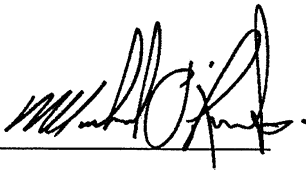


Schedule 1: Designer Information

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	
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@hvacdesigns.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]			
☐ House ☐ Small Buildings ☐ Large Buildings ☐ Complex Buildings ☒ HVAC – House ☐ Building Services ☐ Detection, Lighting and Power ☐ Fire Protection ☐ Building Structural ☐ Plumbing – House ☐ Plumbing – All Buildings ☐ 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-6 OPT 2ND Project: ENCORE	
D. Declaration of Designer			
I <u>MICHAEL O'ROURKE</u> declare that (choose one as appropriate): (print name)			
☐ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: _____ Firm BCIN: _____			
☒ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code. Individual BCIN: <u>19669</u> Basis for exemption from registration and qualification: <u>O.B.C SENTENCE 3.2.4.1 (4)</u>			
☐ 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.			
<u>March 7, 2017</u> 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.

TOTAL HEAT GAIN BTU/H:	25022	TONS:	2.09	LOSS DUE TO VENTILATION LOAD BTU/H:	2404
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INDIVIDUAL BCIN: 19669

SITE NAME: ENCORE				OPT. 2ND		DATE: Mar-17		GFA: 2007		LO# 72735	
BUILDER: GOLD PARK HOMES				TYPE: SD-6							
HEATING CFM 950		COOLING CFM 950		furnace pressure 0.6							
TOTAL HEAT LOSS 33,898		TOTAL HEAT GAIN 24,614		furnace filter 0.05							
AIR FLOW RATE CFM 28.03		AIR FLOW RATE CFM 38.6		a/c coil pressure 0.2							
				available pressure for s/a & r/a 0.35							
				plenum pressure s/a 0.18							
				max s/a diff press. loss 0.03							
				min adjusted pressure s/a 0.15							
				r/a pressure 0.17							
				r/a grille press. loss 0.02							
				adjusted pressure r/a 0.15							

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

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

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

RUN #	1	2	3	4	5	6	7	8	10	12	14	15	17	20	21	22	23
ROOM NAME	MBR	ENS	BED-3	BED-2	BED-3	BED-3	BATH	BED-4	MBR	FORM	KT/FM	KT/FM	BED-4	FOY	BAS	BAS	BAS
RM LOSS MBH	1.10	1.64	1.31	1.72	1.31	1.31	0.13	1.54	1.10	2.72	2.27	2.27	1.54	4.55	3.57	3.57	3.57
CFM PER RUN HEAT	31	46	37	48	37	37	4	43	31	76	64	64	43	128	100	100	100
RM GAIN MBH	1.84	2.03	1.81	1.97	1.81	1.81	0.58	1.71	1.84	1.57	2.79	2.79	1.71	1.52	0.21	0.21	0.21
CFM PER RUN COOLING	71	78	70	76	70	70	22	66	71	60	108	108	66	59	8	8	8
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.15	0.15	0.17	0.15	0.16	0.16	0.16
ACTUAL DUCT LGH.	43	48	37	37	42	40	18	55	40	23	34	21	50	34	32	16	31
EQUIVALENT LENGTH	130	160	180	180	150	190	180	140	170	120	120	100	130	100	120	130	110
TOTAL EFFECTIVE LENGTH	173	208	217	217	192	230	198	195	210	143	154	121	180	134	152	146	141
ADJUSTED PRESSURE	0.1	0.08	0.09	0.08	0.09	0.07	0.09	0.09	0.08	0.12	0.1	0.13	0.1	0.11	0.11	0.11	0.11
ROUND DUCT SIZE	5	5	5	5	5	5	4	5	5	5	6	6	5	6	5	5	5
HEATING VELOCITY (ft/min)	228	338	272	272	272	272	46	316	228	558	326	326	316	653	734	734	734
COOLING VELOCITY (ft/min)	521	573	514	514	514	514	252	485	521	441	551	551	485	301	59	59	59
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	4X10	3X10	3X10	3X10
TRUNK	A	A	B	A	B	B	B	B	A	B	A	A	B	B	A	A	B

