



**CITY OF BRAMPTON – BUILDING DIVISION**

| <b><u>HVAC DESIGNS</u></b> |                        |              |                               |
|----------------------------|------------------------|--------------|-------------------------------|
| APPLICATION NO.:           | 19-567619 000 00 CM    | FOLDER TYP.: | <b>CM</b>                     |
| DESCRIPTION OF PROJECT:    | PLAN M2039             | SUB TYP.:    | <b>Single Family Detached</b> |
| BUILDERS NAME:             | <b>GOLD PARK HOMES</b> |              |                               |
| PLAN NUMBER:               |                        | MODEL NAME:  | <b>2017/38-10</b>             |

| <b>CERTIFIED MODEL DOCUMENTS</b> |                                         |                                    |            |
|----------------------------------|-----------------------------------------|------------------------------------|------------|
| <b>PAGES:</b>                    | <b>DESCRIPTION OF DOCUMENTS</b>         |                                    |            |
| <b>D</b>                         | <b>HVAC LAYOUTS / HVAC CALCULATIONS</b> |                                    |            |
|                                  | <b>ELEVATION</b>                        | <b>DESCRIPTION (I.E. OPTIONS):</b> |            |
| 2                                |                                         | 4 BEDROOMS                         |            |
| 3                                |                                         |                                    |            |
|                                  |                                         |                                    |            |
|                                  |                                         |                                    |            |
|                                  |                                         |                                    |            |
|                                  |                                         |                                    |            |
| <b>ENTERED BY:</b>               | Name                                    | <b>DATE:</b>                       | 2019/12/13 |



**BRAMPTON**  
Flower City

Planning and Development Services  
Building Division  
8850 McLaughlin Road, Unit 1  
Brampton, ON L6Y 5T1

### WATER PIPE SIZING AND PLUMBING DATA SHEET

#### CERTIFIED MODEL WITH ONE DWELLING UNIT

THIS TABLE IS APPLICABLE FOR A HOUSE AFTER DECEMBER 31, 2017

Builder Name: Fieldwalk Investments Inc.  
Certified Model Name: 38-10  
Optional Floor Layout:  
Application No.:

CITY OF BRAMPTON  
BUILDING DIVISION  
REVIEWED BY: S. DESAI

DEC 12 2019 SD

ATTACHED NOTES ARE PART  
OF REVIEWED DRAWINGS  
ALL WORK MUST COMPLY WITH OBC

The Ontario Building Code Div. B, 7.6.3 regulates size and capacity of pipes for a new house. Please enter the number of individual fixtures as listed and bathroom groups<sup>(6)</sup> or powder room groups<sup>(7)</sup> per floor. The fixture units and required minimum size of water service will automatically be calculated.

| Description                   | Basement Floor | First Floor | Second Floor | Third Floor |
|-------------------------------|----------------|-------------|--------------|-------------|
|                               | Qty.           | Qty.        | Qty.         | Qty.        |
| Bathroom group <sup>(6)</sup> | 1              | 0           | 3            | 0           |
| Bidet                         | 0              | 0           | 0            | 0           |
| Extra Shower                  | 0              | 0           | 0            | 0           |
| Lav                           | 0              | 1           | 2            | 0           |
| Bar Sink                      | 0              | 0           | 0            | 0           |
| Powder room <sup>(7)</sup>    | 0              | 1           | 0            | 0           |
| Kitchen Sink                  | 0              | 1           | 0            | 0           |
| Dishwasher                    | 0              | 1           | 0            | 0           |
| Laundry Tub                   | 0              | 0           | 1            | 0           |
| Washing Machine               | 0              | 0           | 1            | 0           |
| Hose Bib                      | 0              | 2           | 0            | 0           |

Total Fixture Units 30.7  
Minimum Diametre of Water Service Pipe  
Required from the Property Line to the House (Inch) 1

#### Notes:

- (1) A potable water system shall be designed, constructed and installed to conform to good engineering practice appropriate to the circumstances, such as that described in the ASHRAE Handbooks and ASPE Data Books.
- (2) No water system between the point of connection with the water service pipe or the water meter and the first branch that supplies a water heater that serves more than one fixture shall be less than ¾ in. in size.
- (3) The minimum water pressure at the entry to the building is 200 kPa, and the total maximum length of the water system is 90 m.
- (4) In a hot water distribution system of a developed length of more than 30 m from the HWT to the farthest fixture or supplying more than 4 storeys, the water temperature shall be maintained by, (a) recirculation, or (b) a self-regulating heat tracing system.
- (5) Where piping may be exposed to freezing conditions, it shall be protected from the effects of freezing.
- (6) A bathroom group consists of 1 water closet, 1 lavatory, and 1 bathtub (with or without showerhead)
- (7) A powder room group consists of 1 water closet and 1 lavatory.

CITY OF BRAMPTON  
BUILDING DIVISION  
REVIEWED BY: S. DESAI

DEC 12 2019

ATTACHED NOTES  
OF REVIEWED DRAWINGS  
ALL WORK MUST COMPLY WITH OBC

# Energy Efficiency Design Summary: Prescriptive Method

(Building Code Part 9, Residential)

This form is used by a designer to demonstrate that the energy efficiency design of a house complies with the building code using the prescriptive method described in Subsection 3.1.1. of SB-12. This form is applicable where the ratio of gross area of windows/sidelights/skylights/glazing in doors and sliding glass doors to the gross area of peripheral walls is not more than 22%.

|                                      |                            |                                                                                                                                                                                                          |
|--------------------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| For use by Principal Authority       |                            | <b>CITY OF BRAMPTON</b><br><b>BUILDING DIVISION</b><br><b>REVIEWED BY: S. DESAI</b><br><b>DEC 12 2019</b><br><b>ATTACHED NOTES ARE PART OF REVIEWED DRAWINGS</b><br><b>ALL WORK MUST COMPLY WITH OBC</b> |
| Application No:                      | Model/Certification Number |                                                                                                                                                                                                          |
| <b>A. Project Information</b>        |                            |                                                                                                                                                                                                          |
| Building number, street name         |                            | Unit number                                                                                                                                                                                              |
| Municipality                         |                            | Lot/Con                                                                                                                                                                                                  |
| BRAMPTON                             | Postal code                | 38-10 A                                                                                                                                                                                                  |
| Reg. Plan number / other description |                            |                                                                                                                                                                                                          |

