

## Schedule 1: Designer Information

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

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                              |                                |                                                                                                               |                 |          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------|----------|
| <b>A. Project Information</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                              |                                |                                                                                                               |                 |          |
| Building number, street name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                                |                                                                                                               | Unit no.        | Lot/con. |
| Municipality<br>BRAMPTON                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Postal code                  | Plan number/ other description |                                                                                                               |                 |          |
| <b>B. Individual who reviews and takes responsibility for design activities</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                              |                                |                                                                                                               |                 |          |
| Name<br>MICHAEL O'ROURKE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                              | Firm<br>HVAC DESIGNS LTD.      |                                                                                                               |                 |          |
| Street address<br>375 FINLEY AVE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                              |                                | Unit no.<br>202                                                                                               | Lot/con.<br>N/A |          |
| Municipality<br>AJAX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Postal code<br>L1S 2E2       | Province<br>ONTARIO            | E-mail<br>info@hvacdsgns.ca                                                                                   |                 |          |
| Telephone number<br>(905) 619-2300                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Fax number<br>(905) 619-2375 | Cell number<br>( )             |                                                                                                               |                 |          |
| <b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                              |                                |                                                                                                               |                 |          |
| <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <input type="checkbox"/> House<br/> <input type="checkbox"/> Small Buildings<br/> <input type="checkbox"/> Large Buildings<br/> <input type="checkbox"/> Complex Buildings             </div> <div style="width: 30%;"> <input checked="" type="checkbox"/> HVAC – House<br/> <input type="checkbox"/> Building Services<br/> <input type="checkbox"/> Detection, Lighting and Power<br/> <input type="checkbox"/> Fire Protection             </div> <div style="width: 30%;"> <input type="checkbox"/> Building Structural<br/> <input type="checkbox"/> Plumbing – House<br/> <input type="checkbox"/> Plumbing – All Buildings<br/> <input type="checkbox"/> On-site Sewage Systems             </div> </div> |                              |                                |                                                                                                               |                 |          |
| Description of designer's work<br>HEAT LOSS / GAIN CALCULATIONS<br>DUCT SIZING<br>RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY<br>RESIDENTIAL SYSTEM DESIGN per CSA-F280-12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                              |                                | <b>Model:</b> AMELIA 3<br><br>ALT 2ND<br><br><b>Project:</b> GRANELLI HOME CORP                               |                 |          |
| <b>D. Declaration of Designer</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                                |                                                                                                               |                 |          |
| I <u>MICHAEL O'ROURKE</u> declare that (choose one as appropriate):<br>(print name)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                              |                                |                                                                                                               |                 |          |
| <input type="checkbox"/> I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.<br><br>Individual BCIN: _____<br>Firm BCIN: _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                              |                                |                                                                                                               |                 |          |
| <input checked="" type="checkbox"/> I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code.<br><br>Individual BCIN: <u>19669</u><br>Basis for exemption from registration and qualification: <u>O.B.C SENTENCE 3.2.4.1 (4)</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                              |                                |                                                                                                               |                 |          |
| <input type="checkbox"/> The design work is exempt from the registration and qualification requirements of the Building Code.<br>Basis for exemption from registration and qualification: _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                              |                                |                                                                                                               |                 |          |
| I certify that:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                              |                                |                                                                                                               |                 |          |
| 1. The information contained in this schedule is true to the best of my knowledge.<br>2. I have submitted this application with the knowledge and consent of the firm.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                              |                                |                                                                                                               |                 |          |
| June 20, 2018                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                              |                                | <br>Signature of Designer |                 |          |
| Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                              |                                |                                                                                                               |                 |          |

