <td>1480</td> <td>11</td> <td>16280</td> </tr> <tr> <td>Second</td> <td>1880</td> <td>9</td> <td>16920</td> </tr> <tr> <td>Third</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td>Fourth</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>46,520.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>1317.3 m³</td> </tr> </tbody> </table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                      |                                                                | House Volume                                                                                                                            |                                                                                     |       |                   | Level                                                          | Floor Area (ft²)                                    | Floor Height (ft)                                                                   | Volume (ft³) | Bsmt | 1480   | 9     | 13320 | First | 1480 | 11     | 16280 | Second | 1880 | 9      | 16920 | Third | 0 | 9 | 0     | Fourth | 0 | 9 | 0     | Total: |  |  | 46,520.0 ft³ | Total: |  |  | 1317.3 m³ | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 20%; text-align: center;">0.319</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.114</td> </tr> </table><br><table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="5">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> <th>ΔT °F</th> </tr> </thead> <tbody> <tr> <td>Winter DTD<sub>h</sub></td> <td style="text-align: center;">22</td> <td style="text-align: center;">-17</td> <td style="text-align: center;">39</td> <td style="text-align: center;">71</td> </tr> <tr> <td>Summer DTD<sub>c</sub></td> <td style="text-align: center;">24</td> <td style="text-align: center;">31</td> <td style="text-align: center;">7</td> <td style="text-align: center;">13</td> </tr> </tbody> </table> |  | WINTER NATURAL AIR CHANGE RATE | 0.319 | SUMMER NATURAL AIR CHANGE RATE | 0.114 | Design Temperature Difference |  |  |  |  |  | T <sub>in</sub> °C | T <sub>out</sub> °C | ΔT °C | ΔT °F | Winter DTD <sub>h</sub> | 22 | -17 | 39 | 71 | Summer DTD <sub>c</sub> | 24 | 31 | 7 | 13 |
| House Volume                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                      |                                                                |                                                                                                                                         |                                                                                     |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Floor Area (ft²)     | Floor Height (ft)                                              | Volume (ft³)                                                                                                                            |                                                                                     |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| Bsmt                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1480                 | 9                                                              | 13320                                                                                                                                   |                                                                                     |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| First                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1480                 | 11                                                             | 16280                                                                                                                                   |                                                                                     |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| Second                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1880                 | 9                                                              | 16920                                                                                                                                   |                                                                                     |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| Third                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                    | 9                                                              | 0                                                                                                                                       |                                                                                     |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| Fourth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0                    | 9                                                              | 0                                                                                                                                       |                                                                                     |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| Total:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                                                                | 46,520.0 ft³                                                                                                                            |                                                                                     |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| Total:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                                                                | 1317.3 m³                                                                                                                               |                                                                                     |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| WINTER NATURAL AIR CHANGE RATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.319                |                                                                |                                                                                                                                         |                                                                                     |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| SUMMER NATURAL AIR CHANGE RATE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.114                |                                                                |                                                                                                                                         |                                                                                     |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| Design Temperature Difference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                      |                                                                |                                                                                                                                         |                                                                                     |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | T <sub>in</sub> °C   | T <sub>out</sub> °C                                            | ΔT °C                                                                                                                                   | ΔT °F                                                                               |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| Winter DTD <sub>h</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 22                   | -17                                                            | 39                                                                                                                                      | 71                                                                                  |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| Summer DTD <sub>c</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 24                   | 31                                                             | 7                                                                                                                                       | 13                                                                                  |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| <b>5.2.3.1 Heat Loss due to Air Leakage</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |                                                                | <b>6.2.6 Sensible Gain due to Air Leakage</b>                                                                                           |                                                                                     |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| $HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ <p>0.319 x 365.92 x 39 °C x 1.2 = 5497 W</p> <p>= 18757 Btu/h</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                      |                                                                | $HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ <p>= 0.114 x 365.92 x 7 °C x 1.2 = 357 W</p> <p>= 1218 Btu/h</p> |                                                                                     |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| <b>5.2.3.2 Heat Loss due to Mechanical Ventilation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                                                                | <b>6.2.7 Sensible heat Gain due to Ventilation</b>                                                                                      |                                                                                     |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| $HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>80 CFM x 71 °F x 1.08 x 0.25 = 1515 Btu/h</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |                                                                | $HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>80 CFM x 13 °F x 1.08 x 0.25 = 275 Btu/h</p>                              |                                                                                     |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| <b>5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |                                                                |                                                                                                                                         |                                                                                     |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| $HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$ <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HL<sub>airv</sub> Air Leakage + 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> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">18,757</td> <td style="text-align: center;">9,366</td> <td style="text-align: center;">1.001</td> </tr> <tr> <td>2</td> <td>0.3</td> <td style="text-align: center;">13,673</td> <td style="text-align: center;">0.412</td> </tr> <tr> <td>3</td> <td>0.2</td> <td style="text-align: center;">14,744</td> <td style="text-align: center;">0.254</td> </tr> <tr> <td>4</td> <td>0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0.000</td> </tr> </tbody> </table> <p>*HL<sub>airbv</sub> = Air leakage heat loss + ventilation heat loss<br/> *For a balanced or supply only ventilation system HL<sub>airv</sub> = 0</p> |                      |                                                                |                                                                                                                                         |                                                                                     | Level | Level Factor (LF) | HL <sub>airv</sub> Air Leakage + 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  | 18,757 | 9,366 | 1.001 | 2     | 0.3  | 13,673 | 0.412 | 3      | 0.2  | 14,744 | 0.254 | 4     | 0 | 0 | 0.000 | 5      | 0 | 0 | 0.000 |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Level Factor (LF)    | HL <sub>airv</sub> Air Leakage + 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                  | 18,757                                                         | 9,366                                                                                                                                   | 1.001                                                                               |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0.3                  |                                                                | 13,673                                                                                                                                  | 0.412                                                                               |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0.2                  |                                                                | 14,744                                                                                                                                  | 0.254                                                                               |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0                    |                                                                | 0                                                                                                                                       | 0.000                                                                               |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0                    |                                                                | 0                                                                                                                                       | 0.000                                                                               |       |                   |                                                                |                                                     |                                                                                     |              |      |        |       |       |       |      |        |       |        |      |        |       |       |   |   |       |        |   |   |       |        |  |  |              |        |  |  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                |       |                                |       |                               |  |  |  |  |  |                    |                     |       |       |                         |    |     |    |    |                         |    |    |   |    |

