

## 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><b>MICHAEL O'ROURKE</b>         |                                | Firm<br><b>HVAC DESIGNS LTD.</b> |                                      |
| Street address<br><b>375 FINLEY AVE</b> |                                | Unit no.<br><b>202</b>           | Lot/con.<br><b>N/A</b>               |
| Municipality<br><b>AJAX</b>             | Postal code<br><b>L1S 2E2</b>  | Province<br><b>ONTARIO</b>       | E-mail<br><b>info@hvacdesigns.ca</b> |
| 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             | <input checked="" type="checkbox"/> HVAC – House       | <input type="checkbox"/> Building Structural      |
| <input type="checkbox"/> Small Buildings   | <input type="checkbox"/> Building Services             | <input type="checkbox"/> Plumbing – House         |
| <input type="checkbox"/> Large Buildings   | <input type="checkbox"/> Detection, Lighting and Power | <input type="checkbox"/> Plumbing – All Buildings |
| <input type="checkbox"/> Complex Buildings | <input type="checkbox"/> Fire Protection               | <input type="checkbox"/> On-site Sewage Systems   |

Description of designer's work  
**HEAT LOSS / GAIN CALCULATIONS  
DUCT SIZING**

**Model: 41-2**

**RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY  
RESIDENTIAL SYSTEM DESIGN per CSA-F280-12**

**Project: ENCORE**

### D. Declaration of Designer

I MICHAEL O'ROURKE declare that (choose one as appropriate):  
(print name)

- ☐ 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.

Individual BCIN: \_\_\_\_\_

Firm BCIN: \_\_\_\_\_

- ☒ 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.

Individual BCIN: 19669

Basis for exemption from registration and qualification: O.B.C SENTENCE 3.2.4.1 (4)

- ☐ The design work is exempt from the registration and qualification requirements of the Building Code.

Basis for exemption from registration and qualification: \_\_\_\_\_

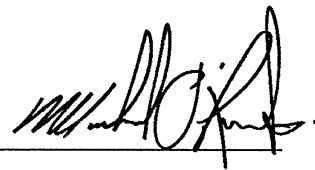
I certify that:

- The information contained in this schedule is true to the best of my knowledge.
- I have submitted this application with the knowledge and consent of the firm.

March 7, 2017

Date

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.

SITE NAME: ENCORE  
BUILDER: GOLD PARK HOMES  
TYPE: 41-2  
DATE: Mar-17  
LO# 72718  
GFA: 2723  
WINTER NATURAL AIR CHANGE RATE 0.324  
SUMMER NATURAL AIR CHANGE RATE 0.115  
HEAT LOSS AT °F. 74  
HEAT GAIN AT °F. 14  
CSA-F280-12  
SB-12 PACKAGE A1

| ROOM USE                       | MBR       | ENS       | WIC       | BED-2     | BED-3     | BED-4     | ENS-2     | WIC-2     | BATH      |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| EXP. WALL                      | 33        | 12        | 10        | 15        | 33        | 29        | 16        | 9         | 5         |
| CLG. HT.                       | 10        | 9         | 9         | 9         | 9         | 9         | 9         | 9         | 9         |
| GRS.WALL AREA                  | 330       | 108       | 90        | 135       | 297       | 261       | 144       | 81        | 45        |
| GLAZING                        | LOSS GAIN | LOSS GAIN | LOSS GAIN | LOSS GAIN | LOSS GAIN | LOSS GAIN | LOSS GAIN | LOSS GAIN | LOSS GAIN |
| NORTH                          | 0         | 0         | 0         | 0         | 6         | 8         | 0         | 0         | 0         |
| EAST                           | 30        | 17        | 0         | 0         | 0         | 0         | 0         | 0         | 0         |
| SOUTH                          | 622       | 352       | 0         | 0         | 0         | 0         | 7         | 6         | 0         |
| WEST                           | 20.7      | 0         | 0         | 20        | 414       | 505       | 145       | 177       | 0         |
| SKYL.T.                        | 20.7      | 41.9      | 0         | 0         | 30        | 822       | 1257      | 0         | 14        |
| DOORS                          | 20.7      | 86.9      | 0         | 0         | 0         | 36        | 746       | 1508      | 290       |
| NET EXPOSED WALL               | 4.3       | 0.8       | 391       | 115       | 500       | 217       | 595       | 113       | 31        |
| NET EXPOSED BSMT WALL ABOVE GR | 3.5       | 0.7       | 0         | 0         | 0         | 0         | 0         | 0         | 25        |
| EXPOSED CLG                    | 1.2       | 0.6       | 185       | 231       | 112       | 210       | 262       | 128       | 91        |
| NO ATTIC EXPOSED CLG           | 2.7       | 1.3       | 0         | 0         | 0         | 0         | 0         | 0         | 55        |
| EXPOSED FLOOR                  | 2.5       | 0.5       | 105       | 261       | 49        | 210       | 521       | 99        | 65        |
| BASEMENT/CRAWL HEAT LOSS       | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 161       |
| SLAB ON GRADE HEAT LOSS        | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 31        |
| SUBTOTAL HT LOSS               | 2265      | 916       | 883       | 1251      | 2190      | 2638      | 815       | 619       | 700       |
| SUB TOTAL HT GAIN              | 0.20      | 0.25      | 0.20      | 0.25      | 0.20      | 0.25      | 0.20      | 0.25      | 0.20      |
| LEVEL FACTOR / MULTIPLIER      | 574       | 232       | 224       | 317       | 555       | 669       | 207       | 157       | 177       |
| AIR CHANGE HEAT LOSS           | 102       | 53        | 14        | 46        | 104       | 124       | 20        | 18        | 42        |
| AIR CHANGE HEAT GAIN           | 0         | 0         | 111       | 0         | 274       | 331       | 0         | 0         | 88        |
| DUCT LOSS                      | 0         | 0         | 25        | 0         | 267       | 303       | 0         | 0         | 98        |
| DUCT GAIN                      | 2         | 480       | 1         | 240       | 1         | 240       | 0         | 0         | 240       |
| HEAT GAIN PEOPLE               | 618       | 618       | 0         | 618       | 618       | 618       | 0         | 0         | 0         |
| HEAT GAIN APPLIANCES/LIGHTS    | 2839      | 1149      | 1217      | 1569      | 3019      | 3638      | 1022      | 776       | 985       |
| TOTAL HT LOSS BTU/H            | 3728      | 2314      | 358       | 2168      | 3813      | 4326      | 449       | 407       | 1402      |
| TOTAL HT GAIN x 1.3 BTU/H      |           |           |           |           |           |           |           |           |           |

