

[illegible]

CONFIDENTIAL

INDIVIDUAL BCIN: 19669

MICHAEL D'ROURKE

SITE NAME: RUSSEL GARDENS  
BUILDER: GREENPARK HOMESWOB  
TYPE: HIGHGROVE SE  
furnace pressure 0.6  
furnace filter 0.05  
a/c coil pressure 0.2  
available pressure  
for s/a & r/a 0.35

GFA: 2284 LO# 75028

DATE: JUL-17

HEATING CFM 1131 COOLING CFM 1131  
TOTAL HEAT LOSS 43,410  
AIR FLOW RATE CFM 26.05#GOODMAN  
GMEC960603BNA 60  
FAN SPEED  
LOW  
MEDIUM  
HIGH

AFUE = 96 %

INPUT (BTU/H) = 60,000

OUTPUT (BTU/H) = 57,600

| RUN COUNT | 4th | 3rd | 2nd | 1st | Bas |
|-----------|-----|-----|-----|-----|-----|
| S/A       | 0   | 0   | 11  | 7   | 5   |
| R/A       | 0   | 0   | 4   | 2   | 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   | 12   | 13   | 14    | 15    | 16    | 17   | 18   | 19   | 21   | 22   | 23   | 24   |
|---------------------------|------|------|------|-------|-------|-------|------|-------|-------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|
| ROOM NAME                 | MBR  | ENS  | WIC  | BED-2 | BED-3 | BED-4 | BATH | BED-2 | BED-3 | MBR  | LVDN | LVDN | KT/FM | KT/FM | KT/FM | LAUN | PWD  | FOY  | BAS  | BAS  | BAS  | BAS  |
| RM LOSS MBH               | 0.99 | 1.60 | 0.49 | 1.09  | 1.95  | 1.55  | 0.63 | 1.09  | 1.95  | 0.99 | 3.11 | 3.11 | 1.95  | 1.95  | 1.95  | 0.66 | 0.74 | 1.82 | 3.16 | 3.16 | 3.16 | 3.16 |
| CFM PER RUN HEAT          | 26   | 42   | 13   | 29    | 51    | 40    | 16   | 29    | 51    | 26   | 81   | 81   | 51    | 51    | 51    | 17   | 19   | 47   | 82   | 82   | 82   | 82   |
| RM GAIN MBH               | 1.79 | 1.07 | 0.14 | 1.74  | 2.42  | 2.11  | 0.39 | 1.74  | 2.42  | 1.79 | 2.20 | 2.20 | 2.24  | 2.24  | 2.24  | 1.10 | 0.37 | 0.33 | 0.42 | 0.42 | 0.42 | 0.42 |
| CFM PER RUN COOLING       | 66   | 40   | 5    | 64    | 89    | 78    | 14   | 64    | 89    | 66   | 81   | 81   | 83    | 83    | 83    | 40   | 14   | 12   | 16   | 16   | 16   | 16   |
| ADJUSTED PRESSURE         | 0.17 | 0.17 | 0.17 | 0.17  | 0.16  | 0.17  | 0.17 | 0.17  | 0.16  | 0.17 | 0.16 | 0.16 | 0.16  | 0.16  | 0.16  | 0.17 | 0.17 | 0.17 | 0.16 | 0.16 | 0.16 | 0.16 |
| EQUIVALENT LENGTH         | 42   | 46   | 36   | 46    | 47    | 22    | 28   | 52    | 43    | 51   | 18   | 27   | 24    | 33    | 40    | 37   | 8    | 32   | 36   | 51   | 11   | 10   |
| TOTAL EFFECTIVE LENGTH    | 140  | 170  | 160  | 120   | 140   | 150   | 140  | 130   | 170   | 160  | 140  | 90   | 120   | 130   | 140   | 130  | 120  | 140  | 180  | 120  | 90   | 130  |
| ADJUSTED PRESSURE         | 0.09 | 0.08 | 0.09 | 0.1   | 0.09  | 0.1   | 0.1  | 0.09  | 0.08  | 0.08 | 0.1  | 0.14 | 0.11  | 0.1   | 0.09  | 0.1  | 0.13 | 0.1  | 0.08 | 0.09 | 0.16 | 0.12 |
| ROUND DUCT SIZE           | 5    | 4    | 4    | 5     | 6     | 5     | 5    | 5     | 6     | 5    | 5    | 5    | 5     | 5     | 5     | 4    | 4    | 4    | 5    | 5    | 5    | 5    |
| HEATING VELOCITY (ft/min) | 191  | 482  | 149  | 213   | 260   | 294   | 184  | 213   | 260   | 191  | 595  | 595  | 374   | 374   | 374   | 195  | 218  | 539  | 602  | 602  | 602  | 602  |
| COOLING VELOCITY (ft/min) | 485  | 459  | 57   | 470   | 454   | 573   | 161  | 470   | 454   | 485  | 595  | 595  | 609   | 609   | 609   | 459  | 161  | 138  | 117  | 117  | 117  | 117  |
| OUTLET GRILL SIZE         | 3X10 | 3X10 | 3X10 | 3X10  | 4X10  | 3X10  | 3X10 | 3X10  | 4X10  | 3X10 | 3X10 | 3X10 | 3X10  | 3X10  | 3X10  | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 |
| TRUNK                     | A    | A    | B    | D     | C     | B     | D    | D     | C     | A    | C    | C    | A     | A     | A     | D    | D    | C    | A    | B    | B    | D    |

