

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 VAUGHAN (WOODBIDGE)	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@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]				
☐ 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: 4206 ALT 5 BED Project: PINE VALLEY & TESTON		
D. Declaration of Designer				
I, <u>MICHAEL O'ROURKE</u> (print name)		declare that (choose one as appropriate):		
☐ 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.				
June 29, 2020 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: PINE VALLEY & TESTON BUILDER: GOLD PARK HOMES										DATE: Jun-20 LO# 86415		WINTER NATURAL AIR CHANGE RATE 0.407 SUMMER NATURAL AIR CHANGE RATE 0.137		HEAT LOSS AT °F. 76 HEAT GAIN AT °F. 43		CSA-F280-12 SB-12 PACKAGE A1					
ROOM USE		MBR		ENS		BED-2		BED-3		BED-4		BED-5		S-BATH		ENS-2		ENS-4		F-WIC	
EXP. WALL CLG. HT.		38 9		27 9		12 9		31 9		41 9		15 9		7 9		6 9		16 9		10 11	
FACTORS		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN	
GRS.WALL AREA		342		243		108		279		369		135		63		54		144		110	
GLAZING		0		0		0		0		0		0		0		0		0		0	
NORTH		21.3 15.4		0		21 447 322		0		0		0		9 192 138		0		0		0	
EAST		21.3 39.7		0		0		62 1319 2459		0		0		0		14 298 555		0		0	
SOUTH		21.3 23.8		0		0		0		62 1319 2459		0		0		0		0		12 255 476	
WEST		21.3 39.7		0		0		0		11 234 262		17 362 405		0		0		19 404 453		0	
SKYL.T.		37.2 57.1		0		0		0		0		0		0		0		0		0	
DOORS		25.2 4.3		0		0		0		0		0		0		0		0		0	
NET EXPOSED WALL		4.5 0.8		293 1308 220 214 955		161 87 388 65		217 968 163 296 1321 222		118 527 89 54 241 41		40 179 30 125 558 94		98 437 74		0		0		0	
NET EXPOSED BSMT WALL ABOVE GR		3.6 0.6		0		0		0		0		0		0		0		0		0	
EXPOSED CLG		1.3 0.6		361 463 212 180 231 106		224 287 132 301 386 177 275 353 162		178 228 105		113 145 66		65 83 38 96 123 56		0		0		0		0	
NO ATTIC EXPOSED CLG		2.7 1.3		0		0		0		0		0		0		0		0		0	
EXPOSED FLOOR		2.6 0.4		0		0		0		0		0		0		0		0		0	
BASEMENT/CRAWL HEAT LOSS		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	
SUBTOTAL HT LOSS		2814		1803		1272		3522		3434		1266		578		726		1085		693	
SUB TOTAL HT GAIN		2375		1274		748		3145		3360		827		245		651		603		550	
LEVEL FACTOR / MULTIPLIER		0.20 0.34		0.20 0.34		0.20 0.34		0.20 0.34		0.20 0.34		0.20 0.34		0.20 0.34		0.20 0.34		0.20 0.34		0.30 0.61	
AIR CHANGE HEAT LOSS		957		614		433		1198		1168		431		197		247		369		425	
AIR CHANGE HEAT GAIN		205		110		64		271		290		71		21		56		52		47	
DUCT LOSS		0		0		0		0		0		0		0		0		0		0	
DUCT GAIN		0		0		0		0		0		0		0		0		0		0	
HEAT GAIN PEOPLE		240		0		1		406		0		0		0		112		0		0	
HEAT GAIN APPLIANCES/LIGHTS		480		0		240		240		1		240		0		0		0		0	
TOTAL HT LOSS BTU/H		408		408		408		408		4602		1696		774		1070		1455		1117	
TOTAL HT GAIN x 1.3 BTU/H		3771		2417		1704		5192		5587		2010		877		1596		1383		776	