RUN #	1	2	3	4	5	6	7	8	10	12	14	15	17	20	21	22	23
ROOM NAME	MBR	ENS	BED-3	BED-2	BED-3	BED-3	BATH	BED-4	MBR	FORM	KT/FM	KT/FM	BED-4	FOY	BAS	BAS	BAS
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EQUIVALENT LENGTH	130	160	180	180	150	190	180	140	170	120	120	100	130	100	120	130	110
TOTAL EFFECTIVE LENGTH	173	208	217	217	192	230	198	195	210	143	154	121	180	134	152	146	141
ADJUSTED PRESSURE	0.1	0.08	0.09	0.08	0.09	0.07	0.09	0.09	0.08	0.12	0.1	0.13	0.1	0.11	0.11	0.11	0.11
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HEATING VELOCITY (ft/min)	228	338	272	272	272	272	46	316	228	558	326	326	316	653	734	734	734
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OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	4X10	3X10	3X10	3X10
TRUNK	A	A	B	A	B	B	B	B	A	B	A	A	B	B	A	A	B

RUN #	1	2	3	4	5	6	7	8	10	12	14	15	17	20	21	22	23
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TRUNK	A	A	B	A	B	B	B	B	A	B	A	A	B	B	A	A	B

RUN #	1	2	3	4	5	6	7	8	10	12	14	15	17	20	21	22	23
ROOM NAME	MBR	ENS	BED-3	BED-2	BED-3	BED-3	BATH	BED-4	MBR	FORM	KT/FM	KT/FM	BED-4	FOY	BAS	BAS	BAS
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TRUNK	A	A	B	A	B	B	B	B	A	B	A	A	B	B	A	A	B

TYPE: SD-6
SITE NAME: ENCORE

LO # 72735
OPT. 2ND

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
More than 5 - Part 6	TOTAL	79.5 cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	148.4	cfm
Less Principal Ventil. Capacity	120	cfm
Required Supplemental Capacity	28.4	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 60H-V+	Location: BSMT
120.0 cfm	3.0 sones
☒	HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
120.0 CFM	74 F	X	0.25

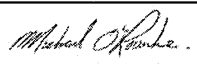
SUPPLEMENTAL FANS		NUTONE		
Location	Model	cfm	HVI	Sones
ENS	QTXEN050C	50	☒	0.3
BATH	QTXEN050C	50	☒	0.3
PWD	QTXEN050C	50	☒	0.3

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE 60H-V+		
139 cfm high	50 cfm low	
75 % Sensible Efficiency	☒ HVI Approved	
@ 32 deg F (0 deg C)		

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

BUILDER:		GOLD PARK HOMES
Name:		
Address:		
City:		
Telephone #:	Fax #:	

INSTALLING CONTRACTOR	
Name:	
Address:	
City:	
Telephone #:	Fax #:

DESIGNER CERTIFICATION	
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.	
Name:	HVAC Designs Ltd.
Signature:	
HRAI #	001820
Date:	March-17

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																						
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																						
LO#: 72735	Model: SD-6	Builder: GOLD PARK HOMES	Date: 3/7/2017																																																			
Volume Calculation		Air Change & Delta T Data																																																				
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6.2.6 Sensible Gain due to Air Leakage																																																						
$HG_{satb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$																																																						
0.315	x	202.63	x	7 °C	x	1.2	=	176 W																																														
								602 Btu/h																																														
6.2.7 Sensible heat Gain due to Ventilation																																																						
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																																						
120 CFM	x	13 °F	x	1.08	x	0.25	=	408 Btu/h																																														
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																						
$HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																						
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5	0		0	0.000																																																		
*HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairrv = 0																																																						

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: SD-6	OPT. 2ND	BUILDER: GOLD PARK HOMES
SFQT: 2007	LO# 72735	SITE: ENCORE

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-2	OUTDOOR DESIGN TEMP.	86
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	73.4

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):	25760.5	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.20	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.5 ft
LENGTH: 48.0 ft	WIDTH: 25.0 ft	EXPOSED PERIMETER:	123.0 ft

2012 OBC - COMPLIANCE PACKAGE

Component	Compliance Package A1	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.8
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	21.12
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value	-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value	10	10
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value	10	11.13
Windows and Sliding Glass Doors Maximum U-Value	0.28	-
Skylights Maximum U-Value	0.49	-
Space Heating Equipment Minimum AFUE	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

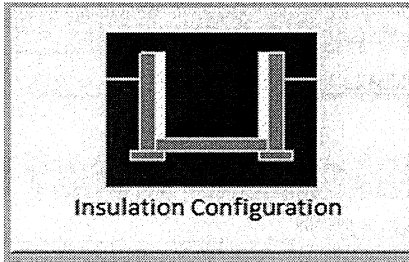
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

Michael O'Rourke

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Brampton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	14.6	 Insulation Configuration
Floor Width (m):	7.6	
Exposed Perimeter (m):	37.5	
Wall Height (m):	2.6	
Depth Below Grade (m):	2.0	
Window Area (m ²):	1.3	
Door Area (m ²):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1076