**NOTE:**

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

**Application for a Permit Construct or Demolish – Effective January 1, 2015**

| SITE NAME: GRANELL HOME CORP   |  |  |  | ALT 2ND        |  | DATE: Jun-19 |  | WINTER NATURAL AIR CHANGE RATE |  | HEAT LOSS AT °F |  | CSA-F280-12      |  |
|--------------------------------|--|--|--|----------------|--|--------------|--|--------------------------------|--|-----------------|--|------------------|--|
| BUILDER: GREENYORK HOMES       |  |  |  | TYPE: AMELIA 3 |  | LOW# 78890   |  | SUMMER NATURAL AIR CHANGE RATE |  | HEAT GAIN AT °F |  | SB-12 PACKAGE A1 |  |
| ROOM USE                       |  |  |  | GFA: 2970      |  | LO# 78890    |  | ENS-2                          |  | ENS-3           |  | BED-5            |  |
| EXP. WALL                      |  |  |  | BED-2          |  | BED-3        |  | FOY                            |  | MUD             |  | WUB              |  |
| CLG. HT.                       |  |  |  | WIC            |  | LAUN         |  | WIR                            |  | FOY             |  | WUB              |  |
| GRS.WALL AREA                  |  |  |  | ENS            |  | LIB          |  | KT/BR                          |  | LIB             |  | KT/BR            |  |
| GLAZING                        |  |  |  | LOSS GAIN      |  | LOSS GAIN    |  | LOSS GAIN                      |  | LOSS GAIN       |  | LOSS GAIN        |  |
| NORTH                          |  |  |  | 24             |  | 23           |  | 40                             |  | 23              |  | 17               |  |
| EAST                           |  |  |  | 9              |  | 11           |  | 11                             |  | 11              |  | 9                |  |
| SOUTH                          |  |  |  | 216            |  | 253          |  | 479                            |  | 440             |  | 163              |  |
| WEST                           |  |  |  | LOSS GAIN      |  | LOSS GAIN    |  | LOSS GAIN                      |  | LOSS GAIN       |  | LOSS GAIN        |  |
| SKYLT.                         |  |  |  | 37             |  | 38           |  | 38                             |  | 38              |  | 38               |  |
| DOORS                          |  |  |  | 9              |  | 9            |  | 9                              |  | 9               |  | 9                |  |
| NET EXPOSED WALL               |  |  |  | 333            |  | 333          |  | 333                            |  | 333             |  | 333              |  |
| NET EXPOSED BSMT WALL ABOVE GR |  |  |  | 303            |  | 303          |  | 303                            |  | 303             |  | 303              |  |
| EXPOSED CLG                    |  |  |  | 4.4            |  | 4.4          |  | 4.4                            |  | 4.4             |  | 4.4              |  |
| NO ATTIC EXPOSED CLG           |  |  |  | 0.8            |  | 0.8          |  | 0.8                            |  | 0.8             |  | 0.8              |  |
| EXPOSED FLOOR                  |  |  |  | 303            |  | 303          |  | 303                            |  | 303             |  | 303              |  |
| BASEMENT/CRAWL HEAT LOSS       |  |  |  | 1320           |  | 1320         |  | 1320                           |  | 1320            |  | 1320             |  |
| SLAB ON GRADE HEAT LOSS        |  |  |  | 249            |  | 249          |  | 249                            |  | 249             |  | 249              |  |
| SUBTOTAL HT LOSS               |  |  |  | 1668           |  | 1668         |  | 1668                           |  | 1668            |  | 1668             |  |
| LEVEL FACTOR / MULTIPLE        |  |  |  | 0.20           |  | 0.20         |  | 0.20                           |  | 0.20            |  | 0.20             |  |
| AIR CHANGE HEAT LOSS           |  |  |  | 611            |  | 611          |  | 611                            |  | 611             |  | 611              |  |
| AIR CHANGE HEAT GAIN           |  |  |  | 143            |  | 143          |  | 143                            |  | 143             |  | 143              |  |
| DUCT LOSS                      |  |  |  | 0              |  | 0            |  | 0                              |  | 0               |  | 0                |  |
| DUCT GAIN                      |  |  |  | 0              |  | 0            |  | 0                              |  | 0               |  | 0                |  |
| HEAT GAIN PEOPLE               |  |  |  | 240            |  | 240          |  | 240                            |  | 240             |  | 240              |  |
| HEAT GAIN APPLIANCES/LIGHTS    |  |  |  | 590            |  | 590          |  | 590                            |  | 590             |  | 590              |  |
| TOTAL HT LOSS BTU/H            |  |  |  | 2889           |  | 2889         |  | 2889                           |  | 2889            |  | 2889             |  |
| TOTAL HT GAIN x 1.3 BTU/H      |  |  |  | 3745           |  | 3745         |  | 3745                           |  | 3745            |  | 3745             |  |
| ROOM USE                       |  |  |  | LIB            |  | LIB          |  | LIB                            |  | LIB             |  | LIB              |  |
| EXP. WALL                      |  |  |  | 23             |  | 23           |  | 23                             |  | 23              |  | 23               |  |
| CLG. HT.                       |  |  |  | 11             |  | 11           |  | 11                             |  | 11              |  | 11               |  |
| GRS.WALL AREA                  |  |  |  | 187            |  | 187          |  | 187                            |  | 187             |  | 187              |  |
| GLAZING                        |  |  |  | LOSS GAIN      |  | LOSS GAIN    |  | LOSS GAIN                      |  | LOSS GAIN       |  | LOSS GAIN        |  |
| NORTH                          |  |  |  | 20.8           |  | 20.8         |  | 20.8                           |  | 20.8            |  | 20.8             |  |
| EAST                           |  |  |  | 20.8           |  | 20.8         |  | 20.8                           |  | 20.8            |  | 20.8             |  |
| SOUTH                          |  |  |  | 20.8           |  | 20.8         |  | 20.8                           |  | 20.8            |  | 20.8             |  |
| WEST                           |  |  |  | 20.8           |  | 20.8         |  | 20.8                           |  | 20.8            |  | 20.8             |  |
| SKYLT.                         |  |  |  | 36.4           |  | 36.4         |  | 36.4                           |  | 36.4            |  | 36.4             |  |
| DOORS                          |  |  |  | 24.7           |  | 24.7         |  | 24.7                           |  | 24.7            |  | 24.7             |  |
| NET EXPOSED WALL               |  |  |  | 4.4            |  | 4.4          |  | 4.4                            |  | 4.4             |  | 4.4              |  |
| NET EXPOSED BSMT WALL ABOVE GR |  |  |  | 3.6            |  | 3.6          |  | 3.6                            |  | 3.6             |  | 3.6              |  |
| EXPOSED CLG                    |  |  |  | 1.3            |  | 1.3          |  | 1.3                            |  | 1.3             |  | 1.3              |  |
| NO ATTIC EXPOSED CLG           |  |  |  | 2.7            |  | 2.7          |  | 2.7                            |  | 2.7             |  | 2.7              |  |
| EXPOSED FLOOR                  |  |  |  | 2.5            |  | 2.5          |  | 2.5                            |  | 2.5             |  | 2.5              |  |
| BASEMENT/CRAWL HEAT LOSS       |  |  |  | 1439           |  | 1439         |  | 1439                           |  | 1439            |  | 1439             |  |
| SLAB ON GRADE HEAT LOSS        |  |  |  | 742            |  | 742          |  | 742                            |  | 742             |  | 742              |  |
| SUBTOTAL HT LOSS               |  |  |  | 1439           |  | 1439         |  | 1439                           |  | 1439            |  | 1439             |  |
| LEVEL FACTOR / MULTIPLE        |  |  |  | 0.30           |  | 0.30         |  | 0.30                           |  | 0.30            |  | 0.30             |  |
| AIR CHANGE HEAT LOSS           |  |  |  | 829            |  | 829          |  | 829                            |  | 829             |  | 829              |  |
| AIR CHANGE HEAT GAIN           |  |  |  | 64             |  | 64           |  | 64                             |  | 64              |  | 64               |  |
| DUCT LOSS                      |  |  |  | 0              |  | 0            |  | 0                              |  | 0               |  | 0                |  |
| DUCT GAIN                      |  |  |  | 0              |  | 0            |  | 0                              |  | 0               |  | 0                |  |
| HEAT GAIN PEOPLE               |  |  |  | 240            |  | 240          |  | 240                            |  | 240             |  | 240              |  |
| HEAT GAIN APPLIANCES/LIGHTS    |  |  |  | 590            |  | 590          |  | 590                            |  | 590             |  | 590              |  |
| TOTAL HT LOSS BTU/H            |  |  |  | 2067           |  | 2067         |  | 2067                           |  | 2067            |  | 2067             |  |
| TOTAL HT GAIN x 1.3 BTU/H      |  |  |  | 1814           |  | 1814         |  | 1814                           |  | 1814            |  | 1814             |  |

