



CITY OF BRAMPTON – BUILDING DIVISION

<u>HVAC DESIGNS</u>			
APPLICATION NO.:	19-567627 000 00 CM	FOLDER TYP.:	CM
DESCRIPTION OF PROJECT:	PLAN M2039	SUB TYP.:	Semi Detached Dwelling
BUILDERS NAME:	GOLD PARK HOMES		
PLAN NUMBER:		MODEL NAME:	2017/SD-09

CERTIFIED MODEL DOCUMENTS		
PAGES:	DESCRIPTION OF DOCUMENTS	
D	HVAC LAYOUTS / HVAC CALCULATIONS	
	ELEVATION	DESCRIPTION (I.E. OPTIONS):
2	A - D	4BR
ENTERED BY:	Monica Crisan	DATE: 2019/12/13

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: SD-09
 Optional Floor Layout:
 Application No.:

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⁽⁶⁾ or powder room groups⁽⁷⁾ per floor. The fixture units and required minimum size of water service will automatically be calculated.

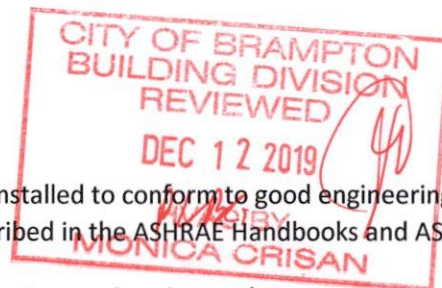
Description	Basement Floor	First Floor	Second Floor	Third Floor
	Qty.	Qty.	Qty.	Qty.
Bathroom group ⁽⁶⁾	1	0	2 ✓	0
Bidet	0	0	0	0
Extra Shower	0	0	0 1	0
Lav	0	1 ✓	2 ✓	0
Bar Sink	0	0	0	0
Powder room ⁽⁷⁾	0	1 ✓	0	0
Kitchen Sink	0	1	0	0
Dishwasher	0	1	0	0
Laundry Tub	0	0	1	0
Washing Machine	0	0	1	0
Hose Bib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

Total Fixture Units **27.9**

Minimum Diameter 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.



Schedule 1: Designer Information

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

A. Project Information				
Building number, street name			Unit no.	Lot/con.
Municipality BRAMPTON	Postal code	Plan number/ other description 43M-2039		
B. Individual who reviews and takes responsibility for design activities				
Name MICHAEL O'ROURKE		Firm HVAC DESIGNS LTD.		
Street address 375 FINLEY AVE		Unit no. 202	Lot/con. N/A	
Municipality AJAX	Postal code L1S 2E2	Province ONTARIO	E-mail info@hvacdsgns.ca	
Telephone number (905) 619-2300	Fax number (905) 619-2375	Cell number ()		
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]				
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <input type="checkbox"/> House <input type="checkbox"/> Small Buildings <input type="checkbox"/> Large Buildings <input type="checkbox"/> Complex Buildings </div> <div style="width: 30%;"> <input checked="" type="checkbox"/> HVAC – House <input type="checkbox"/> Building Services <input type="checkbox"/> Detection, Lighting and Power <input type="checkbox"/> Fire Protection </div> <div style="width: 30%;"> <input type="checkbox"/> Building Structural <input type="checkbox"/> Plumbing – House <input type="checkbox"/> Plumbing – All Buildings <input type="checkbox"/> On-site Sewage Systems </div> </div>				
Description of designer's work HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12		Model: SD-09 THE GERSHWIN Project: ENCORE 2		
D. Declaration of Designer				
I <u>MICHAEL O'ROURKE</u>		declare that (choose one as appropriate):		
(print name)				
<input type="checkbox"/> I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: _____ 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. Individual BCIN: <u>19669</u> 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. 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. 2. I have submitted this application with the knowledge and consent of the firm.				
October 17, 2019				
Date		Signature of Designer		

NOTE:

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

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

SITE NAME: ENCORE 2

BUILDER: GOLD PARK HOMES

THE GERSHWIN

TYPE: SD-09

GFA: 1900

DATE: Oct-19

LO# 84185

WINTER NATURAL AIR CHANGE RATE 0.336

SUMMER NATURAL AIR CHANGE RATE 0.105

HEAT LOSS ΔT °F. 74

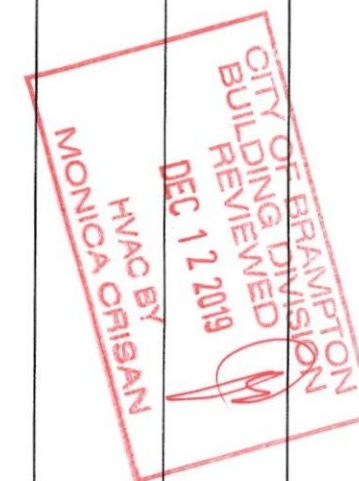
HEAT GAIN ΔT °F. 11

CSA-F280-12

SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	BED-2	BED-3	BED-4	BATH						
FACTORS														
GRS.WALL AREA	14	23												
EXP. WALL	9	9												
CLG. HT.														
LOSS	126	207			99	333	99	0						
GAIN														
GLAZING														
NORTH	20.8	15.5	0	0	0	0	0	0	0	0	0	0	0	0
EAST	20.8	41.0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH	20.8	24.4	0	0	0	0	0	0	0	0	0	0	0	0
WEST	20.8	41.0	32	665	1314	14	291	575	0	0	0	0	0	0
SKYL.T.	36.4	100.7	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	24.7	3.7	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.4	0.6	94	410	61	193	841	125	81	353	52	281	1224	182
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	218	273	121	129	162	72	106	133	59	230	288	128
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	106	264	39	0	0	0
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS			1348		1293				1124		2593			872
SUB TOTAL HT GAIN				1496		771				889		2211		523
LEVEL FACTOR / MULTIPLIER	0.20	0.30		0.20	0.30				0.20	0.30		0.20	0.30	
AIR CHANGE HEAT LOSS			408		392				340		785			264
AIR CHANGE HEAT GAIN				92		47				54		135		32
DUCT LOSS			0		0				146		0			0
DUCT GAIN				0		0				168		0		0
HEAT GAIN PEOPLE	240	2		480	0	0			1		240	1		240
HEAT GAIN APPLIANCES/LIGHTS				500	0	0				500		500		500
TOTAL HT LOSS BTU/H			1756		1685				1610		3378			1136
TOTAL HT GAIN x 1.3 BTU/H				3337		1054				2407		4012		1683

