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	**Postal code**	**Plan number/ other description**		
BRAMPTON				

B. Individual who reviews and takes responsibility for design activities

Name		Firm		
MICHAEL O'ROURKE		**HVAC DESIGNS LTD.**		
Street address			**Unit no.**	**Lot/con.**
375 FINLEY AVE			**202**	**N/A**
Municipality	**Postal code**	**Province**	**E-mail**	
AJAX	**L1S 2E2**	**ONTARIO**	**info@hvacdesigns.ca**	
Telephone number	**Fax number**		**Cell number**	
(905) 619-2300	**(905) 619-2375**		( )	

C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]

☐ House	☒ HVAC – House	☐ Building Structural
☐ Small Buildings	☐ Building Services	☐ Plumbing – House
☐ Large Buildings	☐ Detection, Lighting and Power	☐ Plumbing – All Buildings
☐ Complex Buildings	☐ Fire Protection	☐ On-site Sewage Systems

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

☐ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4.of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.

Individual BCIN: _____
Firm BCIN: _____

☒ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5.of Di vision C, of the Building Code.

Individual BCIN: 19669
Basis for exemption from registration and qualification: O.B.C SENTENCE 3.2.4.1 (4)

☐ The design work is exempt from the registration and qualification requirements of the Building Code.
Basis for exemption from registration and qualification: _____

I certify that:

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

Michael O'Rourke
Signature of Designer

NOTE:

1. 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.
2. 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.

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Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

SITE NAME: ENCORE 2 — THE GERSHWIN — DATE: Oct-19 — WINTER NATURAL AIR CHANGE RATE 0.336 — HEAT LOSS ΔT °F. 74 — CSA-F280-12
BUILDER: GOLD PARK HOMES — TYPE: SD-09 — GFA: 1900 — LO# 84185 — SUMMER NATURAL AIR CHANGE RATE 0.105 — HEAT GAIN ΔT °F. 11 — SB-12 PACKAGE A1

ROOM USE			MBR			ENS				BED-2			BED-3			BED-4			BATH								
EXP. WALL			14			23				11			37			11			0								
CLG. HT.			9			9				9			9			9			9								
	FACTORS																										
GRS.WALL AREA	LOSS	GAIN	126			207				99			333			99			0								
GLAZING			LOSS	GAIN		LOSS	GAIN			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN							
NORTH	20.8	15.5	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0						
EAST	20.8	41.0	0	0	0	0	0	0		18	374	739	38	789	1560	0	0	0	0	0	0						
SOUTH	20.8	24.4	0	0	0	0	0	0		0	0	0	14	291	342	16	332	390	0	0	0						
WEST	20.8	41.0	32	665	1314	14	291	575		0	0	0	0	0	0	0	0	0	0	0	0						
SKYLT.	36.4	100.7	0	0	0	0	0	0		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	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	83	362	54	0	0	0						
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0		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	142	178	79	56	70	31						
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0		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	0	0	0	56	139	21						
BASEMENT/CRAWL HEAT LOSS				0			0				0			0			0			0							
SLAB ON GRADE HEAT LOSS				0			0				0			0			0			0							
SUBTOTAL HT LOSS				1348			1293				1124			2593			872			210							
SUB TOTAL HT GAIN					1496			771				889			2211			523			52						
LEVEL FACTOR / MULTIPLIER			0.20	0.30		0.20	0.30			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			63							
AIR CHANGE HEAT GAIN					92			47				54			135			32			3						
DUCT LOSS				0			0				146			0			0			27							
DUCT GAIN					0			0				168			0			0			6						
HEAT GAIN PEOPLE	240		2		480	0		0		1		240	1		240	1		240	0		0						
HEAT GAIN APPLIANCES/LIGHTS					500			0				500			500			500			0						
TOTAL HT LOSS BTU/H				1756			1685				1610			3378			1136			300							
TOTAL HT GAIN x 1.3 BTU/H					3337			1064				2407			4012			1683			79						