ROOM USE	FACTORS																				
EXP. WALL	LOSS		GAIN		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN		
CLG. HT.	35		11		385		440		40		11		35		11		24		10		
GRS.WALL AREA																					
GLAZING		385		LOSS		GAIN		385		LOSS		GAIN		385		LOSS		GAIN		1330	
NORTH		0		0		0		0		22		483		338		0		0		3	
EAST		21.3		39.7		0		0		0		0		0		0		0		64	
SOUTH		21.3		23.8		620		0		0		0		0		8		170		9	
WEST		21.3		39.7		0		98		2085		3886		0		0		0		3	
SKYL.T.		0		0		0		0		0		0		0		0		0		0	
DOORS		25.2		4.3		0		0		0		0		0		0		0		0	
NET EXPOSED WALL		4.5		0.8		359		1602		270		342		1526		257		99		20	
NET EXPOSED BSMT WALL ABOVE GR		3.6		0.6		0		0		0		0		0		0		0		20	
EXPOSED CLG		1.3		0.6		0		0		0		0		0		0		0		505	
NO ATTIC EXPOSED CLG		2.7		1.3		0		0		0		98		126		58		0		85	
EXPOSED FLOOR		2.6		0.4		0		0		0		0		0		0		0		0	
BASEMENT/CRAWL HEAT LOSS		0		0		0		0		0		0		0		0		0		570	
SLAB ON GRADE HEAT LOSS		0		0		0		0		0		0		0		0		0		2051	
SUB TOTAL HT LOSS		2155		889		1718		3612		125		58		412		910		2628		345	
SUB TOTAL HT GAIN		0		0		0		0		0		0		0		0		0		0	
LEVEL FACTOR / MULTIPLIER		0.30		0.61		289		4143		0.20		0.34		0.30		0.61		0.30		0	
AIR CHANGE HEAT LOSS		1321		1053		2213		357		43		5		36		1610		1042		0.50	
AIR CHANGE HEAT GAIN		77		25		0		0		0		0		0		0		25		14141	
DUCT LOSS		0		0		0		0		0		0		0		0		0		70	
DUCT GAIN		0		0		0		0		0		0		0		0		0		0	
HEAT GAIN PEOPLE		240		408		408		408		0		0		0		0		0		0	
HEAT GAIN APPLANCES/LIGHTS		3476		2771		5925		6381		169		408		1468		692		2743		408	
TOTAL HT LOSS BTU/H		1787		939		6381		1113		612		331		2582		405		1675		23500	
TOTAL HT GAIN x 1.3 BTU/H																				1675	

SITE NAME: PINE VALLEY & TESTON
BUILDER: GOLD PARK HOMES

ALT 5 BED
TYPE: 4206

DATE: Jun-20

GFA: 3536 LO# 86415

HEATING CFM 1340 COOLING CFM 1340
TOTAL HEAT LOSS 42,603
AIR FLOW RATE CFM 31.45

LENNOX
EL196UH090XE48C
FAN SPEED
LOW
MEDIUM
HIGH

AFUE = 96 %
INPUT (BTU/H) = 88,000
OUTPUT (BTU/H) = 85,600

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	14	9	5
R/A	0	0	5	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	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	BED-3	BED-4	BED-5	S-BATH	S-BATH	ENS-2	S-BATH	MBR	ENS-4	DIN	GRT	KT/BF	KT/BF	STUDY	LAUND	WIR	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.89	2.42	1.70	2.60	2.30	1.70	0.39	1.07	0.39	1.89	1.45	3.48	2.77	2.91	2.91	1.47	0.17	0.69	4.24	2.74	4.70	4.70	4.70	
CFM PER RUN HEAT	37	47	33	51	45	33	8	21	8	37	28	68	54	57	57	29	3	14	83	54	92	92	92	
RM GAIN MBH	2.25	2.33	1.90	2.91	2.79	2.01	0.44	1.60	0.44	2.25	1.38	1.79	0.94	3.19	3.19	1.11	0.61	0.33	2.58	0.40	0.33	0.33	0.33	
CFM PER RUN COOLING	71	73	60	91	88	63	14	50	14	71	43	56	30	100	100	35	19	10	81	13	11	11	11	
ADJUSTED PRESSURE	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.16	0.16	0.17	0.16	0.16	0.16	
ACTUAL DUCT LGH.	45	57	23	60	67	46	18	51	52	47	49	29	28	53	40	10	59	47	43	14	44	21	24	
EQUIVALENT LENGTH	180	150	150	160	180	170	200	140	160	140	180	160	110	130	120	150	170	150	100	150	130	140	170	
TOTAL EFFECTIVE LENGTH	225	207	173	220	247	216	218	191	212	187	229	189	138	183	160	160	229	197	143	164	174	161	194	
ADJUSTED PRESSURE	0.08	0.08	0.1	0.07	0.07	0.08	0.08	0.09	0.08	0.09	0.08	0.09	0.12	0.09	0.1	0.11	0.08	0.09	0.11	0.1	0.09	0.1	0.08	
ROUND DUCT SIZE	5	6	6	6	6	5	4	5	4	5	5	5	5	6	6	6	4	4	6	5	6	6	6	
HEATING VELOCITY (ft/min)	272	240	168	260	229	242	92	154	92	272	206	499	396	291	291	333	34	161	423	396	469	469	469	
COOLING VELOCITY (ft/min)	521	372	306	464	449	463	161	367	161	521	316	411	220	510	510	402	218	115	413	95	56	56	56	
OUTLET GRILL SIZE	3X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	4X10	3X10	4X10	4X10	4X10	
TRUNK	D	D	D	B	A	D	B	B	B	C	D	D	C	C	C	D	D	A	A	B	C	C	D	