ROOM USE	EXP. WALL	CLG. HT.	KT/GT	LAUN	W/R	FOY								
FACTORS														
GRS.WALL AREA	51	10												
EXP. WALL	10	9												
CLG. HT.														
LOSS	510													
GAIN														
GLAZING														
NORTH	20.8	15.5	0	0	0	0	0	0	0	0	0	0	0	0
EAST	20.8	41.0	0	0	0	0	0	0	11	229	452	18	374	739
SOUTH	20.8	24.4	36	748	878	0	0	0	0	0	0	0	0	0
WEST	20.8	41.0	81	1683	3325	0	0	0	0	0	0	0	0	0
SKYL.T.	36.4	100.7	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	24.7	3.7	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.4	0.6	393	1712	254	0	0	0	220	959	142	43	187	28
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS			0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS			4143						114		1187			2040
SUB TOTAL HT GAIN				4467						42		594		986
LEVEL FACTOR / MULTIPLIER	0.30	0.47							0.20	0.30		0.30	0.47	
AIR CHANGE HEAT LOSS			1929							34		553		950
AIR CHANGE HEAT GAIN				273						3		36		60
DUCT LOSS			0						15		0			0
DUCT GAIN				0						54		0		0
HEAT GAIN PEOPLE	240	0		0	0				0		0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS				500	0					500		0		0
TOTAL HT LOSS BTU/H			6072						163		1740			2990
TOTAL HT GAIN x 1.3 BTU/H				6798						778		819		1360



TOTAL HEAT GAIN BTU/H:

23939

TONS: 1.99

LOSS DUE TO VENTILATION LOAD BTU/H: 1593

STRUCTURAL HEAT LOSS: 32045

TOTAL COMBINED HEAT LOSS BTU/H: 33637

Michael O'Rourke

SITE NAME: ENCORE 2
BUILDER: GOLD PARK HOMES

TYPE: SD-09
THE GERSHWIN

DATE: Oct-19

GFA: 1900 LO# 84185

HEATING CFM 800 COOLING CFM 800
TOTAL HEAT LOSS 32,045 TOTAL HEAT GAIN 23,703
AIR FLOW RATE CFM 24.97 AIR FLOW RATE CFM 33.75

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

LENNOX
EL196UH045XE24B 45
FAN SPEED
LOW 0
MEDLOW 0
MEDIUM 685
MEDIUM HIGH 800
HIGH 890

AFUE = 96 %
INPUT (BTU/H) = 44,000
OUTPUT (BTU/H) = 42,800

DESIGN CFM = 800
CFM @ .5" E.S.P.

TEMPERATURE RISE 50 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	9	5	4
R/A	0	0	4	1	1

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

plenium pressure s/a 0.18
max s/a dif press. loss 0.02
min adjusted pressure s/a 0.16
r/a pressure 0.17
r/a grille press. Loss 0.02
adjusted pressure r/a 0.15

RUN #	1	2	4	5	6	7	8	10	12	13	15	17	18	19	21	22	23	24
ROOM NAME	MBR	ENS	BED-2	BED-3	BED-4	BATH	BED-3	MBR	KT/GT	KT/GT	KT/GT	LAUN	W/R	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH.	0.88	1.69	1.61	1.69	1.14	0.30	1.69	0.88	2.02	2.02	2.02	0.16	1.74	2.99	2.80	2.80	2.80	2.80
CFM PER RUN HEAT	22	42	40	42	28	8	42	22	51	51	51	4	43	75	70	70	70	70
RM GAIN MBH.	1.67	1.06	2.41	2.01	1.88	0.08	2.01	1.67	2.27	2.27	2.27	0.78	0.82	1.36	0.34	0.34	0.34	0.34
CFM PER RUN COOLING	56	36	81	68	57	3	68	56	76	76	76	26	28	46	12	12	12	12
ADJUSTED PRESSURE	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	35	47	43	54	35	29	58	28	21	21	15	19	45	37	40	21	24	11
EQUIVALENT LENGTH	100	180	120	180	140	140	160	130	150	130	110	150	150	120	160	150	140	140
TOTAL EFFECTIVE LENGTH	135	227	163	234	175	169	218	158	171	151	125	169	195	157	200	171	164	151
ADJUSTED PRESSURE	0.13	0.08	0.1	0.07	0.1	0.1	0.08	0.11	0.1	0.11	0.14	0.1	0.09	0.11	0.09	0.1	0.1	0.11
ROUND DUCT SIZE	5	4	6	6	6	4	6	5	5	5	5	4	4	5	5	5	5	5
HEATING VELOCITY (ft/min)	162	482	204	214	143	92	214	162	374	374	374	46	493	551	514	514	514	514
COOLING VELOCITY (ft/min)	411	413	413	347	291	34	347	411	558	558	558	298	321	338	88	88	88	88
OUTLET GRILL SIZE	3X10	3X10	4X10	4X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	C	B	B	A	B	B	A	C	C	C	C	B	A	A	A	B	C	C

RUN #	1
ROOM NAME	MBR
RM LOSS MBH.	0.88
CFM PER RUN HEAT	22
RM GAIN MBH.	1.67
CFM PER RUN COOLING	56
ADJUSTED PRESSURE	0.17
ACTUAL DUCT LGH.	35
EQUIVALENT LENGTH	100
TOTAL EFFECTIVE LENGTH	135
ADJUSTED PRESSURE	0.13
ROUND DUCT SIZE	5
HEATING VELOCITY (ft/min)	162
COOLING VELOCITY (ft/min)	411
OUTLET GRILL SIZE	3X10
TRUNK	C

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED
DEC 12 2019
HVAC BY
MONICA CRISAN

SUPPLY AIR TRUNK SIZE

TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	272	0.07	8.9	10	490
TRUNK B	464	0.07	10.9	14	597
TRUNK C	337	0.10	8.8	10	607
TRUNK D	0	0.00	0	0	0
TRUNK E	0	0.00	0	0	0
TRUNK F	0	0.00	0	0	0

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	115	115	75	75	300	0	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.	66	45	53	65	37	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	225	225	235	215	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	291	270	288	280	277	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.05	0.05	0.05	0.05	0.05	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	14.80
ROUND DUCT SIZE	7	7	6	6	10.1	0	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	0	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
INLET GRILL SIZE	14	14	14	14	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

