

| ROOM USE                       | L/D  |       | FAM  |      | K/B  |      | L/H  |      | LND  |      | F-WIC |      | FOY  |      | MRUD |      | WUB  |      | BAS  |      |     |
|--------------------------------|------|-------|------|------|------|------|------|------|------|------|-------|------|------|------|------|------|------|------|------|------|-----|
| EXP. WALL                      | 50   |       | 35   |      | 44   |      | 10   |      | 7    |      | 12    |      | 15   |      | 24   |      | 23   |      | 159  |      |     |
| CLG. HT.                       | 11   |       | 11   |      | 11   |      | 11   |      | 9    |      | 11    |      | 12   |      | 12   |      | 9    |      | 9    |      |     |
| FACTORS                        |      |       |      |      |      |      |      |      |      |      |       |      |      |      |      |      |      |      |      |      |     |
| GRS.WALL AREA                  | LOSS | GAIN  | 550  |      | 385  |      | 484  |      | 110  |      | 63    |      | 132  |      | 192  |      | 288  |      | 207  |      |     |
| GLAZING                        | LOSS | GAIN  | LOSS | GAIN | LOSS | GAIN | LOSS | GAIN | LOSS | GAIN | LOSS  | GAIN | LOSS | GAIN | LOSS | GAIN | LOSS | GAIN | LOSS | GAIN |     |
| NORTH                          | 19.8 | 16.0  | 0    | 0    | 0    | 0    | 3    | 158  | 128  | 18   | 356   | 238  | 7    | 138  | 112  | 0    | 0    | 0    | 0    | 5    | 99  |
| EAST                           | 19.8 | 41.6  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 15   | 297  | 623  | 20   | 395  | 831  | 0    | 0    | 0   |
| SOUTH                          | 19.8 | 24.9  | 36   | 712  | 896  | 0    | 0    | 0    | 16   | 316  | 398   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 6    | 119 |
| WEST                           | 19.8 | 41.6  | 0    | 0    | 0    | 46   | 909  | 1911 | 33   | 652  | 1371  | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 7    | 138 |
| SKYL.T.                        | 34.6 | 101.5 | 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    | 20   | 469  | 85    | 0    | 0    | 0    | 0    | 40   | 938  | 170  | 20   | 469  | 85  |
| NET EXPOSED WALL               | 4.1  | 0.8   | 514  | 2131 | 336  | 339  | 1405 | 255  | 407  | 1687 | 306   | 92   | 381  | 69   | 56   | 232  | 42   | 117  | 485  | 88   | 118 |
| 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   |
| EXPOSED CLG                    | 1.2  | 0.6   | 0    | 0    | 0    | 0    | 0    | 0    | 29   | 35   | 17    | 0    | 0    | 0    | 126  | 150  | 74   | 0    | 0    | 0    | 0   |
| NO ATTIC EXPOSED CLG           | 2.6  | 1.3   | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 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    | 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   |      | 782  |      | 2100 |      | 1580 |      | 170  |      |     |
| SUB TOTAL HT GAIN              |      |       |      |      | 2166 |      | 2305 |      | 357  |      |       |      | 711  |      | 1313 |      | 286  |      | 1524 |      |     |
| LEVEL FACTOR / MULTIPLIER      | 0.30 | 0.41  |      |      | 0.30 |      | 0.30 |      | 0.20 |      | 0.30  |      | 0.30 |      | 0.30 |      | 0.30 |      | 0.50 |      |     |
| AIR CHANGE HEAT LOSS           |      |       | 1179 |      | 960  |      | 1376 |      | 306  |      | 133   |      | 324  |      | 871  |      | 655  |      | 9452 |      |     |
| AIR CHANGE HEAT GAIN           |      |       | 91   |      | 154  |      | 164  |      | 25   |      | 16    |      | 51   |      | 93   |      | 20   |      | 79   |      |     |
| DUCT LOSS                      |      |       | 0    |      | 0    |      | 0    |      | 0    |      | 0     |      | 0    |      | 0    |      | 0    |      | 0    |      |     |
| DUCT GAIN                      |      |       | 0    |      | 0    |      | 0    |      | 0    |      | 0     |      | 0    |      | 0    |      | 0    |      | 0    |      |     |
| HEAT GAIN PEOPLE               | 240  |       | 0    |      | 0    |      | 0    |      | 0    |      | 0     |      | 0    |      | 0    |      | 0    |      | 0    |      |     |
| HEAT GAIN APPLIANCES/LIGHTS    |      |       | 431  |      | 431  |      | 431  |      | 431  |      | 431   |      | 431  |      | 431  |      | 431  |      | 431  |      |     |
| TOTAL HT LOSS BTU/H            |      |       | 4021 |      | 3275 |      | 4694 |      | 1043 |      | 654   |      | 1106 |      | 2970 |      | 2236 |      | 1524 |      |     |
| TOTAL HT GAIN x 1.3 BTU/H      |      |       | 2346 |      | 3576 |      | 3770 |      | 1056 |      | 877   |      | 990  |      | 1829 |      | 959  |      | 665  |      |     |