|      |                           |      |
|------|---------------------------|------|
| 25   | ROOM NAME                 | BAS  |
| 3.16 | RM LOSS MBH               | 3.16 |
| 82   | CFM PER RUN HEAT          | 82   |
| 0.42 | RM GAIN MBH               | 0.42 |
| 0.16 | CFM PER RUN COOLING       | 0.16 |
| 21   | ADJUSTED PRESSURE         | 0.16 |
| 130  | EQUIVALENT LENGTH         | 130  |
| 151  | TOTAL EFFECTIVE LENGTH    | 151  |
| 0.11 | ADJUSTED PRESSURE         | 0.11 |
| 5    | ROUND DUCT SIZE           | 5    |
| 602  | HEATING VELOCITY (ft/min) | 602  |
| 117  | COOLING VELOCITY (ft/min) | 117  |
| 3X10 | OUTLET GRILL SIZE         | 3X10 |
| C    | TRUNK                     | C    |

| SUPPLY AIR TRUNK SIZE | TRUNK | STATIC PRESS. | ROUND DUCT | RECT DUCT | VELOCITY (ft/min) | TRUNK CFM | STATIC PRESS. | ROUND DUCT | RECT DUCT | VELOCITY (ft/min) | RETURN AIR TRUNK SIZE | TRUNK CFM | STATIC PRESS. | ROUND DUCT | RECT DUCT | VELOCITY (ft/min) |
|-----------------------|-------|---------------|------------|-----------|-------------------|-----------|---------------|------------|-----------|-------------------|-----------------------|-----------|---------------|------------|-----------|-------------------|
| TRUNK A               | 329   | 0.08          | 9.2        | 10        | 8                 | 0         | 0.00          | 0          | 0         | 0                 | TRUNK O               | 0         | 0.06          | 0          | 0         | 8                 |
| TRUNK B               | 546   | 0.08          | 11.2       | 14        | 8                 | 0         | 0.00          | 0          | 0         | 0                 | TRUNK P               | 0         | 0.06          | 0          | 0         | 8                 |
| TRUNK C               | 393   | 0.08          | 9.9        | 12        | 8                 | 0         | 0.00          | 0          | 0         | 0                 | TRUNK Q               | 0         | 0.06          | 0          | 0         | 8                 |
| TRUNK D               | 585   | 0.08          | 11.5       | 16        | 8                 | 0         | 0.00          | 0          | 0         | 0                 | TRUNK R               | 0         | 0.06          | 0          | 0         | 8                 |
| TRUNK E               | 0     | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 0                 | TRUNK S               | 0         | 0.06          | 0          | 0         | 8                 |
| TRUNK F               | 0     | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 0                 | TRUNK T               | 0         | 0.06          | 0          | 0         | 8                 |
| TRUNK G               | 0     | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 0                 | TRUNK U               | 0         | 0.06          | 0          | 0         | 8                 |
| TRUNK H               | 0     | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 0                 | TRUNK V               | 0         | 0.06          | 0          | 0         | 8                 |
| TRUNK I               | 0     | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 0                 | TRUNK W               | 0         | 0.06          | 0          | 0         | 8                 |
| TRUNK J               | 0     | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 0                 | TRUNK X               | 1131      | 0.06          | 15.8       | 30        | 8                 |
| TRUNK K               | 0     | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 0                 | TRUNK Y               | 350       | 0.06          | 10.2       | 12        | 8                 |
| TRUNK L               | 0     | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 0                 | TRUNK Z               | 0         | 0.06          | 0          | 0         | 8                 |
| TRUNK M               | 0     | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 0                 | DROP                  | 1131      | 0.06          | 15.8       | 24        | 10                |
| TRUNK N               | 0     | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 0                 |                       |           |               |            |           |                   |
| TRUNK O               | 0     | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 0                 |                       |           |               |            |           |                   |
| TRUNK P               | 0     | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 0                 |                       |           |               |            |           |                   |
| TRUNK Q               | 0     | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 0                 |                       |           |               |            |           |                   |