RETURN AIR TRUNK SIZE	TRUNK	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK O	0	0.05	0	0	0	0
TRUNK P	0	0.05	0	0	0	0
TRUNK Q	0	0.05	0	0	0	0
TRUNK R	0	0.05	0	0	0	0
TRUNK S	0	0.05	0	0	0	0
TRUNK T	0	0.05	0	0	0	0
TRUNK U	0	0.05	0	0	0	0
TRUNK V	0	0.05	0	0	0	0
TRUNK W	0	0.05	0	0	0	0
TRUNK X	800	0.05	14.5	24	X	8
TRUNK Y	680	0.05	13.7	22	X	8
TRUNK Z	490	0.05	12.1	18	X	8
DROP	800	0.05	14.5	24	X	10

TYPE: SD-09
SITE NAME: ENCORE 2

LO # 84185
THE GERSHWIN

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	4	@ 10.6 cfm	42.4	cfm
Other Rooms	3	@ 10.6 cfm	31.8	cfm
Table 9.32.3.A.	TOTAL		148.4	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	148.4	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	68.9	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	X 74 F	X 1.08	X 0.25

SUPPLEMENTAL FANS PANASONIC

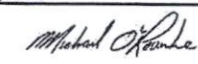
Location	Model	cfm	HVI	Sones
ENS	FV-05-11VK1	50	✓	0.3
BATH	FV-05-11VK1	50	✓	0.3
W/R	FV-05-11VK1	50	✓	0.3

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

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

LO#: 84185

Model: SD-09

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	854	9	7686
First	854	10	8540
Second	1046	9	9414
Third	0	9	0
Fourth	0	9	0
Total:			25,640.0 ft³
Total:			726.0 m³

WINTER NATURAL AIR CHANGE RATE	0.336
SUMMER NATURAL AIR CHANGE RATE	0.105

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

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

0.336 x 201.68 x 41 °C x 1.2 = 3353 W

= 11440 Btu/h

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

= 0.105 x 201.68 x 6 °C x 1.2 = 156 W

= 531 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)

$$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agcleve} + HL_{bgcleve})\}$$

Level	Level Factor (LF)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{cleve})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HL _{cleve})
1	0.5	11,440	5,493	1.041
2	0.3		7,371	0.466
3	0.2		7,553	0.303
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: SD-09	THE GERSHWIN	BUILDER: GOLD PARK HOMES
SFQT: 1900	LO# 84185	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:	ATTACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	25640.0	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: 45.0 ft	WIDTH: 25.0 ft	EXPOSED PERIMETER:	118.0 ft

2012 OBC - COMPLIANCE PACKAGE

Component	Compliance Package A1	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	21.12
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value	-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value	10	10
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value	10	11.13
Windows and Sliding Glass Doors Maximum U-Value	0.28	-
Skylights Maximum U-Value	0.49	-
Space Heating Equipment Minimum AFUE	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

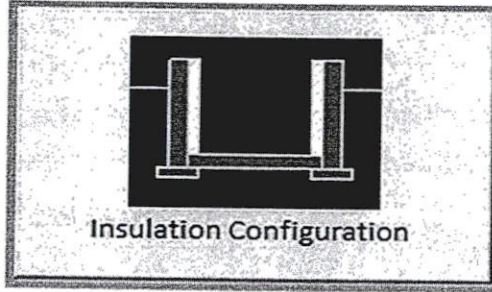
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Brampton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	13.7	 Insulation Configuration
Floor Width (m):	7.6	
Exposed Perimeter (m):	36.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.0	
Door Area (m ²):	0.0	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):	1178	

TYPE: SD-09
LO# 84185

THE GERSHWIN



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:	Semi			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	726.0			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	967.8 cm ²		
	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):	0.336			
Cooling Air Leakage Rate (ACH/H):	0.105			

TYPE: SD-09
LO# 84185

THE GERSHWIN



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	
Application No:	Model/Certification Number

A. Project Information

Building number, street name		Unit number SD-09 'A'	Lot/Con
Municipality BRAMPTON	Postal 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: <u>A1</u> Table: <u>3.1.1.2.A</u>
--

C. Project Design Conditions

Climatic Zone (SB-1): <input checked="" type="checkbox"/> Zone 1 (< 5000 degree days) <input type="checkbox"/> Zone 2 (≥ 5000 degree days)	Heating Equipment Efficiency <input checked="" type="checkbox"/> ≥ 92% AFUE <input type="checkbox"/> ≥ 84% < 92% AFUE	Space Heating Fuel Source <input checked="" type="checkbox"/> Gas <input type="checkbox"/> Propane <input type="checkbox"/> Solid Fuel <input type="checkbox"/> Oil <input type="checkbox"/> Electric <input type="checkbox"/> Earth Energy
Ratio of Windows, Skylights & Glass (W, S & G) to Wall Area Area of walls = <u>248.43</u> m ² or <u>2,674.09</u> ft ² W, S & G % = <u>10.59</u> Area of W, S & G = <u>26.31</u> m ² or <u>283.16</u> ft ²		Other Building Characteristics <input type="checkbox"/> Log/Post&Beam <input type="checkbox"/> ICF Above Grade <input type="checkbox"/> ICF Basement <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)
Utilize window averaging: <input type="checkbox"/> Yes <input type="checkbox"/> No		

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

Energy Efficiency Substitutions				
<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 (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: _____		
Building Component	Minimum RSI / R values or Maximum U-Value ⁽¹⁾		Building Component	Efficiency Ratings
Thermal Insulation	Nominal	Effective	Windows & Doors Provide U-Value ⁽¹⁾ 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	Mechanicals	
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 ²
Slab (all ≤600mm below grade, or heated)	10	11.13	Combined Heating System	

(1) U value to be provided in either W/(m²·K) or Btu/(h·ft²·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 Jorge Moreno	BCIN 47245	Signature

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	
Application No:	Model/Certification Number

A. Project Information

Building number, street name		Unit number SD-09 'B'	Lot/Con
Municipality BRAMPTON	Postal 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