**HEAT LOSS AND GAIN SUMMARY SHEET**

|                             |                  |                                     |
|-----------------------------|------------------|-------------------------------------|
| <b>MODEL:</b> MOUNTAINASH 6 | <b>LOT</b> 260   | <b>BUILDER:</b> GREENPARK HOMES     |
| <b>SFQT:</b> 3360           | <b>LO#</b> 87760 | <b>SITE:</b> RUSSEL GARDENS PHASE 3 |

**DESIGN ASSUMPTIONS**

|                      |           |                                |           |
|----------------------|-----------|--------------------------------|-----------|
| <b>HEATING</b>       | <b>°F</b> | <b>COOLING</b>                 | <b>°F</b> |
| OUTDOOR DESIGN TEMP. | 1         | OUTDOOR DESIGN TEMP.           | 88        |
| INDOOR DESIGN TEMP.  | 72        | INDOOR DESIGN TEMP. (MAX 75°F) | 75        |

**BUILDING DATA**

|                                            |                       |                                  |          |
|--------------------------------------------|-----------------------|----------------------------------|----------|
| <b>ATTACHMENT:</b>                         | DETACHED              | <b># OF STORIES (+BASEMENT):</b> | 3        |
| <b>FRONT FACES:</b>                        | EAST                  | <b>ASSUMED (Y/N):</b>            | Y        |
| <b>AIR CHANGES PER HOUR:</b>               | 3.57                  | <b>ASSUMED (Y/N):</b>            | Y        |
| <b>AIR TIGHTNESS CATEGORY:</b>             | AVERAGE               | <b>ASSUMED (Y/N):</b>            | Y        |
| <b>WIND EXPOSURE:</b>                      | SHELTERED             | <b>ASSUMED (Y/N):</b>            | Y        |
| <b>HOUSE VOLUME (ft³):</b>                 | 46520.0               | <b>ASSUMED (Y/N):</b>            | Y        |
| <b>INTERNAL SHADING:</b>                   | BLINDS/CURTAINS       | <b>ASSUMED OCCUPANTS:</b>        | 5        |
| <b>INTERIOR LIGHTING LOAD (Btu/h/ft²):</b> | 1.50                  | <b>DC BRUSHLESS MOTOR (Y/N):</b> | Y        |
| <b>FOUNDATION CONFIGURATION</b>            | BCIN_1                | <b>DEPTH BELOW GRADE:</b>        | 6.0 ft   |
| <b>LENGTH:</b> 58.0 ft                     | <b>WIDTH:</b> 36.0 ft | <b>EXPOSED PERIMETER:</b>        | 170.0 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   | -     |

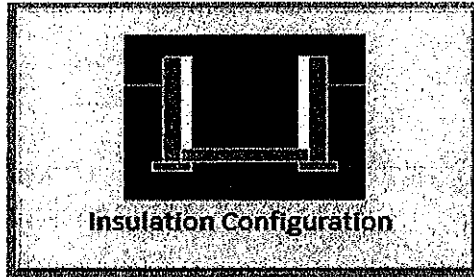
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



## Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

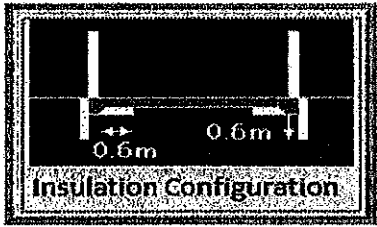
| Weather Station Description    |                                           |                                                                                                                 |
|--------------------------------|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Province:                      | Ontario                                   |                                                                                                                 |
| Region:                        | Hamilton                                  |                                                                                                                 |
| Site Description               |                                           |                                                                                                                 |
| Soil Conductivity:             | Normal conductivity: dry sand, loam, clay |                                                                                                                 |
| Water Table:                   | Normal (7-10 m, 23-33 ft)                 |                                                                                                                 |
| Foundation Dimensions          |                                           |                                                                                                                 |
| Floor Length (m):              | 17.7                                      | <br>Insulation Configuration |
| Floor Width (m):               | 11.0                                      |                                                                                                                 |
| Exposed Perimeter (m):         | 51.8                                      |                                                                                                                 |
| Wall Height (m):               | 2.7                                       |                                                                                                                 |
| Depth Below Grade (m):         | 1.83                                      |                                                                                                                 |
| Window Area (m <sup>2</sup> ): | 2.0                                       |                                                                                                                 |
| Door Area (m <sup>2</sup> ):   | 3.7                                       |                                                                                                                 |
| Radiant Slab                   |                                           |                                                                                                                 |
| Heated Fraction of the Slab:   | 0                                         |                                                                                                                 |
| Fluid Temperature (°C):        | 33                                        |                                                                                                                 |
| Design Months                  |                                           |                                                                                                                 |
| Heating Month                  | 1                                         |                                                                                                                 |
| Foundation Loads               |                                           |                                                                                                                 |
| Heating Load (Watts):          |                                           | 1640                                                                                                            |