| TRUNK R               | 0     | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 0                 |                       |           |               |            |           |                   |
| TRUNK S               | 0     | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 0                 |                       |           |               |            |           |                   |
| TRUNK T               | 0     | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 0                 |                       |           |               |            |           |                   |
| TRUNK U               | 0     | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 0                 |                       |           |               |            |           |                   |
| TRUNK V               | 0     | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 0                 |                       |           |               |            |           |                   |
| TRUNK W               | 0     | 0.00          | 0          | 0         | 8                 | 0         | 0.00          | 0          | 0         | 0                 |                       |           |               |            |           |                   |
| TRUNK X               | 1131  | 0.06          | 15.8       | 30        | 8                 | 679       | 0.06          | 15.8       | 30        | 8                 | 679                   | 0.06      | 15.8          | 30         | 8         | 679               |
| TRUNK Y               | 350   | 0.06          | 10.2       | 12        | 8                 | 525       | 0.06          | 10.2       | 12        | 8                 | 525                   | 0.06      | 10.2          | 12         | 8         | 525               |
| TRUNK Z               | 0     | 0.06          | 0          | 0         | 8                 | 0         | 0.06          | 0          | 0         | 8                 | 0                     | 0.06      | 0             | 0          | 8         | 0                 |
| DROP                  | 1131  | 0.06          | 15.8       | 24        | 10                | 679       | 0.06          | 15.8       | 24        | 10                | 679                   | 0.06      | 15.8          | 24         | 10        | 679               |

Michael O'Rourke

TYPE: HIGHGROVE SE  
SITE NAME: RUSSEL GARDENS

LO # 75028  
WOB

**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        | 4 @ 10.6 cfm | 42.4 cfm    |
| Other Rooms                | 4 @ 10.6 cfm | 42.4 cfm    |
| Table 9.32.3.A.            | TOTAL        | 159.0 cfm   |

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

| SUPPLEMENTAL VENTILATION CAPACITY |      | 9.32.3.5. |
|-----------------------------------|------|-----------|
| Total Ventilation Capacity        | 159  | cfm       |
| Less Principal Ventil. Capacity   | 139  | cfm       |
| Required Supplemental Capacity    | 20.0 | cfm       |

| PRINCIPAL EXHAUST FAN CAPACITY |                                                            |
|--------------------------------|------------------------------------------------------------|
| Model: VANEE 60H-V+            | Location: BSMT                                             |
| 139.0 cfm                      | 3.0 sones <input checked="" type="checkbox"/> HVI Approved |

| PRINCIPAL EXHAUST HEAT LOSS CALCULATION |               |        |        |      |
|-----------------------------------------|---------------|--------|--------|------|
| CFM                                     | $\Delta T$ °F | FACTOR | % LOSS |      |
| 139.0 CFM                               | X 71 F        | X 1.08 | X      | 0.25 |

| SUPPLEMENTAL FANS |           | NUTONE |                                     |       |
|-------------------|-----------|--------|-------------------------------------|-------|
| Location          | Model     | cfm    | HVI                                 | Sones |
| ENS               | QTXEN050C | 50     | <input checked="" type="checkbox"/> | 0.3   |
| BATH              | QTXEN050C | 50     | <input checked="" type="checkbox"/> | 0.3   |
| PWD               | QTXEN050C | 50     | <input checked="" type="checkbox"/> | 0.3   |

| HEAT RECOVERY VENTILATOR |                                                  | 9.32.3.11. |
|--------------------------|--------------------------------------------------|------------|
| Model: VANEE 60H-V+      |                                                  |            |
| 139 cfm high             | 50 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:                                                                                                         | July-17                 |