SITE NAME: GRANELLI HOME CORP  
BUILDER: GREENYORK HOMESALT 2ND  
TYPE: AMELIA 3

DATE: Jun-18

GFA: 2970 LO# 78990

|                   |        |                   |        |     |     |
|-------------------|--------|-------------------|--------|-----|-----|
| HEATING CFM       | 1030   | COOLING CFM       | 1030   |     |     |
| TOTAL HEAT LOSS   | 54,196 | TOTAL HEAT GAIN   | 36,889 |     |     |
| AIR FLOW RATE CFM | 19.01  | AIR FLOW RATE CFM | 27.92  |     |     |
| RUN COUNT         | 4th    | 3rd               | 2nd    | 1st | Bas |
| S/A               | 0      | 0                 | 13     | 8   | 4   |
| R/A               | 0      | 0                 | 5      | 2   | 1   |

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

plenum pressure s/a 0.18  
max s/a diff press. loss 0.02  
min adjusted pressure s/a 0.16

r/a pressure 0.17  
r/a grille press. loss 0.02  
adjusted pressure r/a 0.15

AFUE = 96 %  
INPUT (BTU/H) = 60,000  
OUTPUT (BTU/H) = 58,000

DESIGN CFM = 1030  
CFM @ 8" E.S.P.

TEMPERATURE RISE 52 °F

| ROOM #                    | 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 | BATH | ENS-2 | ENS-3 | BED-3 | MBR  | BED-5 | LV/DN | LIB  | KT/BR | KT/BR | FAM  | LAUN | W/R  | FOY  | MUD  | BAS  | BAS  | BED-4 | BAS  |
| RM LOSS MBH               | 1.44 | 1.84 | 0.45 | 1.23  | 2.17  | 0.84 | 1.25  | 1.95  | 2.17  | 1.44 | 1.00  | 2.07  | 2.03 | 2.40  | 2.40  | 3.17 | 0.25 | 1.03 | 3.40 | 1.71 | 4.50 | 4.50 | 1.96  | 4.50 |
| CFM PER RUN HEAT          | 27   | 35   | 9    | 23    | 41    | 16   | 24    | 37    | 41    | 27   | 19    | 39    | 39   | 46    | 46    | 60   | 5    | 20   | 65   | 33   | 85   | 85   | 37    | 85   |
| RM GAIN MBH               | 1.87 | 1.39 | 0.16 | 1.71  | 2.81  | 0.47 | 0.33  | 1.94  | 2.81  | 1.87 | 1.80  | 1.81  | 1.71 | 2.94  | 2.94  | 3.39 | 0.95 | 0.19 | 1.01 | 0.89 | 0.46 | 0.46 | 2.26  | 0.46 |
| CFM PER RUN COOLING       | 52   | 39   | 4    | 48    | 78    | 13   | 9     | 54    | 78    | 52   | 50    | 51    | 48   | 82    | 82    | 95   | 28   | 5    | 28   | 19   | 13   | 13   | 63    | 13   |
| ADJUSTED PRESSURE         | 0.17 | 0.17 | 0.17 | 0.17  | 0.17  | 0.17 | 0.17  | 0.17  | 0.17  | 0.17 | 0.17  | 0.17  | 0.17 | 0.16  | 0.16  | 0.16 | 0.17 | 0.17 | 0.17 | 0.17 | 0.16 | 0.16 | 0.17  | 0.16 |
| EQUIVALENT LENGTH         | 150  | 170  | 160  | 210   | 130   | 180  | 140   | 140   | 120   | 150  | 180   | 110   | 140  | 110   | 130   | 190  | 150  | 170  | 110  | 170  | 110  | 150  | 120   | 130  |
| TOTAL EFFECTIVE LENGTH    | 199  | 223  | 195  | 233   | 186   | 215  | 190   | 201   | 172   | 193  | 223   | 121   | 163  | 180   | 167   | 223  | 192  | 179  | 148  | 180  | 156  | 180  | 155   | 150  |
| ADJUSTED PRESSURE         | 0.09 | 0.08 | 0.09 | 0.07  | 0.09  | 0.08 | 0.09  | 0.09  | 0.1   | 0.09 | 0.08  | 0.14  | 0.11 | 0.1   | 0.1   | 0.07 | 0.09 | 0.1  | 0.12 | 0.1  | 0.1  | 0.09 | 0.11  | 0.11 |
| ROUND DUCT SIZE           | 4    | 4    | 4    | 6     | 5     | 5    | 4     | 5     | 5     | 4    | 5     | 5     | 5    | 6     | 6     | 6    | 4    | 4    | 5    | 4    | 6    | 6    | 5     | 6    |
| HEATING VELOCITY (ft/min) | 310  | 402  | 103  | 117   | 301   | 117  | 275   | 272   | 301   | 310  | 140   | 286   | 286  | 235   | 235   | 306  | 57   | 229  | 477  | 379  | 433  | 272  | 433   | 433  |
| COOLING VELOCITY (ft/min) | 597  | 447  | 46   | 245   | 573   | 95   | 103   | 366   | 573   | 597  | 367   | 374   | 352  | 418   | 418   | 484  | 298  | 57   | 206  | 218  | 66   | 66   | 463   | 66   |
| OUTLET GRILL SIZE         | 3X10 | 3X10 | 3X10 | 4X10  | 3X10  | 3X10 | 3X10  | 3X10  | 3X10  | 3X10 | 3X10  | 3X10  | 3X10 | 4X10  | 4X10  | 4X10 | 3X10 | 3X10 | 3X10 | 3X10 | 4X10 | 4X10 | 3X10  | 4X10 |
| TRUNK                     | A    | B    | A    | D     | C     | B    | C     | C     | C     | B    | B     | B     | D    | A     | A     | A    | C    | B    | C    | D    | A    | A    | D     | D    |