TEMPERATURE RISE 59 °F

RUN #	25	26	27	28
ROOM NAME	F-WIC	BAS	BED-3	BED-4
RM LOSS MBH	1.12	4.70	2.60	2.30
CFM PER RUN HEAT	22	92	51	45
RM GAIN MBH	0.78	0.33	2.91	2.79
CFM PER RUN COOLING	24	11	91	88
ADJUSTED PRESSURE	0.17	0.16	0.16	0.16
EQUIVALENT LENGTH	53	43	57	62
TOTAL EFFECTIVE LENGTH	130	140	150	170
ADJUSTED PRESSURE	0.09	0.09	0.08	0.07
ROUND DUCT SIZE	4	6	6	6
HEATING VELOCITY (ft/min)	252	469	260	229
COOLING VELOCITY (ft/min)	275	56	464	449
OUTLET GRILL SIZE	3X10	4X10	4X10	4X10
TRUNK	A	A	B	A

SUPPLY AIR TRUNK SIZE										RETURN AIR TRUNK SIZE									
TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)				
TRUNK A	301	0.07	9.2	10	8	TRUNK G	0	0.00	0	0	TRUNK O	0	0.06	0	8				
TRUNK B	586	0.07	11.9	16	8	TRUNK H	0	0.00	0	0	TRUNK P	0	0.06	0	8				
TRUNK C	389	0.09	9.6	10	8	TRUNK I	0	0.00	0	0	TRUNK Q	0	0.06	0	8				
TRUNK D	759	0.08	12.6	18	8	TRUNK J	0	0.00	0	0	TRUNK R	0	0.06	0	8				
TRUNK E	0	0.00	0	0	8	TRUNK K	0	0.00	0	0	TRUNK S	0	0.06	0	8				
TRUNK F	0	0.00	0	0	8	TRUNK L	0	0.00	0	0	TRUNK T	0	0.06	0	8				
											TRUNK U	0	0.06	0	8				
											TRUNK V	0	0.06	0	8				
											TRUNK W	0	0.06	0	8				
RETURN AIR #	1	2	3	4	5	6	7			BR	TRUNK X	1340	0.06	16.8	10				
AIR VOLUME	85	85	175	95	85	410	185			0	TRUNK Y	765	0.06	13.6	8				
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15			0	TRUNK Z	270	0.06	9.2	8				
ACTUAL DUCT LGH.	53	52	38	38	69	35	30			0.15	DROP	1340	0.06	16.8	12				
EQUIVALENT LENGTH	215	185	175	150	195	155	155			0.15									
TOTAL EFFECTIVE LH	268	237	213	186	264	190	185			1									
ADJUSTED PRESSURE	0.06	0.06	0.07	0.08	0.06	0.08	0.08			1									
ROUND DUCT SIZE	6	6	7.5	5.8	6	10	7.5			14.80									
INLET GRILL SIZE	8	8	8	8	8	8	8			0									
	X	X	X	X	X	X	X			0									
INLET GRILL SIZE	14	14	14	14	14	30	14			0									

RETURN AIR #									
TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	85	0.15	175	95	0	0.15	0	0	0
TRUNK B	53	0.15	38	38	0	0.15	0	0	0
TRUNK C	215	0.15	175	150	0	0.15	0	0	0
TRUNK D	268	0.15	213	188	0	0.15	0	0	0
TRUNK E	0.06	0.06	0.07	0.07	0.06	0.06	0.07	0.07	0.06
TRUNK F	6	6	7.5	5.8	6	6	7.5	5.8	6
TRUNK G	8	8	8	8	8	8	8	8	8
TRUNK H	14	14	14	14	14	14	14	14	14
TRUNK I	14	14	14	14	14	14	14	14	14
TRUNK J	14	14	14	14	14	14	14	14	14
TRUNK K	14	14	14	14	14	14	14	14	14
TRUNK L	14	14	14	14	14	14	14	14	14
TRUNK M	14	14	14	14	14	14	14	14	14
TRUNK N	14	14	14	14	14	14	14	14	14
TRUNK O	14	14	14	14	14	14	14	14	14
TRUNK P	14	14	14	14	14	14	14	14	14
TRUNK Q	14	14	14	14	14	14	14	14	14
TRUNK R	14	14	14	14	14	14	14	14	14
TRUNK S	14	14	14	14	14	14	14	14	14
TRUNK T	14	14	14	14	14	14	14	14	14
TRUNK U	14	14	14	14	14	14	14	14	14
TRUNK V	14	14	14	14	14	14	14	14	14
TRUNK W	14	14	14	14	14	14	14	14	14
TRUNK X	14	14	14	14	14	14	14	14	14
TRUNK Y	14	14	14	14	14	14	14	14	14
TRUNK Z	14	14	14	14	14	14	14	14	14
DROP	14	14	14	14	14	14	14	14	14