**HEAT LOSS AND GAIN SUMMARY SHEET**

|               |              |            |                 |                 |
|---------------|--------------|------------|-----------------|-----------------|
| <b>MODEL:</b> | HIGHGROVE 5E | <b>WOB</b> | <b>BUILDER:</b> | GREENPARK HOMES |
| <b>SFQT:</b>  | 2264         | <b>LO#</b> | <b>SITE:</b>    | RUSSEL GARDENS  |

**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) | 73        |

**BUILDING DATA**

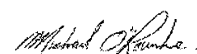
|                                              |                 |                                  |         |
|----------------------------------------------|-----------------|----------------------------------|---------|
| <b>ATTACHMENT:</b>                           | ATTACHED        | <b># OF STORIES (+BASEMENT):</b> | 3       |
| <b>FRONT FACES:</b>                          | EAST            | <b>ASSUMED (Y/N):</b>            | Y       |
| <b>AIR CHANGES PER HOUR:</b>                 | 4.55            | <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>                   | 30676.0         | <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>   | 1.27            | <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> 52.0 ft <b>WIDTH:</b> 26.0 ft |                 | <b>EXPOSED PERIMETER:</b>        | 95.0 ft |
| <b>WOB INSULATION CONFIGURATION</b>          | SCB_9           | <b>WOB EXPOSED PERIMETER</b>     | 36.0 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   | -     |

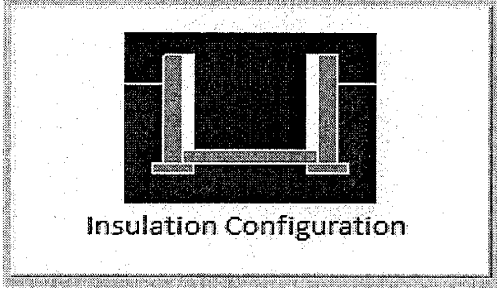
INDIVIDUAL BCIN: 19669

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):              | 6.1                                       | <br>Insulation Configuration |
| Floor Width (m):               | 7.9                                       |                                                                                                                 |
| Exposed Perimeter (m):         | 29.0                                      |                                                                                                                 |
| Wall Height (m):               | 2.7                                       |                                                                                                                 |
| Depth Below Grade (m):         | 1.55                                      |                                                                                                                 |
| Window Area (m <sup>2</sup> ): | 0.7                                       |                                                                                                                 |
| Door Area (m <sup>2</sup> ):   | 1.9                                       |                                                                                                                 |
| Radiant Slab                   |                                           |                                                                                                                 |
| Heated Fraction of the Slab:   | 0                                         |                                                                                                                 |
| Fluid Temperature (°C):        | 33                                        |                                                                                                                 |
| Design Months                  |                                           |                                                                                                                 |
| Heating Month                  | 1                                         |                                                                                                                 |
| Foundation Loads               |                                           |                                                                                                                 |
| Heating Load (Watts):          |                                           | 538                                                                                                             |

TYPE: HIGHGROVE 5E  
LO# 75028

WOB

# 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):       | 8.53                           |                        |    |    |
| Building Configuration            |                                |                        |    |    |
| Type:                             | Semi                           |                        |    |    |
| Number of Stories:                | Two                            |                        |    |    |
| Foundation:                       | Full                           |                        |    |    |
| House Volume (m <sup>3</sup> ):   | 868.6                          |                        |    |    |
| Air Leakage/Ventilation           |                                |                        |    |    |
| Air Tightness Type:               | Average (1946-1960) (4.55 ACH) |                        |    |    |
| Custom BDT Data:                  | ELA @ 10 Pa.                   | 1475.8 cm <sup>2</sup> |    |    |
|                                   | 4.55                           | ACH @ 50 Pa            |    |    |
| Mechanical Ventilation (L/s):     | Total Supply                   | Total Exhaust          |    |    |
|                                   | 65.6                           | 65.6                   |    |    |
| Flue Size                         |                                |                        |    |    |
| Flue #:                           | #1                             | #2                     | #3 | #4 |
| Diameter (mm):                    | 0                              | 0                      | 0  | 0  |
| Natural Infiltration Rates        |                                |                        |    |    |
| Heating Air Leakage Rate (ACH/H): | 0.482                          |                        |    |    |
| Cooling Air Leakage Rate (ACH/H): | 0.175                          |                        |    |    |