Climatic Zone (SB-1):	Heating Equipment Efficiency	Space Heating Fuel Source
<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
Ratio of Windows, Skylights & Glass (W, S & G) to Wall Area		Other Building Characteristics
Area of walls = <u>250.29</u> m ² or <u>2,694.09</u> ft ²		<input type="checkbox"/> Log/Post&Beam <input type="checkbox"/> ICF Above Grade <input type="checkbox"/> ICF Basement
W, S & G % = <u>10.51</u>		<input type="checkbox"/> Slab-on-ground <input type="checkbox"/> Walkout Basement
Area of W, S & G = <u>26.31</u> m ² or <u>283.16</u> ft ²		<input type="checkbox"/> Air Conditioning <input type="checkbox"/> Combo Unit
Utilize window averaging: <input type="checkbox"/> Yes <input type="checkbox"/> No		<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]

Energy Efficiency Substitutions				
<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 (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: _____		
Building Component	Minimum RSI / R values or Maximum U-Value ⁽¹⁾		Building Component	Efficiency Ratings
Thermal Insulation	Nominal	Effective	Windows & Doors	Provide U-Value ⁽¹⁾ 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	Mechanicals	
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 ²
Slab (all ≤600mm below grade, or heated)	10	11.13	Combined Heating System	

(1) U value to be provided in either W/(m².K) or Btu/(h.ft².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 Jorge Moreno	BCIN 47245	Signature

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	
Application No:	Model/Certification Number

A. Project Information

Building number, street name		Unit number SD-09 'C'	Lot/Con
Municipality BRAMPTON	Postal 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: <u>A1</u> Table: <u>3.1.1.2.A</u>

C. Project Design Conditions

Climatic Zone (SB-1):	Heating Equipment Efficiency	Space Heating Fuel Source
<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
Ratio of Windows, Skylights & Glass (W, S & G) to Wall Area		Other Building Characteristics
Area of walls = <u>248.43</u> m ² or <u>2,674.09</u> ft ²		<input type="checkbox"/> Log/Post&Beam <input type="checkbox"/> ICF Above Grade <input type="checkbox"/> ICF Basement <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)
W, S & G % = <u>12.20</u> Utilize window averaging: <input type="checkbox"/> Yes <input type="checkbox"/> No		
Area of W, S & G = <u>30.32</u> m ² or <u>326.34</u> ft ²		

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

Energy Efficiency Substitutions				
<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) <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> Airtightness test required (Refer to Design Guide Attached) </div> <div style="width: 50%;"> <div> Table 3.1.1.4.B Required: _____ Permitted Substitution: _____ </div> <div> Table 3.1.1.4.C Required: _____ Permitted Substitution: _____ </div> </div> </div>				
Building Component	Minimum RSI / R values or Maximum U-Value ⁽¹⁾	Building Component	Efficiency Ratings	
Thermal Insulation	Nominal	Effective	Windows & Doors Provide U-Value ⁽¹⁾ 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	Mechanicals	
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>2</u>
Slab (all ≤600mm below grade, or heated)	10	11.13	Combined Heating System	

(1) U value to be provided in either W/(m²·K) or Btu/(h·ft²·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 Jorge Moreno	BCIN 47245	Signature

Energy Efficiency Design Summary: Prescriptive Method

(Building Code Part 9, Residential)

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For use by Principal Authority	
Application No:	Model/Certification Number

A. Project Information

Building number, street name		Unit number SD-09 'D'	Lot/Con
Municipality BRAMPTON	Postal 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: <u>A1</u> Table: <u>3.1.1.2.A</u>
--

C. Project Design Conditions

Climatic Zone (SB-1):	Heating Equipment Efficiency	Space Heating Fuel Source
<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
Ratio of Windows, Skylights & Glass (W, S & G) to Wall Area		Other Building Characteristics
Area of walls = <u>252.01</u> m ² or <u>2,712.59</u> ft ²	W, S & G % = <u>9.48</u>	<input type="checkbox"/> Log/Post&Beam <input type="checkbox"/> ICF Above Grade <input type="checkbox"/> ICF Basement
Area of W, S & G = <u>23.89</u> m ² or <u>257.11</u> ft ²	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)

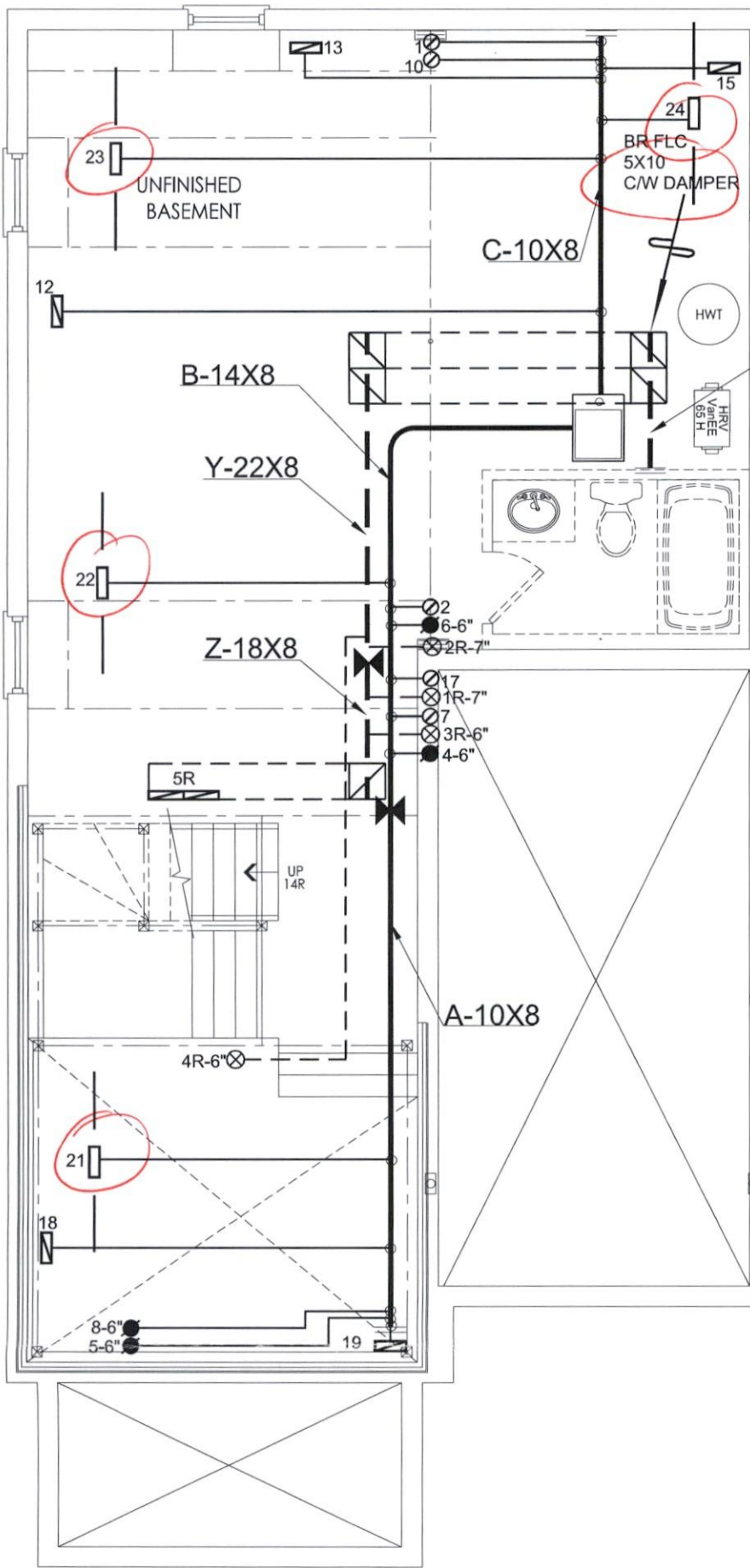
D. Building Specifications [provide values and ratings of the energy efficiency components proposed]