|                           |      |
|---------------------------|------|
| ROOM NAME                 | BAS  |
| RM LOSS MBH               | 4.50 |
| CFM PER RUN HEAT          | 85   |
| RM GAIN MBH               | 0.46 |
| CFM PER RUN COOLING       | 13   |
| ADJUSTED PRESSURE         | 0.16 |
| EQUIVALENT LENGTH         | 37   |
| TOTAL EFFECTIVE LENGTH    | 120  |
| ADJUSTED PRESSURE         | 0.1  |
| ROUND DUCT SIZE           | 6    |
| HEATING VELOCITY (ft/min) | 433  |
| COOLING VELOCITY (ft/min) | 66   |
| OUTLET GRILL SIZE         | 4X10 |
| TRUNK                     | C    |

| TRUNK   | CFM | STATIC PRESS | ROUND DUCT | RECT DUCT | VELOCITY (ft/min) | TRUNK | CFM | STATIC PRESS | ROUND DUCT | RECT DUCT | VELOCITY (ft/min) | TRUNK   | CFM | STATIC PRESS | ROUND DUCT | RECT DUCT | VELOCITY (ft/min) | TRUNK   | CFM | STATIC PRESS | ROUND DUCT | RECT DUCT | VELOCITY (ft/min) |
|---------|-----|--------------|------------|-----------|-------------------|-------|-----|--------------|------------|-----------|-------------------|---------|-----|--------------|------------|-----------|-------------------|---------|-----|--------------|------------|-----------|-------------------|
| TRUNK A | 358 | 0.07         | 9.9        | 12        | 8                 | 537   | 0   | 0.00         | 0          | 0         | 0                 | TRUNK G | 0   | 0.00         | 0          | 0         | 0                 | TRUNK O | 0   | 0.06         | 0          | 0         | 8                 |
| TRUNK B | 514 | 0.07         | 11.3       | 14        | 8                 | 661   | 0   | 0.00         | 0          | 0         | 0                 | TRUNK H | 0   | 0.00         | 0          | 0         | 0                 | TRUNK P | 0   | 0.06         | 0          | 0         | 8                 |
| TRUNK C | 298 | 0.09         | 8.7        | 10        | 8                 | 536   | 0   | 0.00         | 0          | 0         | 0                 | TRUNK I | 0   | 0.00         | 0          | 0         | 0                 | TRUNK Q | 0   | 0.06         | 0          | 0         | 8                 |
| TRUNK D | 515 | 0.07         | 11.3       | 14        | 8                 | 662   | 0   | 0.00         | 0          | 0         | 0                 | TRUNK J | 0   | 0.00         | 0          | 0         | 0                 | TRUNK R | 0   | 0.06         | 0          | 0         | 8                 |
| TRUNK E | 0   | 0.00         | 0          | 0         | 8                 | 0     | 0   | 0.00         | 0          | 0         | 0                 | TRUNK K | 0   | 0.00         | 0          | 0         | 0                 | TRUNK S | 0   | 0.06         | 0          | 0         | 8                 |
| TRUNK F | 0   | 0.00         | 0          | 0         | 8                 | 0     | 0   | 0.00         | 0          | 0         | 0                 | TRUNK L | 0   | 0.00         | 0          | 0         | 0                 | TRUNK T | 0   | 0.06         | 0          | 0         | 8                 |

| TRUNK   | CFM | STATIC PRESS | ROUND DUCT | RECT DUCT | VELOCITY (ft/min) | TRUNK | CFM | STATIC PRESS | ROUND DUCT | RECT DUCT | VELOCITY (ft/min) | TRUNK   | CFM | STATIC PRESS | ROUND DUCT | RECT DUCT | VELOCITY (ft/min) | TRUNK   | CFM | STATIC PRESS | ROUND DUCT | RECT DUCT | VELOCITY (ft/min) |
|---------|-----|--------------|------------|-----------|-------------------|-------|-----|--------------|------------|-----------|-------------------|---------|-----|--------------|------------|-----------|-------------------|---------|-----|--------------|------------|-----------|-------------------|
| TRUNK A | 358 | 0.07         | 9.9        | 12        | 8                 | 537   | 0   | 0.00         | 0          | 0         | 0                 | TRUNK G | 0   | 0.00         | 0          | 0         | 0                 | TRUNK O | 0   | 0.06         | 0          | 0         | 8                 |
| TRUNK B | 514 | 0.07         | 11.3       | 14        | 8                 | 661   | 0   | 0.00         | 0          | 0         | 0                 | TRUNK H | 0   | 0.00         | 0          | 0         | 0                 | TRUNK P | 0   | 0.06         | 0          | 0         | 8                 |
| TRUNK C | 298 | 0.09         | 8.7        | 10        | 8                 | 536   | 0   | 0.00         | 0          | 0         | 0                 | TRUNK I | 0   | 0.00         | 0          | 0         | 0                 | TRUNK Q | 0   | 0.06         | 0          | 0         | 8                 |
| TRUNK D | 515 | 0.07         | 11.3       | 14        | 8                 | 662   | 0   | 0.00         | 0          | 0         | 0                 | TRUNK J | 0   | 0.00         | 0          | 0         | 0                 | TRUNK R | 0   | 0.06         | 0          | 0         | 8                 |
| TRUNK E | 0   | 0.00         | 0          | 0         | 8                 | 0     | 0   | 0.00         | 0          | 0         | 0                 | TRUNK K | 0   | 0.00         | 0          | 0         | 0                 | TRUNK S | 0   | 0.06         | 0          | 0         | 8                 |
| TRUNK F | 0   | 0.00         | 0          | 0         | 8                 | 0     | 0   | 0.00         | 0          | 0         | 0                 | TRUNK L | 0   | 0.00         | 0          | 0         | 0                 | TRUNK T | 0   | 0.06         | 0          | 0         | 8                 |