| ROOM USE                       | SENT      | DIN       | KTIFM     | LAUN      | WIR       | FOY       | BAS       |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| EXP. WALL                      | 8         | 25        | 76        | 24        | 13        | 19        | 164       |
| CLG. HT.                       | 10        | 10        | 10        | 11        | 10        | 10        | 9         |
| GRS.WALL AREA                  | 80        | 250       | 760       | 264       | 130       | 190       | 984       |
| GLAZING                        | LOSS GAIN | LOSS GAIN | LOSS GAIN | LOSS GAIN | LOSS GAIN | LOSS GAIN | LOSS GAIN |
| NORTH                          | 0         | 0         | 0         | 0         | 0         | 0         | 0         |
| EAST                           | 0         | 0         | 0         | 0         | 0         | 0         | 3         |
| SOUTH                          | 0         | 24        | 122       | 0         | 207       | 252       | 62        |
| WEST                           | 0         | 497       | 606       | 0         | 0         | 0         | 124       |
| SKYL.T.                        | 0         | 0         | 0         | 0         | 0         | 0         | 151       |
| DOORS                          | 0         | 0         | 0         | 0         | 0         | 0         | 0         |
| NET EXPOSED WALL               | 4.3       | 0.8       | 538       | 2772      | 524       | 142       | 492       |
| NET EXPOSED BSMT WALL ABOVE GR | 3.5       | 0.7       | 0         | 0         | 0         | 0         | 20        |
| EXPOSED CLG                    | 1.2       | 0.6       | 15        | 19        | 9         | 0         | 492       |
| NO ATTIC EXPOSED CLG           | 2.7       | 1.3       | 0         | 0         | 0         | 0         | 326       |
| EXPOSED FLOOR                  | 2.5       | 0.5       | 0         | 0         | 0         | 0         | 0         |
| BASEMENT/CRAWL HEAT LOSS       | 0         | 0         | 0         | 0         | 0         | 0         | 0         |
| SLAB ON GRADE HEAT LOSS        | 0         | 0         | 0         | 0         | 0         | 0         | 0         |
| SUBTOTAL HT LOSS               | 752       | 1479      | 5319      | 1552      | 729       | 1766      | 5662      |
| SUB TOTAL HT GAIN              | 0.30      | 0.40      | 0.30      | 0.40      | 0.30      | 0.40      | 0.50      |
| LEVEL FACTOR / MULTIPLIER      | 142       | 791       | 5644      | 294       | 351       | 638       | 8064      |
| AIR CHANGE HEAT LOSS           | 303       | 595       | 2141      | 625       | 293       | 711       | 0.96      |
| AIR CHANGE HEAT GAIN           | 9         | 48        | 344       | 18        | 21        | 39        | 7779      |
| DUCT LOSS                      | 0         | 0         | 0         | 0         | 0         | 0         | 0         |
| DUCT GAIN                      | 0         | 0         | 0         | 0         | 0         | 0         | 0         |
| HEAT GAIN PEOPLE               | 0         | 0         | 1         | 240       | 0         | 0         | 0         |
| HEAT GAIN APPLIANCES/LIGHTS    | 1055      | 618       | 618       | 618       | 0         | 0         | 0         |
| TOTAL HT LOSS BTU/H            | 196       | 1895      | 8899      | 2177      | 1022      | 2477      | 15843     |
| TOTAL HT GAIN x 1.3 BTU/H      |           |           |           |           |           |           | 960       |