TYPE: 4206
SITE NAME: PINE VALLEY & TESTON

LO # 86415
ALT 5 BED

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	4 @ 10.6 cfm	42.4 cfm
Kitchen & Bathrooms	6 @ 10.6 cfm	63.6 cfm
Other Rooms	5 @ 10.6 cfm	53.0 cfm
Table 9.32.3.A.	TOTAL	201.4 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	95.4	cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	201.4	cfm
Less Principal Ventil. Capacity	95.4	cfm
Required Supplemental Capacity	106.0	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 65H	Location: BSMT
95.4 cfm	3.0 sones
☒	HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
95.4 CFM	X 76 F	X 1.08	X 0.25

SUPPLEMENTAL FANS		PANASONIC	
Location	Model	cfm	HVI
ENS	FV-05-11VK1	50	☒
S-BATH	FV-05-11VK1	50	☒
ENS-4	FV-05-11VK1	50	☒
W/R	FV-05-11VK1	50	☒

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE 65H		
155 cfm high	64 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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	June-20

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																							
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																							
LO#: 86415	Model: 4206	Builder: GOLD PARK HOMES	Date: 29/06/2020																																																				
Volume Calculation		Air Change & Delta T Data																																																					
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5.2.3.1 Heat Loss due to Air Leakage		6.2.6 Sensible Gain due to Air Leakage																																																					
$HL_{airb} = LR_{airb} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$		$HG_{satb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$																																																					
0.407	x 402.10 x 42 °C x 1.2 = 8289 W	0.137	x 402.10 x 7 °C x 1.2 = 468 W																																																				
	= 28283 Btu/h		= 1598 Btu/h																																																				
5.2.3.2 Heat Loss due to Mechanical Ventilation		6.2.7 Sensible heat Gain due to Ventilation																																																					
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$		$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																																					
95 CFM	x 76 °F x 1.08 x 0.25 = 1958 Btu/h	95 CFM	x 13 °F x 1.08 x 0.25 = 330 Btu/h																																																				
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																							
$HL_{airrr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{aglevel} + HL_{bglevel})\}$																																																							
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>HLairrr = Level Factor x HLairbv x {(HLagcr + HLbgcr) ÷ (HLaglevel + HLbglevel)}</th> </tr> <tr> <td>1</td> <td>0.5</td> <td rowspan="4" style="text-align: center; vertical-align: middle;">28,283</td> <td>1,511</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>0,613</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>0,340</td> </tr> <tr> <td>4</td> <td>0</td> <td>0,000</td> </tr> <tr> <td>5</td> <td>0</td> <td>0</td> <td>0,000</td> </tr> </table>		Level	Level Factor (LF)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	HLairrr = Level Factor x HLairbv x {(HLagcr + HLbgcr) ÷ (HLaglevel + HLbglevel)}	1	0.5	28,283	1,511	2	0.3	0,613	3	0.2	0,340	4	0	0,000	5	0	0	0,000	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>HLairrr = Level Factor x HLairbv x {(HLagcr + HLbgcr) ÷ (HLaglevel + HLbglevel)}</th> </tr> <tr> <td>1</td> <td>0.5</td> <td>9,358</td> <td>1,511</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>13,846</td> <td>0,613</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>16,624</td> <td>0,340</td> </tr> <tr> <td>4</td> <td>0</td> <td>0</td> <td>0,000</td> </tr> <tr> <td>5</td> <td>0</td> <td>0</td> <td>0,000</td> </tr> </table>		Level	Level Factor (LF)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	HLairrr = Level Factor x HLairbv x {(HLagcr + HLbgcr) ÷ (HLaglevel + HLbglevel)}	1	0.5	9,358	1,511	2	0.3	13,846	0,613	3	0.2	16,624	0,340	4	0	0	0,000	5	0	0	0,000							
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*HLairbv = Air leakage heat loss + ventilation heat loss **For a balanced or supply only ventilation system HLairrr = 0																																																							

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 4206	ALT 5 BED	BUILDER: GOLD PARK HOMES
SFQT: 3536	LO# 86415	SITE: PINE VALLEY & TESTON

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-4	OUTDOOR DESIGN TEMP.	88
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75

BUILDING DATA

ATTACHMENT:	DETACHED	# 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):	51120.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 61.0 ft	WIDTH: 34.0 ft	EXPOSED PERIMETER:	190.0 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	-

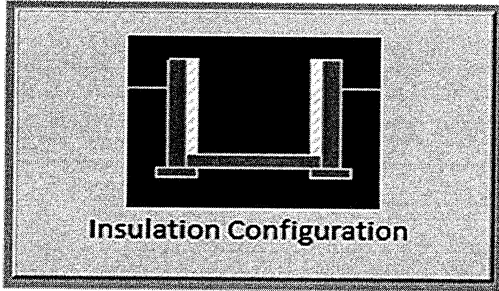
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Vaughan (Woodbridge)	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	18.6	 Insulation Configuration
Floor Width (m):	10.4	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m ²):	1.4	
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):	1899	