TYPE: AMELIA 3  
SITE NAME: GRANELLI HOME CORP

LO # 78990  
ALT 2ND

**RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY**

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

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

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

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

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

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

| SUPPLEMENTAL VENTILATION CAPACITY |       | 9.32.3.5. |
|-----------------------------------|-------|-----------|
| Total Ventilation Capacity        | 212   | cfm       |
| Less Principal Ventil. Capacity   | 95.4  | cfm       |
| Required Supplemental Capacity    | 116.6 | cfm       |

| PRINCIPAL EXHAUST FAN CAPACITY                   |                     |
|--------------------------------------------------|---------------------|
| Model:                                           | LIFEBREATH RNC5-HEX |
| Location:                                        | BSMT                |
| 95.4 cfm                                         | 3.0 sones           |
| <input checked="" type="checkbox"/> HVI Approved |                     |

| PRINCIPAL EXHAUST HEAT LOSS CALCULATION |               |        |        |      |
|-----------------------------------------|---------------|--------|--------|------|
| CFM                                     | $\Delta T$ °F | FACTOR | % LOSS |      |
| 95.4 CFM                                | X 74 F        | X 1.08 | X      | 0.24 |

| SUPPLEMENTAL FANS |           | NUTONE |                                     |       |
|-------------------|-----------|--------|-------------------------------------|-------|
| Location          | Model     | cfm    | HVI                                 | Sones |
| ENS               | QTXEN050C | 50     | <input checked="" type="checkbox"/> | 0.3   |
| ENS-2             | QTXEN050C | 50     | <input checked="" type="checkbox"/> | 0.3   |
| BATH              | QTXEN050C | 50     | <input checked="" type="checkbox"/> | 0.3   |
| W/R               | QTXEN050C | 50     | <input checked="" type="checkbox"/> | 0.3   |

| HEAT RECOVERY VENTILATOR |                       | 9.32.3.11.                                       |
|--------------------------|-----------------------|--------------------------------------------------|
| Model:                   | LIFEBREATH RNC5-HEX   |                                                  |
| 108                      | cfm high              | 59 cfm low                                       |
| 76                       | % 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:     |        | GREENYORK 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:                                                                                                         | June-18                 |

**HEAT LOSS AND GAIN SUMMARY SHEET**

|                        |                  |                                 |
|------------------------|------------------|---------------------------------|
| <b>MODEL:</b> AMELIA 3 | <b>ALT 2ND</b>   | <b>BUILDER:</b> GREENYORK HOMES |
| <b>SFQT:</b> 2970      | <b>LO#</b> 78990 | <b>SITE:</b> GRANELLI HOME CORP |

**DESIGN ASSUMPTIONS**

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

**BUILDING DATA**

|                                     |                 |                           |          |
|-------------------------------------|-----------------|---------------------------|----------|
| ATTACHMENT:                         | DETACHED        | # OF STORIES (+BASEMENT): | 3        |
| FRONT FACES:                        | EAST            | ASSUMED (Y/N):            | Y        |
| AIR CHANGES PER HOUR:               | 3.57            | ASSUMED (Y/N):            | Y        |
| AIR TIGHTNESS CATEGORY:             | AVERAGE         | ASSUMED (Y/N):            | Y        |
| WIND EXPOSURE:                      | SHELTERED       | ASSUMED (Y/N):            | Y        |
| HOUSE VOLUME (ft³):                 | 41553.0         | ASSUMED (Y/N):            | Y        |
| INTERNAL SHADING:                   | BLINDS/CURTAINS | ASSUMED OCCUPANTS:        | 6        |
| INTERIOR LIGHTING LOAD (Btu/h/ft²): | 1.50            | DC BRUSHLESS MOTOR (Y/N): | Y        |
| FOUNDATION CONFIGURATION            | BCIN_1          | DEPTH BELOW GRADE:        | 6.0 ft   |
| LENGTH: 56.0 ft                     | WIDTH: 30.0 ft  | EXPOSED PERIMETER:        | 155.0 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                   | -         |

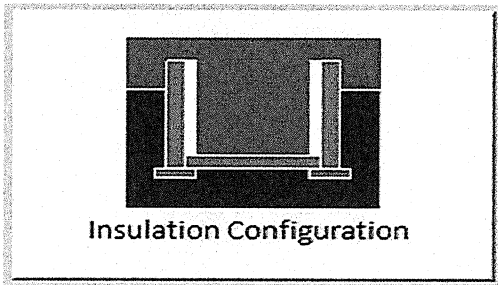
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



## Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

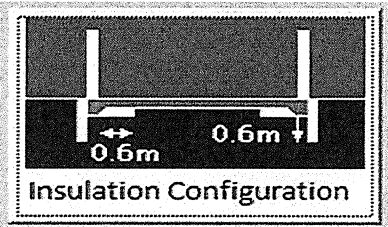
| Weather Station Description    |                                           |                                                                                                                 |
|--------------------------------|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Province:                      | Ontario                                   |                                                                                                                 |
| Region:                        | Brampton                                  |                                                                                                                 |
| Site Description               |                                           |                                                                                                                 |
| Soil Conductivity:             | Normal conductivity: dry sand, loam, clay |                                                                                                                 |
| Water Table:                   | Normal (7-10 m, 23-33 ft)                 |                                                                                                                 |
| Foundation Dimensions          |                                           |                                                                                                                 |
| Floor Length (m):              | 17.1                                      | <br>Insulation Configuration |
| Floor Width (m):               | 9.1                                       |                                                                                                                 |
| Exposed Perimeter (m):         | 47.2                                      |                                                                                                                 |
| Wall Height (m):               | 2.7                                       |                                                                                                                 |
| Depth Below Grade (m):         | 1.83                                      |                                                                                                                 |
| Window Area (m <sup>2</sup> ): | 0.6                                       |                                                                                                                 |
| 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):          |                                           | 1561                                                                                                            |

TYPE: AMELIA 3  
LO# 78990

ALT 2ND

## Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

| Weather Station Description  |                                           |                                                                                     |
|------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------|
| Province:                    | Ontario                                   |                                                                                     |
| Region:                      | Brampton                                  |                                                                                     |
| Site Description             |                                           |                                                                                     |
| Soil Conductivity:           | Normal conductivity: dry sand, loam, clay |                                                                                     |
| Water Table:                 | Normal (7-10 m, 23-33 ft)                 |                                                                                     |
| Foundation Dimensions        |                                           |                                                                                     |
| Length (m):                  | 4.6                                       |  |
| Width (m):                   | 0.6                                       |                                                                                     |
| Exposed Perimeter (m):       | 5.2                                       |                                                                                     |
| Radiant Slab                 |                                           |                                                                                     |
| Heated Fraction of the Slab: | 0                                         |                                                                                     |
| Fluid Temperature (°C):      | 33                                        |                                                                                     |
| Design Months                |                                           |                                                                                     |
| Heating Month                | 1                                         |                                                                                     |
| Results                      |                                           |                                                                                     |
| Heating Load (Watts):        |                                           | 31                                                                                  |