Energy Efficiency Substitutions				
<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 (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: _____				
Building Component	Minimum RSI / R values or Maximum U-Value ⁽¹⁾		Building Component	Efficiency Ratings
Thermal Insulation	Nominal	Effective	Windows & Doors	Provide U-Value ⁽¹⁾ or ER rating
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Ceiling without Attic Space	31	27.65	Skylights/Glazed Roofs	0.49
Exposed Floor	31	29.80	Mechanicals	
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>2</u>
Slab (all ≤600mm below grade, or heated)	10	11.13	Combined Heating System	

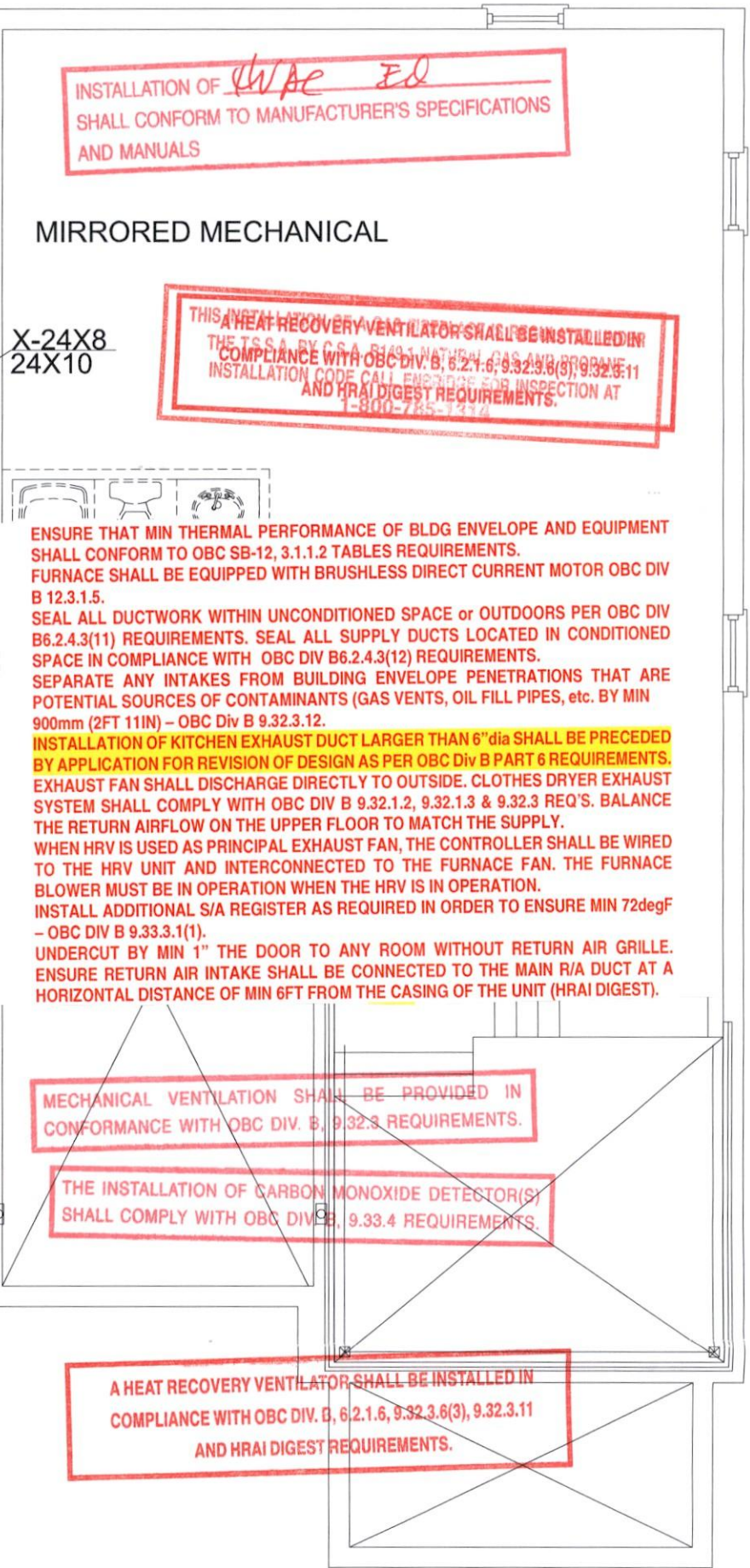
(1) U value to be provided in either W/(m²•K) or Btu/(h•ft²•F) but not both.