TOTAL HEAT GAIN BTU/H: 34325  
TONS: 2.86  
LOSS DUE TO VENTILATION LOAD BTU/H: 2777  
STRUCTURAL HEAT LOSS: 48301  
TOTAL COMBINED HEAT LOSS BTU/H: 51078  
INDIVIDUAL BCIN: 15669  
MICHAEL O'ROURKE

DATE: Mar-17 GFA: 2723 LO# 72718

TYPE: 41-2

**BUILDER: GOLD PA**

**BUILDER:**

|                   |        |                   |        |
|-------------------|--------|-------------------|--------|
| HEATING CFM       | 1100   | COOLING CFM       | 1100   |
| TOTAL HEAT LOSS   | 48,301 | TOTAL HEAT GAIN   | 33,799 |
| AIR FLOW RATE CFM | 22.77  | AIR FLOW RATE CFM | 32.55  |

| Parameter          | Value |
|--------------------|-------|
| furnace pressure   | 0.05  |
| furnace filter     | 0.05  |
| a/c coil pressure  | 0.2   |
| available pressure | 0.2   |

EL296UH070XE36B  
FAN SPEED 70  
^LENNOX

AFUE = 96 %  
INPUT (BTU/H) = 66,000  
OUTPUT (BTU/H) = 64,000

| RUN COUNT | 4th | 3rd | 2nd | 1st | Bas |
|-----------|-----|-----|-----|-----|-----|
| S/A       | 0   | 0   | 10  | 8   | 4   |
| R/A       | 0   | 0   | 4   | 2   | 1   |

|                         |      |                        |      |
|-------------------------|------|------------------------|------|
| plenum pressure s/a     | 0.18 | r/a pressure           | 0.17 |
| max s/a dif press. loss | 0.03 | r/a grille press. Loss | 0.02 |

DESIGN CFM =  $\frac{1100}{\text{CFM @ .6" E.S.P.}}$

All S/A diffusers 4"x10" unless noted otherwise on layout.  
All S/A runs 5"Ø unless noted otherwise on layout.

|                       |     |      |                   |     |      |
|-----------------------|-----|------|-------------------|-----|------|
| min adjusted pressure | s/a | 0.15 | adjusted pressure | r/a | 0.15 |
|-----------------------|-----|------|-------------------|-----|------|

TEMPERATURE RISE 54

| ROOM NAME                 | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 11   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MBR                       | 3.73 | 2.31 | 0.36 | 2.17 | 3.81 | 2.16 | 0.45 | 0.41 | 2.16 | 1.40 | 1.89 | 2.97 | 2.97 | 2.97 | 1.52 | 0.48 | 0.88 | 0.20 | 0.24 | 0.24 | 0.24 | 0.24 |
| RM LOSS MBH:              | 2.84 | 1.15 | 1.22 | 1.57 | 3.02 | 1.82 | 1.02 | 0.78 | 1.82 | 0.97 | 2.07 | 2.49 | 2.49 | 2.49 | 2.18 | 1.02 | 2.48 | 1.06 | 3.96 | 3.96 | 3.96 | 3.96 |
| CFM PER RUN HEAT          | 65   | 26   | 28   | 36   | 69   | 41   | 23   | 18   | 41   | 22   | 47   | 57   | 57   | 57   | 50   | 23   | 56   | 24   | 90   | 90   | 90   | 90   |
| RM GAIN MBH:              | 3.73 | 2.31 | 0.36 | 2.17 | 3.81 | 2.16 | 0.45 | 0.41 | 2.16 | 1.40 | 1.89 | 2.97 | 2.97 | 2.97 | 1.52 | 0.48 | 0.88 | 0.20 | 0.24 | 0.24 | 0.24 | 0.24 |
| CFM PER RUN COOLING       | 121  | 75   | 12   | 71   | 124  | 70   | 15   | 13   | 70   | 46   | 62   | 97   | 97   | 97   | 49   | 16   | 29   | 6    | 8    | 8    | 8    | 8    |
| ADJUSTED PRESSURE         | 0.15 | 0.17 | 0.17 | 0.17 | 0.15 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.16 | 0.16 | 0.16 | 0.16 | 0.17 | 0.17 | 0.17 | 0.17 | 0.16 | 0.16 | 0.16 | 0.16 |
| ACTUAL DUCT LGH:          | 45   | 68   | 33   | 41   | 52   | 50   | 59   | 40   | 45   | 39   | 33   | 40   | 23   | 34   | 30   | 44   | 43   | 22   | 35   | 30   | 25   | 35   |
| EQUIVALENT LENGTH         | 150  | 200  | 160  | 130  | 130  | 170  | 160  | 130  | 150  | 160  | 100  | 150  | 160  | 170  | 140  | 120  | 110  | 180  | 170  | 100  | 100  | 130  |
| TOTAL EFFECTIVE LENGTH    | 195  | 288  | 193  | 171  | 182  | 220  | 219  | 170  | 195  | 199  | 133  | 190  | 183  | 204  | 170  | 164  | 153  | 202  | 205  | 130  | 125  | 165  |
| ADJUSTED PRESSURE         | 0.08 | 0.06 | 0.09 | 0.1  | 0.08 | 0.08 | 0.08 | 0.1  | 0.09 | 0.09 | 0.13 | 0.09 | 0.09 | 0.08 | 0.1  | 0.1  | 0.11 | 0.09 | 0.08 | 0.12 | 0.13 | 0.1  |
| ROUND DUCT SIZE           | 6    | 6    | 4    | 5    | 6    | 5    | 4    | 4    | 5    | 4    | 4    | 6    | 6    | 6    | 4    | 4    | 4    | 6    | 5    | 5    | 5    | 5    |
| HEATING VELOCITY (ft/min) | 331  | 133  | 321  | 264  | 352  | 301  | 264  | 207  | 301  | 252  | 539  | 291  | 291  | 291  | 574  | 264  | 642  | 275  | 459  | 661  | 661  | 661  |
| COOLING VELOCITY (ft/min) | 617  | 382  | 138  | 521  | 632  | 514  | 172  | 149  | 514  | 528  | 711  | 495  | 495  | 495  | 562  | 184  | 333  | 69   | 41   | 59   | 59   | 59   |
| OUTLET GRILL SIZE         | 4X10 | 4X10 | 3X10 | 3X10 | 4X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 4X10 | 4X10 | 4X10 | 3X10 | 3X10 | 3X10 | 3X10 | 4X10 | 3X10 | 3X10 | 3X10 |
| TRUNK                     | 4X10 | 4X10 | 3X10 | 3X10 | 4X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 3X10 | 4X10 | 4X10 | 4X10 | 3X10 | 3X10 | 3X10 | 3X10 | 4X10 | 3X10 | 3X10 | 3X10 |