## B. Prescriptive Compliance [indicate the building code compliance package being employed in this house design]

SB-12 Prescriptive (input design package): Package: A1 Table: 3.1.1.2.A

## C. Project Design Conditions

|                                                                                 |                                                                                    |                                                                                                                       |                                                                                                              |
|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>Climatic Zone (SB-1):</b>                                                    |                                                                                    | <b>Heating Equipment Efficiency</b>                                                                                   | <b>Space Heating Fuel Source</b>                                                                             |
| <input checked="" type="checkbox"/> Zone 1 (< 5000 degree days)                 |                                                                                    | <input checked="" type="checkbox"/> ≥ 92% AFUE                                                                        | <input checked="" type="checkbox"/> Gas <input type="checkbox"/> Propane <input type="checkbox"/> Solid Fuel |
| <input type="checkbox"/> Zone 2 (≥ 5000 degree days)                            |                                                                                    | <input type="checkbox"/> ≥ 84% < 92% AFUE                                                                             | <input type="checkbox"/> Oil <input type="checkbox"/> Electric <input type="checkbox"/> Earth Energy         |
| <b>Ratio of Windows, Skylights &amp; Glass (W, S &amp; G) to Wall Area</b>      |                                                                                    | <b>Other Building Characteristics</b>                                                                                 |                                                                                                              |
| Area of walls = <u>316.22</u> m <sup>2</sup> or <u>3,403.72</u> ft <sup>2</sup> | W, S & G % = <u>12.03</u>                                                          | <input type="checkbox"/> Log/Post&Beam <input type="checkbox"/> ICF Above Grade <input type="checkbox"/> ICF Basement |                                                                                                              |
| Area of W, S & G = <u>38.03</u> m <sup>2</sup> or <u>409.33</u> ft <sup>2</sup> | Utilize window averaging: <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Slab-on-ground <input type="checkbox"/> Walkout Basement                                     |                                                                                                              |
|                                                                                 |                                                                                    | <input type="checkbox"/> Air Conditioning <input type="checkbox"/> Combo Unit                                         |                                                                                                              |
|                                                                                 |                                                                                    | <input type="checkbox"/> Air Sourced Heat Pump (ASHP)                                                                 |                                                                                                              |
|                                                                                 |                                                                                    | <input type="checkbox"/> Ground Sourced Heat Pump (GSHP)                                                              |                                                                                                              |

## D. Building Specifications [provide values and ratings of the energy efficiency components proposed]

|                                                                                                                |                                                                                        |                               |                                                                        |
|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------|
| <b>Energy Efficiency Substitutions</b>                                                                         |                                                                                        |                               |                                                                        |
| <input type="checkbox"/> ICF (3.1.1.2.(5) & (6) / 3.1.1.3.(5) & (6))                                           |                                                                                        |                               |                                                                        |
| <input type="checkbox"/> Combined space heating and domestic water heating systems (3.1.1.2.(7) / 3.1.1.3.(7)) |                                                                                        |                               |                                                                        |
| <input type="checkbox"/> Airtightness substitution(s)                                                          |                                                                                        |                               |                                                                        |
| Airtightness test required<br>(Refer to Design Guide Attached)                                                 | <input type="checkbox"/> Table 3.1.1.4.B Required: _____ Permitted Substitution: _____ |                               |                                                                        |
|                                                                                                                | <input type="checkbox"/> Table 3.1.1.4.C Required: _____ Permitted Substitution: _____ |                               |                                                                        |
| Required: _____                                                                                                |                                                                                        | Permitted Substitution: _____ |                                                                        |
| <b>Building Component</b>                                                                                      | <b>Minimum RSI / R values or Maximum U-Value<sup>(1)</sup></b>                         |                               | <b>Building Component</b>                                              |
|                                                                                                                | Nominal                                                                                | Effective                     | <b>Efficiency Ratings</b>                                              |
| <b>Thermal Insulation</b>                                                                                      |                                                                                        |                               | <b>Windows &amp; Doors</b> Provide U-Value <sup>(1)</sup> or ER rating |
| Ceiling with Attic Space                                                                                       | 60                                                                                     | 59.22                         | Windows/Sliding Glass Doors                                            |
| Ceiling without Attic Space                                                                                    | 31                                                                                     | 27.65                         | Skylights/Glazed Roofs                                                 |
| Exposed Floor                                                                                                  | 31                                                                                     | 29.80                         |                                                                        |
| Walls Above Grade                                                                                              | 22                                                                                     | 17.03                         | <b>Mechanicals</b>                                                     |
| Basement Walls                                                                                                 | 20 ci                                                                                  | 21.12                         | Heating Equip.(AFUE)                                                   |
| Slab (all >600mm below grade)                                                                                  | -                                                                                      | -                             | HRV Efficiency (SRE% at 0°C)                                           |
| Slab (edge only ≤600mm below grade)                                                                            | 10                                                                                     |                               | DHW Heater (EF)                                                        |
| Slab (all ≤600mm below grade, or heated)                                                                       | 10                                                                                     | 11.13                         | DWHR (CSA B55.1 (min. 42% efficiency))                                 |
|                                                                                                                |                                                                                        |                               | Combined Heating System                                                |
|                                                                                                                |                                                                                        |                               | # Showers <u>3</u>                                                     |

(1) U value to be provided in either W/(m<sup>2</sup>·K) or Btu/(h·ft<sup>2</sup>·F) but not both.

## E. Designer(s) [name(s) & BCIN(s), if applicable, of person(s) providing information herein to substantiate that design meets the building code]

**Qualified Designer** Declaration of designer to have reviewed and take responsibility for the design work.

|              |       |                    |
|--------------|-------|--------------------|
| Name         | BCIN  | Signature          |
| Jorge Moreno | 47245 | <i>[Signature]</i> |

# Energy Efficiency Design Summary: Prescriptive Method

(Building Code Part 9, Residential)

This form is used by a designer to demonstrate that the energy efficiency design of a house complies with the building code using the prescriptive method described in Subsection 3.1.1. of SB-12. This form is applicable where the ratio of gross area of windows/sidelights/skylights/glazing in doors and sliding glass doors to the gross area of peripheral walls is not more than 22%.

|                 |                                                              |
|-----------------|--------------------------------------------------------------|
| Application No: | For use by Principal Authority<br>Model/Certification Number |
|-----------------|--------------------------------------------------------------|

## A. Project Information

|                              |                          |                                      |
|------------------------------|--------------------------|--------------------------------------|
| Building number, street name | Unit number<br>38-10 'B' | Lot/Con                              |
| Municipality<br>BRAMPTON     | Res. Code                | Reg. Plan number / other description |

## B. Prescriptive Compliance

(Indicate the building code compliance package being employed in this house design)

SB-12 Prescriptive (input design package): Package: A1 Table: 3.1.1.2.A

## C. Project Design Conditions

|                                                                                 |                                                                                    |                                                                                                                       |
|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>Climatic Zone (SB-1):</b>                                                    | <b>Heating Equipment Efficiency</b>                                                | <b>Space Heating Fuel Source</b>                                                                                      |
| <input checked="" type="checkbox"/> Zone 1 (< 5000 degree days)                 | <input checked="" type="checkbox"/> ≥ 92% AFUE                                     | <input checked="" type="checkbox"/> Gas <input type="checkbox"/> Propane <input type="checkbox"/> Solid Fuel          |
| <input type="checkbox"/> Zone 2 (≥ 5000 degree days)                            | <input type="checkbox"/> ≥ 84% < 92% AFUE                                          | <input type="checkbox"/> Oil <input type="checkbox"/> Electric <input type="checkbox"/> Earth Energy                  |
| <b>Ratio of Windows, Skylights &amp; Glass (W, S &amp; G) to Wall Area</b>      | <b>Other Building Characteristics</b>                                              |                                                                                                                       |
| Area of walls = <u>316.22</u> m <sup>2</sup> or <u>3,403.72</u> ft <sup>2</sup> | W, S & G % = <u>10.78</u>                                                          | <input type="checkbox"/> Log/Post&Beam <input type="checkbox"/> ICF Above Grade <input type="checkbox"/> ICF Basement |
| Area of W, S & G = <u>34.10</u> m <sup>2</sup> or <u>367.07</u> ft <sup>2</sup> | Utilize window averaging: <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Slab-on-ground <input type="checkbox"/> Walkout Basement                                     |
|                                                                                 |                                                                                    | <input type="checkbox"/> Air Conditioning <input type="checkbox"/> Combo Unit                                         |
|                                                                                 |                                                                                    | <input type="checkbox"/> Air Sourced Heat Pump (ASHP)                                                                 |
|                                                                                 |                                                                                    | <input type="checkbox"/> Ground Sourced Heat Pump (GSHP)                                                              |