TYPE: MOUNTAINASH 6  
LO# 87760

LOT 260

## Residential Slab on Grade Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

| Weather Station Description  |                                           |                                                                                     |
|------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------|
| Province:                    | Ontario                                   |                                                                                     |
| Region:                      | Hamilton                                  |                                                                                     |
| Site Description             |                                           |                                                                                     |
| Soil Conductivity:           | Normal conductivity: dry sand, loam, clay |                                                                                     |
| Water Table:                 | Normal (7-10 m, 23-33 ft)                 |                                                                                     |
| Foundation Dimensions        |                                           |                                                                                     |
| Length (m):                  | 1.5                                       |  |
| Width (m):                   | 2.4                                       |                                                                                     |
| Exposed Perimeter (m):       | 5.5                                       |                                                                                     |
| Radiant Slab                 |                                           |                                                                                     |
| Heated Fraction of the Slab: | 0                                         |                                                                                     |
| Fluid Temperature (°C):      | 33                                        |                                                                                     |
| Design Months                |                                           |                                                                                     |
| Heating Month                | 1                                         |                                                                                     |
| Results                      |                                           |                                                                                     |
| Heating Load (Watts):        |                                           | 36                                                                                  |

TYPE: MOUNTAINASH 6  
LO# 87760

LOT 260

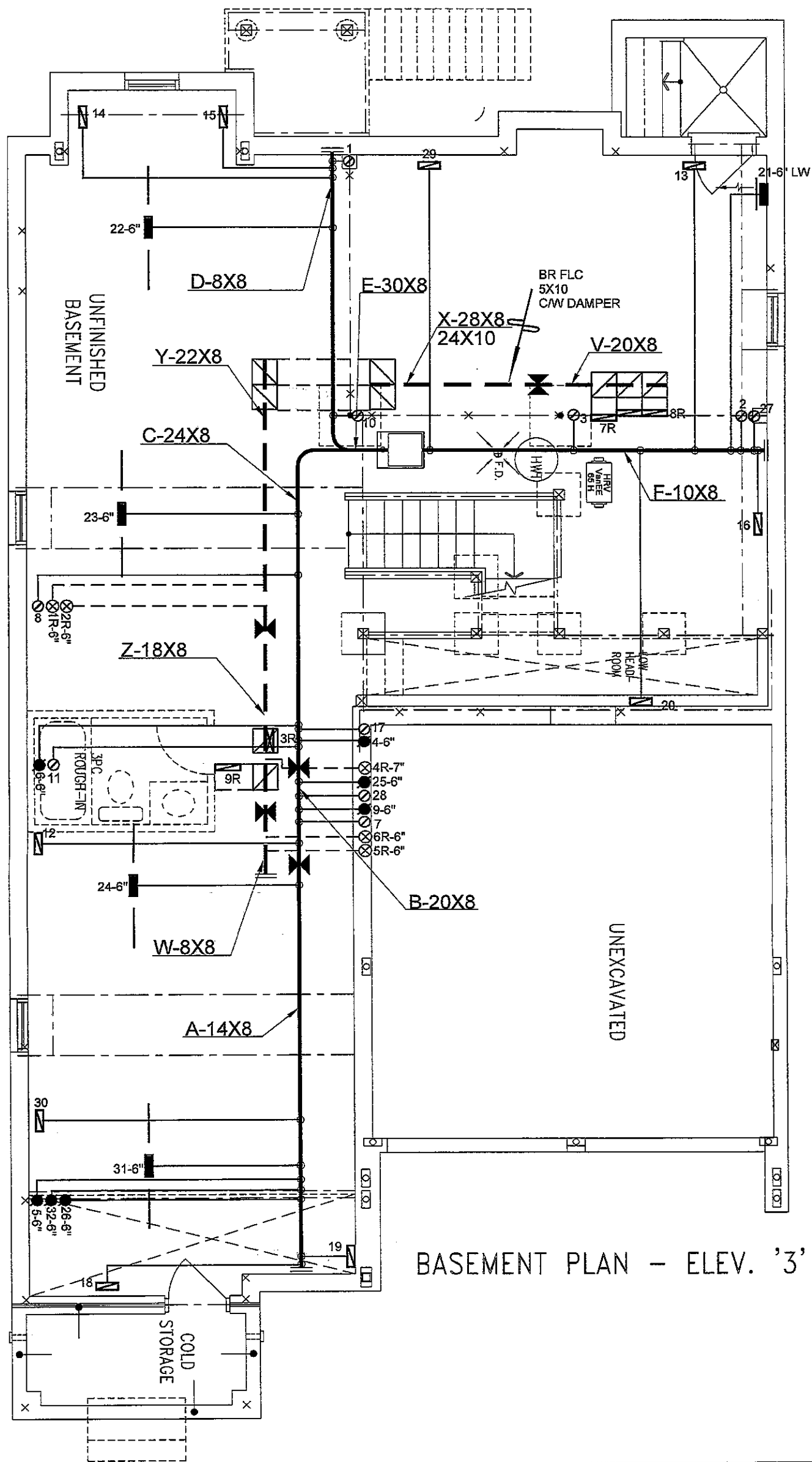
## Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

