

## Schedule 1: Designer Information

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

| A. Project Information                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                              |                                                                                                               |                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------|
| Building number, street name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                              | Unit no.                                                                                                      | Lot/con.                    |
| Municipality<br>BRAMPTON                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Postal code                  | Plan number/ other description                                                                                |                             |
| B. Individual who reviews and takes responsibility for design activities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                              |                                                                                                               |                             |
| 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>( )                                                                                            |                             |
| C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                              |                                                                                                               |                             |
| <input type="checkbox"/> House<br><input type="checkbox"/> Small Buildings<br><input type="checkbox"/> Large Buildings<br><input type="checkbox"/> Complex Buildings<br><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<br><input type="checkbox"/> Building Structural<br><input type="checkbox"/> Plumbing – House<br><input type="checkbox"/> Plumbing – All Buildings<br><input type="checkbox"/> On-site Sewage Systems |                              |                                                                                                               |                             |
| Description of designer's work<br>HEAT LOSS / GAIN CALCULATIONS<br>DUCT SIZING<br>RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY<br>RESIDENTIAL SYSTEM DESIGN per CSA-F280-12                                                                                                                                                                                                                                                                                                                                                                                                  |                              | Model: LIANA 1<br>ALT 2ND FL<br>Project: GRANELLI HOMES CORP                                                  |                             |
| D. Declaration of Designer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                                                                                                               |                             |
| I, <u>MICHAEL O'ROURKE</u><br>(print name)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              | declare that (choose one as appropriate):                                                                     |                             |
| <input type="checkbox"/> I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.<br>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>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 19, 2018<br>Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              | <br>Signature of Designer |                             |

**NOTE:**

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

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

SITE NAME: GRANELLI HOMES CORP  
BUILDER: GREENWORK HOMES  
ROOM USE: EXP. WALL CLG. HT. 21 9 183 288 32 9  
TYPE: LIANA 1  
ALT 2ND FL  
DATE: Jun-18  
LO# 78989  
GFA: 2041  
WINTER NATURAL AIR CHANGE RATE 0.325  
HEAT LOSS AT °F. 74  
SUMMER NATURAL AIR CHANGE RATE 0.106  
HEAT GAIN AT °F. 11  
CSA-F280-12  
SB-12 PACKAGE A1

| ROOM USE                       | EXP. WALL | CLG. HT. | ENR  | WIC  | BED-2 | BED-3 | BED-4 | BATH | WUB  | BAS  |
|--------------------------------|-----------|----------|------|------|-------|-------|-------|------|------|------|
| GRS.WALL AREA                  | 20.8      | 14.6     | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| GLAZING                        | 20.8      | 38.3     | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| NORTH                          | 20.8      | 38.3     | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| EAST                           | 20.8      | 22.9     | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| SOUTH                          | 20.8      | 38.3     | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| WEST                           | 20.8      | 38.3     | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| SKYLT.                         | 36.4      | 100.7    | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| DOORS                          | 24.7      | 3.7      | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| NET EXPOSED WALL               | 4.4       | 0.6      | 258  | 1124 | 167   | 169   | 736   | 109  | 45   | 196  |
| NET EXPOSED BSMT WALL ABOVE GR | 3.5       | 0.5      | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| EXPOSED CLG                    | 1.3       | 0.6      | 247  | 309  | 138   | 110   | 138   | 61   | 95   | 119  |
| NO ATTIC EXPOSED CLG           | 2.7       | 1.2      | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| EXPOSED FLOOR                  | 2.5       | 0.4      | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| BASEMENT/CRAWL HEAT LOSS       | 0         | 0        | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| SLAB ON GRADE HEAT LOSS        | 0         | 0        | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| SUBTOTAL HT LOSS               | 2057      | 1454     | 1290 | 736  | 1223  | 776   | 2418  | 661  | 287  | 297  |
| SUB TOTAL HT GAIN              | 0.20      | 0.28     | 0.20 | 0.28 | 0.20  | 0.28  | 0.20  | 0.28 | 0.20 | 0.28 |
| LEVEL FACTOR / MULTIPLIER      | 577       | 91       | 362  | 46   | 343   | 218   | 678   | 185  | 19   | 19   |
| AIR CHANGE HEAT LOSS           | 0         | 0        | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| DUCT LOSS                      | 0         | 0        | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| HEAT GAIN PEOPLE               | 240       | 480      | 0    | 0    | 1     | 0     | 240   | 0    | 249  | 0    |
| HEAT GAIN APPLANCES/LIGHTS     | 555       | 555      | 0    | 0    | 555   | 555   | 555   | 555  | 555  | 555  |
| TOTAL HT LOSS BTU/H            | 2634      | 3354     | 1651 | 1017 | 1723  | 994   | 3406  | 847  | 411  | 411  |