## D. Building Specifications

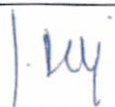
(provide values and ratings of the energy efficiency components proposed)

|                                                                                                                |                                                                    |                                                                                                                                                                                                                                   |                           |
|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| <b>Energy Efficiency Substitutions</b>                                                                         |                                                                    |                                                                                                                                                                                                                                   |                           |
| <input type="checkbox"/> ICF (3.1.1.2.(5) & (6) / 3.1.1.3.(5) & (6))                                           |                                                                    |                                                                                                                                                                                                                                   |                           |
| <input type="checkbox"/> Combined space heating and domestic water heating systems (3.1.1.2.(7) / 3.1.1.3.(7)) |                                                                    |                                                                                                                                                                                                                                   |                           |
| <input type="checkbox"/> Airtightness substitution(s)                                                          |                                                                    |                                                                                                                                                                                                                                   |                           |
| Airtightness test required<br>(Refer to Design Guide Attached)                                                 |                                                                    | <input type="checkbox"/> Table 3.1.1.4.B Required: _____ Permitted Substitution: _____<br><input type="checkbox"/> Table 3.1.1.4.C Required: _____ Permitted Substitution: _____<br>Required: _____ Permitted Substitution: _____ |                           |
| <b>Building Component</b>                                                                                      | <b>Minimum RSI / R values<br/>or Maximum U-Value<sup>(1)</sup></b> | <b>Building Component</b>                                                                                                                                                                                                         | <b>Efficiency Ratings</b> |
| <b>Thermal Insulation</b>                                                                                      | Nominal Effective                                                  | <b>Windows &amp; Doors</b> Provide U-Value <sup>(1)</sup> or ER rating                                                                                                                                                            |                           |
| Ceiling with Attic Space                                                                                       | 60 59.22                                                           | Windows/Sliding Glass Doors                                                                                                                                                                                                       | 0.28                      |
| Ceiling without Attic Space                                                                                    | 31 27.65                                                           | Skylights/Glazed Roofs                                                                                                                                                                                                            | 0.49                      |
| Exposed Floor                                                                                                  | 31 29.80                                                           | <b>Mechanicals</b>                                                                                                                                                                                                                |                           |
| Walls Above Grade                                                                                              | 22 17.03                                                           | Heating Equip.(AFUE)                                                                                                                                                                                                              | 96%                       |
| Basement Walls                                                                                                 | 20 ci 21.12                                                        | HRV Efficiency (SRE% at 0°C)                                                                                                                                                                                                      | 75%                       |
| Slab (all >600mm below grade)                                                                                  | - -                                                                | DHW Heater (EF)                                                                                                                                                                                                                   | 0.80                      |
| Slab (edge only ≤600mm below grade)                                                                            | 10                                                                 | DWHR (CSA B55.1 (min. 42% efficiency))                                                                                                                                                                                            | # Showers <u>3</u>        |
| Slab (all ≤600mm below grade, or heated)                                                                       | 10 11.13                                                           | Combined Heating System                                                                                                                                                                                                           |                           |

(1) U value to be provided in either W/(m<sup>2</sup>·K) or Btu/(h·ft<sup>2</sup>·F) but not both.

## E. Designer(s)

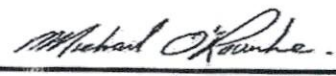
[name(s) & BCIN(s), if applicable, of person(s) providing information herein to substantiate that design meets the building code]

|                                                                                                                 |               |                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------|---------------|----------------------------------------------------------------------------------------------------|
| <b>Qualified Designer</b> Declaration of designer to have reviewed and take responsibility for the design work. |               |                                                                                                    |
| Name<br>Jorge Moreno                                                                                            | BCIN<br>47245 | Signature<br> |

19-567619 000 00CM

**Schedule 1: Designer Information**

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

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                     |                                                                                                               |                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------|------------------------------------|
| <b>A. Project Information</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                     |                                                                                                               |                                    |
| Building number, street name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                     | Unit no.                                                                                                      | Lot/con.                           |
| Municipality<br>BRAMPTON                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Postal code                         | Plan number/ other description<br><b>43M-2039</b>                                                             |                                    |
| <b>B. Individual who reviews and takes responsibility for design activities</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                     |                                                                                                               |                                    |
| 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@hvacdsgns.ca</b> |
| Telephone number<br><b>(905) 619-2300</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Fax number<br><b>(905) 619-2375</b> | Cell number<br>( )                                                                                            |                                    |
| <b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                     |                                                                                                               |                                    |
| <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><b>HEAT LOSS / GAIN CALCULATIONS<br/>DUCT SIZING<br/>RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY<br/>RESIDENTIAL SYSTEM DESIGN per CSA-F280-12</b>                                                                                                                                                                                                                                                                                                                                                                                        |                                     | <b>Model:</b> 38-10<br><br>THE COPLAND<br><br><b>Project:</b> ENCORE 2                                        |                                    |
| <b>D. Declaration of Designer</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                     |                                                                                                               |                                    |
| 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><br>Individual BCIN: _____<br>Firm BCIN: _____                                                                                                                                                                                                                                                                    |                                     |                                                                                                               |                                    |
| <input checked="" type="checkbox"/> I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code.<br><br>Individual BCIN: <u>19669</u><br>Basis for exemption from registration and qualification: <u>O.B.C SENTENCE 3.2.4.1 (4)</u>                                                                                                                                                                                                                           |                                     |                                                                                                               |                                    |
| <input type="checkbox"/> The design work is exempt from the registration and qualification requirements of the Building Code.<br>Basis for exemption from registration and qualification: _____                                                                                                                                                                                                                                                                                                                                                                                   |                                     |                                                                                                               |                                    |
| I certify that:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                     |                                                                                                               |                                    |
| 1. The information contained in this schedule is true to the best of my knowledge.<br>2. I have submitted this application with the knowledge and consent of the firm.                                                                                                                                                                                                                                                                                                                                                                                                            |                                     |                                                                                                               |                                    |
| October 17, 2019<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: ENCORE 2