TYPE: SD-6
LO# 72735

OPT. 2ND

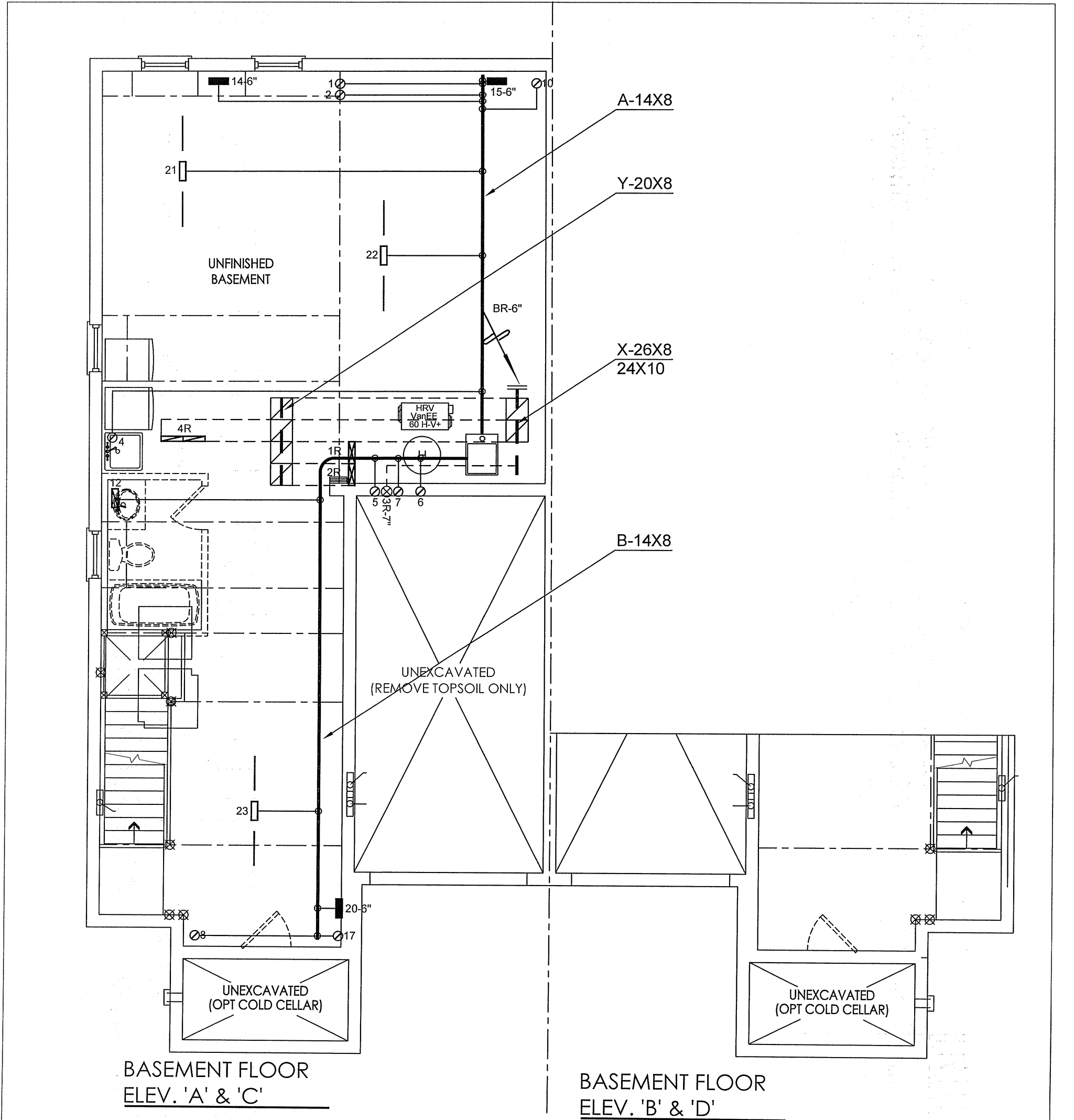
Air Infiltration Residential Load Calculator

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):	6.10			
Building Configuration				
Type:	Semi			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	729.5			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	972.4 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	56.6	56.6		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.315			
Cooling Air Leakage Rate (ACH/H):	0.104			

TYPE: SD-6
LO# 72735

OPT. 2ND



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.