**TOTAL COMBINED HEAT LOSS BTU/H: 58845**

SITE NAME: RUSSEL GARDENS PHASE 3  
BUILDER: GREENPARK HOMES

LOT 244  
TYPE: MOUNTAINASH 6

DATE: Sep-20

GFA: 3393 LO# 87572

HEATING CFM 1504 COOLING CFM 1504  
TOTAL HEAT LOSS 57,329 TOTAL HEAT GAIN 41,769  
AIR FLOW RATE CFM 26.23 AIR FLOW RATE CFM 36.01

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

#GOODMAN  
GMECS60804CNA 80

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

FAN SPEED  
LOW 868  
MEDLOW 978  
MEDIUM 1112  
MEDIUM HIGH 1504  
HIGH 1615

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

TEMPERATURE RISE 47 °F

| 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.

| 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 | 2.07  | 1.32  | 1.70  | 0.30  | 1.04 | 1.40  | 1.32 | 0.57  | 2.01 | 1.64 | 2.35 | 2.35 | 1.04 | 0.85 | 1.11  | 2.97 | 2.24 | 3.69 | 3.69 | 3.69 | 3.69 |
| CFM PER RUN HEAT          | 35   | 29   | 15   | 54    | 35    | 45    | 8     | 27   | 37    | 35   | 15    | 53   | 43   | 62   | 62   | 27   | 17   | 29    | 78   | 59   | 97   | 97   | 97   | 97   |
| RM GAIN MBH               | 1.78 | 1.05 | 0.74 | 2.29  | 1.97  | 1.63  | 0.40  | 1.20 | 2.80  | 1.78 | 0.93  | 1.17 | 1.79 | 1.88 | 1.88 | 1.06 | 0.88 | 0.99  | 1.83 | 0.96 | 0.42 | 0.42 | 0.42 | 0.42 |
| CFM PER RUN COOLING       | 64   | 38   | 27   | 82    | 71    | 59    | 15    | 43   | 101   | 64   | 34    | 42   | 64   | 68   | 68   | 38   | 32   | 36    | 66   | 35   | 15   | 15   | 15   | 15   |
| ADJUSTED PRESSURE         | 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 | 0.17 | 0.17 | 0.17 | 0.17  | 0.17 | 0.17 | 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   | 38   | 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  | 158  | 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    | 4    | 4    | 4    | 5     | 5    | 6    | 6    | 6    | 6    | 6    |
| HEATING VELOCITY (ft/min) | 257  | 333  | 172  | 275   | 178   | 330   | 92    | 310  | 189   | 257  | 172   | 389  | 316  | 455  | 455  | 310  | 195  | 333   | 573  | 433  | 495  | 495  | 495  | 495  |
| COOLING VELOCITY (ft/min) | 470  | 436  | 310  | 418   | 362   | 433   | 172   | 493  | 515   | 470  | 390   | 308  | 470  | 499  | 499  | 436  | 367  | 413   | 485  | 257  | 76   | 76   | 76   | 76   |
| 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    | F    | D    | C    | 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               | 2.07  | 1.32  | 1.11 | 0.30  | 1.64 | 2.01 | 3.69 | 1.32  |
| CFM PER RUN HEAT          | 54    | 35    | 29   | 8     | 43   | 53   | 97   | 35    |
| RM GAIN MBH               | 2.29  | 1.97  | 1.05 | 0.40  | 1.79 | 1.17 | 0.42 | 1.97  |
| CFM PER RUN COOLING       | 82    | 71    | 38   | 15    | 84   | 42   | 15   | 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   | 178   | 333  | 92    | 316  | 389  | 495  | 178   |
| COOLING VELOCITY (ft/min) | 418   | 362   | 436  | 172   | 470  | 308  | 76   | 362   |
| OUTLET GRILL SIZE         | 4X10  | 4X10  | 3X10 | 3X10  | 3X10 | 4X10 | 4X10 | 4X10  |
| TRUNK                     | B     | A     | F    | B     | F    | A    | A    | A     |