| ROOM USE                       | EXP. WALL | CLG. HT. | ENR  | WIC  | BED-2 | BED-3 | BED-4 | BATH | WUB  | BAS  |
|--------------------------------|-----------|----------|------|------|-------|-------|-------|------|------|------|
| GRS.WALL AREA                  | 20.8      | 14.6     | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| GLAZING                        | 20.8      | 38.3     | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| NORTH                          | 20.8      | 38.3     | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| EAST                           | 20.8      | 22.9     | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| SOUTH                          | 20.8      | 38.3     | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| WEST                           | 20.8      | 38.3     | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| SKYLT.                         | 36.4      | 100.7    | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| DOORS                          | 24.7      | 3.7      | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| NET EXPOSED WALL               | 4.4       | 0.6      | 541  | 2357 | 349   | 292   | 1272  | 189  | 83   | 362  |
| NET EXPOSED BSMT WALL ABOVE GR | 3.5       | 0.5      | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| EXPOSED CLG                    | 1.3       | 0.6      | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| NO ATTIC EXPOSED CLG           | 2.7       | 1.2      | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| EXPOSED FLOOR                  | 2.5       | 0.4      | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| BASEMENT/CRAWL HEAT LOSS       | 0         | 0        | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| SLAB ON GRADE HEAT LOSS        | 0         | 0        | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| SUBTOTAL HT LOSS               | 4622      | 4188     | 3038 | 1416 | 261   | 555   | 662   | 6676 | 3769 | 411  |
| SUB TOTAL HT GAIN              | 0.30      | 0.31     | 0.30 | 0.31 | 0.30  | 0.31  | 0.30  | 0.31 | 0.30 | 0.31 |
| LEVEL FACTOR / MULTIPLIER      | 1416      | 1416     | 1416 | 1416 | 1416  | 1416  | 1416  | 1416 | 1416 | 1416 |
| AIR CHANGE HEAT LOSS           | 0         | 0        | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| DUCT LOSS                      | 0         | 0        | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| HEAT GAIN PEOPLE               | 240       | 480      | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| HEAT GAIN APPLANCES/LIGHTS     | 555       | 555      | 0    | 0    | 0     | 0     | 0     | 0    | 0    | 0    |
| TOTAL HT LOSS BTU/H            | 2634      | 3354     | 1651 | 1017 | 1723  | 994   | 3406  | 847  | 411  | 411  |

TOTAL HEAT GAIN BTU/H: 25406 TONS: 2.12 LOSS DUE TO VENTILATION LOAD BTU/H: 1529 STRUCTURAL HEAT LOSS: 41281 TOTAL COMBINED HEAT LOSS BTU/H: 42790