ROOM USE			KT/GT			LAUN			W/R			FOY			BAS		
EXP. WALL			51			0			21			11			118		
CLG. HT.			10			9			11			11			9		
	FACTORS																
GRS.WALL AREA	LOSS	GAIN	510			0			231			121			708		
GLAZING			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN	
NORTH	20.8	15.5	0	0	0	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	0	0	0
SOUTH	20.8	24.4	36	748	878	0	0	0	0	0	0	0	0	0	7	145	171
WEST	20.8	41.0	81	1683	3325	0	0	0	0	0	0	0	0	0	4	83	164
SKYLT.	36.4	100.7	0	0	0	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	60	1479	219	0	0	0
NET EXPOSED WALL	4.4	0.6	393	1712	254	0	0	0	220	959	142	43	187	28	0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	354	1244	184
EXPOSED CLG	1.3	0.6	0	0	0	67	84	37	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	0	0	0
EXPOSED FLOOR	2.5	0.4	0	0	0	12	30	4	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS				0			0			0			0			4021	
SLAB ON GRADE HEAT LOSS				0			0			0			0				
SUBTOTAL HT LOSS				4143			114			1187			2040			5493	
SUB TOTAL HT GAIN					4457			42			594			986			519
LEVEL FACTOR / MULTIPLIER			0.30	0.47		0.20	0.30		0.30	0.47		0.30	0.47		0.50	1.04	
AIR CHANGE HEAT LOSS				1929			34			553			950			5720	
AIR CHANGE HEAT GAIN					273			3			36			60			32
DUCT LOSS				0			15			0			0			0	
DUCT GAIN					0			54			0			0			0
HEAT GAIN PEOPLE	240		0		0	0		0	0		0	0		0	0		0
HEAT GAIN APPLIANCES/LIGHTS					500			500			0			0			500
TOTAL HT LOSS BTU/H				6072			163			1740			2990			11213	
TOTAL HT GAIN x 1.3 BTU/H					6798			778			819			1360			1366

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

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.

Michael O'Rourke

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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SITE NAME: ENCORE 2
BUILDER: GOLD PARK HOMES

THE GERSHWIN
TYPE: SD-09

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
plenum 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

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 @ .6 " 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.

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	1.68	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 #	
ROOM NAME	
RM LOSS MBH.	
CFM PER RUN HEAT	
RM GAIN MBH.	
CFM PER RUN COOLING	
ADJUSTED PRESSURE	
ACTUAL DUCT LGH.	
EQUIVALENT LENGTH	
TOTAL EFFECTIVE LENGTH	
ADJUSTED PRESSURE	
ROUND DUCT SIZE	
HEATING VELOCITY (ft/min)	
COOLING VELOCITY (ft/min)	
OUTLET GRILL SIZE	
TRUNK	

SUPPLY AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK A	272	0.07	8.9	10	x	8	490
TRUNK B	464	0.07	10.9	14	x	8	597
TRUNK C	337	0.10	8.8	10	x	8	607
TRUNK D	0	0.00	0	0	x	8	0
TRUNK E	0	0.00	0	0	x	8	0
TRUNK F	0	0.00	0	0	x	8	0

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK G	0	0.00	0	0	x	8	0
TRUNK H	0	0.00	0	0	x	8	0
TRUNK I	0	0.00	0	0	x	8	0
TRUNK J	0	0.00	0	0	x	8	0
TRUNK K	0	0.00	0	0	x	8	0
TRUNK L	0	0.00	0	0	x	8	0

RETURN AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK O	0	0.05	0	0	x	8	0
TRUNK P	0	0.05	0	0	x	8	0
TRUNK Q	0	0.05	0	0	x	8	0
TRUNK R	0	0.05	0	0	x	8	0
TRUNK S	0	0.05	0	0	x	8	0
TRUNK T	0	0.05	0	0	x	8	0
TRUNK U	0	0.05	0	0	x	8	0
TRUNK V	0	0.05	0	0	x	8	0
TRUNK W	0	0.05	0	0	x	8	0
TRUNK X	800	0.05	14.5	24	x	8	600
TRUNK Y	680	0.05	13.7	22	x	8	556
TRUNK Z	490	0.05	12.1	18	x	8	490
DROP	800	0.05	14.5	24	x	10	480