TYPE: 4206
LO# 86415

ALT 5 BED

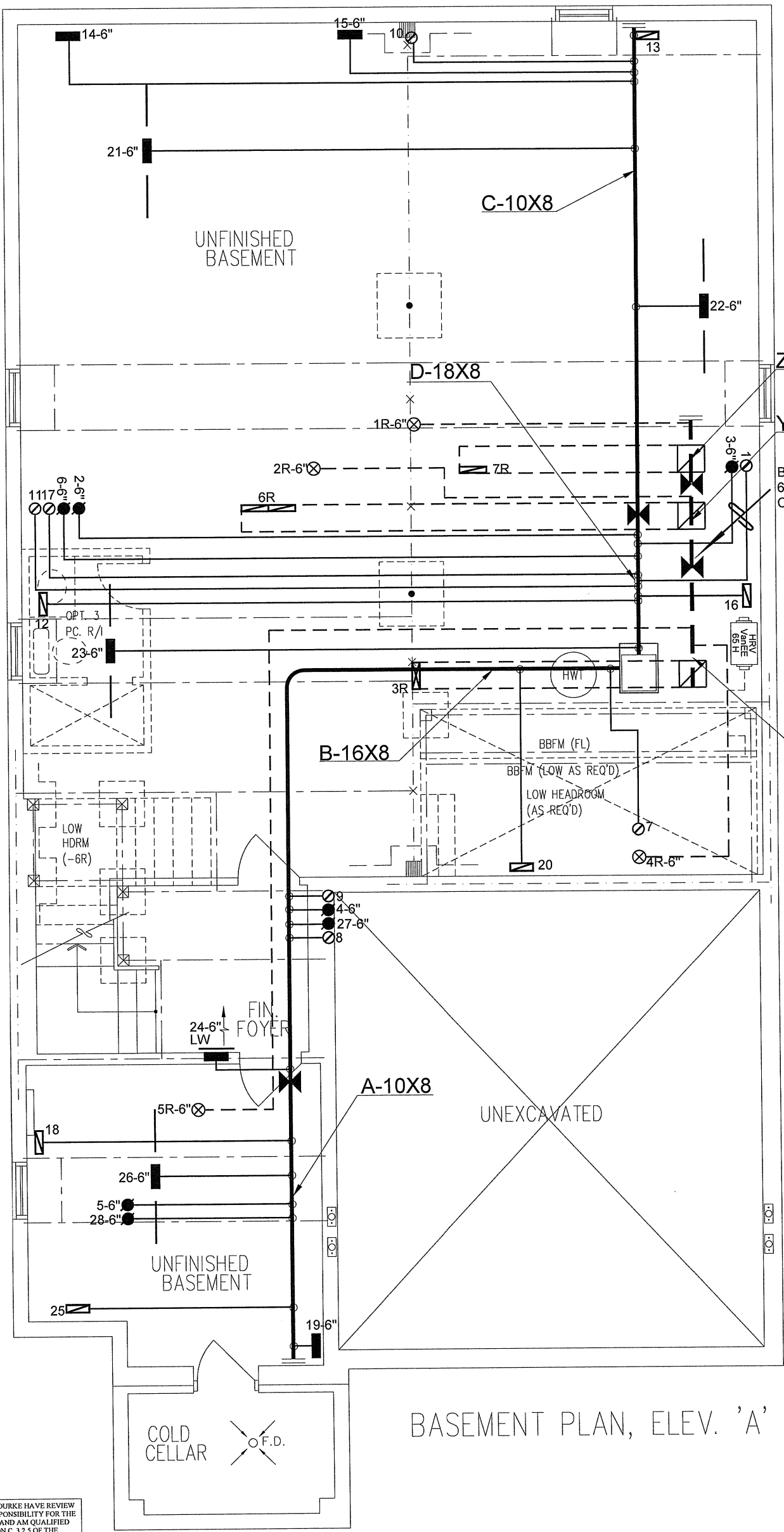
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario			
Region:	Vaughan (Woodbridge)			
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):	9.14			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1447.6			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1929.6 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	45.0	45.0		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.407			
Cooling Air Leakage Rate (ACH/H):	0.137			