TYPE: AMELIA 3  
LO# 78990

ALT 2ND

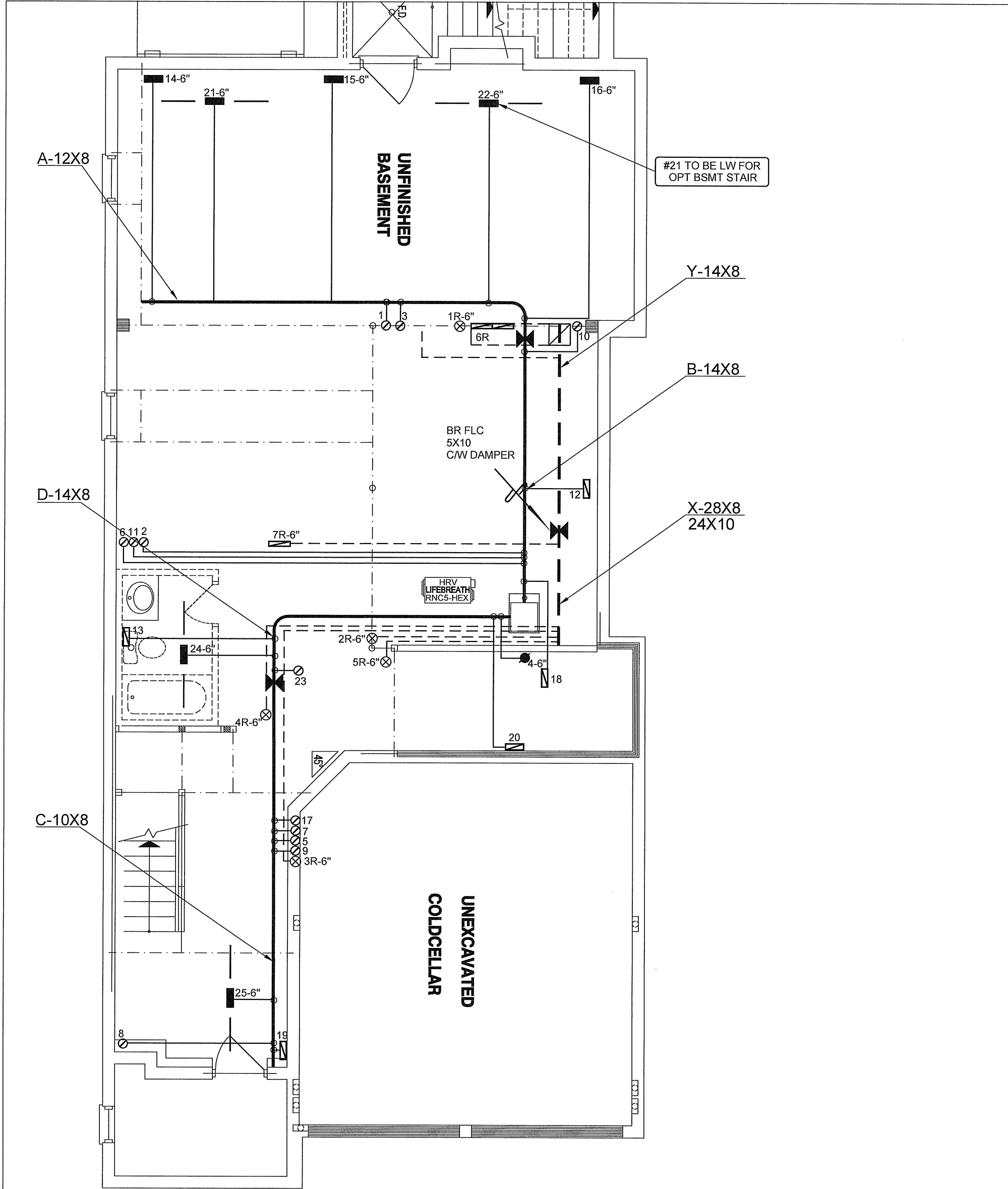
# Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

| Weather Station Description       |                            |                        |    |    |
|-----------------------------------|----------------------------|------------------------|----|----|
| Province:                         | Ontario                    |                        |    |    |
| Region:                           | Brampton                   |                        |    |    |
| Weather Station Location:         | Open flat terrain, grass   |                        |    |    |
| Anemometer height (m):            | 10                         |                        |    |    |
| Local Shielding                   |                            |                        |    |    |
| Building Site:                    | Suburban, forest           |                        |    |    |
| Walls:                            | Heavy                      |                        |    |    |
| Flue:                             | Heavy                      |                        |    |    |
| Highest Ceiling Height (m):       | 7.01                       |                        |    |    |
| Building Configuration            |                            |                        |    |    |
| Type:                             | Detached                   |                        |    |    |
| Number of Stories:                | Two                        |                        |    |    |
| Foundation:                       | Full                       |                        |    |    |
| House Volume (m <sup>3</sup> ):   | 1176.6                     |                        |    |    |
| Air Leakage/Ventilation           |                            |                        |    |    |
| Air Tightness Type:               | Present (1961-) (3.57 ACH) |                        |    |    |
| Custom BDT Data:                  | ELA @ 10 Pa.               | 1568.5 cm <sup>2</sup> |    |    |
|                                   | 3.57                       | ACH @ 50 Pa            |    |    |
| Mechanical Ventilation (L/s):     | Total Supply               | Total Exhaust          |    |    |
|                                   | 45.0                       | 45.0                   |    |    |
| Flue Size                         |                            |                        |    |    |
| Flue #:                           | #1                         | #2                     | #3 | #4 |
| Diameter (mm):                    | 0                          | 0                      | 0  | 0  |
| Natural Infiltration Rates        |                            |                        |    |    |
| Heating Air Leakage Rate (ACH/H): | 0.335                      |                        |    |    |
| Cooling Air Leakage Rate (ACH/H): | 0.119                      |                        |    |    |