| RUN #                     |
|---------------------------|
| ROOM NAME                 |
| RM LOSS MBH.              |
| CFM PER RUN HEAT          |
| RM GAIN MBH.              |
| CFM PER RUN COOLING       |
| ADJUSTED PRESSURE         |
| ACTUAL DUCT LGH.          |
| EQUIVALENT LENGTH         |
| TOTAL EFFECTIVE LENGTH    |
| ADJUSTED PRESSURE         |
| ROUND DUCT SIZE           |
| HEATING VELOCITY (ft/min) |
| COOLING VELOCITY (ft/min) |
| OUTLET GRILL SIZE         |
| TRUNK                     |

| SUPPLY AIR TRUNK SIZE |        |      |        |      |       |      |      |         |          | RETURN AIR TRUNK SIZE |       |        |      |        |      |       |         |      |      |          |   |   |   |   |
|-----------------------|--------|------|--------|------|-------|------|------|---------|----------|-----------------------|-------|--------|------|--------|------|-------|---------|------|------|----------|---|---|---|---|
| TRUNK                 |        |      | STATIC |      | ROUND |      | RECT |         | VELOCITY |                       | TRUNK |        |      | STATIC |      | ROUND |         | RECT |      | VELOCITY |   |   |   |   |
| CFM                   | PRESS. | DUCT | DUCT   | DUCT | DUCT  | DUCT | DUCT | DUCT    | DUCT     | (ft/min)              | CFM   | PRESS. | DUCT | DUCT   | DUCT | DUCT  | DUCT    | DUCT | DUCT | (ft/min) |   |   |   |   |
| TRUNK A               | 238    | 0.08 | 8.2    | 8    | X     | 8    | 536  | TRUNK G | 0        | 0.00                  | 0     | 0      | 0    | X      | 8    | 0     | TRUNK O | 0    | 0.06 | 0        | 0 | X | 8 | 0 |
| TRUNK B               | 571    | 0.08 | 11.4   | 16   | X     | 8    | 642  | TRUNK H | 0        | 0.00                  | 0     | 0      | 0    | X      | 8    | 0     | TRUNK P | 0    | 0.06 | 0        | 0 | X | 8 | 0 |
| TRUNK C               | 375    | 0.06 | 10.4   | 12   | X     | 8    | 563  | TRUNK I | 0        | 0.00                  | 0     | 0      | 0    | X      | 8    | 0     | TRUNK Q | 0    | 0.06 | 0        | 0 | X | 8 | 0 |
| TRUNK D               | 529    | 0.06 | 11.9   | 16   | X     | 8    | 595  | TRUNK J | 0        | 0.00                  | 0     | 0      | 0    | X      | 8    | 0     | TRUNK R | 0    | 0.06 | 0        | 0 | X | 8 | 0 |
| TRUNK E               | 1100   | 0.06 | 15.6   | 28   | X     | 8    | 707  | TRUNK K | 0        | 0.00                  | 0     | 0      | 0    | X      | 8    | 0     | TRUNK S | 0    | 0.06 | 0        | 0 | X | 8 | 0 |
| TRUNK F               | 0      | 0.00 | 0      | 0    | X     | 8    | 0    | TRUNK L | 0        | 0.00                  | 0     | 0      | 0    | X      | 8    | 0     | TRUNK T | 0    | 0.06 | 0        | 0 | X | 8 | 0 |

[illegible]

REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C. 3.2.5 OF THE BUILDING CODE.