TYPE: HIGHGROVE 5E  
LO# 75028

WOB

A-10X8

B-14X8

X-30X8  
24X10

D-16X8

Y-12X8

C-12X8

UNFINISHED  
BASEMENT

UNEXCAVATED

COLD  
CELLAR

BASEMENT PLAN

WOB  
CSA-F280-12  
PACKAGE A1

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

| HVAC LEGEND                                                                       |                           |                                                                                     |                                 |                                                                                     |                              |                                                                                       | 3.                         |     |             |
|-----------------------------------------------------------------------------------|---------------------------|-------------------------------------------------------------------------------------|---------------------------------|-------------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------|----------------------------|-----|-------------|
| SYMBOL                                                                            | DESCRIPTION               | SYMBOL                                                                              | 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        |
|                                                                                   |                           |                                                                                     |                                 |                                                                                     |                              |                                                                                       | REVISIONS                  |     |             |

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|                                                                                          |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                    |                                                                                                                                                             |                        |  |                               |             |  |
|------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--|-------------------------------|-------------|--|
| Client<br>GREENPARK HOMES                                                                |             | <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> <div>Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.</div> | HEAT LOSS 46060 BTU/H<br>UNIT DATA |                                                                                                                                                             | # OF RUNS S/A R/A FANS |  |                               | Sheet Title |  |
| Project Name<br>RUSSEL GARDENS<br>HAMILTON, ONTARIO<br><br>WOB<br>HIGHGROVE 5E 2264 sqft |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | MAKE<br>GOODMAN                    | 3RD FLOOR                                                                                                                                                   |                        |  | BASEMENT<br>HEATING<br>LAYOUT |             |  |
|                                                                                          |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | MODEL<br>GMEC960603BNA             | 2ND FLOOR 11 4 3                                                                                                                                            |                        |  |                               |             |  |
|                                                                                          |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | INPUT<br>60 MBTU/H                 | 1ST FLOOR 7 2 2                                                                                                                                             |                        |  |                               |             |  |
|                                                                                          |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | OUTPUT<br>57.6 MBTU/H              | BASEMENT 5 1 0                                                                                                                                              |                        |  | Date<br>JULY/2017             |             |  |
|                                                                                          |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | COOLING<br>2.5 TONS                | ALL S/A DIFFUSERS 4"x10"<br>UNLESS NOTED OTHERWISE<br>ON LAYOUT. ALL S/A RUNS 5"Ø<br>UNLESS NOTED OTHERWISE<br>ON LAYOUT. UNDERCUT<br>DOORS 1" min. FOR R/A |                        |  | Scale<br>3/16" = 1'-0"        |             |  |
| FAN SPEED<br>1131 cfm @ 0.6" w.c.                                                        | BCIN# 19669 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                    |                                                                                                                                                             |                        |  |                               |             |  |
|                                                                                          |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                    |                                                                                                                                                             | LO# 75028              |  |                               |             |  |