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

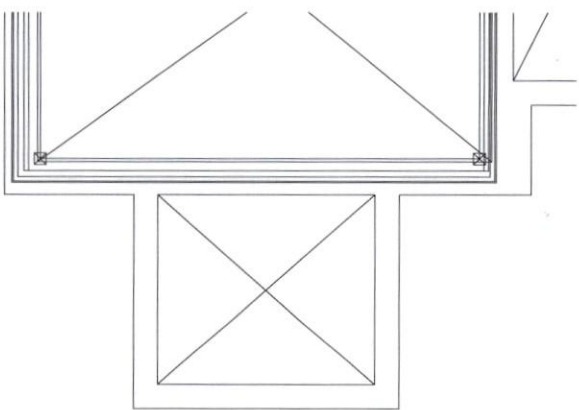
Qualified Designer Declaration of designer to have reviewed and take responsibility for the design work.		
Name Jorge Moreno	BCIN 47245	Signature



BASEMENT FLOOR ELEV 'A'



PARTIAL BASEMENT FLOOR ELEV 'B'



PARTIAL BASEMENT FLOOR ELEV 'C'



PARTIAL BASEMENT FLOOR ELEV 'D'

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

Client
GOLD PARK HOMES
Project Name
**ENCORE 2
BRAMPTON, ONTARIO**
THE GERSHWIN
SD-09 **1900 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.

HEAT LOSS 33637 BTU/H UNIT DATA	# OF RUNS	S/A	R/A	FANS	Sheet Title
MAKE LENNOX	3RD FLOOR				BASEMENT HEATING LAYOUT
MODEL EL196UH045XE24B	2ND FLOOR	9	4	3	
INPUT 44 MBTU/H	1ST FLOOR	5	1	2	
OUTPUT 42.8 MBTU/H	BASEMENT	4	1	0	Date OCT/2019
COOLING 2.0 TONS					Scale 3/16" = 1'-0"
FAN SPEED 800 cfm @ 0.6" w.c.					BCIN# 19669
					LO# 84185

INSTALLATION OF *W/AE ED*
SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS
AND MANUALS

MIRRORED MECHANICAL

THIS INSTALLATION SHALL BE IN ACCORDANCE WITH THE TSSA OF CSA 6149.1 NATURAL GAS AND PROPANE
COMPLIANCE WITH OBC DIV. B, 6.2.1.6, 9.32.3.6(3), 9.32.3.11
AND HRAI DIGEST REQUIREMENTS.
INSTALLATION CODE CALL ENRIDGE FOR INSPECTION AT
1-800-785-1274

ENSURE THAT MIN THERMAL PERFORMANCE OF BLDG ENVELOPE AND EQUIPMENT
SHALL CONFORM TO OBC SB-12, 3.1.1.2 TABLES REQUIREMENTS.
FURNACE SHALL BE EQUIPPED WITH BRUSHLESS DIRECT CURRENT MOTOR OBC DIV
B 12.3.1.5.
SEAL ALL DUCTWORK WITHIN UNCONDITIONED SPACE or OUTDOORS PER OBC DIV
B6.2.4.3(11) REQUIREMENTS. SEAL ALL SUPPLY DUCTS LOCATED IN CONDITIONED
SPACE IN COMPLIANCE WITH OBC DIV B6.2.4.3(12) REQUIREMENTS.
SEPARATE ANY INTAKES FROM BUILDING ENVELOPE PENETRATIONS THAT ARE
POTENTIAL SOURCES OF CONTAMINANTS (GAS VENTS, OIL FILL PIPES, etc. BY MIN
900mm (2FT 11IN) - OBC Div B 9.32.3.12.
INSTALLATION OF KITCHEN EXHAUST DUCT LARGER THAN 6" dia SHALL BE PRECEDED
BY APPLICATION FOR REVISION OF DESIGN AS PER OBC Div B PART 6 REQUIREMENTS.
EXHAUST FAN SHALL DISCHARGE DIRECTLY TO OUTSIDE. CLOTHES DRYER EXHAUST
SYSTEM SHALL COMPLY WITH OBC DIV B 9.32.1.2, 9.32.1.3 & 9.32.3 REQ'S. BALANCE
THE RETURN AIRFLOW ON THE UPPER FLOOR TO MATCH THE SUPPLY.
WHEN HRV IS USED AS PRINCIPAL EXHAUST FAN, THE CONTROLLER SHALL BE WIRED
TO THE HRV UNIT AND INTERCONNECTED TO THE FURNACE FAN. THE FURNACE
BLOWER MUST BE IN OPERATION WHEN THE HRV IS IN OPERATION.
INSTALL ADDITIONAL S/A REGISTER AS REQUIRED IN ORDER TO ENSURE MIN 72degF
- OBC DIV B 9.33.3.1(1).
UNDERCUT BY MIN 1" THE DOOR TO ANY ROOM WITHOUT RETURN AIR GRILLE.
ENSURE RETURN AIR INTAKE SHALL BE CONNECTED TO THE MAIN R/A DUCT AT A
HORIZONTAL DISTANCE OF MIN 6FT FROM THE CASING OF THE UNIT (HRAI DIGEST).