BUILDER: GOLD PARK HOMES

THE COPLAND  
TYPE: 38-10

GFA: 2885

DATE: Oct-19  
LO# 84183

WINTER NATURAL AIR CHANGE RATE 0.325  
SUMMER NATURAL AIR CHANGE RATE 0.106

HEAT LOSS ΔT °F. 74  
HEAT GAIN ΔT °F. 11

GSA-F280-12  
SB-12 PACKAGE A1

| ROOM USE                       | EXP. WALL | CLG. HT. | MBR  | ENS  | BED-2 | BED-3 | BED-4 | ENS-2 | T-BATH |
|--------------------------------|-----------|----------|------|------|-------|-------|-------|-------|--------|
|                                |           |          | 33   | 22   | 20    | 38    | 25    | 5     | 14     |
|                                |           |          | 9    | 9    | 9     | 9     | 9     | 9     | 9      |
| FACTORS                        |           |          |      |      |       |       |       |       |        |
| GRS.WALL AREA                  | LOSS      | GAIN     | 297  | 198  | 180   | 342   | 225   | 45    | 128    |
| GLAZING                        | LOSS      | GAIN     |      |      | LOSS  | GAIN  | LOSS  | GAIN  | LOSS   |
| NORTH                          | 20.8      | 14.6     | 0    | 0    | 0     | 0     | 0     | 0     | 0      |
| EAST                           | 20.8      | 38.5     | 32   | 665  | 1233  | 14    | 291   | 539   | 0      |
| SOUTH                          | 20.8      | 23.0     | 0    | 0    | 0     | 8     | 166   | 184   | 0      |
| WEST                           | 20.8      | 38.5     | 0    | 0    | 0     | 0     | 0     | 0     | 0      |
| SKYL.T.                        | 36.4      | 100.7    | 0    | 0    | 0     | 0     | 0     | 0     | 20     |
| DOORS                          | 24.7      | 3.7      | 0    | 0    | 0     | 0     | 0     | 0     | 416    |
| NET EXPOSED WALL               | 4.4       | 0.6      | 265  | 1155 | 171   | 176   | 767   | 114   | 770    |
| NET EXPOSED BSMT WALL ABOVE GR | 3.5       | 0.5      | 0    | 0    | 0     | 0     | 0     | 0     | 0      |
| EXPOSED CLG                    | 1.3       | 0.6      | 276  | 346  | 154   | 116   | 145   | 65    | 0      |
| NO ATTIC EXPOSED CLG           | 2.7       | 1.2      | 0    | 0    | 0     | 0     | 0     | 0     | 0      |
| EXPOSED FLOOR                  | 2.5       | 0.4      | 0    | 0    | 0     | 0     | 0     | 0     | 0      |
| BASEMENT/CRAWL HEAT LOSS       |           |          | 0    | 0    | 0     | 0     | 0     | 0     | 91     |
| SLAB ON GRADE HEAT LOSS        |           |          | 0    | 0    | 0     | 0     | 0     | 0     | 227    |
| SUBTOTAL HT LOSS               |           |          | 2165 | 1369 | 1361  | 2813  | 2214  | 413   | 34     |
| SUB TOTAL HT GAIN              |           |          |      | 1558 | 613   | 2817  | 1300  | 246   | 1218   |
| LEVEL FACTOR / MULTIPLIER      | 0.20      | 0.27     |      | 0.20 | 0.27  |       | 0.20  | 0.27  | 0.20   |
| AIR CHANGE HEAT LOSS           |           |          | 588  | 372  | 370   | 764   | 602   | 112   | 923    |
| AIR CHANGE HEAT GAIN           |           |          |      | 102  | 40    | 164   | 85    | 16    | 331    |
| DUCT LOSS                      |           |          | 0    | 0    | 0     | 0     | 0     | 0     | 60     |
| DUCT GAIN                      |           |          | 0    | 0    | 0     | 0     | 282   | 0     | 155    |
| HEAT GAIN PEOPLE               | 240       | 2        | 480  | 0    | 0     | 0     | 238   | 0     | 98     |
| HEAT GAIN APPLIANCES/LIGHTS    |           |          | 755  | 0    | 1     | 240   | 1     | 240   | 0      |
| TOTAL HT LOSS BTU/H            |           |          | 2754 | 1741 | 1731  | 3577  | 3098  | 525   | 0      |
| TOTAL HT GAIN x 1.3 BTU/H      |           |          | 3762 | 1248 | 2142  | 4778  | 3403  | 340   | 1405   |

| ROOM USE                       | EXP. WALL | CLG. HT. | LIV/DIN | KT/FM | LAUN | W/R  | FOY  | MUD  | BAS   |
|--------------------------------|-----------|----------|---------|-------|------|------|------|------|-------|
|                                |           |          | 23      | 69    | 12   | 18   | 40   | 26   | 176   |
|                                |           |          | 10      | 10    | 9    | 12   | 12   | 12   | 9     |
| FACTORS                        |           |          |         |       |      |      |      |      |       |
| GRS.WALL AREA                  | LOSS      | GAIN     | 230     | 690   | 108  | 216  | 480  | 312  | 1056  |
| GLAZING                        | LOSS      | GAIN     |         | LOSS  | LOSS | GAIN | LOSS | GAIN | LOSS  |
| NORTH                          | 20.8      | 14.6     | 0       | 0     | 0    | 0    | 0    | 0    | 0     |
| EAST                           | 20.8      | 38.5     | 0       | 0     | 0    | 0    | 0    | 0    | 0     |
| SOUTH                          | 20.8      | 23.0     | 44      | 914   | 1011 | 0    | 0    | 0    | 0     |
| WEST                           | 20.8      | 38.5     | 0       | 0     | 0    | 0    | 0    | 0    | 0     |
| SKYL.T.                        | 36.4      | 100.7    | 0       | 0     | 0    | 11   | 229  | 424  | 0     |
| DOORS                          | 24.7      | 3.7      | 20      | 493   | 73   | 10   | 247  | 37   | 0     |
| NET EXPOSED WALL               | 4.4       | 0.6      | 166     | 723   | 107  | 571  | 2488 | 369  | 0     |
| NET EXPOSED BSMT WALL ABOVE GR | 3.5       | 0.5      | 0       | 0     | 0    | 0    | 0    | 0    | 0     |
| EXPOSED CLG                    | 1.3       | 0.6      | 0       | 0     | 0    | 0    | 0    | 0    | 0     |
| NO ATTIC EXPOSED CLG           | 2.7       | 1.2      | 0       | 0     | 0    | 0    | 0    | 0    | 0     |
| EXPOSED FLOOR                  | 2.5       | 0.4      | 0       | 0     | 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               |           |          | 2130    | 4999  | 725  | 1122 | 3045 | 1765 | 6227  |
| SUB TOTAL HT GAIN              |           |          |         | 1191  | 4604 | 183  | 556  | 451  | 262   |
| LEVEL FACTOR / MULTIPLIER      | 0.30      | 0.38     |         | 0.30  | 0.38 |      | 0.30 | 0.38 | 0.30  |
| AIR CHANGE HEAT LOSS           |           |          | 816     | 1915  | 197  | 430  | 1167 | 676  | 637   |
| AIR CHANGE HEAT GAIN           |           |          |         | 78    | 300  | 12   | 36   | 29   | 17    |
| DUCT LOSS                      |           |          | 0       | 0     | 0    | 0    | 0    | 0    | 0     |
| DUCT GAIN                      |           |          | 0       | 0     | 0    | 0    | 0    | 0    | 0     |
| HEAT GAIN PEOPLE               | 240       | 0        | 0       | 0     | 0    | 0    | 0    | 0    | 0     |
| HEAT GAIN APPLIANCES/LIGHTS    |           |          | 755     | 0     | 0    | 0    | 0    | 0    | 0     |
| TOTAL HT LOSS BTU/H            |           |          | 2947    | 6914  | 922  | 1552 | 4212 | 2442 | 16652 |
| TOTAL HT GAIN x 1.3 BTU/H      |           |          | 2630    | 7356  | 1234 | 770  | 625  | 362  | 881   |

CITY OF BRAMPTON  
BUILDING DIVISION  
REVIEWED BY: S. DESAI  
DEC 12 2019  
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TOTAL HEAT GAIN BTU/H:

31176

TONS: 2.60

LOSS DUE TO VENTILATION LOAD BTU/H: 1593

STRUCTURAL HEAT LOSS: 50770

TOTAL COMBINED HEAT LOSS BTU/H: 52363

*Michael O'Rourke*

SITE NAME: ENCORE 2  
BUILDER: GOLD PARK HOMES

THE COPLAND  
TYPE: 38-10

DATE: Oct-19

GFA: 2885 LO# 84183

HEATING CFM 985 COOLING CFM 985  
TOTAL HEAT LOSS 50,770 TOTAL HEAT GAIN 30,940  
AIR FLOW RATE CFM 19.4 AIR FLOW RATE CFM 31.84

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

**LENNOX**  
EL196UH070XE36B 70  
FAN SPEED  
LOW 0  
MEDLOW 0  
MEDIUM 985  
MEDIUM HIGH 1110  
HIGH 1275

AFUE = 96 %  
INPUT (BTU/H) = 66,000  
OUTPUT (BTU/H) = 63,900

DESIGN CFM = 985  
CFM @ 6" E.S.P.