TYPE: AMELIA 3  
LO# 78990

ALT 2ND



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

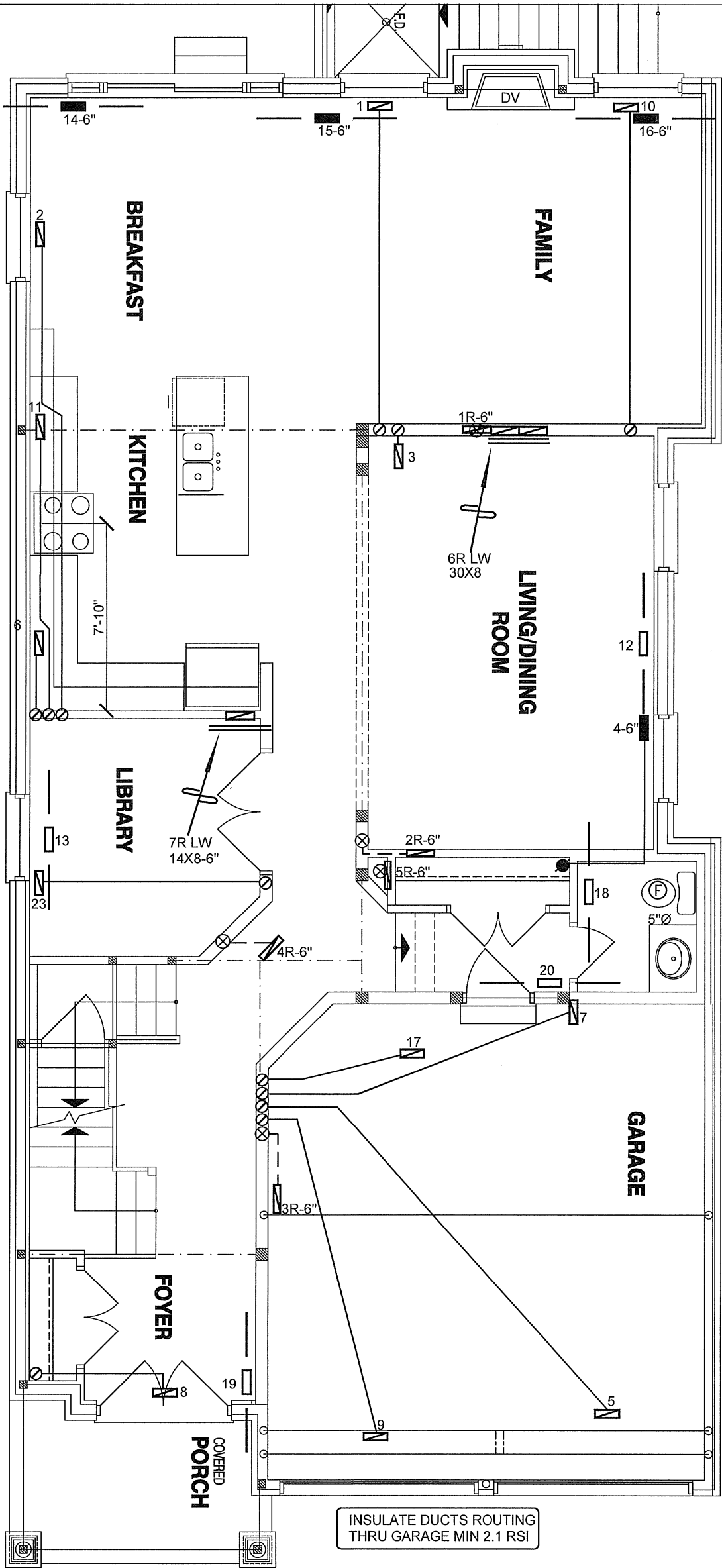
*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

CSA-F280-12  
PACKAGE A1

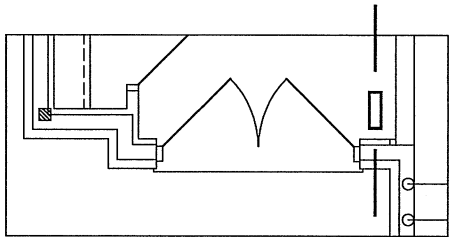
| HVAC LEGEND |                           |        |                                 |        |                              | 3.     |                            |                      |
|-------------|---------------------------|--------|---------------------------------|--------|------------------------------|--------|----------------------------|------------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

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

|                                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                    |                                                                                                                                               |                        |   |     |                               |               |
|----------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---|-----|-------------------------------|---------------|
| Client                                                   |  | <div><div>HVACDESIGNS LTD.</div><div>375 Finley Ave. Suite 202 - Ajax, Ontario<br/>L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375<br/>Email: info@hvacdesigns.ca<br/>Web: www.hvacdesigns.ca<br/>Specializing in Residential Mechanical Design Services</div><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></div> | HEAT LOSS 56030 BTU/H<br>UNIT DATA |                                                                                                                                               | # OF RUNS S/A R/A FANS |   |     | Sheet Title                   |               |
| GREENYORK HOMES                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | MAKE<br>CARRIER                    | 3RD FLOOR                                                                                                                                     |                        |   |     | BASEMENT<br>HEATING<br>LAYOUT |               |
| Project Name<br>GRANELLI HOMES CORP<br>BRAMPTON, ONTARIO |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | MODEL<br>59SP5A-60-12              | 2ND FLOOR                                                                                                                                     | 13                     | 5 | 5   |                               |               |
| ALT 2ND<br>AMELIA 3                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | INPUT<br>60 MBTU/H                 | 1ST FLOOR                                                                                                                                     | 8                      | 2 | 2   |                               |               |
| 2970 sqft                                                |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | OUTPUT<br>58 MBTU/H                | BASEMENT                                                                                                                                      | 4                      | 1 | 0   | Date                          | JUNE/2018     |
|                                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | COOLING<br>3.0 TONS                | ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A |                        |   |     | Scale                         | 3/16" = 1'-0" |
|                                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | FAN SPEED<br>1030 cfm @ 0.6" w.c.  |                                                                                                                                               |                        |   |     | BCIN# 19669                   |               |
|                                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                    |                                                                                                                                               |                        |   | LO# | 78990                         |               |



ELEVATION 1



ELEVATION 2

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.