Michael O'Rourke



TYPE: LIANA 1  
SITE NAME: GRANELLI HOMES CORP

LO # 78999  
ALT 2ND FL

**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   | 79.5 | cfm       |
| Required Supplemental Capacity    | 79.5 | cfm       |

| PRINCIPAL EXHAUST FAN CAPACITY                   |                |
|--------------------------------------------------|----------------|
| Model: LIFE BREATH RNC5-HEX                      | Location: BSMT |
| 79.5 cfm                                         | 3.0 sones      |
| <input checked="" type="checkbox"/> HVI Approved |                |

| PRINCIPAL EXHAUST HEAT LOSS CALCULATION |        |        |        |      |
|-----------------------------------------|--------|--------|--------|------|
| CFM                                     | ΔT °F  | FACTOR | % LOSS |      |
| 79.5 CFM                                | X 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   |
| BATH              | QTXEN050C | 50     | <input checked="" type="checkbox"/> | 0.3   |
| LAUN              | 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: LIFE BREATH 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> LIANA 1 | <b>ALT 2ND FL</b> | <b>BUILDER:</b> GREENYORK HOMES  |
| <b>SFQT:</b> 2041     | <b>LO#</b> 78999  | <b>SITE:</b> GRANELLI HOMES 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) | 75 |

#### BUILDING DATA

|                                     |                 |                           |          |
|-------------------------------------|-----------------|---------------------------|----------|
| ATTACHMENT:                         | DETACHED        | # OF STORIES (+BASEMENT): | 3        |
| FRONT FACES:                        | EAST            | ASSUMED (Y/N):            | Y        |
| AIR CHANGES PER HOUR:               | 3.57            | ASSUMED (Y/N):            | Y        |
| AIR TIGHTNESS CATEGORY:             | AVERAGE         | ASSUMED (Y/N):            | Y        |
| WIND EXPOSURE:                      | SHELTERED       | ASSUMED (Y/N):            | Y        |
| HOUSE VOLUME (ft³):                 | 28440.0         | ASSUMED (Y/N):            | Y        |
| INTERNAL SHADING:                   | BLINDS/CURTAINS | ASSUMED OCCUPANTS:        | 5        |
| INTERIOR LIGHTING LOAD (Btu/h/ft²): | 1.27            | DC BRUSHLESS MOTOR (Y/N): | Y        |
| FOUNDATION CONFIGURATION            | BCIN_1          | DEPTH BELOW GRADE:        | 6.0 ft   |
| LENGTH: 46.0 ft                     | WIDTH: 30.0 ft  | EXPOSED PERIMETER:        | 137.0 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                   | -         |

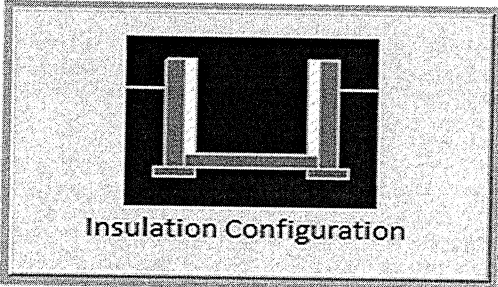
INDIVIDUAL BCIN: 19669

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):              | 14.0                                      | <br>Insulation Configuration |
| Floor Width (m):               | 9.1                                       |                                                                                                                 |
| Exposed Perimeter (m):         | 41.8                                      |                                                                                                                 |
| Wall Height (m):               | 2.7                                       |                                                                                                                 |
| Depth Below Grade (m):         | 1.83                                      |                                                                                                                 |
| Window Area (m <sup>2</sup> ): | 0.7                                       |                                                                                                                 |
| Door Area (m <sup>2</sup> ):   | 3.7                                       |                                                                                                                 |
| Radiant Slab                   |                                           |                                                                                                                 |
| Heated Fraction of the Slab:   | 0                                         |                                                                                                                 |
| Fluid Temperature (°C):        | 33                                        |                                                                                                                 |
| Design Months                  |                                           |                                                                                                                 |
| Heating Month                  | 1                                         |                                                                                                                 |
| Foundation Loads               |                                           |                                                                                                                 |
| Heating Load (Watts):          |                                           | 1350                                                                                                            |