| SUPPLY AIR TRUNK SIZE |        |       |      |          |   |          |       |         |       | RETURN AIR TRUNK SIZE |          |   |          |       |        |       |      |          |   |          |   |
|-----------------------|--------|-------|------|----------|---|----------|-------|---------|-------|-----------------------|----------|---|----------|-------|--------|-------|------|----------|---|----------|---|
| TRUNK                 | STATIC | ROUND | RECT | VELOCITY |   |          | TRUNK | STATIC  | ROUND | RECT                  | VELOCITY |   |          | TRUNK | STATIC | ROUND | RECT | VELOCITY |   |          |   |
| CFM                   | PRESS. | DUCT  | DUCT |          |   | (ft/min) | CFM   | PRESS.  | DUCT  | DUCT                  |          |   | (ft/min) | CFM   | PRESS. | DUCT  | DUCT |          |   | (ft/min) |   |
| TRUNK A               | 459    | 0.06  | 11.3 | 14       | x | 8        | 590   | TRUNK G | 0     | 0.00                  | 0        | 0 | x        | 8     | 0      | 0.05  | 0    | 0        | x | 8        | 0 |
| TRUNK B               | 619    | 0.06  | 12.6 | 18       | x | 8        | 619   | TRUNK H | 0     | 0.00                  | 0        | 0 | x        | 8     | 0      | 0.05  | 0    | 0        | x | 8        | 0 |
| TRUNK C               | 874    | 0.06  | 14.3 | 24       | x | 8        | 656   | TRUNK I | 0     | 0.00                  | 0        | 0 | x        | 8     | 0      | 0.05  | 0    | 0        | x | 8        | 0 |
| TRUNK D               | 291    | 0.10  | 8.4  | 8        | x | 8        | 655   | TRUNK J | 0     | 0.00                  | 0        | 0 | x        | 8     | 0      | 0.05  | 0    | 0        | x | 8        | 0 |
| TRUNK E               | 1165   | 0.06  | 16   | 30       | x | 8        | 699   | TRUNK K | 0     | 0.00                  | 0        | 0 | x        | 8     | 0      | 0.05  | 0    | 0        | x | 8        | 0 |
| TRUNK F               | 342    | 0.09  | 9.1  | 10       | x | 8        | 616   | TRUNK L | 0     | 0.00                  | 0        | 0 | x        | 8     | 0      | 0.05  | 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 LENGTH | 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 | 0.08 | 0.08 | 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       | 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 # 87672  
LOT 244

**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 |       | 9.32.3.6. |
|-----------------------------------|-------|-----------|
| Total Ventilation Capacity        | 233.2 | cfm       |
| Less Principal Ventil. Capacity   | 79.5  | cfm       |
| Required Supplemental Capacity    | 153.7 | cfm       |

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

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

| SUPPLEMENTAL FANS |             | PANASONIC |                                     |       |
|-------------------|-------------|-----------|-------------------------------------|-------|
| Location          | Model       | cfm       | HVI                                 | Sones |
| ENS               | FV-05-11VK1 | 50        | <input checked="" type="checkbox"/> | 0.3   |
| S-ENS             | FV-05-11VK1 | 50        | <input checked="" type="checkbox"/> | 0.3   |
| ENS-3             | FV-05-11VK1 | 50        | <input checked="" type="checkbox"/> | 0.3   |
| F-WIC             | FV-05-11VK1 | 50        | <input checked="" type="checkbox"/> | 0.3   |

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

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

| BUILDER: 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:                                                                                                         | September-20            |

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.6 OF THE BUILDING CODE.  
INDIVIDUAL BCIN: 19669 *Michael O'Rourke* MICHAEL O'ROURKE

**CSA F280-12 Residential Heat Loss and Heat Gain Calculations**
**Formula Sheet (For Air Leakage / Ventilation Calculation)**

LO#: 87572

Model: MOUNTAINASH 6

Builder: GREENPARK HOMES

Date: 11/09/2020

**Volume Calculation**

| House Volume |                  |                   |              |
|--------------|------------------|-------------------|--------------|
| Level        | Floor Area (ft²) | Floor Height (ft) | Volume (ft³) |
| Bsmt         | 1486             | 9                 | 13374        |
| First        | 1486             | 11                | 16346        |
| Second       | 1907             | 9                 | 17163        |
| Third        | 0                | 9                 | 0            |
| Fourth       | 0                | 9                 | 0            |
| Total:       |                  |                   | 46,883.0 ft³ |
| Total:       |                  |                   | 1327.6 m³    |