INDIVIDUAL BCIN: 19669  
MICHAEL O'ROURKE

TYPE: 41-2  
SITE NAME: ENCORE

LO # 72718

**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        | 5 @ 10.6 cfm | 53 cfm      |
| Other Rooms                | 5 @ 10.6 cfm | 53.0 cfm    |
| Table 9.32.3.A.            | TOTAL        | 180.2 cfm   |

| PRINCIPAL VENTILATION CAPACITY REQUIRED |          | 9.32.3.4.(1) |
|-----------------------------------------|----------|--------------|
| 1 Bedroom                               | 31.8 cfm |              |
| 2 Bedroom                               | 47.7 cfm |              |
| 3 Bedroom                               | 63.6 cfm |              |
| 4 Bedroom                               | 79.5 cfm |              |
| 5 Bedroom                               | 95.4 cfm |              |
| More than 5 - Part 6                    | TOTAL    | 79.5 cfm     |

| SUPPLEMENTAL VENTILATION CAPACITY |       | 9.32.3.5. |
|-----------------------------------|-------|-----------|
| Total Ventilation Capacity        | 180.2 | cfm       |
| Less Principal Ventil. Capacity   | 139   | cfm       |
| Required Supplemental Capacity    | 41.2  | cfm       |

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

| PRINCIPAL EXHAUST HEAT LOSS CALCULATION |       |        |        |      |
|-----------------------------------------|-------|--------|--------|------|
| CFM                                     | ΔT °F | FACTOR | % LOSS |      |
| 139.0 CFM                               | 74 F  | 1.08   | X      | 0.25 |

| SUPPLEMENTAL FANS |           | NUTONE |     |
|-------------------|-----------|--------|-----|
| Location          | Model     | cfm    | HVI |
| ENS               | QTXEN050C | 50     | ✓   |
| ENS-2             | QTXEN050C | 50     | ✓   |
| BATH              | QTXEN050C | 50     | ✓   |
| W/R               | QTXEN050C | 50     | ✓   |

| HEAT RECOVERY VENTILATOR |                                                  | 9.32.3.11. |
|--------------------------|--------------------------------------------------|------------|
| Model: VANEE 60H-V+      |                                                  |            |
| 139 cfm high             | 50 cfm low                                       |            |
| 75 % Sensible Efficiency | <input checked="" type="checkbox"/> HVI Approved |            |
| @ 32 deg F ( 0 deg C)    |                                                  |            |

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

| BUILDER: GOLD PARK 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:                                                                                                         | March-17                |

**HEAT LOSS AND GAIN SUMMARY SHEET****MODEL:** 41-2**BUILDER:** GOLD PARK HOMES**SFQT:** 2723**LO#** 72718**SITE:** ENCORE**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:                                     | WEST            | 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 (ft <sup>3</sup> ):                 | 36257.0         | ASSUMED (Y/N):            | Y        |
| INTERNAL SHADING:                                | BLINDS/CURTAINS | ASSUMED OCCUPANTS:        | 5        |
| INTERIOR LIGHTING LOAD (Btu/h/ft <sup>2</sup> ): | 1.27            | DC BRUSHLESS MOTOR (Y/N): | Y        |
| FOUNDATION CONFIGURATION                         | BCIN_1          | DEPTH BELOW GRADE:        | 6.0 ft   |
| LENGTH: 48.0 ft                                  | WIDTH: 34.0 ft  | EXPOSED PERIMETER:        | 164.0 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    | 29.8  |
| 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   | -     |

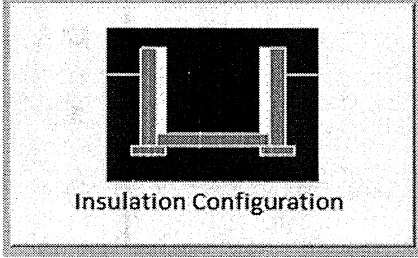
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