TYPE: LIANA 1  
LO# 78999

ALT 2ND FL

# Air Infiltration Residential Load Calculator

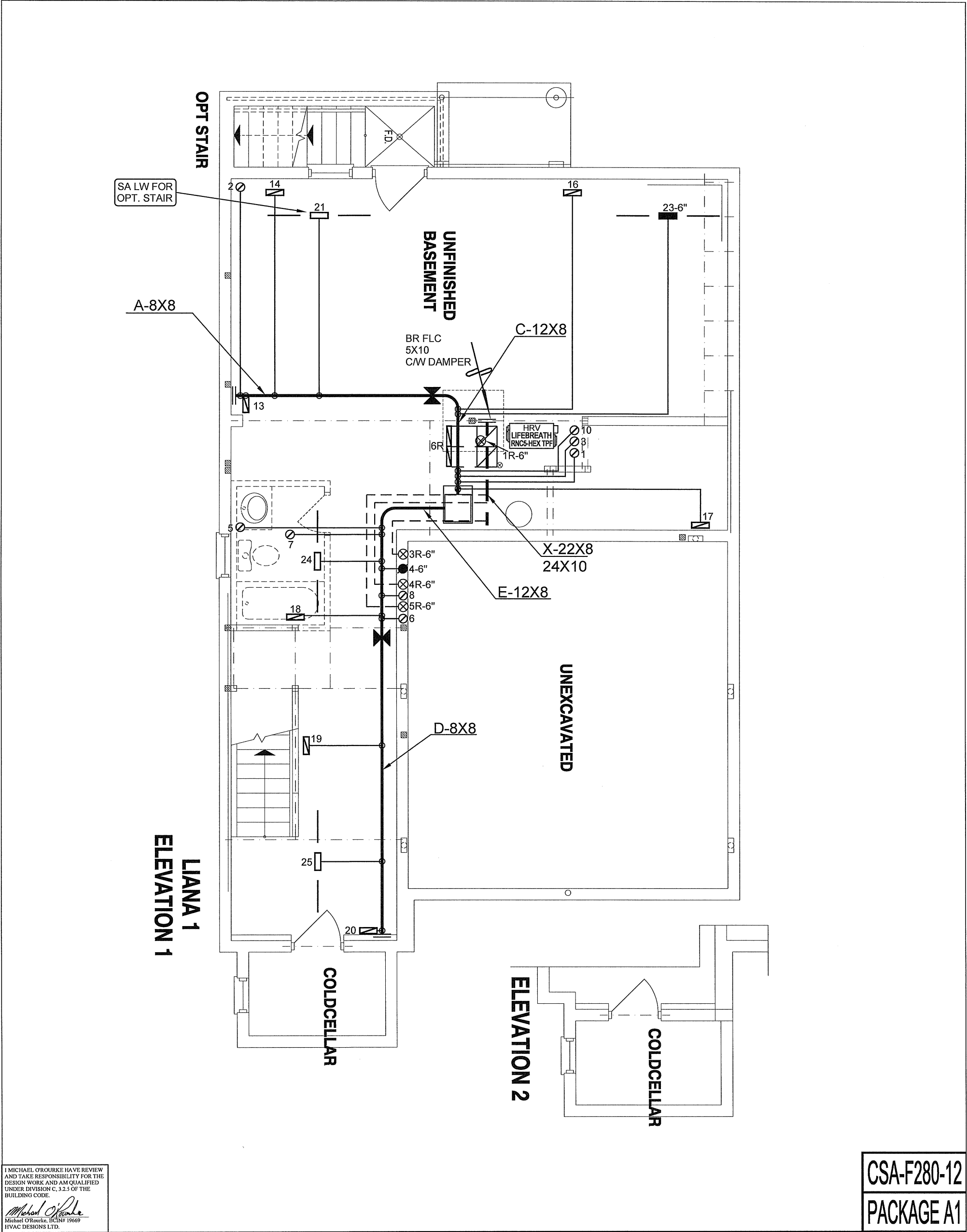
Supplemental tool for CAN/CSA-F280

| 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):       | 6.71                       |                        |    |    |
| Building Configuration            |                            |                        |    |    |
| Type:                             | Detached                   |                        |    |    |
| Number of Stories:                | Two                        |                        |    |    |
| Foundation:                       | Full                       |                        |    |    |
| House Volume (m <sup>3</sup> ):   | 805.3                      |                        |    |    |
| Air Leakage/Ventilation           |                            |                        |    |    |
| Air Tightness Type:               | Present (1961-) (3.57 ACH) |                        |    |    |
| Custom BDT Data:                  | ELA @ 10 Pa.               | 1073.5 cm <sup>2</sup> |    |    |