| Weather Station Description       |                            |                        |    |    |
|-----------------------------------|----------------------------|------------------------|----|----|
| Province:                         | Ontario                    |                        |    |    |
| Region:                           | Hamilton                   |                        |    |    |
| 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> ):   | 1317.3                     |                        |    |    |
| Air Leakage/Ventilation           |                            |                        |    |    |
| Air Tightness Type:               | Present (1961-) (3.57 ACH) |                        |    |    |
| Custom BDT Data:                  | ELA @ 10 Pa.               | 1756.0 cm <sup>2</sup> |    |    |
|                                   | 3.57                       | ACH @ 50 Pa            |    |    |
| Mechanical Ventilation (L/s):     | Total Supply               | Total Exhaust          |    |    |
|                                   | 37.5                       | 37.5                   |    |    |
| Flue Size                         |                            |                        |    |    |
| Flue #:                           | #1                         | #2                     | #3 | #4 |
| Diameter (mm):                    | 0                          | 0                      | 0  | 0  |
| Natural Infiltration Rates        |                            |                        |    |    |
| Heating Air Leakage Rate (ACH/H): | 0.319                      |                        |    |    |
| Cooling Air Leakage Rate (ACH/H): | 0.114                      |                        |    |    |

TYPE: MOUNTAINASH 6  
LO# 87760

LOT 260

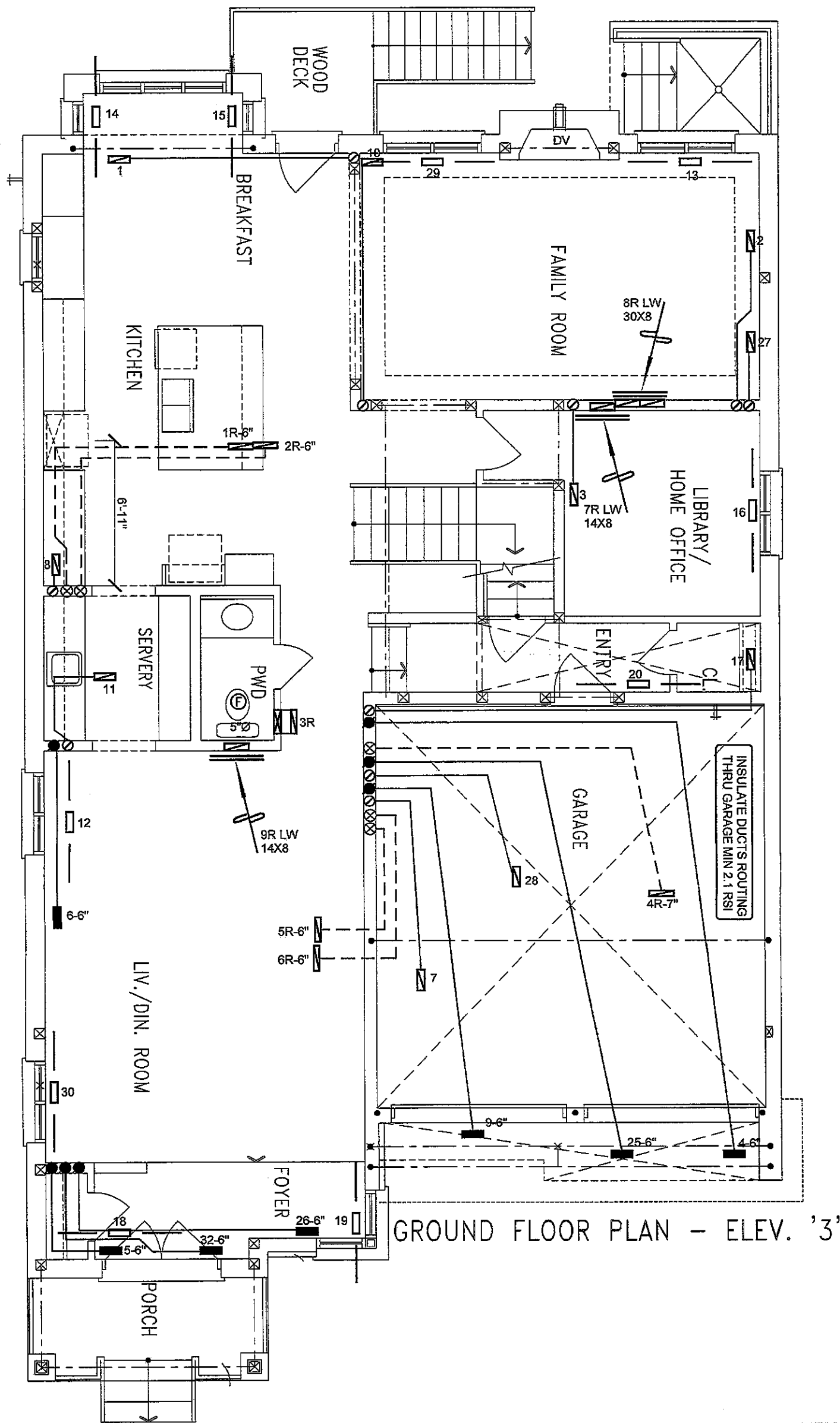


BASEMENT PLAN - ELEV. '3'

LOT 260  
WUB  
CSA-F280-12  
PACKAGE A1

I MICHAEL O'Rourke HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.32.3 OF THE BUILDING CODE.  
*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