*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):              | 14.6                                      | <br>Insulation Configuration |
| Floor Width (m):               | 10.4                                      |                                                                                                                 |
| Exposed Perimeter (m):         | 0.0                                       |                                                                                                                 |
| Wall Height (m):               | 2.7                                       |                                                                                                                 |
| Depth Below Grade (m):         | 1.8                                       |                                                                                                                 |
| Window Area (m <sup>2</sup> ): | 0.8                                       |                                                                                                                 |
| Door Area (m <sup>2</sup> ):   | 1.9                                       |                                                                                                                 |
| Radiant Slab                   |                                           |                                                                                                                 |
| Heated Fraction of the Slab:   | 0                                         |                                                                                                                 |
| Fluid Temperature (°C):        | 33                                        |                                                                                                                 |
| Design Months                  |                                           |                                                                                                                 |
| Heating Month                  | 1                                         |                                                                                                                 |
| Foundation Loads               |                                           |                                                                                                                 |
| Heating Load (Watts):          | 1659                                      |                                                                                                                 |

TYPE: 41-2

LO# 72718

# 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> ):   | 1026.7                     |                        |    |    |
| Air Leakage/Ventilation           |                            |                        |    |    |
| Air Tightness Type:               | Present (1961-) (3.57 ACH) |                        |    |    |
| Custom BDT Data:                  | ELA @ 10 Pa.               | 1368.6 cm <sup>2</sup> |    |    |
|                                   | 3.57                       | ACH @ 50 Pa            |    |    |
| Mechanical Ventilation (L/s):     | Total Supply               | Total Exhaust          |    |    |
|                                   | 65.6                       | 65.6                   |    |    |
| Flue Size                         |                            |                        |    |    |
| Flue #:                           | #1                         | #2                     | #3 | #4 |
| Diameter (mm):                    | 0                          | 0                      | 0  | 0  |
| Natural Infiltration Rates        |                            |                        |    |    |
| Heating Air Leakage Rate (ACH/H): | 0.324                      |                        |    |    |
| Cooling Air Leakage Rate (ACH/H): | 0.115                      |                        |    |    |

TYPE: 41-2  
LO# 72718

CSA-F280-12  
PACKAGE A1

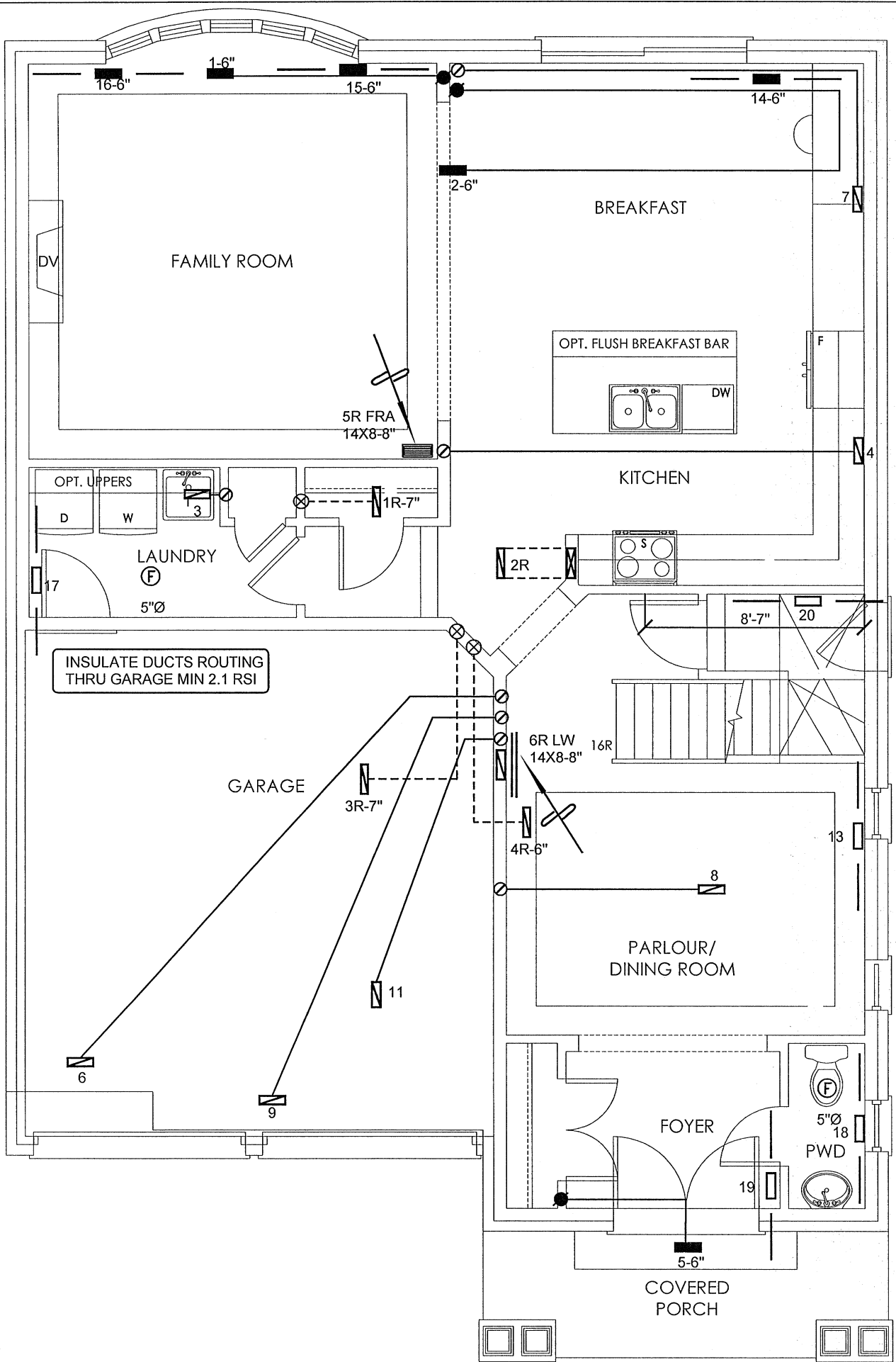
I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