TEMPERATURE RISE 60 °F

| RUN COUNT | 4th | 3rd | 2nd | 1st | Bas |
|-----------|-----|-----|-----|-----|-----|
| S/A       | 0   | 0   | 12  | 7   | 4   |
| R/A       | 0   | 0   | 4   | 2   | 1   |

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

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

| RUN #                     | 1    | 2    | 3      | 4     | 5     | 6     | 7     | 8     | 9     | 10   | 11     | 12      | 13    | 15    | 16    | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   |
|---------------------------|------|------|--------|-------|-------|-------|-------|-------|-------|------|--------|---------|-------|-------|-------|------|------|------|------|------|------|------|------|
| ROOM NAME                 | MBR  | ENS  | T-BATH | BED-2 | BED-3 | BED-4 | ENS-2 | BED-3 | BED-4 | MBR  | T-BATH | LIV/DIN | KT/FM | KT/FM | KT/FM | LAUN | W/R  | FOY  | MUD  | BAS  | BAS  | BAS  | BAS  |
| RM LOSS MBH.              | 1.38 | 1.74 | 0.85   | 1.73  | 1.79  | 1.55  | 0.52  | 1.79  | 1.55  | 1.38 | 0.85   | 2.95    | 2.30  | 2.30  | 2.30  | 0.92 | 1.55 | 4.21 | 2.44 | 4.16 | 4.16 | 4.16 | 4.16 |
| CFM PER RUN HEAT          | 27   | 34   | 17     | 34    | 35    | 30    | 10    | 35    | 30    | 27   | 17     | 57      | 45    | 45    | 45    | 18   | 30   | 82   | 47   | 81   | 81   | 81   | 81   |
| RM GAIN MBH.              | 1.88 | 1.25 | 0.70   | 2.14  | 2.39  | 1.70  | 0.34  | 2.39  | 1.70  | 1.88 | 0.70   | 2.63    | 2.45  | 2.45  | 2.45  | 1.23 | 0.77 | 0.63 | 0.36 | 0.22 | 0.22 | 0.22 | 0.22 |
| CFM PER RUN COOLING       | 60   | 40   | 22     | 68    | 76    | 54    | 11    | 76    | 54    | 60   | 22     | 84      | 78    | 78    | 78    | 39   | 25   | 20   | 12   | 7    | 7    | 7    | 7    |
| ADJUSTED PRESSURE         | 0.17 | 0.17 | 0.17   | 0.17  | 0.17  | 0.17  | 0.17  | 0.17  | 0.17  | 0.17 | 0.17   | 0.16    | 0.17  | 0.17  | 0.17  | 0.17 | 0.17 | 0.16 | 0.17 | 0.16 | 0.16 | 0.16 | 0.16 |
| ACTUAL DUCT LGH.          | 67   | 46   | 60     | 50    | 81    | 75    | 41    | 78    | 64    | 33   | 67     | 41      | 39    | 19    | 28    | 51   | 70   | 62   | 32   | 11   | 32   | 35   | 66   |
| EQUIVALENT LENGTH         | 170  | 120  | 130    | 130   | 160   | 190   | 190   | 160   | 180   | 120  | 170    | 100     | 100   | 100   | 80    | 200  | 160  | 140  | 110  | 120  | 110  | 140  | 160  |
| TOTAL EFFECTIVE LENGTH    | 237  | 166  | 190    | 180   | 241   | 265   | 231   | 238   | 244   | 153  | 237    | 141     | 139   | 119   | 108   | 251  | 230  | 202  | 142  | 131  | 142  | 175  | 226  |
| ADJUSTED PRESSURE         | 0.07 | 0.1  | 0.09   | 0.1   | 0.07  | 0.06  | 0.07  | 0.07  | 0.07  | 0.11 | 0.07   | 0.11    | 0.12  | 0.14  | 0.16  | 0.07 | 0.07 | 0.08 | 0.12 | 0.12 | 0.11 | 0.09 | 0.07 |
| ROUND DUCT SIZE           | 5    | 4    | 4      | 6     | 6     | 6     | 4     | 6     | 5     | 5    | 4      | 6       | 6     | 6     | 6     | 5    | 4    | 6    | 4    | 5    | 5    | 6    | 6    |
| HEATING VELOCITY (ft/min) | 198  | 390  | 195    | 173   | 178   | 153   | 115   | 178   | 220   | 198  | 195    | 291     | 229   | 229   | 229   | 132  | 344  | 418  | 539  | 595  | 595  | 413  | 413  |
| COOLING VELOCITY (ft/min) | 441  | 459  | 252    | 347   | 388   | 275   | 126   | 388   | 396   | 441  | 252    | 428     | 398   | 398   | 398   | 286  | 287  | 102  | 138  | 51   | 51   | 36   | 36   |
| OUTLET GRILL SIZE         | 3X10 | 3X10 | 3X10   | 4X10  | 4X10  | 4X10  | 3X10  | 4X10  | 3X10  | 3X10 | 3X10   | 4X10    | 4X10  | 4X10  | 4X10  | 3X10 | 3X10 | 4X10 | 3X10 | 3X10 | 3X10 | 4X10 | 4X10 |
| TRUNK                     | C    | D    | B      | C     | A     | B     | C     | A     | B     | E    | B      | C       | D     | E     | E     | C    | A    | A    | C    | E    | D    | C    | A    |

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

**CITY OF BRAMPTON**  
**BUILDING DIVISION**  
**REVIEWED BY: S. DESAI**  
**DEC 12 2019**  
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**ALL WORK MUST COMPLY WITH OBC**

**SUPPLY AIR TRUNK SIZE**

| TRUNK   | CFM | STATIC PRESS. | ROUND DUCT | RECT DUCT | VELOCITY (ft/min) |
|---------|-----|---------------|------------|-----------|-------------------|
| TRUNK A | 263 | 0.07          | 8.8        | 8         | 592               |
| TRUNK B | 357 | 0.06          | 10.2       | 12        | 536               |
| TRUNK C | 631 | 0.06          | 12.7       | 18        | 631               |
| TRUNK D | 160 | 0.10          | 6.7        | 8         | 360               |
| TRUNK E | 985 | 0.06          | 15         | 26        | 682               |
| TRUNK F | 0   | 0.00          | 0          | 0         | 0                 |