TYPE: 4206
LO# 86415

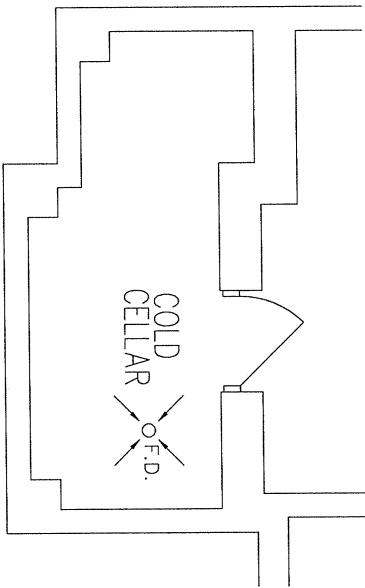
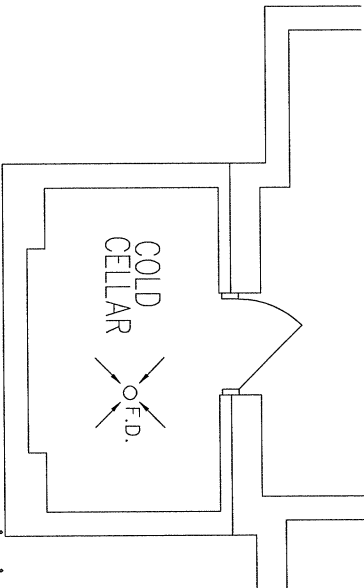
ALT 5 BED



PART. BASEMENT PLAN, ELEV. 'B'

PART. BASEMENT PLAN, ELEV. 'C'

BASEMENT PLAN, ELEV. 'A'