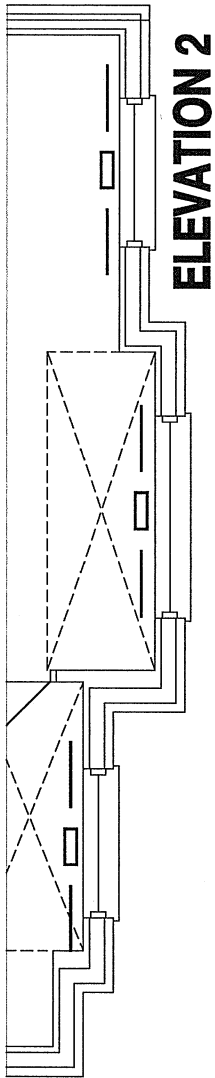
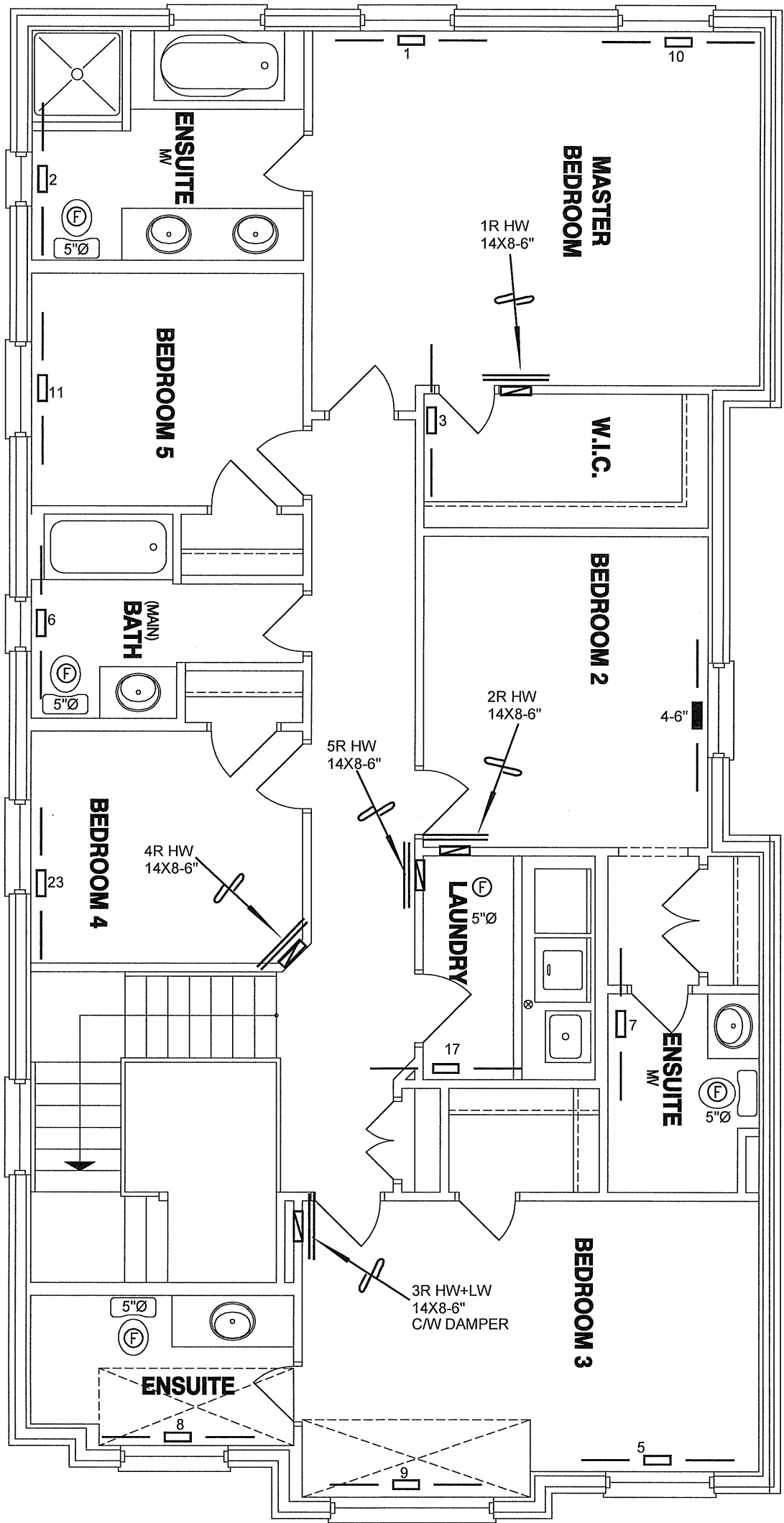
*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

CSA-F280-12  
PACKAGE A1

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

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

|                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                  |               |
|------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------|
| Client                                   |  | <div></div> <div>375 Finley Ave. Suite 202 - Ajax, Ontario<br/>L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375<br/>Email: info@hvacdesigns.ca<br/>Web: www.hvacdesigns.ca<br/>Specializing in Residential Mechanical Design Services</div> <div>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.</div> | Sheet Title                      |               |
| GREENYORK HOMES                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | FIRST FLOOR<br>HEATING<br>LAYOUT |               |
| Project Name                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Date                             | JUNE/2018     |
| GRANELLI HOMES CORP<br>BRAMPTON, ONTARIO |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Scale                            | 3/16" = 1'-0" |
| ALT 2ND<br>AMELIA 3                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | BCIN# 19669                      |               |
| 2970 sqft                                |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | LO#                              | 78990         |



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.

CSA-F280-12  
PACKAGE A1

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

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

|                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                   |               |
|------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|---------------|
| Client                                   |  | <div></div> <div>375 Finley Ave. Suite 202 - Ajax, Ontario<br/>L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375<br/>Email: info@hvacdesigns.ca<br/>Web: www.hvacdesigns.ca<br/>Specializing in Residential Mechanical Design Services</div> <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> | Sheet Title                       |               |
| GREENYORK HOMES                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | SECOND FLOOR<br>HEATING<br>LAYOUT |               |
| Project Name                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Date                              | JUNE/2018     |
| GRANELLI HOMES CORP<br>BRAMPTON, ONTARIO |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Scale                             | 3/16" = 1'-0" |
| ALT 2ND<br>AMELIA 3                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | BCIN# 19669                       |               |
| 2970 sqft                                |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | LO#                               | 78990         |