**RETURN AIR TRUNK SIZE**

| TRUNK   | CFM | STATIC PRESS. | ROUND DUCT | RECT DUCT | VELOCITY (ft/min) |
|---------|-----|---------------|------------|-----------|-------------------|
| TRUNK G | 0   | 0.00          | 0          | 0         | 0                 |
| TRUNK H | 0   | 0.00          | 0          | 0         | 0                 |
| TRUNK I | 0   | 0.00          | 0          | 0         | 0                 |
| TRUNK J | 0   | 0.00          | 0          | 0         | 0                 |
| TRUNK K | 0   | 0.00          | 0          | 0         | 0                 |
| TRUNK L | 0   | 0.00          | 0          | 0         | 0                 |
| TRUNK O | 0   | 0.05          | 0          | 0         | 8                 |
| TRUNK P | 0   | 0.05          | 0          | 0         | 8                 |
| TRUNK Q | 0   | 0.05          | 0          | 0         | 8                 |
| TRUNK R | 0   | 0.05          | 0          | 0         | 8                 |
| TRUNK S | 0   | 0.05          | 0          | 0         | 8                 |
| TRUNK T | 0   | 0.05          | 0          | 0         | 8                 |
| TRUNK U | 0   | 0.05          | 0          | 0         | 8                 |
| TRUNK V | 0   | 0.05          | 0          | 0         | 8                 |
| TRUNK W | 0   | 0.05          | 0          | 0         | 8                 |
| TRUNK X | 985 | 0.05          | 15.7       | 28        | 633               |
| TRUNK Y | 585 | 0.05          | 12.9       | 20        | 527               |
| TRUNK Z | 235 | 0.05          | 9.2        | 10        | 423               |
| DROP    | 985 | 0.05          | 15.7       | 24        | 591               |

| RETURN AIR #       | 1    | 2    | 3    | 4    | 5    | 6    | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    | 21    | 22    | 23    | 24    |
|--------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| AIR VOLUME         | 85   | 85   | 75   | 75   | 350  | 155  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
| PLENUM PRESSURE    | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  | 0.15  |
| ACTUAL DUCT LGH.   | 64   | 68   | 73   | 91   | 41   | 70   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| EQUIVALENT LENGTH  | 165  | 195  | 255  | 230  | 185  | 175  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
| TOTAL EFFECTIVE LH | 229  | 263  | 328  | 321  | 226  | 245  | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| ADJUSTED PRESSURE  | 0.06 | 0.06 | 0.05 | 0.05 | 0.07 | 0.06 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 |
| ROUND DUCT SIZE    | 6    | 6    | 6    | 6    | 9.8  | 7.5  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
| INLET GRILL SIZE   | 8    | 8    | 8    | 8    | 8    | 8    | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
| INLET GRILL SIZE   | X    | X    | X    | X    | X    | X    | X     | X     | X     | X     | X     | X     | X     | X     | X     | X     | X     | X     | X     | X     | X     | X     | X     | X     |

TYPE: 38-10  
SITE NAME: ENCORE 2

LO # 84183  
THE COPLAND

**RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY**
**COMBUSTION APPLIANCES** 9.32.3.1(1)

- a) ☒ Direct vent (sealed combustion) only
- b) ☐ Positive venting induced draft (except fireplaces)
- c) ☐ Natural draft, B-vent or induced draft gas fireplace
- d) ☐ Solid Fuel (including fireplaces)
- e) ☐ No Combustion Appliances

**HEATING SYSTEM**

- ☒ Forced Air ☐ Non Forced Air
- ☐ Electric Space Heat

**HOUSE TYPE** 9.32.1(2)

- ☒ I Type a) or b) appliance only, no solid fuel
- ☐ II Type I except with solid fuel (including fireplaces)
- ☐ III Any Type c) appliance
- ☐ IV Type I, or II with electric space heat
- ☐ Other: Type I, II or IV no forced air

**SYSTEM DESIGN OPTIONS**

O.N.H.W.P.

- ☐ 1 Exhaust only/Forced Air System
- ☐ 2 HRV with Ducting/Forced Air System
- ☒ 3 HRV Simplified/connected to forced air system
- ☐ 4 HRV with Ducting/non forced air system
- ☐ 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               | 4 | @ 10.6 cfm | 42.4  | cfm |
| Table 9.32.3.A.           |   | TOTAL      | 169.6 | 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      | 169.6 | cfm |
| Less Principal Ventil. Capacity | 79.5  | cfm |
| Required Supplemental Capacity  | 90.1  | cfm |

**PRINCIPAL EXHAUST FAN CAPACITY**

Model: VANE 65H Location: BSMT  
79.5 cfm 3.0 sones ☒ HVI Approved

**PRINCIPAL EXHAUST HEAT LOSS CALCULATION**

| CFM      | ΔT °F | FACTOR | % LOSS |
|----------|-------|--------|--------|
| 79.5 CFM | 74 F  | 1.08   | 0.25   |

**SUPPLEMENTAL FANS**

| Location | Model       | cfm | HVI                                 | Sones |
|----------|-------------|-----|-------------------------------------|-------|
| ENS      | FV-05-11VK1 | 50  | <input checked="" type="checkbox"/> | 0.3   |
| ENS-2    | FV-05-11VK1 | 50  | <input checked="" type="checkbox"/> | 0.3   |
| T-BATH   | FV-05-11VK1 | 50  | <input checked="" type="checkbox"/> | 0.3   |
| W/R      | FV-05-11VK1 | 50  | <input checked="" type="checkbox"/> | 0.3   |

**HEAT RECOVERY VENTILATOR** 9.32.3.11.

Model: VANE 65H  
155 cfm high 64 cfm low  
75 % Sensible Efficiency @ 32 deg F (0 deg C) ☒ HVI Approved

**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: \_\_\_\_\_

HRAI # \_\_\_\_\_

001820

Date: \_\_\_\_\_

October-19

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.  
INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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

LO#: 84183

Model: 38-10

Builder: GOLD PARK HOMES

Date: 10/17/2019

**Volume Calculation**
**Air Change & Delta T Data**
**House Volume**

| Level  | Floor Area (ft²) | Floor Height (ft) | Volume (ft³) |
|--------|------------------|-------------------|--------------|
| Bsmt   | 1274             | 9                 | 11466        |
| First  | 1274             | 10                | 12740        |
| Second | 1611             | 9                 | 14499        |
| Third  | 0                | 9                 | 0            |
| Fourth | 0                | 9                 | 0            |
| Total: |                  |                   | 38,705.0 ft³ |
| Total: |                  |                   | 1096.0 m³    |

|                                |       |
|--------------------------------|-------|
| WINTER NATURAL AIR CHANGE RATE | 0.325 |
| SUMMER NATURAL AIR CHANGE RATE | 0.106 |

| Design Temperature Difference |        |         |       |       |
|-------------------------------|--------|---------|-------|-------|
|                               | Tin °C | Tout °C | ΔT °C | ΔT °F |
| Winter DTDh                   | 22     | -19     | 41    | 74    |
| Summer DTDc                   | 24     | 30      | 6     | 11    |