|                                   | 3.57                       | ACH @ 50 Pa            |    |    |
| Mechanical Ventilation (L/s):     | Total Supply               | Total Exhaust          |    |    |
|                                   | 37.5                       | 37.5                   |    |    |
| Flue Size                         |                            |                        |    |    |
| Flue #:                           | #1                         | #2                     | #3 | #4 |
| Diameter (mm):                    | 0                          | 0                      | 0  | 0  |
| Natural Infiltration Rates        |                            |                        |    |    |
| Heating Air Leakage Rate (ACH/H): | 0.325                      |                        |    |    |
| Cooling Air Leakage Rate (ACH/H): | 0.106                      |                        |    |    |

TYPE: LIANA 1  
LO# 78999

ALT 2ND FL

## Specializing in Residential Mechanical Design Services



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

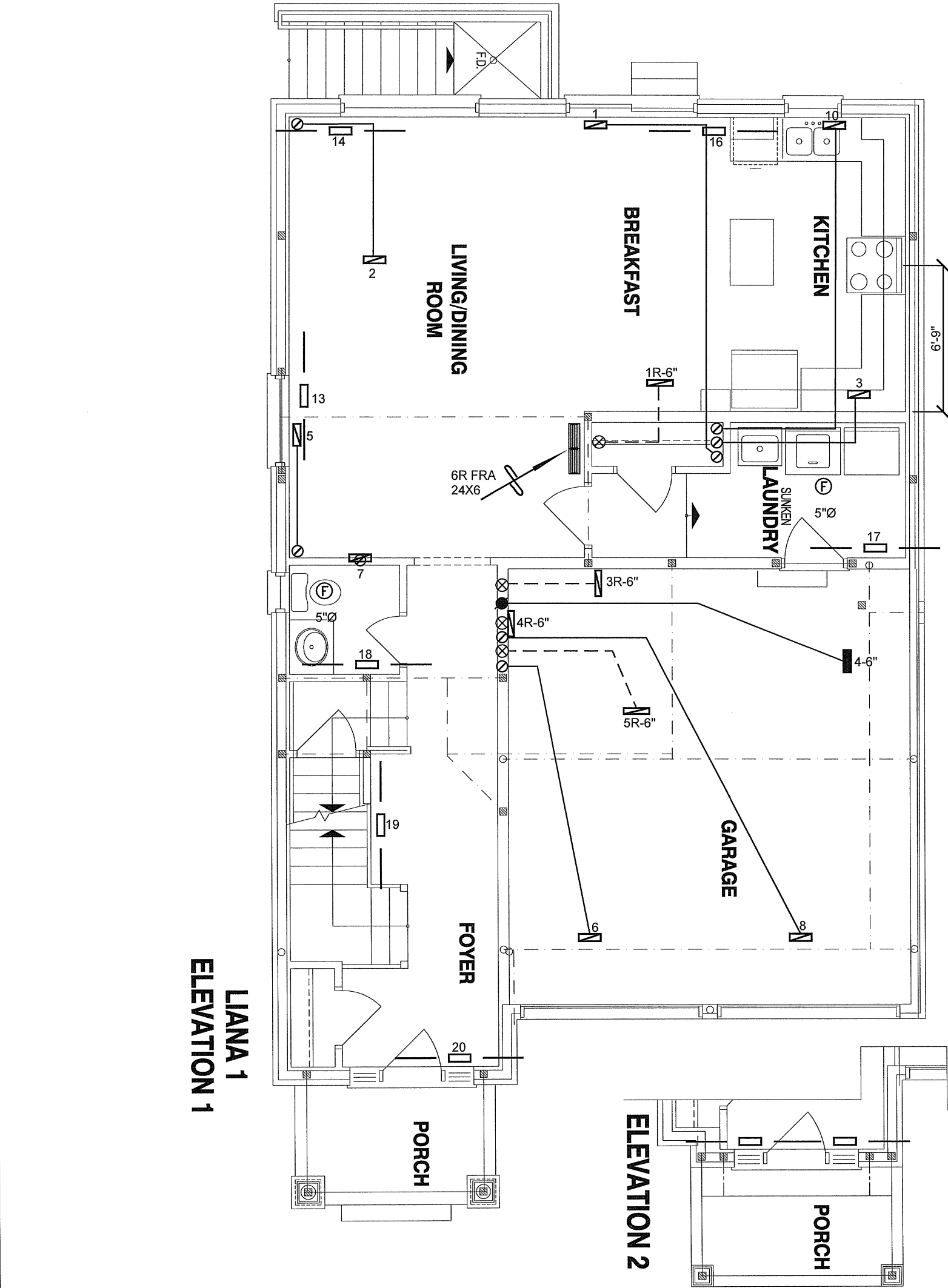
*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