| HVAC LEGEND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                           |                                                                                                                                                                                                                                                                                                                                   |                                 |                                                                                                                                                               |                                    |                        | 3.                         |             |                                                       |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------------------------|----------------------------|-------------|-------------------------------------------------------|--|
| SYMBOL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | DESCRIPTION               | SYMBOL                                                                                                                                                                                                                                                                                                                            | DESCRIPTION                     | SYMBOL                                                                                                                                                        | DESCRIPTION                        | SYMBOL                 | DESCRIPTION                | 2.          |                                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | SUPPLY AIR GRILLE         |                                                                                                                                                                                                                                                                                                                                   | 6" SUPPLY AIR BOOT ABOVE        |                                                                                                                                                               | 14"x8" RETURN AIR GRILLE           |                        | RETURN AIR STACK ABOVE     | 1.          |                                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | SUPPLY AIR GRILLE 6" BOOT |                                                                                                                                                                                                                                                                                                                                   | SUPPLY AIR STACK FROM 2nd FLOOR |                                                                                                                                                               | 30"x6" RETURN AIR GRILLE           |                        | RETURN AIR STACK 2nd FLOOR | No.         | Description Date                                      |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | SUPPLY AIR BOOT ABOVE     |                                                                                                                                                                                                                                                                                                                                   | 6" SUPPLY AIR STACK 2nd FLOOR   |                                                                                                                                                               | FRA- FLOOR RETURN AIR GRILLE       |                        | REDUCER                    | REVISIONS   |                                                       |  |
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| Client<br><b>GREENPARK HOMES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                           | <div><br/>375 Finley Ave. Suite 202 - Ajax, Ontario<br/>L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375<br/>Email: info@hvacdesigns.ca<br/>Web: www.hvacdesigns.ca<br/>Specializing in Residential Mechanical Design Services</div> |                                 |                                                                                                                                                               | HEAT LOSS 58966 BTU/H<br>UNIT DATA |                        | # OF RUNS S/A R/A FANS     |             | Sheet Title<br><b>BASEMENT<br/>HEATING<br/>LAYOUT</b> |  |
| Project Name<br><b>RUSSEL GARDENS PHASE 3<br/>HAMILTON, ONTARIO</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                           |                                                                                                                                                                                                                                                                                                                                   |                                 |                                                                                                                                                               | MAKE<br>GOODMAN                    |                        | 3RD FLOOR                  |             | Date<br>OCT/2020                                      |  |
| <b>LOT 260<br/>MOUNTAINASH 6 3360 sqft</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                           | MODEL<br>GMEC960804CNA                                                                                                                                                                                                                                                                                                            |                                 | 2ND FLOOR 17 6 4                                                                                                                                              |                                    | Scale<br>3/16" = 1'-0" |                            | BCIN# 19669 |                                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                           | INPUT 80 MBTU/H                                                                                                                                                                                                                                                                                                                   |                                 | 1ST FLOOR 10 3 2                                                                                                                                              |                                    | LO# 87760              |                            |             |                                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                           | OUTPUT 76.8 MBTU/H                                                                                                                                                                                                                                                                                                                |                                 | BASEMENT 5 1 0                                                                                                                                                |                                    |                        |                            |             |                                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                           | COOLING 3.5 TONS                                                                                                                                                                                                                                                                                                                  |                                 | ALL S/A DIFFUSERS 4 "x10"<br>UNLESS NOTED OTHERWISE<br>ON LAYOUT. ALL S/A RUNS 5'xØ<br>UNLESS NOTED OTHERWISE<br>ON LAYOUT. UNDERCUT<br>DOORS 1" min. FOR R/A |                                    |                        |                            |             |                                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                           | FAN SPEED 1504 cfm @ 0.6" w.c.                                                                                                                                                                                                                                                                                                    |                                 |                                                                                                                                                               |                                    |                        |                            |             |                                                       |  |