**Air Change & Delta T Data**

|                                |       |
|--------------------------------|-------|
| WINTER NATURAL AIR CHANGE RATE | 0.319 |
| SUMMER NATURAL AIR CHANGE RATE | 0.114 |

| Design Temperature Difference |        |         |       |       |
|-------------------------------|--------|---------|-------|-------|
|                               | Tin °C | Tout °C | ΔT °C | ΔT °F |
| Winter DTDh                   | 22     | -17     | 39    | 71    |
| Summer DTDc                   | 24     | 31      | 7     | 13    |

**5.2.3.1 Heat Loss due to Air Leakage**

$$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$$

$$0.319 \times 368.77 \times 39^\circ\text{C} \times 1.2 = 5540 \text{ W}$$

$$= 18904 \text{ Btu/h}$$

**6.2.6 Sensible Gain due to Air Leakage**

$$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$$

$$0.114 \times 368.77 \times 7^\circ\text{C} \times 1.2 = 360 \text{ W}$$

$$= 1227 \text{ Btu/h}$$

**5.2.3.2 Heat Loss due to Mechanical Ventilation**

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

$$80 \text{ CFM} \times 71^\circ\text{F} \times 1.08 \times 0.25 = 1515 \text{ Btu/h}$$

**6.2.7 Sensible heat Gain due to Ventilation**

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

$$80 \text{ CFM} \times 13^\circ\text{F} \times 1.08 \times 0.25 = 275 \text{ Btu/h}$$

**5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)**

$$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agcleve} + HL_{bgcleve})\}$$

| Level | Level Factor (LF) | HLairbv Air Leakage + Ventilation Heat Loss (Btu/h) | Level Conductive Heat Loss: (HL <sub>level</sub> ) | Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel) |
|-------|-------------------|-----------------------------------------------------|----------------------------------------------------|-----------------------------------------------------------|
| 1     | 0.5               | 18,904                                              | 9,020                                              | 1.048                                                     |
| 2     | 0.3               |                                                     | 13,673                                             | 0.415                                                     |
| 3     | 0.2               |                                                     | 14,812                                             | 0.255                                                     |
| 4     | 0                 |                                                     | 0                                                  | 0.000                                                     |
| 5     | 0                 |                                                     | 0                                                  | 0.000                                                     |

\*HLairbv = Air leakage heat loss + ventilation heat loss

\*For a balanced or supply only ventilation system HLairve = 0

**HEAT LOSS AND GAIN SUMMARY SHEET**

|                             |                  |                                     |
|-----------------------------|------------------|-------------------------------------|
| <b>MODEL:</b> MOUNTAINASH 6 | <b>LOT 244</b>   | <b>BUILDER:</b> GREENPARK HOMES     |
| <b>SFQT:</b> 3393           | <b>LO#</b> 87572 | <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>                 | 46883.0               | <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> 55.0 ft                     | <b>WIDTH:</b> 36.0 ft | <b>EXPOSED PERIMETER:</b>        | 159.0 ft |

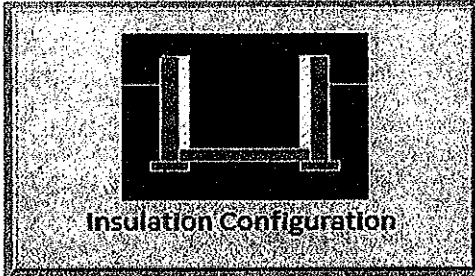
| 2012 OBC - COMPLIANCE PACKAGE                                              |  | Compliance Package |           |
|----------------------------------------------------------------------------|--|--------------------|-----------|
| Component                                                                  |  | 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

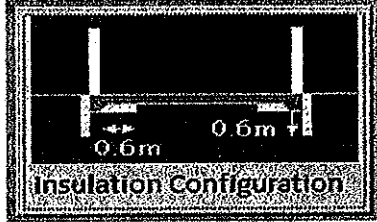
| Weather Station Description    |                                           |                                                                                                                 |
|--------------------------------|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| 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):              | 16.8                                      | <br>Insulation Configuration |
| Floor Width (m):               | 11.0                                      |                                                                                                                 |
| Exposed Perimeter (m):         | 48.5                                      |                                                                                                                 |
| Wall Height (m):               | 2.7                                       |                                                                                                                 |
| Depth Below Grade (m):         | 1.83                                      |                                                                                                                 |
| Window Area (m <sup>2</sup> ): | 1.7                                       |                                                                                                                 |
| 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):          | 1528                                      |                                                                                                                 |