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

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

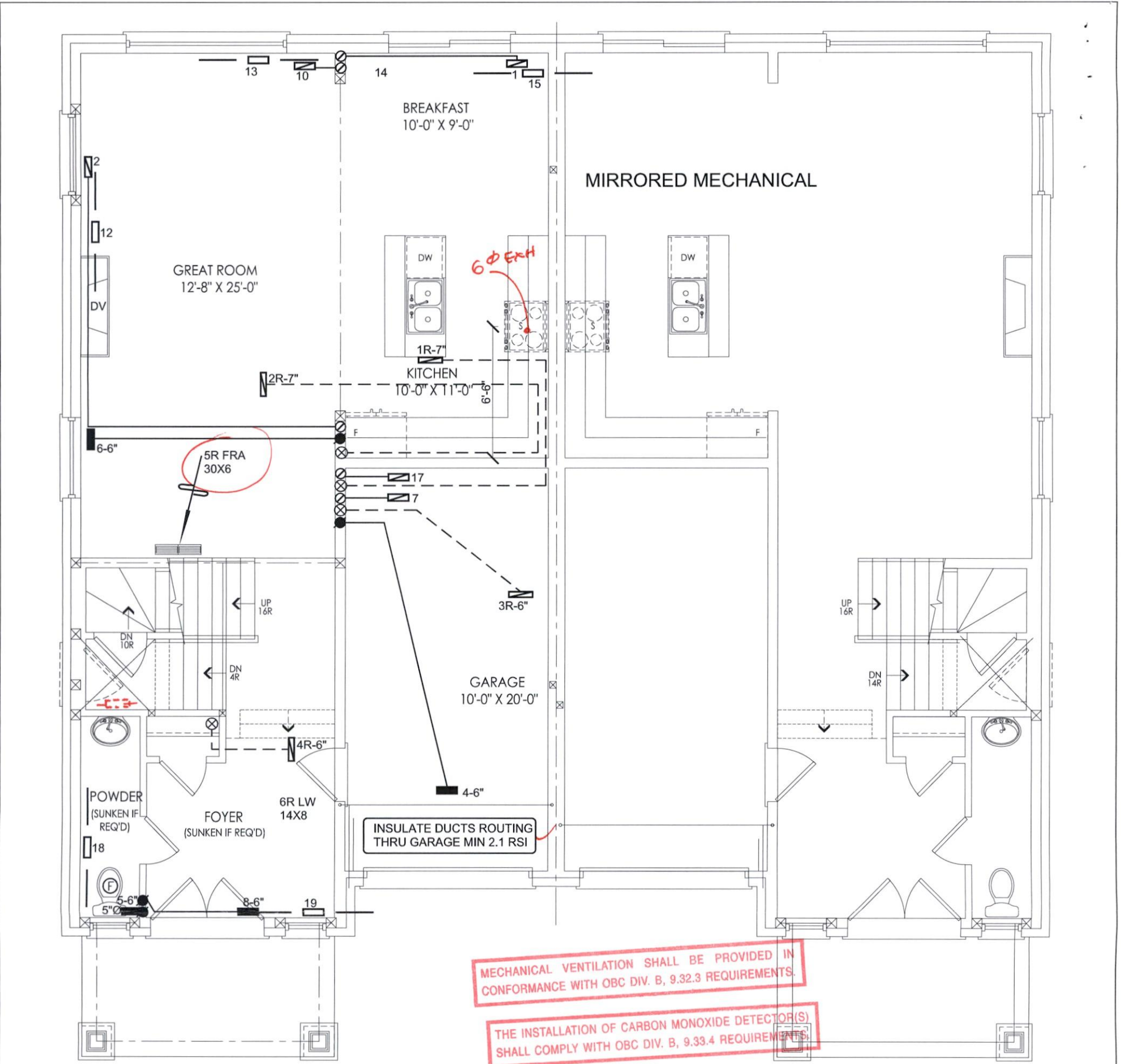
A HEAT RECOVERY VENTILATOR SHALL BE INSTALLED IN
COMPLIANCE WITH OBC DIV. B, 6.2.1.6, 9.32.3.6(3), 9.32.3.11
AND HRAI DIGEST REQUIREMENTS.

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED
DEC 12 2019
HVAC BY
MONICA CRISAN

CSA-F280-12
PACKAGE A1

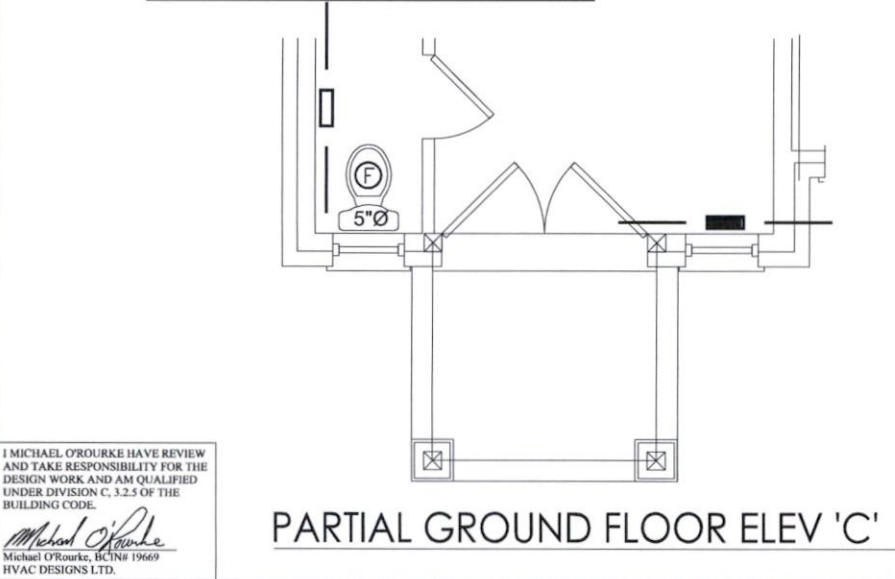
HVAC LEGEND								REVISIONS		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	No.	Description	Date
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	3.		
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN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

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USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE
USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE
ONTARIO BUILDING CODE.

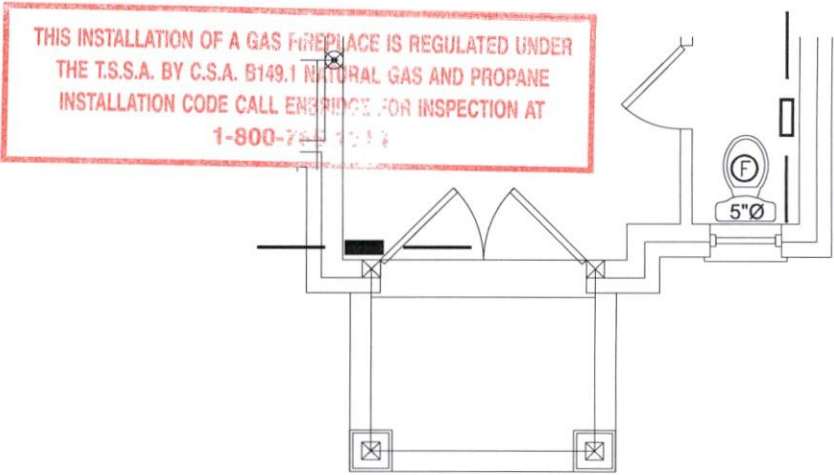


GROUND FLOOR ELEV 'A'

PARTIAL GROUND FLOOR ELEV 'B'



PARTIAL GROUND FLOOR ELEV 'C'



PARTIAL GROUND FLOOR ELEV 'D'

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

CSA-F280-12
PACKAGE A1

HVAC LEGEND								3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
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	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	Date	

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Client

GOLD PARK HOMES

Project Name

ENCORE 2

BRAMPTON, ONTARIO

THE GERSHWIN

SD-09

HVAC DESIGNS 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.