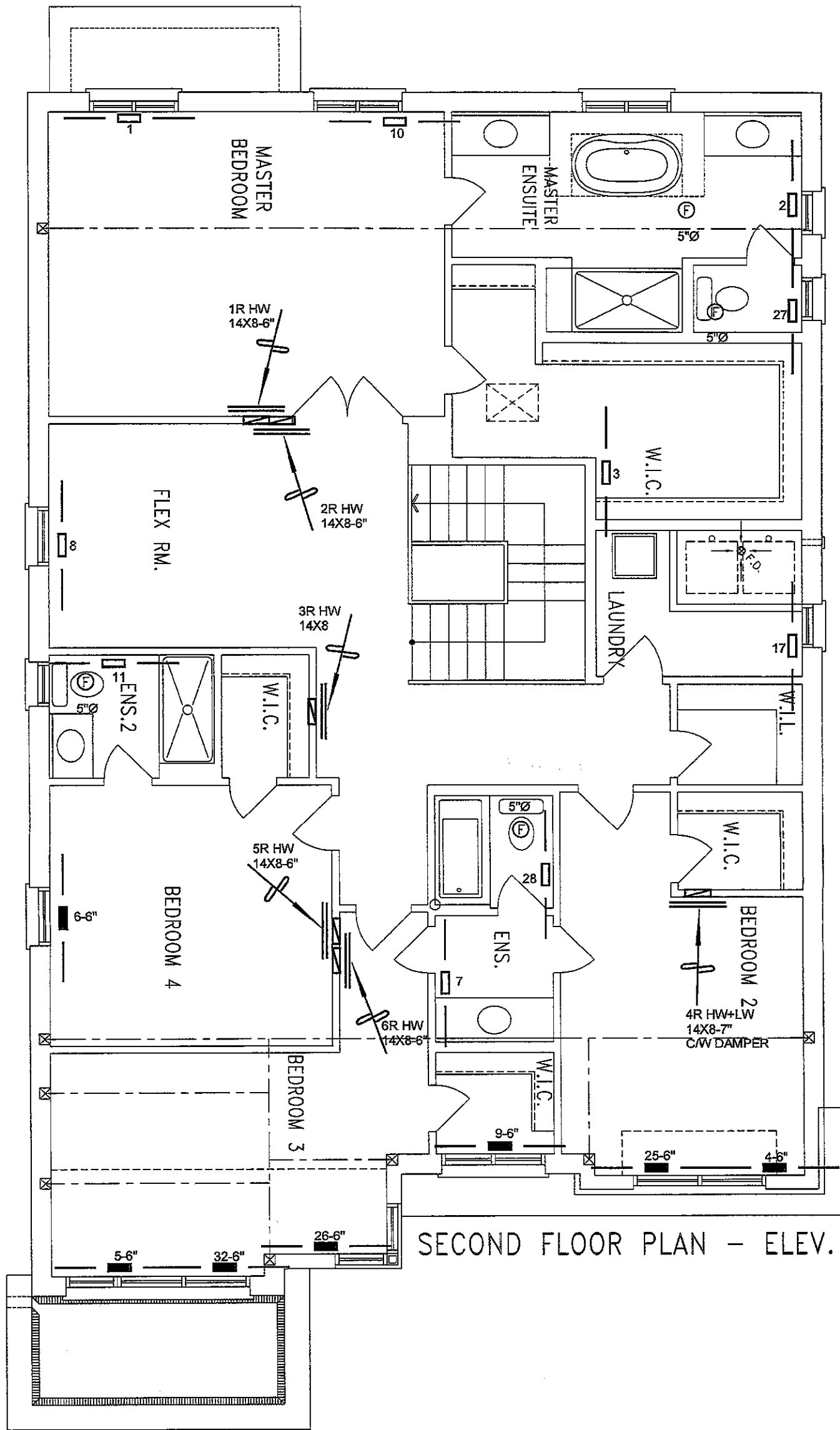
I MICHAEL O'Rourke HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C. 12.3 OF THE BUILDING CODE.  
*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

LOT 260  
WUB  
CSA-F280-12  
PACKAGE A1

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

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|                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                          |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|---------------|
| Client<br><b>GREENPARK HOMES</b><br><br>Project Name<br><b>RUSSEL GARDENS PHASE 3<br/>HAMILTON, ONTARIO</b><br><br><b>LOT 260<br/>MOUNTAINASH 6 3360 sqft</b> | <br><b>HVAC DESIGNS LTD.</b><br>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<br>Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed. | Sheet Title<br><b>FIRST FLOOR<br/>HEATING<br/>LAYOUT</b> |               |
|                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Date                                                     | OCT/2020      |
|                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Scale                                                    | 3/16" = 1'-0" |
|                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | BCIN#                                                    | 19669         |
|                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | LO#                                                      | 87760         |



SECOND FLOOR PLAN - ELEV. '3'

LOT 260  
WUB  
CSA-F280-12  
PACKAGE A1

I MICHAEL O'Rourke HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.32.3 OF THE BUILDING CODE.  
*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

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

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|                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                           |              |
|---------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|--------------|
| Client<br><b>GREENPARK HOMES</b>                                    |  | <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@hvacadesigns.ca<br/>Web: www.hvacadesigns.ca<br/>Specializing in Residential Mechanical Design Services</p><p>Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper.<br/>Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.</p></div> | Sheet Title<br><b>SECOND FLOOR<br/>HEATING<br/>LAYOUT</b> |              |
| Project Name<br><b>RUSSEL GARDENS PHASE 3<br/>HAMILTON, ONTARIO</b> |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Date<br><b>OCT/2020</b>                                   |              |
| LOT 260<br>MOUNTAINASH 6 3360 sqft                                  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Scale<br><b>3/16" = 1'-0"</b>                             |              |
|                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | BCIN# 19669                                               |              |
|                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | LO#                                                       | <b>87760</b> |