TYPE: MOUNTAINASH 6  
LO# 87572

LOT 244

## 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):                  | 2.1                                       |  |
| Width (m):                   | 2.7                                       |                                                                                     |
| Exposed Perimeter (m):       | 7.0                                       |                                                                                     |
| Radiant Slab                 |                                           |                                                                                     |
| Heated Fraction of the Slab: | 0                                         |                                                                                     |
| Fluid Temperature (°C):      | 33                                        |                                                                                     |
| Design Months                |                                           |                                                                                     |
| Heating Month                | 1                                         |                                                                                     |
| Results                      |                                           |                                                                                     |
| Heating Load (Watts):        |                                           | 50                                                                                  |

TYPE: MOUNTAINASH 6  
LO# 87572

LOT 244

## Air Infiltration Residential Load Calculator

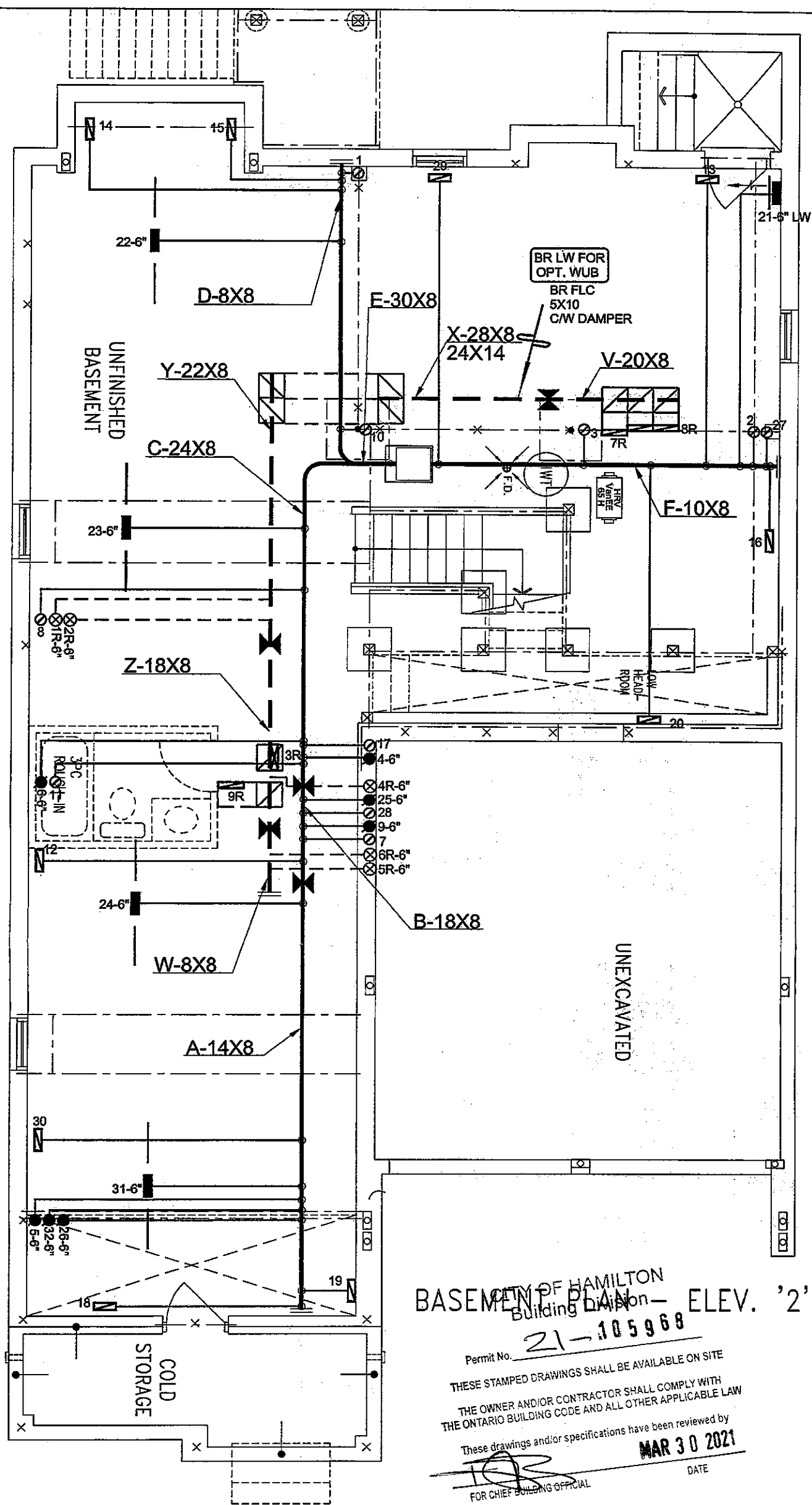
Supplemental tool for CAN/CSA-F280

| 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> ):   | 1327.6                     |                        |    |    |
| Air Leakage/Ventilation           |                            |                        |    |    |
| Air Tightness Type:               | Present (1961-) (3.57 ACH) |                        |    |    |
| Custom BDT Data:                  | ELA @ 10 Pa.               | 1769.7 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# 87572

LOT 244





CITY OF HAMILTON  
Building Division - ELEV. '2'  
Permit No. 21-105968  
THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE  
THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH  
THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW  
These drawings and/or specifications have been reviewed by  
FOR CHIEF BUILDING OFFICIAL  
DATE MAR 30 2021

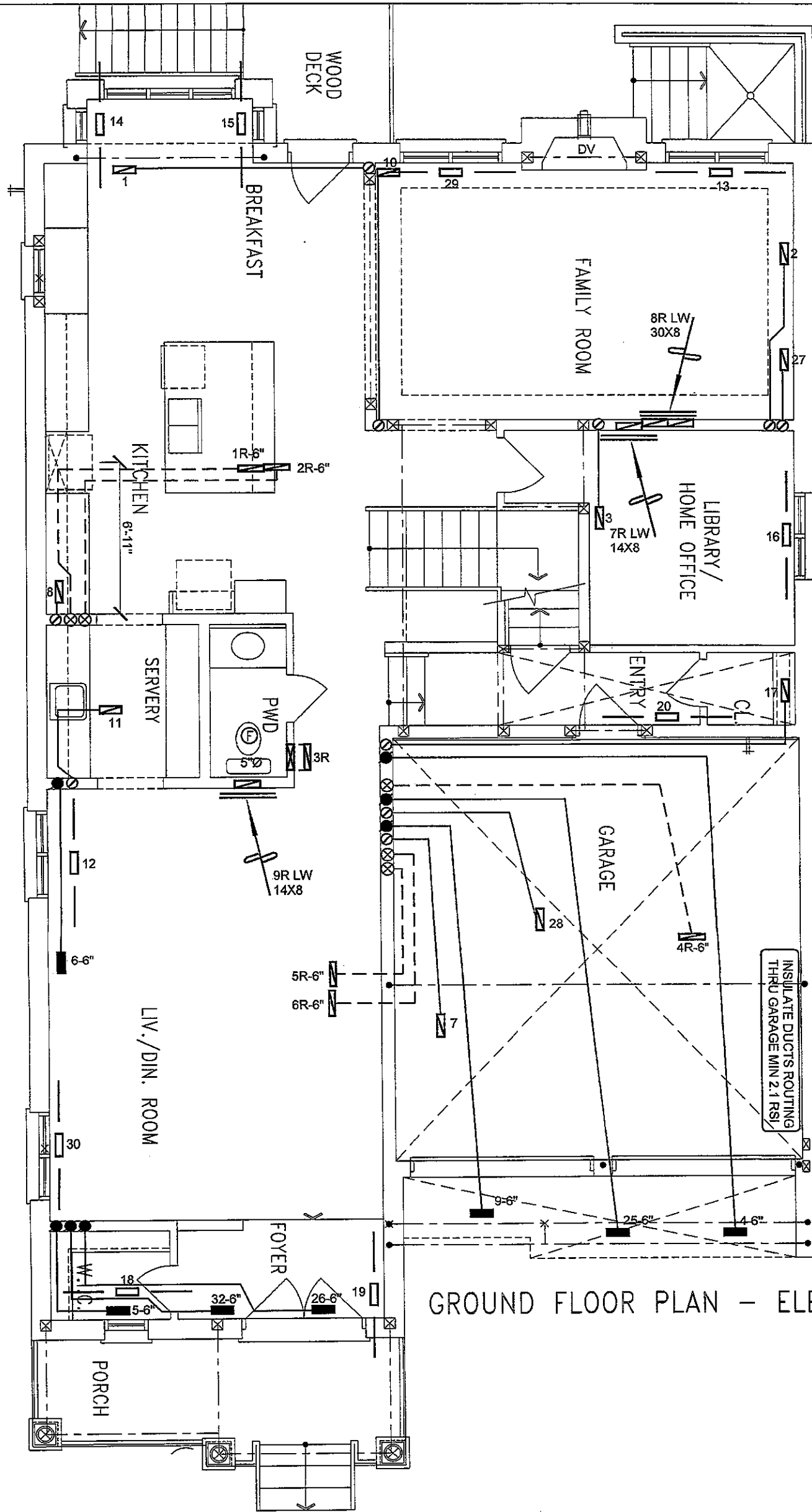
LOT 244  
WUB  
CSA-F280-12  
PACKAGE A1