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED
DEC 12 2019
HVAC BY
MONICA CRISAN

Sheet Title

FIRST FLOOR
HEATING
LAYOUT

Date

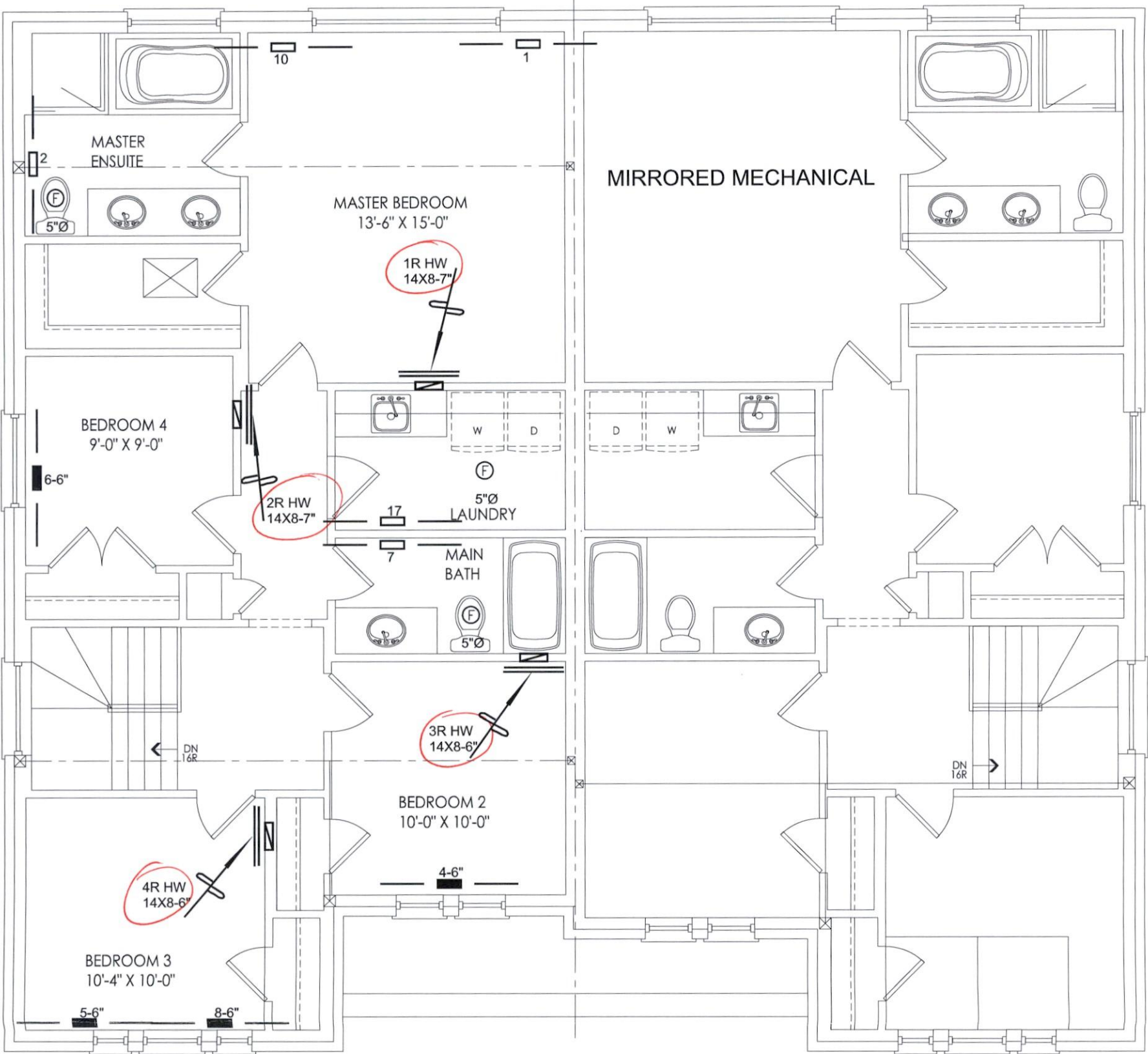
OCT/2019

Scale

3/16" = 1'-0"

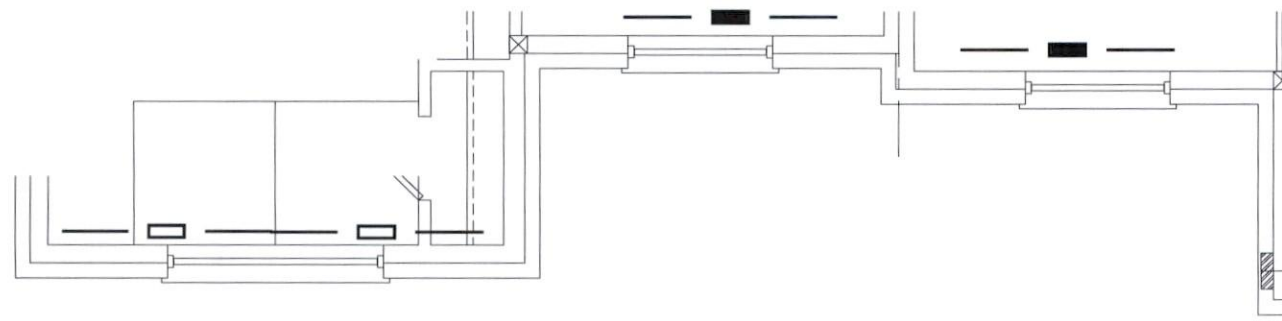
BCIN# 19669

LO# 84185



SECOND FLOOR ELEV 'A'

PARTIAL SECOND FLOOR ELEV 'B'



PARTIAL SECOND FLOOR ELEV 'C'

PARTIAL SECOND FLOOR ELEV 'D'

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

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Michael O'Rourke
Michael O'Rourke, B.C.N# 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
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Client
GOLD PARK HOMES

Project Name
**ENCORE 2
BRAMPTON, ONTARIO**

**THE GERSHWIN
SD-09**

1900 sqft

HVACDESIGNS LTD.

375 Finley Ave. Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
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**CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED**

DEC 12 2019

**HVAC BY
MONICA CRISAN**

Sheet Title
**SECOND FLOOR
HEATING
LAYOUT**

Date
OCT/2019

Scale
3/16" = 1'-0"

BCIN# 19669

LO# **84185**