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

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

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|                                                                                                                                                                                                                                                         |  |                                                                                                                                                                                                                                                                                                                                         |                                    |                                                                                                                                                |                        |   |           |   |             |                |             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---|-----------|---|-------------|----------------|-------------|
| Client                                                                                                                                                                                                                                                  |  | <div></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> | HEAT LOSS 51078 BTU/H<br>UNIT DATA |                                                                                                                                                | # OF RUNS S/A R/A FANS |   |           |   | Sheet Title |                |             |
| GOLD PARK HOMES                                                                                                                                                                                                                                         |  |                                                                                                                                                                                                                                                                                                                                         | MAKE                               | LENNOX                                                                                                                                         | 3RD FLOOR              |   |           |   |             | BASEMENT       |             |
| Project Name                                                                                                                                                                                                                                            |  |                                                                                                                                                                                                                                                                                                                                         | MODEL                              | EL296UH070XE36B                                                                                                                                | 2ND FLOOR              |   | 10        | 4 | 4           | HEATING LAYOUT |             |
| ENCORE<br>BRAMPTON, ONTARIO                                                                                                                                                                                                                             |  |                                                                                                                                                                                                                                                                                                                                         | INPUT                              | 66 MBTU/H                                                                                                                                      | 1ST FLOOR              |   | 8         | 2 | 2           | Date           | MAR/2017    |
| 41-2                                                                                                                                                                                                                                                    |  | OUTPUT                                                                                                                                                                                                                                                                                                                                  | 64 MBTU/H                          | BASEMENT                                                                                                                                       |                        | 4 | 1         | 0 | Scale       | 3/16" = 1'-0"  |             |
| 2723 sqft                                                                                                                                                                                                                                               |  | COOLING                                                                                                                                                                                                                                                                                                                                 | 3.0 TONS                           | ALL S/A DIFFUSERS 4 "X10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5'0" UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A |                        |   |           |   |             |                | BCIN# 19669 |
| 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. |  | FAN SPEED                                                                                                                                                                                                                                                                                                                               |                                    | 1100                                                                                                                                           | cfm @ 0.5" w.g.        |   | LO# 72718 |   |             |                |             |



1 MICHAEL O'ROURKE HAVE REVIEW  
AND TAKE RESPONSIBILITY FOR THE  
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*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