I MICHAEL O'Rourke HAVE REVIEWED  
AND TAKE RESPONSIBILITY FOR THE  
DESIGN WORK AND AM QUALIFIED  
UNDER DIVISION C, 3.2.5 OF THE  
BUILDING CODE.  
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 |
|             | SUPPLY AIR BOOT ABOVE     |        | 6" SUPPLY AIR STACK 2nd FLOOR   |        | FRA- FLOOR RETURN AIR GRILLE |        | REDUCER                    | Date |             |

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|                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                          |                                                                                                                                                                                                                                              |                                                                                                                                   |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--|
| Client<br><b>GREENPARK HOMES</b><br>Project Name<br><b>RUSSEL GARDENS PHASE 3<br/>HAMILTON, ONTARIO</b><br><br><b>LOT 244<br/>MOUNTAINASH 6 3393 sqft</b> | <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@hvacdsgns.ca<br>Web: www.hvacdsgns.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.<br>Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed. | HEAT LOSS 58845 BTU/H<br>UNIT DATA<br>MAKE GOODMAN<br>MODEL GMEC960804CNA<br>INPUT 80 MBTU/H<br>OUTPUT 76.8 MBTU/H<br>COOLING 3.5 TONS<br>FAN SPEED 1504 cfm @ 0.6" w.c. | # OF RUNS S/A R/A FANS<br>3RD FLOOR<br>2ND FLOOR 17 6 4<br>1ST FLOOR 10 3 2<br>BASEMENT 5 1 0<br>ALL S/A DIFFUSERS 4"x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5" UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A | Sheet Title<br><b>BASEMENT<br/>HEATING<br/>LAYOUT</b><br>Date SEPT/2020<br>Scale 3/16" = 1'-0"<br>BCIN# 19669<br><b>LO# 87572</b> |  |
|                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                          |                                                                                                                                                                                                                                              | REVISIONS<br>No. Description Date                                                                                                 |  |



GROUND FLOOR PLAN - ELEV. '2'