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 |             |      |

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|                                                          |  |                                                                                                                                                                                                                                                                                                      |                                    |                                                                                                                                               |                        |   |   |   |                                              |  |
|----------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---|---|---|----------------------------------------------|--|
| Client<br><div>GREENYORK HOMES</div>                     |  | <div><div><div>HVAC</div><div>DESIGNS LTD.</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> | HEAT LOSS 42790 BTU/H<br>UNIT DATA |                                                                                                                                               | # OF RUNS S/A R/A FANS |   |   |   | Sheet Title<br>BASEMENT<br>HEATING<br>LAYOUT |  |
| Project Name<br>GRANELLI HOMES CORP<br>BRAMPTON, ONTARIO |  |                                                                                                                                                                                                                                                                                                      | MAKE<br>CARRIER                    |                                                                                                                                               | 3RD FLOOR              |   |   |   | Date<br>JUNE/2018                            |  |
|                                                          |  |                                                                                                                                                                                                                                                                                                      | MODEL<br>59SP5A-60-12              |                                                                                                                                               | 2ND FLOOR              | 9 | 4 | 2 | Scale<br>3/16" = 1'-0"                       |  |
|                                                          |  |                                                                                                                                                                                                                                                                                                      | INPUT<br>60 MBTU/H                 |                                                                                                                                               | 1ST FLOOR              | 7 | 1 | 3 | BCIN# 19669                                  |  |
|                                                          |  |                                                                                                                                                                                                                                                                                                      | OUTPUT<br>58 MBTU/H                |                                                                                                                                               | BASEMENT               | 4 | 1 | 0 | LO# 78999                                    |  |
| ALT 2ND FL<br>LIANA 1                                    |  | 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.                                              | COOLING<br>2.0 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 |                        |   |   |   |                                              |  |
| 2041 sqft                                                |  |                                                                                                                                                                                                                                                                                                      | FAN SPEED<br>785 cfm @ 0.6" w.c.   |                                                                                                                                               |                        |   |   |   |                                              |  |