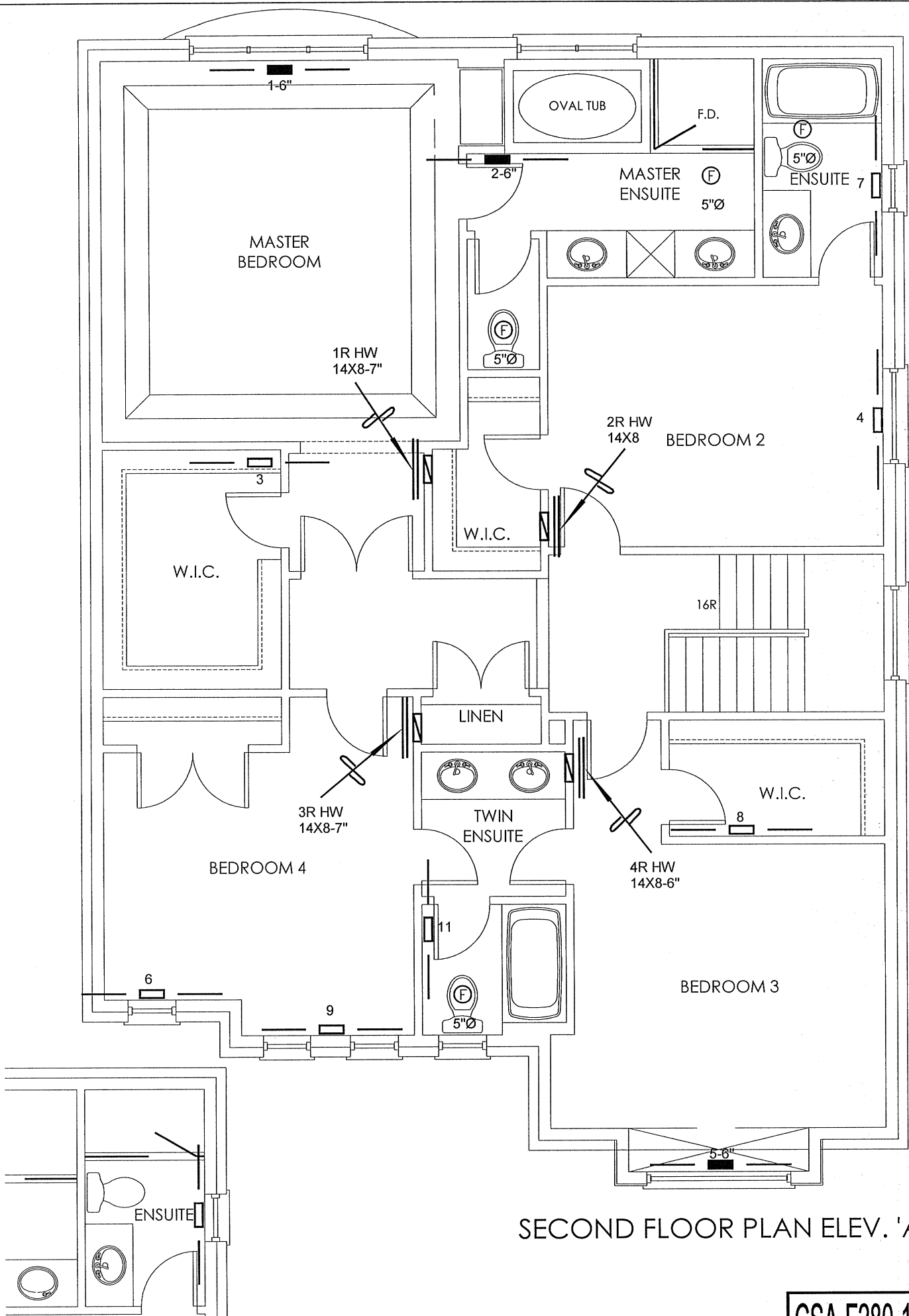
GROUND FLOOR PLAN ELEV. 'A'

CSA-F280-12  
PACKAGE A1

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

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|                             |           |                                                                                                                                                                                                                                                                                                                                    |                                  |               |
|-----------------------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------|
| Client                      |           | <div><p>375 Finley Ave. Suite 202 - Ajax, Ontario<br/>L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375<br/>Email: info@hvacdesigns.ca<br/>Web: www.hvacdesigns.ca<br/>Specializing in Residential Mechanical Design Services</p></div> | Sheet Title                      |               |
| GOLD PARK HOMES             |           |                                                                                                                                                                                                                                                                                                                                    | FIRST FLOOR<br>HEATING<br>LAYOUT |               |
| Project Name                |           | <p>Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper.<br/>Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.</p>                                                                 | Date                             | MAR/2017      |
| ENCORE<br>BRAMPTON, ONTARIO |           |                                                                                                                                                                                                                                                                                                                                    | Scale                            | 3/16" = 1'-0" |
|                             |           |                                                                                                                                                                                                                                                                                                                                    | BCIN# 19669                      |               |
| 41-2                        | 2723 sqft |                                                                                                                                                                                                                                                                                                                                    | LO#                              | 72718         |



SECOND FLOOR PLAN ELEV. 'A'

PARTIAL OPT. ENSUITE PLAN

CSA-F280-12  
PACKAGE A1

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

| HVAC LEGEND |                                 |        |                                 |        |                              |        |                            | 3.        |             |      |
|-------------|---------------------------------|--------|---------------------------------|--------|------------------------------|--------|----------------------------|-----------|-------------|------|
| SYMBOL      | DESCRIPTION                     | SYMBOL | DESCRIPTION                     | SYMBOL | DESCRIPTION                  | SYMBOL | DESCRIPTION                | 2.        |             |      |
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|                                             |  |                                                                                                                                                                                                                                                                                                                                    |                                                  |           |
|---------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-----------|
| Client<br>GOLD PARK HOMES                   |  | <div><p>375 Finley Ave. Suite 202 - Ajax, Ontario<br/>L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375<br/>Email: info@hvacdesigns.ca<br/>Web: www.hvacdesigns.ca<br/>Specializing in Residential Mechanical Design Services</p></div> | Sheet Title<br>SECOND FLOOR<br>HEATING<br>LAYOUT |           |
| Project Name<br>ENCORE<br>BRAMPTON, ONTARIO |  |                                                                                                                                                                                                                                                                                                                                    | Date<br>MAR/2017                                 |           |
| 41-2                                        |  | 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.                                                                         | Scale<br>3/16" = 1'-0"                           |           |
| 2723 sqft                                   |  |                                                                                                                                                                                                                                                                                                                                    | BCIN# 19669                                      |           |
|                                             |  |                                                                                                                                                                                                                                                                                                                                    |                                                  | LO# 72718 |