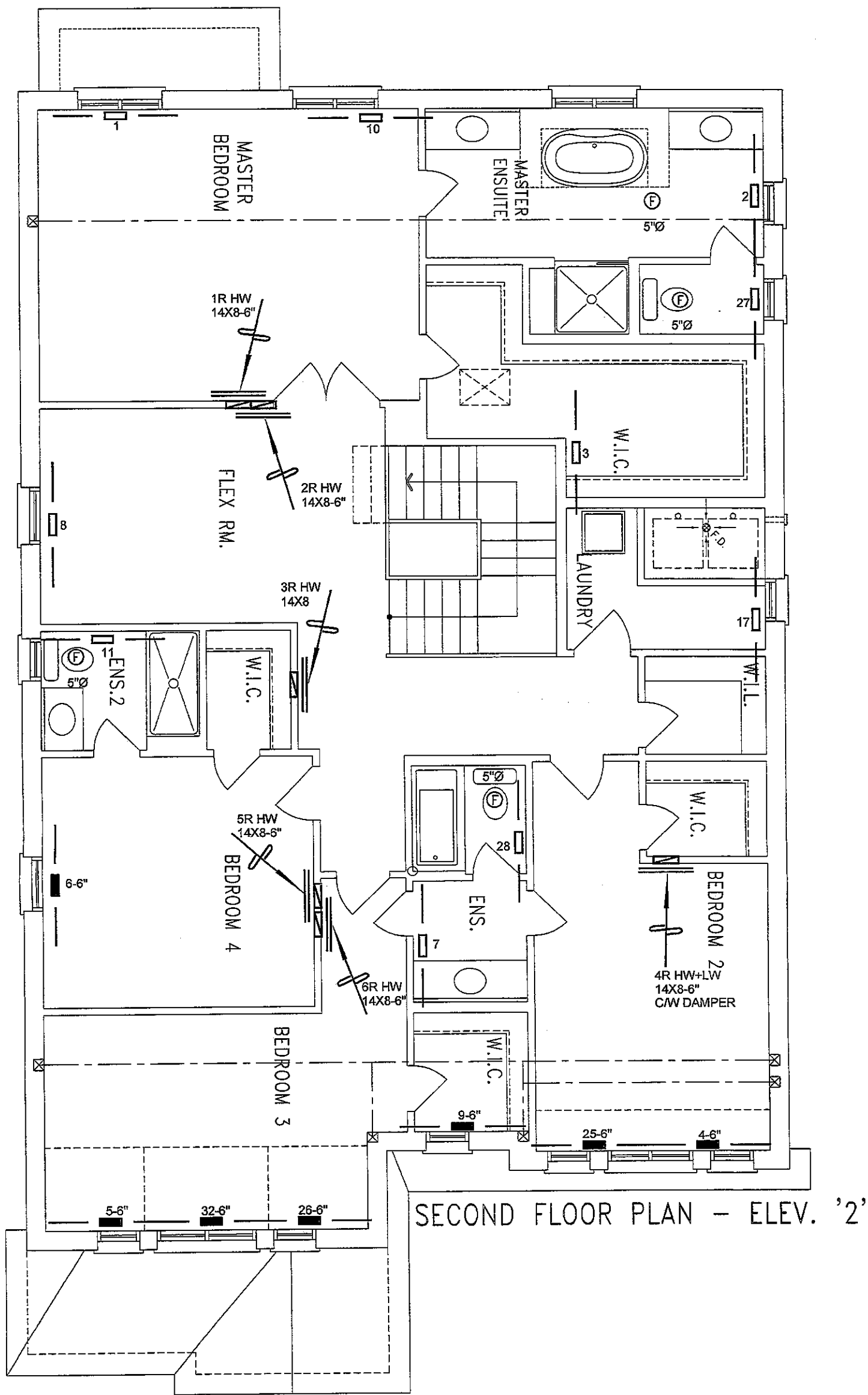
LOT 244  
WUB  
CSA-F280-12  
PACKAGE A1

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

| 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"x6" RETURN AIR GRILLE     |        | RETURN AIR STACK 2nd FLOOR |
|             | SUPPLY AIR BOOT ABOVE     |        | 6" SUPPLY AIR STACK 2nd FLOOR   |        | FRA- FLOOR RETURN AIR GRILLE |        | REDUCER                    |

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|                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                 |       |
|-------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|-------|
| Client<br>GREENPARK HOMES                                   |  | <div><p>375 Finley Ave. Suite 202 - Ajax, Ontario<br/>L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375<br/>Email: info@hvacdesigns.ca<br/>Web: www.hvacdesigns.ca<br/>Specializing in Residential Mechanical Design Services</p><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>FIRST FLOOR<br>HEATING<br>LAYOUT |       |
| Project Name<br>RUSSEL GARDENS PHASE 3<br>HAMILTON, ONTARIO |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Date<br>SEPT/2020                               |       |
| LOT 244<br>MOUNTAINASH 6 3393 sqft                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Scale<br>3/16" = 1'-0"                          |       |
|                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | BCIN# 19669                                     |       |
|                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | LO#                                             | 87572 |



SECOND FLOOR PLAN - ELEV. '2'

LOT 244  
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, 3.2.5 OF THE BUILDING CODE.  
*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

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

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Client  
GREENPARK HOMES

Project Name  
RUSSEL GARDENS PHASE 3  
HAMILTON, ONTARIO

LOT 244  
MOUNTAINASH 6 3393 sqft

**HVAC DESIGNS LTD.**

375 Finley Ave. Suite 202 - Ajax, Ontario  
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Specializing in Residential Mechanical Design Services

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

Sheet Title  
SECOND FLOOR  
HEATING  
LAYOUT

Date  
SEPT/2020

Scale  
3/16" = 1'-0"

BCIN# 19669

LO# 87572