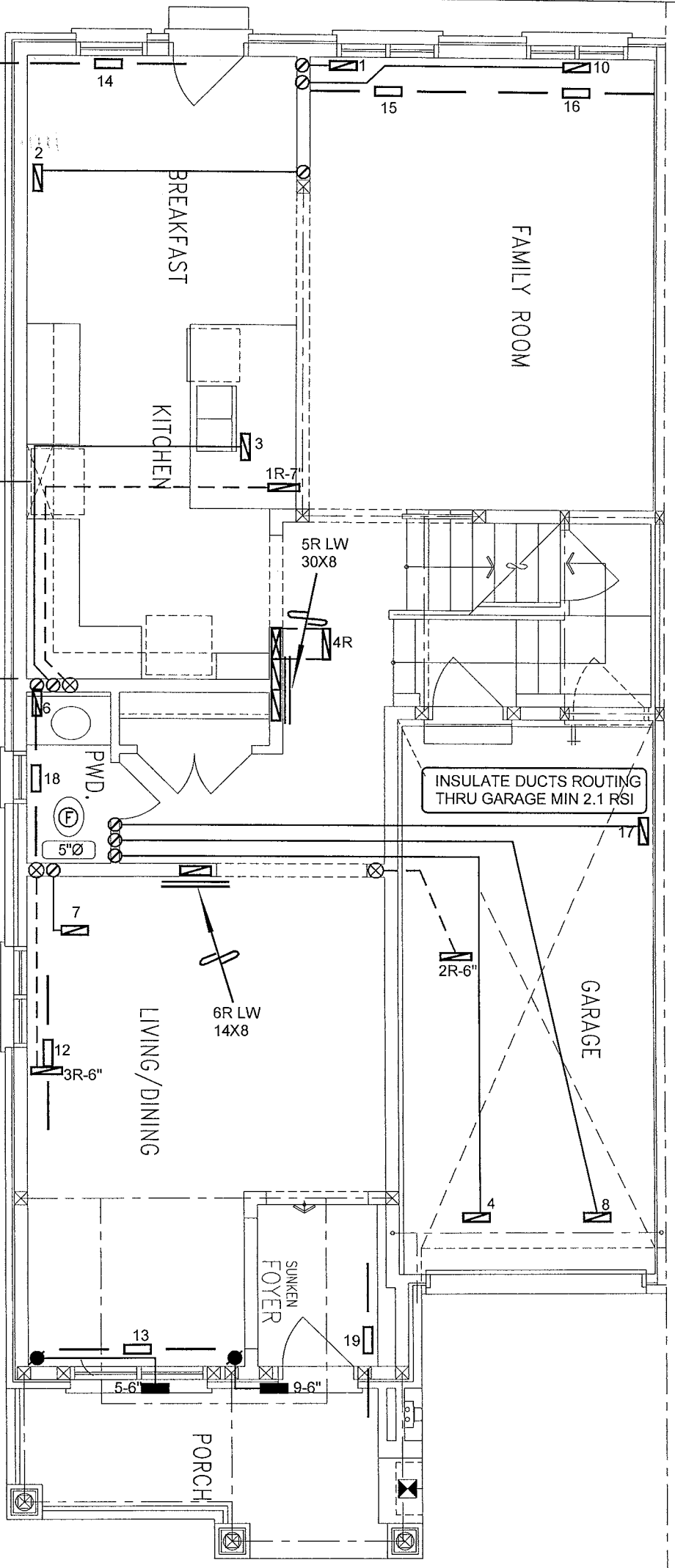
GROUND FLOOR PLAN ELEV. '3B' - B202-UNIT 7

GROUND FLOOR PLAN ELEV. '3A' - B211-UNIT6/B212-UNIT1

GROUND FLOOR PLAN ELEV. '3'

GROUND FLOOR PLAN ELEV. '2'

"6'-7"



GROUND FLOOR PLAN ELEV. '1'