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.

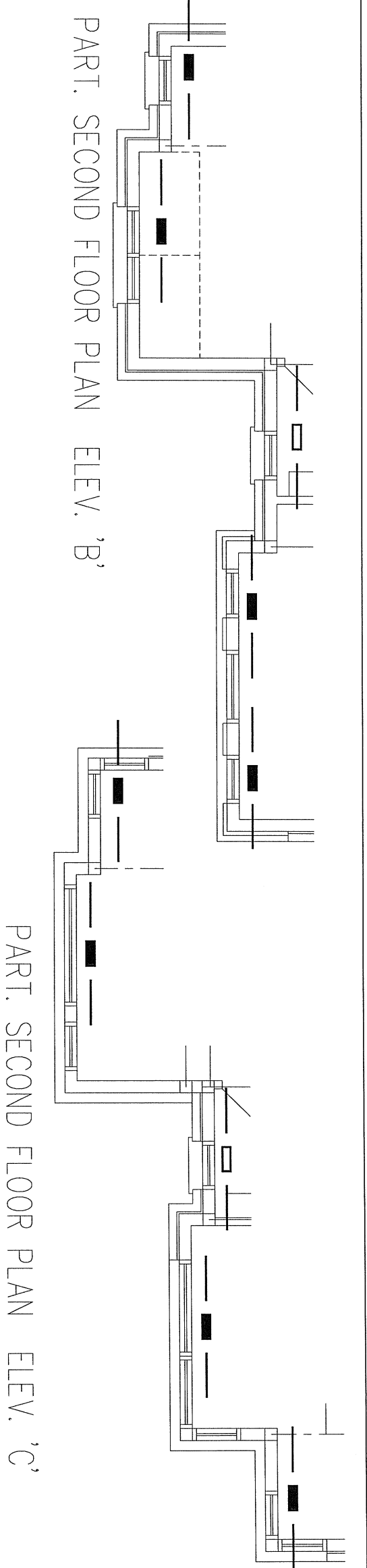
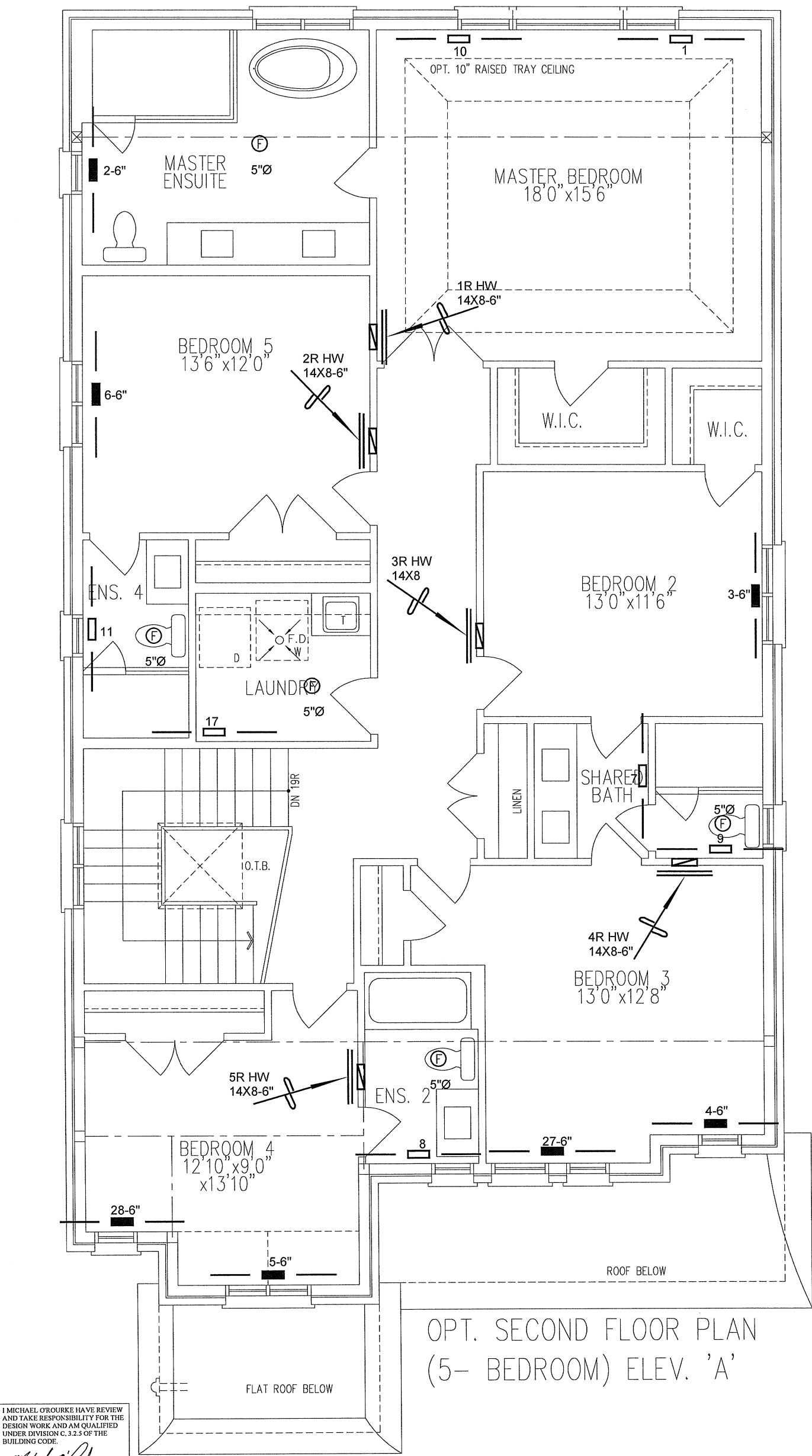
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