RETURN AIR #	1	2	3	4	5											BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	115	115	75	75	300	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	120
ACTUAL DUCT LGH.	66	45	53	65	37	1	1	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	225	225	235	215	240	0	0	0	0	0	0	0	0	0	0	145
TOTAL EFFECTIVE LH	291	270	288	280	277	1	1	1	1	1	1	1	1	1	1	159
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	0.09
ROUND DUCT SIZE	7	7	6	6	10.1	0	0	0	0	0	0	0	0	0	0	6.2
INLET GRILL SIZE	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	8
	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	14

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.

Michael O'Rourke - INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

TYPE: SD-09 LO # 84185
SITE NAME: ENCORE 2 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: VANEE 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: VANEE 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: Michael O'Rourke.

HRAI # 001820

Date: October-19

I REVIEW AND TAKE RESPONIBILITY 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. MICHAEL O'ROURKE

HVAC DESIGNS LTD.

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Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventiliation Calculation)

LO#: 84185 Model: SD-09 Builder: GOLD PARK HOMES Date: 10/17/2019

Volume Calculation

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

Air Change & Delta T Data

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

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

0.336 x 201.68 x 41 °C x 1.2 = 3353 W

= **11440 Btu/h**

6.2.6 Sensible Gain due to Air Leakage

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

= 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

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

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

6.2.7 Sensible heat Gain due to Ventilation

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

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)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL_{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)
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 HLairve = 0

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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 (ft^3):	25640.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD ($Btu/h/ft^2$):	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

Michael O'Rourke

HVAC Designs Ltd.
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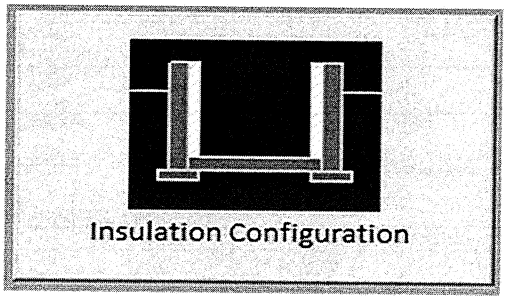
Ajax ON, L1S 2E2
905-619-2300