**5.2.3.1 Heat Loss due to Air Leakage**
**6.2.6 Sensible Gain due to Air Leakage**

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

0.325 x 304.45 x 41 °C x 1.2 = 4889 W

= 16683 Btu/h

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

= 0.106 x 304.45 x 6 °C x 1.2 = 236 W

= 804 Btu/h

**5.2.3.2 Heat Loss due to Mechanical Ventilation**
**6.2.7 Sensible heat Gain due to Ventilation**

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

80 CFM x 74 °F x 1.08 x 0.25 = 1593 Btu/h

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

80 CFM x 11 °F x 1.08 x 0.25 = 236 Btu/h

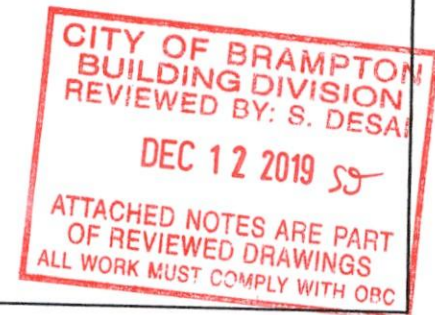
**5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)**

$$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$$

| Level | Level Factor (LF) | HLairbv Air Leakage + Ventilation Heat Loss (Btu/h) | Level Conductive Heat Loss: (HL <sub>clevel</sub> ) | Air Leakage Heat Loss Multiplier (LF x HLairbv / HL <sub>clevel</sub> ) |
|-------|-------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------|
| 1     | 0.5               | 16,683                                              | 8,310                                               | 1.004                                                                   |
| 2     | 0.3               |                                                     | 13,062                                              | 0.383                                                                   |
| 3     | 0.2               |                                                     | 12,279                                              | 0.272                                                                   |
| 4     | 0                 |                                                     | 0                                                   | 0.000                                                                   |
| 5     | 0                 |                                                     | 0                                                   | 0.000                                                                   |

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

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



**HEAT LOSS AND GAIN SUMMARY SHEET**

|              |             |                          |
|--------------|-------------|--------------------------|
| MODEL: 38-10 | THE COPLAND | BUILDER: GOLD PARK HOMES |
| SFQT: 2885   | LO# 84183   | SITE: ENCORE 2           |

**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:                        | 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 (ft³):                 | 38705.0         | 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: 56.0 ft                     | WIDTH: 32.0 ft  | EXPOSED PERIMETER:        | 176.0 ft |

CITY OF BRAMPTON  
BUILDING DIVISION  
REVIEWED BY: S. DESAI  
DEC 12 2019  
ATTACHED NOTES ARE PART  
OF REVIEWED DRAWINGS  
ALL WORK MUST COMPLY WITH OBC

**2012 OBC - COMPLIANCE PACKAGE**

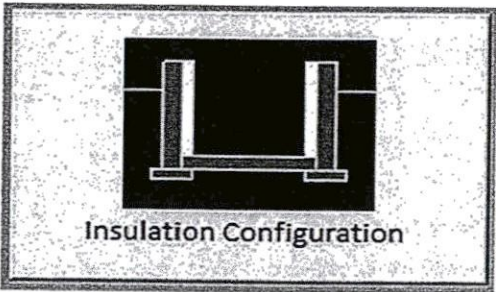
| Component                                                                  | Compliance Package A1 |           |
|----------------------------------------------------------------------------|-----------------------|-----------|
|                                                                            | 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

*Michael O'Rourke*

## Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

| Weather Station Description    |                                           |                                                                                                                 |
|--------------------------------|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Province:                      | Ontario                                   |                                                                                                                 |
| Region:                        | Brampton                                  |                                                                                                                 |
| Site Description               |                                           |                                                                                                                 |
| Soil Conductivity:             | Normal conductivity: dry sand, loam, clay |                                                                                                                 |
| Water Table:                   | Normal (7-10 m, 23-33 ft)                 |                                                                                                                 |
| Foundation Dimensions          |                                           |                                                                                                                 |
| Floor Length (m):              | 17.1                                      | <br>Insulation Configuration |
| Floor Width (m):               | 9.8                                       |                                                                                                                 |
| Exposed Perimeter (m):         | 0.0                                       |                                                                                                                 |
| Wall Height (m):               | 2.7                                       |                                                                                                                 |
| Depth Below Grade (m):         | 1.83                                      |                                                                                                                 |
| Window Area (m <sup>2</sup> ): | 1.0                                       |                                                                                                                 |
| Door Area (m <sup>2</sup> ):   | 0.0                                       |                                                                                                                 |
| Radiant Slab                   |                                           |                                                                                                                 |
| Heated Fraction of the Slab:   | 0                                         |                                                                                                                 |
| Fluid Temperature (°C):        | 33                                        |                                                                                                                 |
| Design Months                  |                                           |                                                                                                                 |
| Heating Month                  | 1                                         |                                                                                                                 |
| Foundation Loads               |                                           |                                                                                                                 |
| Heating Load (Watts):          | 1824                                      |                                                                                                                 |

TYPE: 38-10  
LO# 84183

THE COPLAND

## Air Infiltration Residential Load Calculator

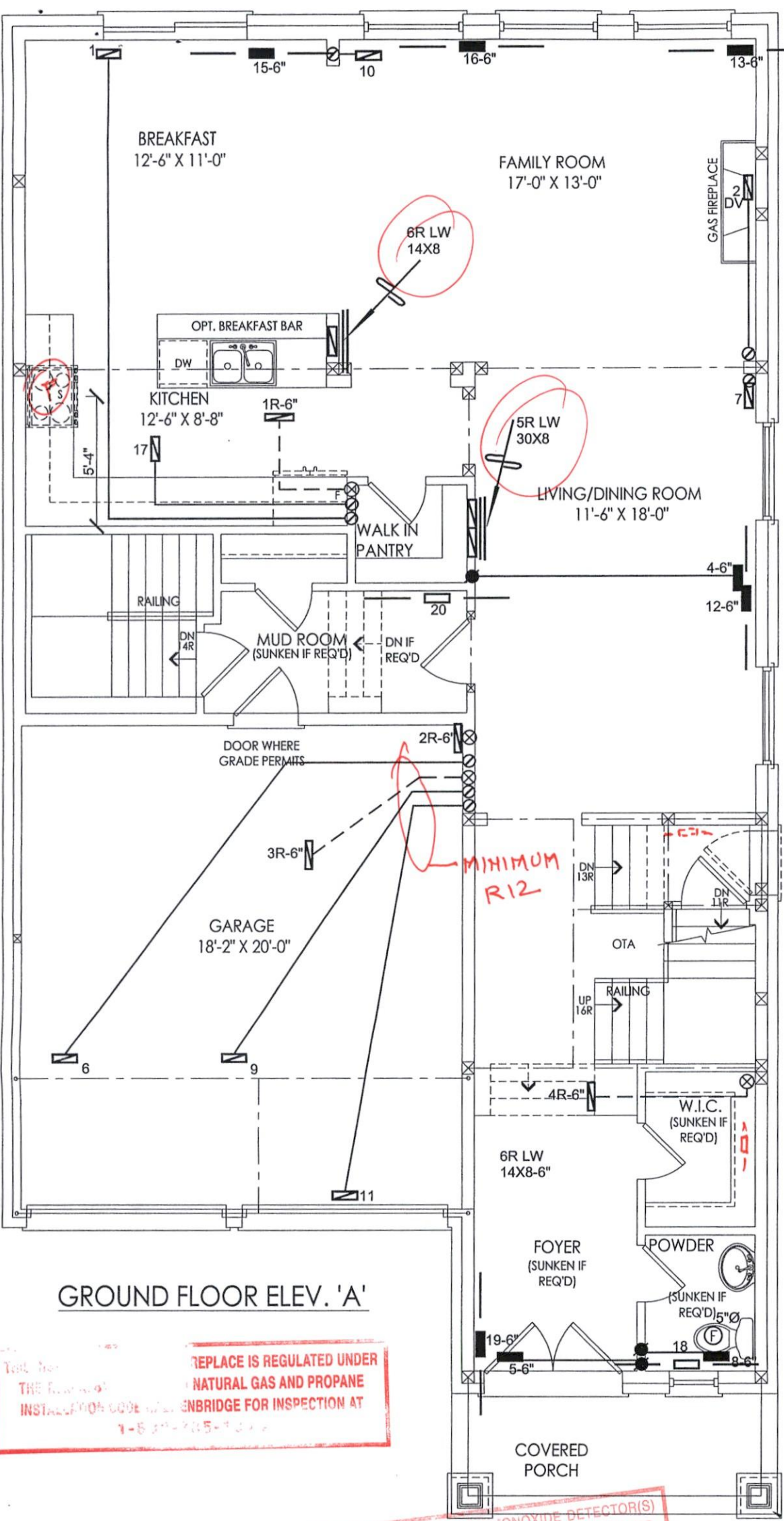
Supplemental tool for CAN/CSA-F280

| 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> ):   | 1096.0                     |                        |    |    |
| Air Leakage/Ventilation           |                            |                        |    |    |
| Air Tightness Type:               | Present (1961-) (3.57 ACH) |                        |    |    |
| Custom BDT Data:                  | ELA @ 10 Pa.               | 1461.0 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                      |                        |    |    |