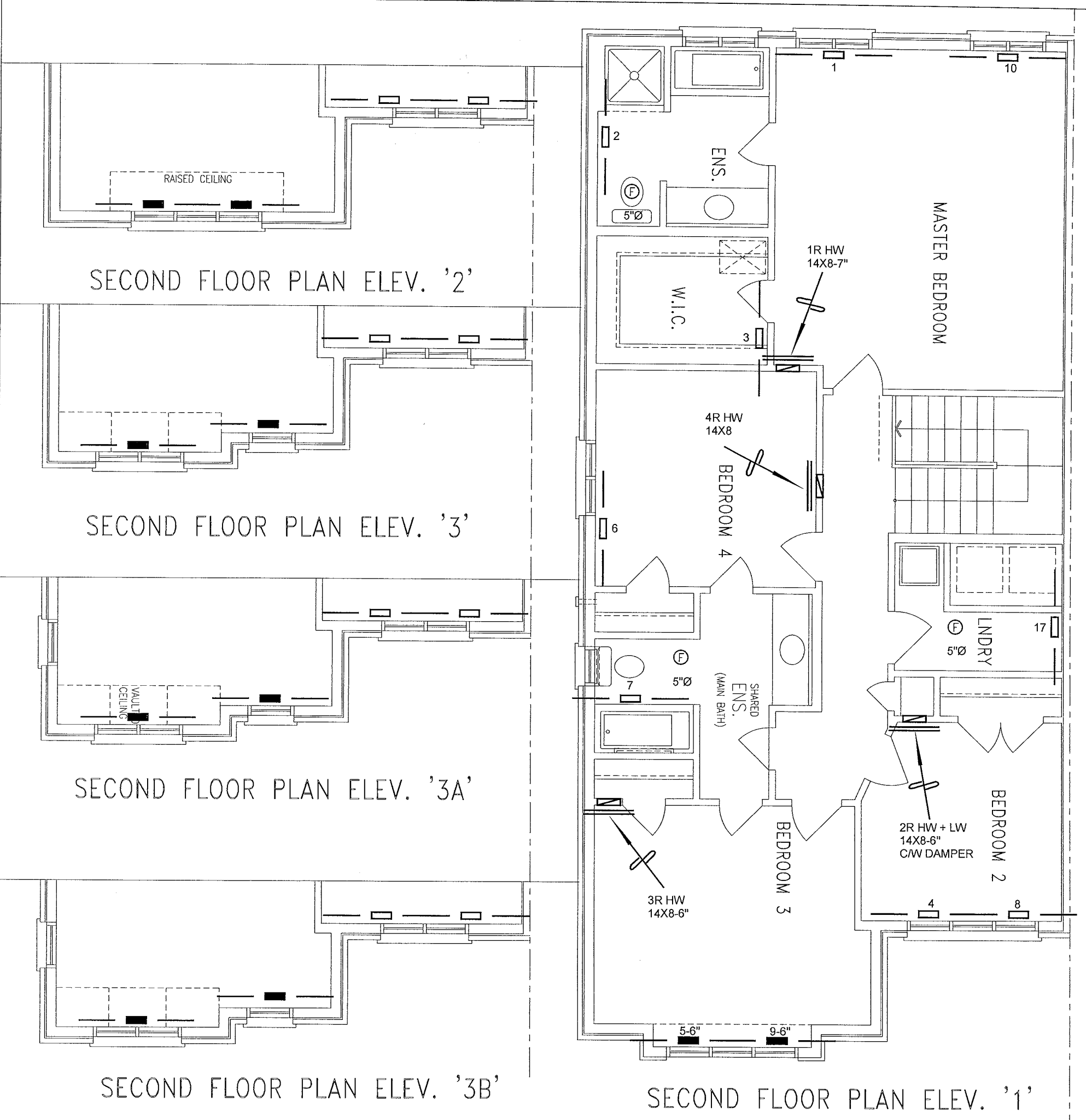
WOB  
CSA-F280-12  
PACKAGE A1

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

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|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                  |               |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------|
| Client                              | <div><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                      |               |
| GREENPARK HOMES                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | FIRST FLOOR<br>HEATING<br>LAYOUT |               |
| Project Name                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Date                             | JULY/2017     |
| RUSSEL GARDENS<br>HAMILTON, ONTARIO |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Scale                            | 3/16" = 1'-0" |
|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | BCIN# 19669                      |               |
| WOB<br>HIGHGROVE 5E      2264 sqft  | LO#                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 75028                            |               |



I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.3 OF THE BUILDING CODE.  
*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

**WOB**  
**CSA-F280-12**  
**PACKAGE A1**

| HVAC LEGEND |                           |        |                                 |        |                              |        |                            | 3.        |             |      |
|-------------|---------------------------|--------|---------------------------------|--------|------------------------------|--------|----------------------------|-----------|-------------|------|
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|                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                           |       |
|-------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-------|
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| Project Name<br><b>RUSSEL GARDENS<br/>HAMILTON, ONTARIO</b> |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Date<br>JULY/2017                                         |       |
| WOB                                                         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Scale<br>3/16" = 1'-0"                                    |       |
| HIGHGROVE 5E 2264 sqft                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | BCIN# 19669                                               |       |
|                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | LO#                                                       | 75028 |