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

HVAC Designs Ltd.
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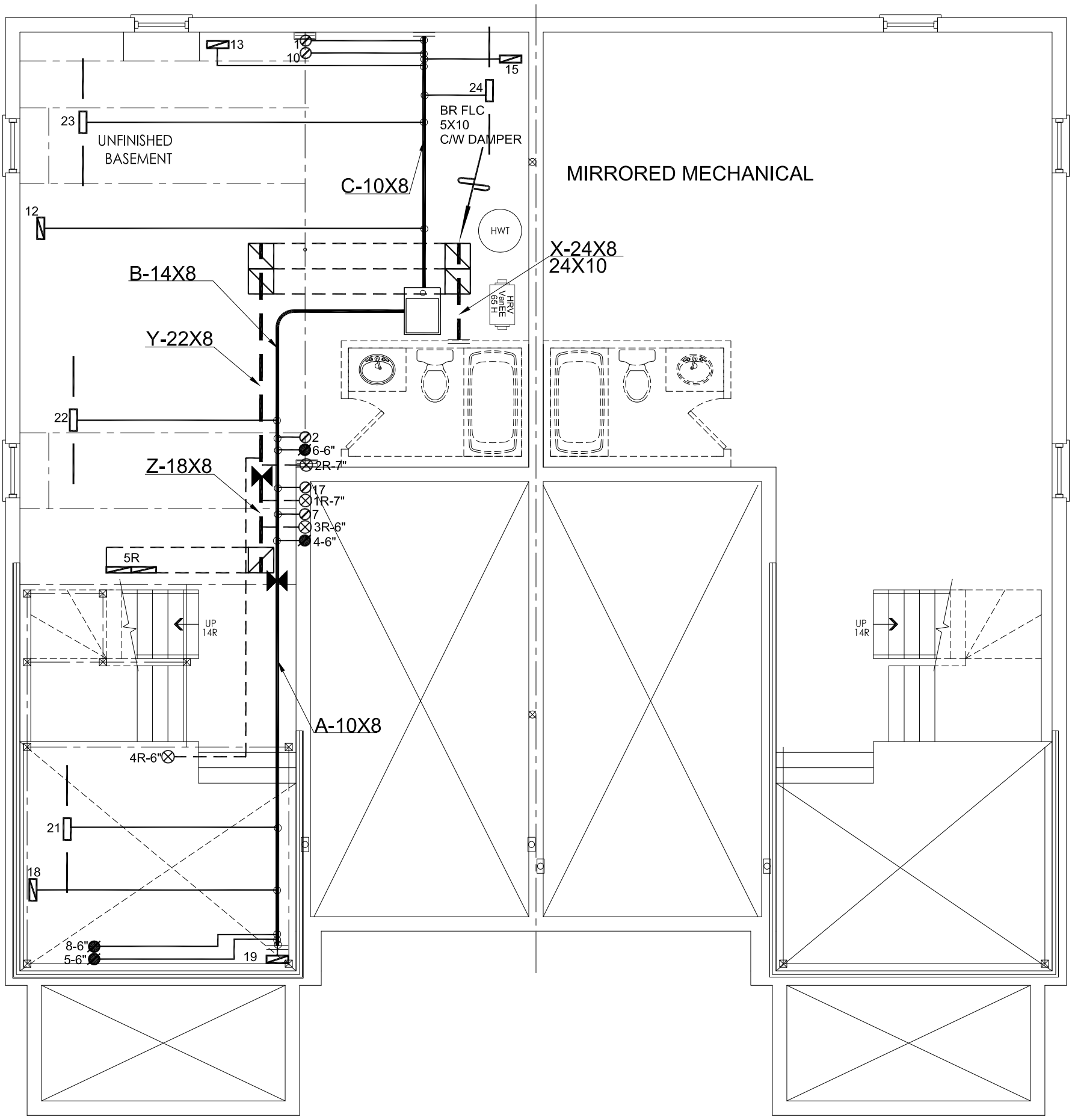
Air Infiltration Residential Load Calculator

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: 37.5 — Total Exhaust: 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**

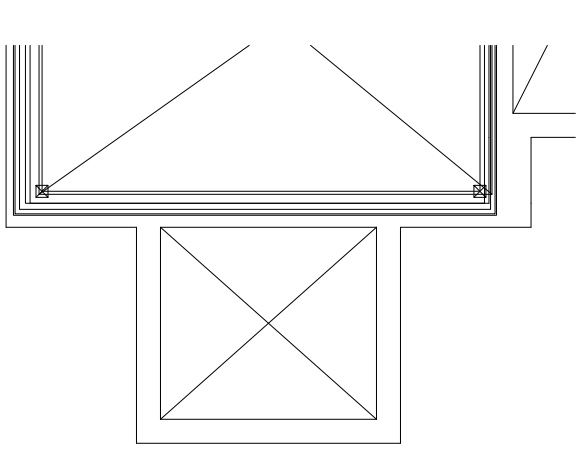
TYPE: SD-09 THE GERSHWIN

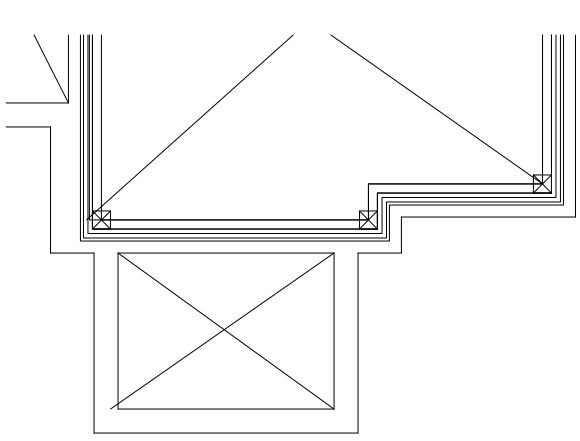
LO# 84185



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, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12

PACKAGE A1

HVAC LEGEND

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
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER

No.	Description	Date
3.		
2.		
1.		