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.	
	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		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 70638 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS				Sheet Title	
GOLD PARK HOMES			MAKE LENNOX		3RD FLOOR				BASEMENT HEATING LAYOUT	
Project Name			MODEL EL196UH090XE48C		2ND FLOOR 14 5 5				Date	
PINE VALLEY & TESTON VAUGHAN, ONTARIO			INPUT 88 MBTU/H		1ST FLOOR 9 2 2				JUNE/2020	
ALT 5 BED 4206			OUTPUT 85.6 MBTU/H		BASEMENT 5 1 0				Scale	
3536 sqft			COOLING 3.5 TONS		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				3/16" = 1'-0"	
			FAN SPEED 1340 cfm @ 0.6" w.c.						BCIN# 19669	
								LO#	86415	



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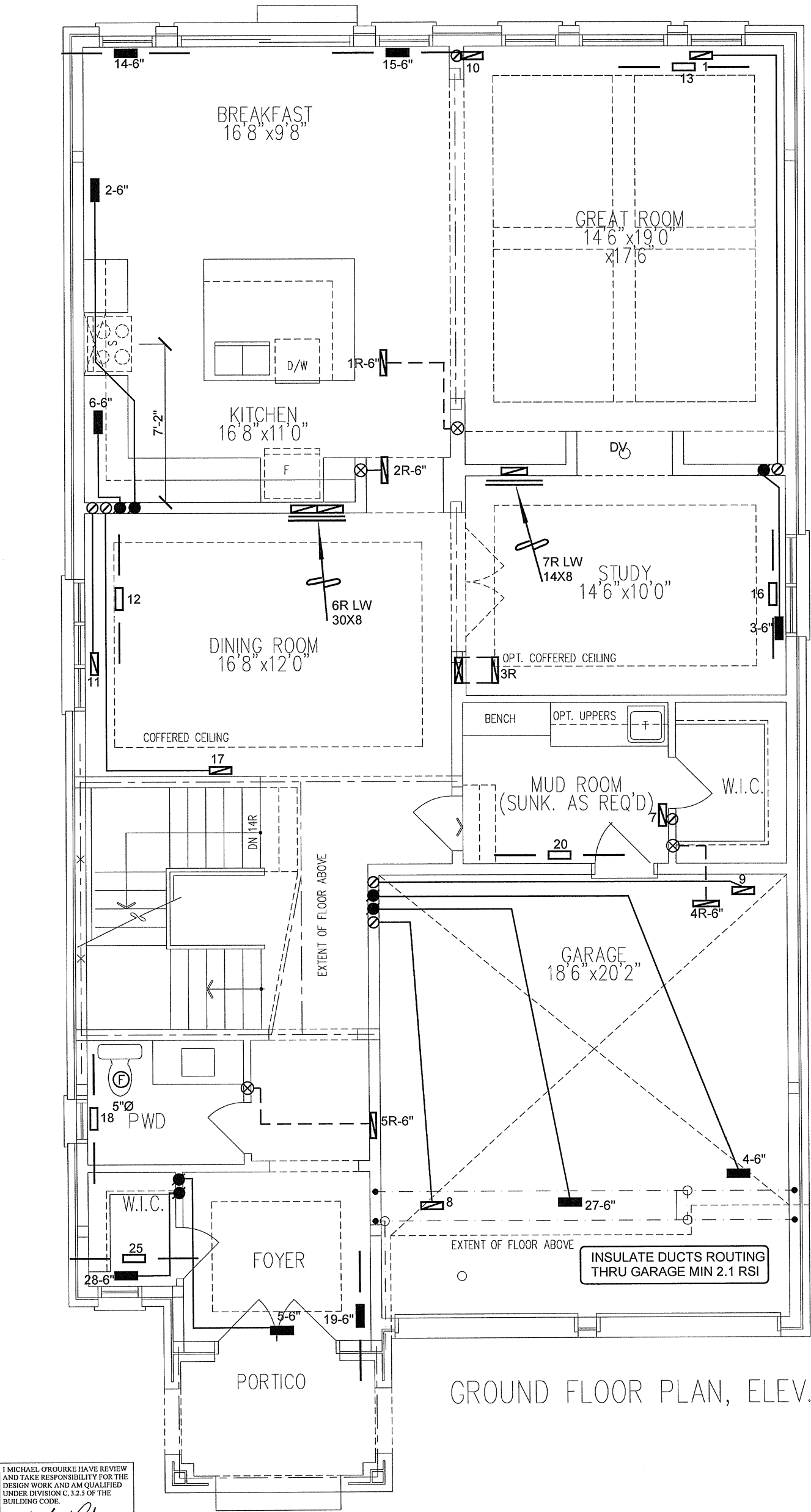
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

HVAC LEGEND						3.		
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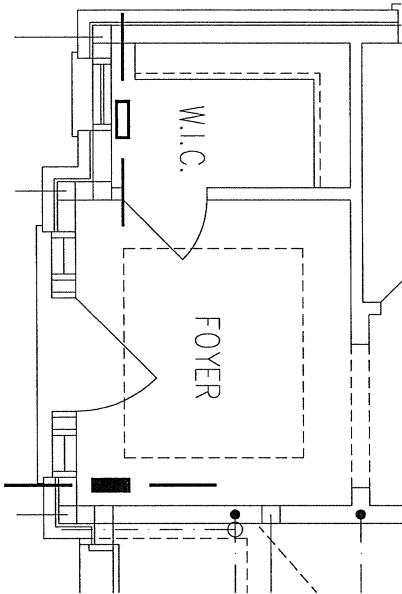
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Client GOLD PARK HOMES Project Name PINE VALLEY & TESTON VAUGHAN, ONTARIO ALT 5 BED 4206 3536 sqft	HVAC DESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdsgns.ca Web: www.hvacdsgns.ca 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 SECOND FLOOR HEATING LAYOUT Date JUNE/2020 Scale 3/16" = 1'-0" BCIN# 19669 LO# 86415
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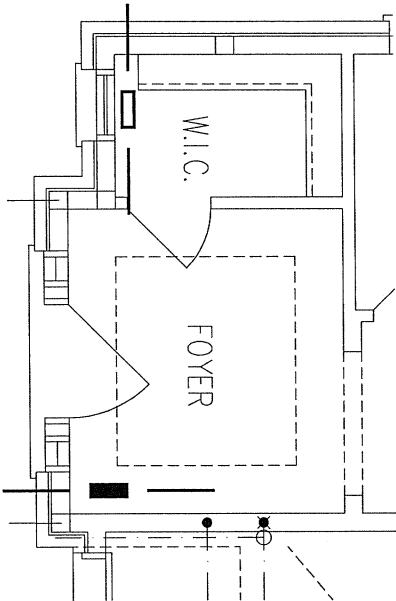
CSA-F280-12
PACKAGE A1



PART. GROUND FLOOR PLAN ELEV. 'C'



PART. GROUND FLOOR PLAN ELEV. 'B'



GROUND FLOOR PLAN, ELEV. 'A'

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

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GOLD PARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name		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.	Date	JUNE/2020
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	3/16" = 1'-0"
			BCIN# 19669	
ALT 5 BED 4206			LO#	86415
3536 sqft				