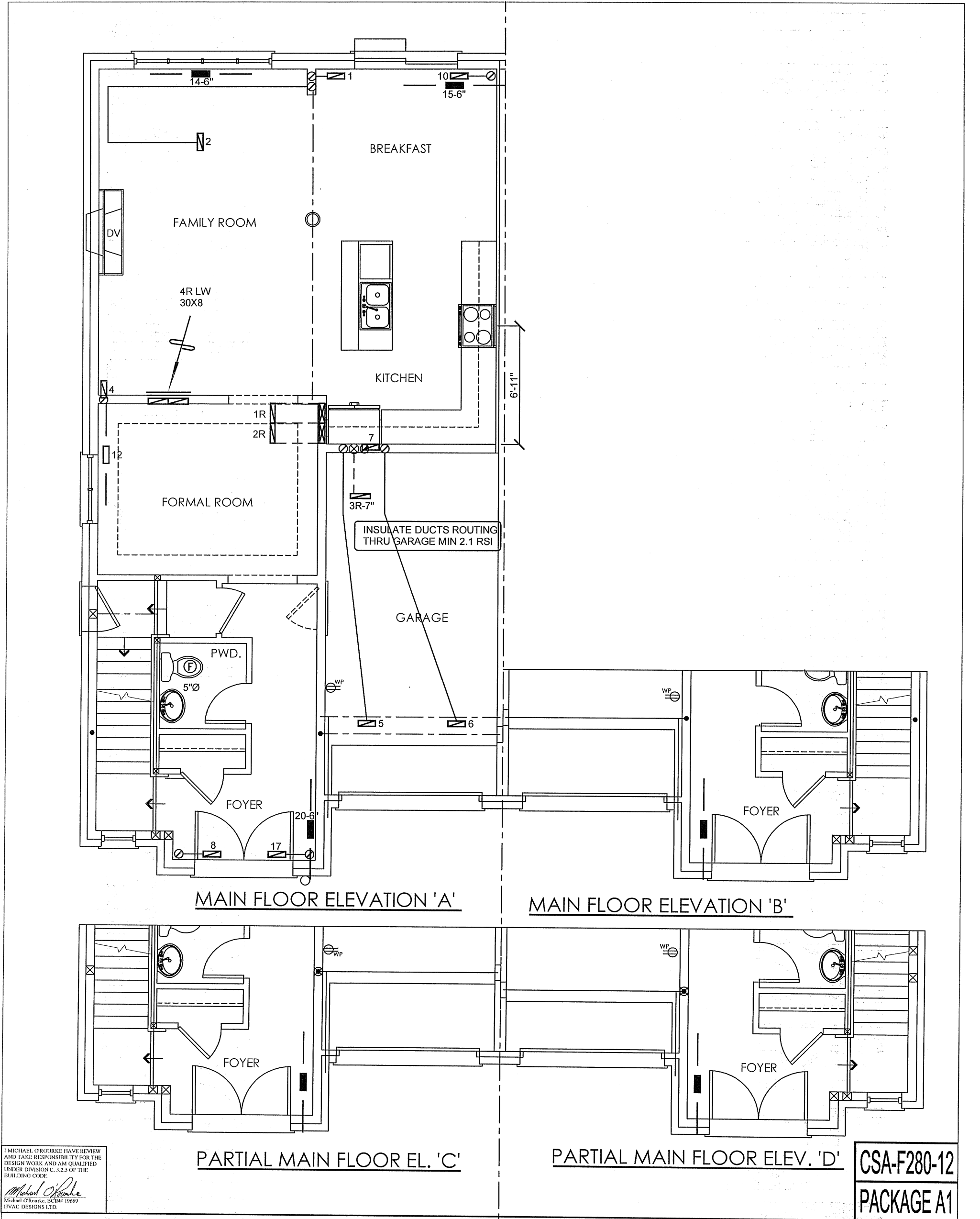
CSA-F280-12

PACKAGE A1

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

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Client GOLD PARK HOMES	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	HEAT LOSS 36302 BTU/H UNIT DATA MAKE LENNOX MODEL EL296UH045XE36B INPUT 44 MBTU/H OUTPUT 43 MBTU/H COOLING 2.0 TONS FAN SPEED 950 cfm @ 0.6" w.c.	# OF RUNS S/A R/A FANS 3RD FLOOR 2ND FLOOR 9 3 2 1ST FLOOR 4 1 2 BASEMENT 3 1 0	Sheet Title BASEMENT HEATING LAYOUT Date MAR/2017 Scale 3/16" = 1'-0" BCIN# 19669
Project Name ENCORE BRAMPTON, ONTARIO	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.	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	LO#	72735
OPT. 2ND SD-6 2007 sqft				