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

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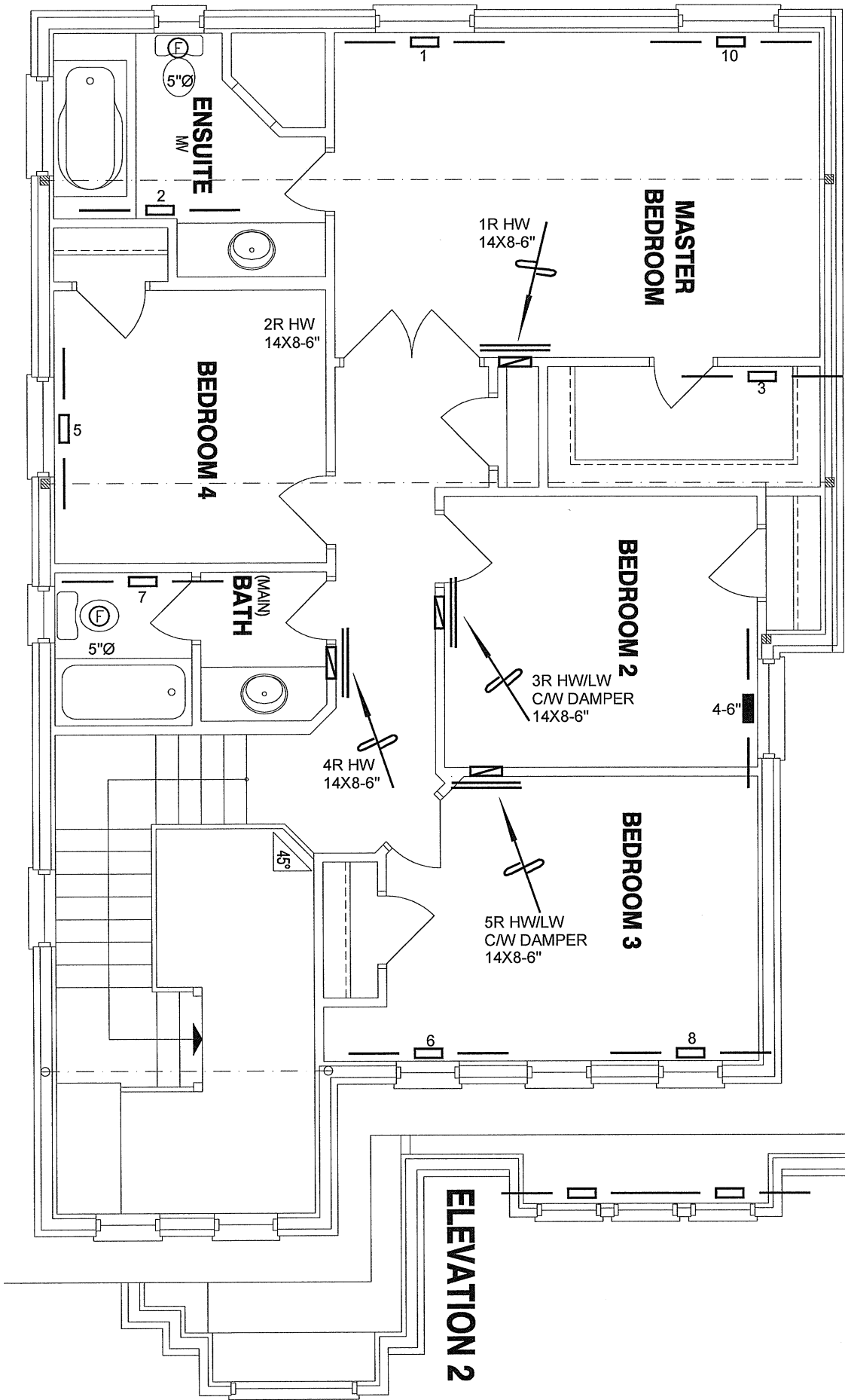
CSA-F280-12

PACKAGE A1

| HVAC LEGEND |                           |        |                                 |        |                              | 3.     |                            |           |
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|                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                  |               |
|------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------|
| 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                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | FIRST FLOOR<br>HEATING<br>LAYOUT |               |
| Project Name                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Date                             | JUNE/2018     |
| GRANELLI HOMES CORP<br>BRAMPTON, ONTARIO |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Scale                            | 3/16" = 1'-0" |
| ALT 2ND FL<br>LIANA 1                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | BCIN# 19669                      |               |
| 2041 sqft                                |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | LO#                              | 78999         |



LIANA 1  
OPTIONAL  
ELEVATION 1 4 BEDROOM

ELEVATION 2

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| Project Name<br>GRANELLI HOMES CORP<br>BRAMPTON, ONTARIO |  |                                                                                                                                                                                                                                                                                                                                          | Date<br>JUNE/2018                 |       |
| ALT 2ND FL<br>LIANA 1                                    |  |                                                                                                                                                                                                                                                                                                                                          | Scale<br>3/16" = 1'-0"            |       |
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