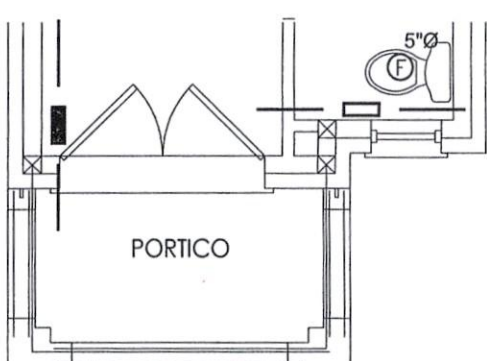
TYPE: 38-10  
LO# 84183

THE COPLAND





GROUND FLOOR ELEV. 'A'



PARTIAL GROUND FLOOR ELEV. 'B'

THIS INSTALLATION OF A GAS FIREPLACE IS REGULATED UNDER THE T.S.S.A. BY C.S.A. B149.1 NATURAL GAS AND PROPANE INSTALLATION CODE CALL ENBRIDGE FOR INSPECTION AT 1-800-785-1314

THE INSTALLATION OF CARBON MONOXIDE DETECTOR(S) SHALL COMPLY WITH OBC DIV. B, 9.33.4 REQUIREMENTS.

CITY OF BRAMPTON  
BUILDING DIVISION  
REVIEWED BY: S. DESAI  
DEC 12 2019  
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THE INSTALLATION OF CARBON MONOXIDE DETECTOR(S) SHALL COMPLY WITH OBC DIV. B, 9.33.4 REQUIREMENTS.

MECHANICAL VENTILATION SHALL BE PROVIDED IN CONFORMANCE WITH OBC DIV. B, 9.32.3 REQUIREMENTS.

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, UCB# 19669  
HVAC DESIGNS LTD.

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

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Client

GOLD PARK HOMES

Project Name

ENCORE 2  
BRAMPTON, ONTARIO

THE COPLAND  
38-10

2885 sqft

**HVACDESIGNS LTD.**

375 Finley Ave. Suite 202 - Ajax, Ontario  
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375  
Email: info@hvacdesigns.ca  
Web: www.hvacdesigns.ca  
Specializing in Residential Mechanical Design Services  
Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

Sheet Title

FIRST FLOOR  
HEATING  
LAYOUT

Date

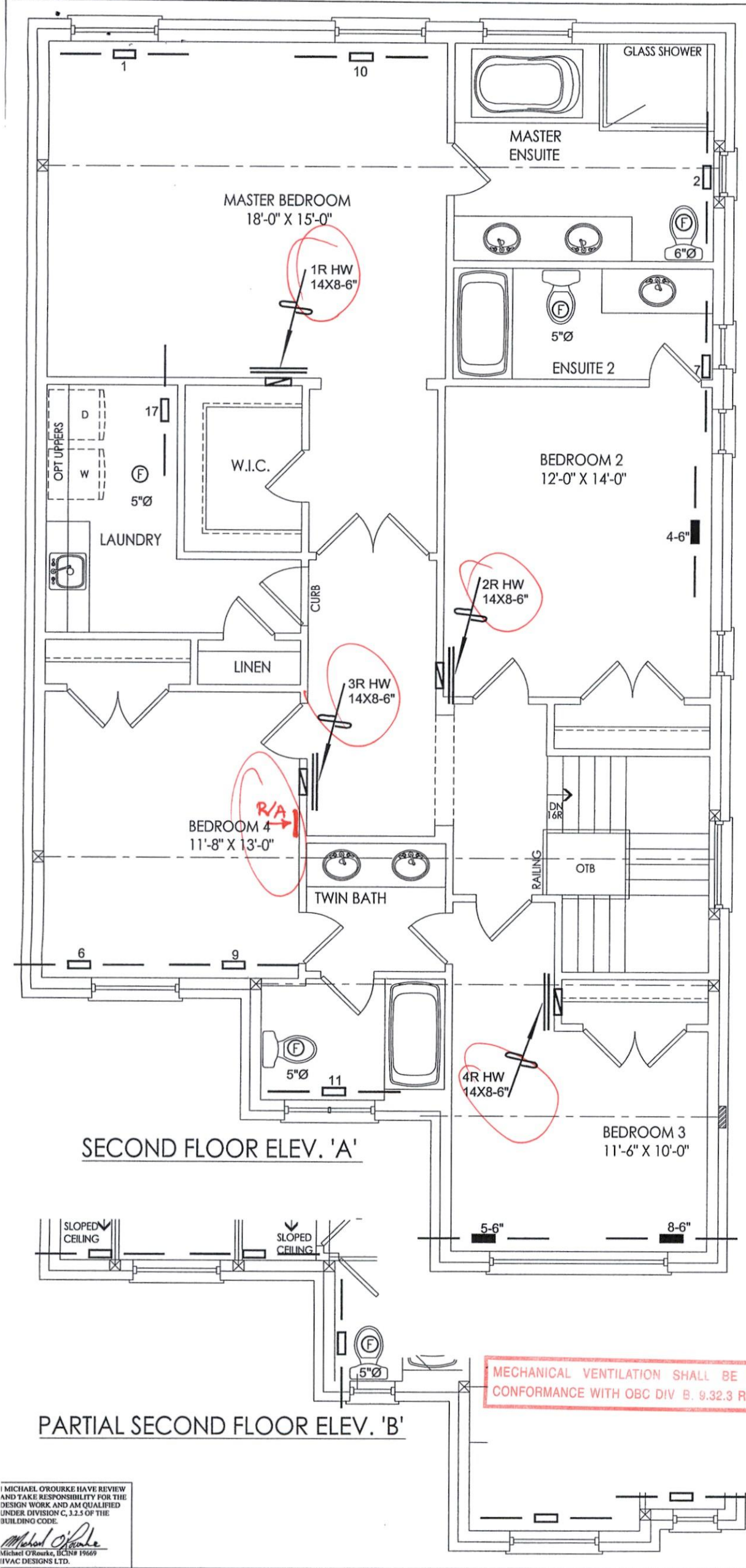
OCT/2019

Scale

3/16" = 1'-0"

BCIN# 19669

LO# 84183



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

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

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Client

GOLD PARK HOMES

Project Name

ENCORE 2  
BRAMPTON, ONTARIO

THE COPLAND

38-10

2885 sqft

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Sheet Title

SECOND FLOOR  
HEATING  
LAYOUT

Date

OCT/2019

Scale

3/16" = 1'-0"

BCIN# 19669

LO# 84183