REVISIONS

Client

GOLD PARK HOMES

Project Name

ENCORE 2
BRAMPTON, ONTARIO

THE GERSHWIN
SD-09 1900 sqft

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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	
MAKE	LENNOX
MODEL	EL196UH045XE24B
INPUT	44 MBTU/H
OUTPUT	42.8 MBTU/H
COOLING	2.0 TONS
FAN SPEED	800 cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	9	4	3
1ST FLOOR	5	1	2
BASEMENT	4	1	0

ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

Sheet Title

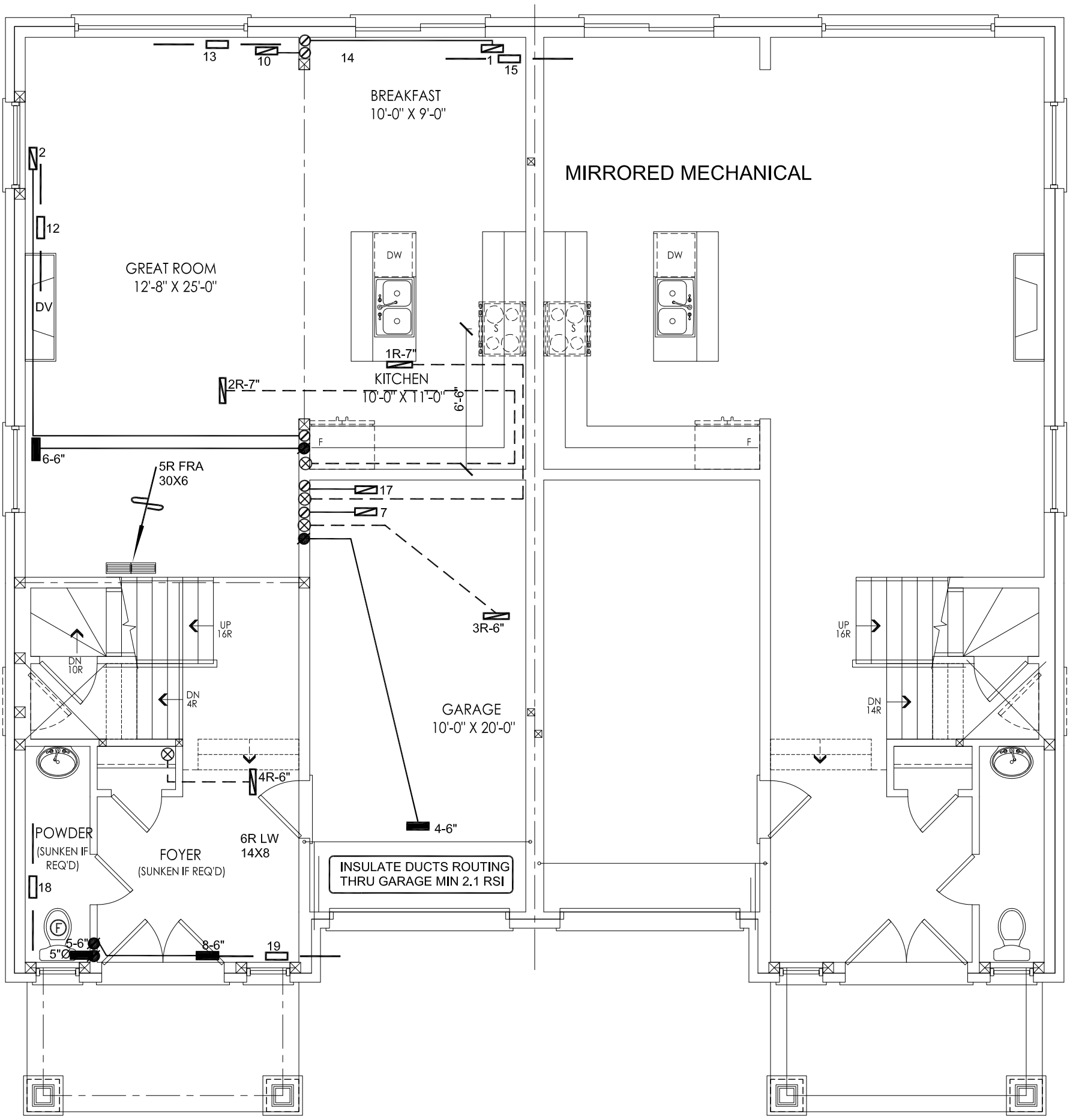
BASEMENT HEATING LAYOUT

Date OCT/2019

Scale 3/16" = 1'-0"

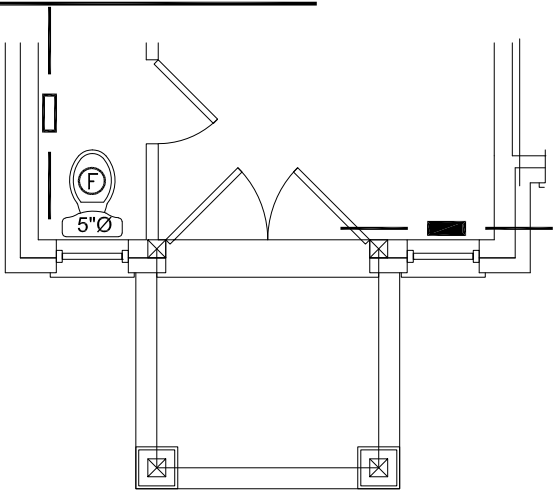
BCIN# 19669

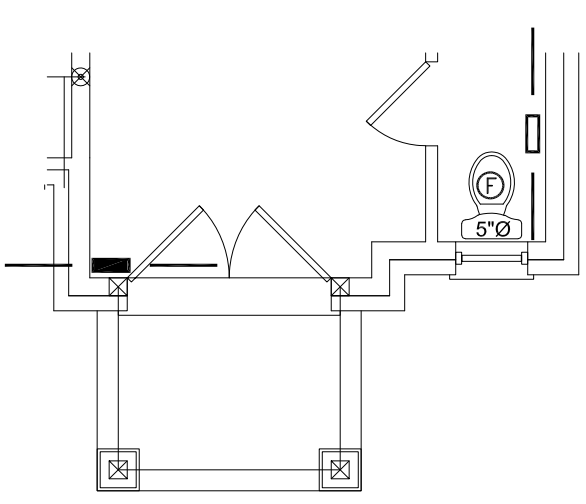
LO# 84185



GROUND FLOOR ELEV 'A'

PARTIAL GROUND FLOOR ELEV 'B'





PARTIAL GROUND FLOOR ELEV 'C'

PARTIAL GROUND FLOOR ELEV 'D'