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

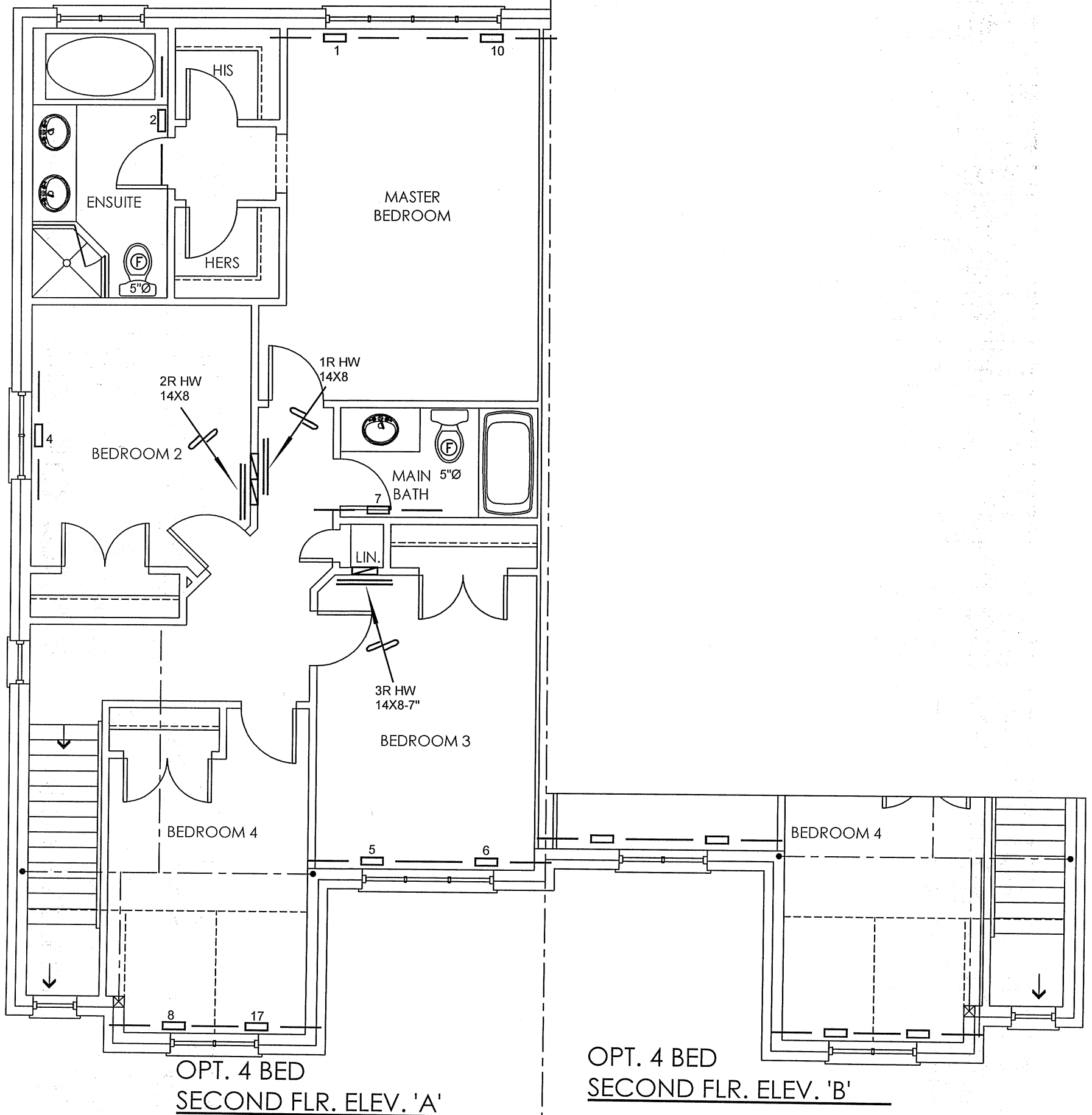
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

HVAC LEGEND						3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION			
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	
	FLOOR 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	
							REVISIONS	
							No.	Description
							Date	

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Client		 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	
GOLD PARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	MAR/2017
ENCORE BRAMPTON, ONTARIO			Scale	3/16" = 1'-0"
OPT. 2ND SD-6			BCIN# 19669	
2007 sqft			LO#	72735



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

HVAC LEGEND										
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	3.		
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	2.		
	FLOOR 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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Project Name ENCORE BRAMPTON, ONTARIO			Date MAR/2017		
OPT. 2ND SD-6			Scale 3/16" = 1'-0"		
2007 sqft			BCIN# 19669		
			LO# 72735		