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PACKAGE A1

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Sheet Title

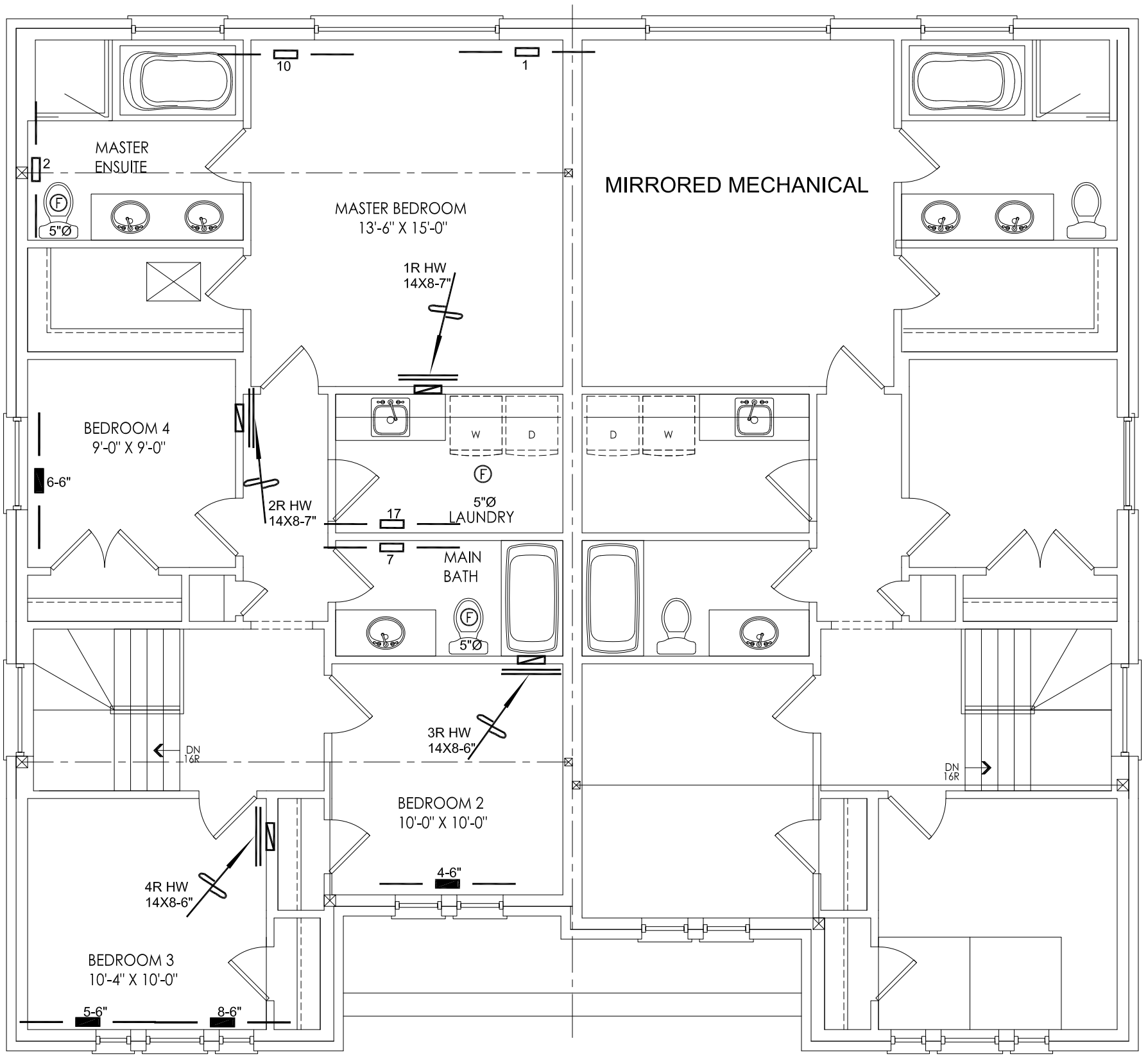
FIRST FLOOR HEATING LAYOUT

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'

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PACKAGE A1

HVAC LEGEND

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
— ▬ —	SUPPLY AIR GRILLE 6" BOOT	⊘	SUPPLY AIR STACK FROM 2nd FLOOR	▱	30"x8" RETURN AIR GRILLE	⊠	RETURN AIR STACK 2nd FLOOR
▱	SUPPLY AIR BOOT ABOVE	◉	6" SUPPLY AIR STACK 2nd FLOOR	▤	FRA- FLOOR RETURN AIR GRILLE	⧗	REDUCER

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Sheet Title

SECOND FLOOR HEATING LAYOUT

Date OCT/2019

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 84185