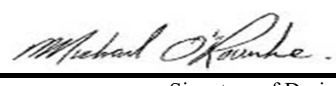


Schedule 1: Designer Information

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@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: 4203- THE FORESTCREST Project: PINE VALLEY & TESTON	
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.			
February 24, 2020		 Signature of Designer	
Date			

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										DATE: Feb-20		WINTER NATURAL AIR CHANGE RATE 0.340				HEAT LOSS ΔT °F. 76		CSA-F280-12																				
BUILDER: GOLD PARK HOMES										LO# 77467		SUMMER NATURAL AIR CHANGE RATE 0.124				HEAT GAIN ΔT °F. 16		SB-12 PACKAGE A1																				
TYPE: 4203- THE FORESTCREST										GFA: 3688																												
ROOM USE			MBR			ENS			HERS			BED-2			BED-3			BED-4			ENS-2			LOFT			ENS-3			ENS-4								
EXP. WALL			38			37			7			12			33			48			6			7			9			8								
CLG. HT.			9			9			9			12			9			9			9			9			9			9								
FACTORS																																						
GRS.WALL AREA			LOSS GAIN			342			333			63			144			297			432			54			63			81			72					
GLAZING						LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN					
NORTH			21.3	16.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	170	135	0	0	0	8	170	135	0	0	0				
EAST			21.3	42.4	0	0	0	0	0	0	0	0	0	0	0	0	61	1298	2586	61	1298	2586	0	0	0	0	0	0	0	0	0	14	298	593				
SOUTH			21.3	25.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	383	463	0	0	0	0	0	0				
WEST			21.3	42.4	44	936	1865	21	447	890	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
SKYLT.			37.2	103.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
DOORS			25.2	5.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
NET EXPOSED WALL			4.5	0.9	298	1330	276	312	1392	289	63	281	58	126	562	117	236	1053	219	371	1656	344	46	205	43	45	201	42	73	326	68	58	259	54				
NET EXPOSED BSMT WALL ABOVE GR			3.6	0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
EXPOSED CLG			1.3	0.6	357	458	228	280	359	179	91	117	58	252	323	161	204	262	130	210	270	134	120	154	77	100	128	64	100	128	64	100	128	64				
NO ATTIC EXPOSED CLG			2.7	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	82	41	0	0	0	0	0	0	0	0	0	0	0	0				
EXPOSED FLOOR			2.6	0.5	0	0	0	0	0	0	0	0	0	0	0	0	204	520	108	0	0	0	0	0	0	0	0	0	50	128	27	100	255	53				
BASEMENT/CRAWL HEAT LOSS						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		
SUBTOTAL HT LOSS						2724			2199			398			1269			3133			3306			530			712			752			940					
SUB TOTAL HT GAIN						2370			1358			117			580			3043			3105			254			569			293			764					
LEVEL FACTOR / MULTIPLIER			0.20	0.31				0.20	0.31				0.20	0.31				0.20	0.31				0.20	0.31				0.20	0.31				0.20	0.31				
AIR CHANGE HEAT LOSS						854			690			125			398			983			1037			166			223			236			295					
AIR CHANGE HEAT GAIN						252			144			12			62			323			330			27			60			31			81					
DUCT LOSS						0			0			0			0			412			0			0			0			99			123					
DUCT GAIN						0			0			0			0			423			0			0			0			32			85					
HEAT GAIN PEOPLE			240	2	480	0	0	0	0	0	1	240	1	240	1	240	1	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
HEAT GAIN APPLIANCES/LIGHTS						625			0			0			625			625			625			0			625			0			0					
TOTAL HT LOSS BTU/H						3579			2888			523			1667			4528			4342			696			936			1086			1358					
TOTAL HT GAIN x 1.3 BTU/H						4845			1954			168			1960			6052			5591			365			1631			463			1209					

ROOM USE			DIN		LIV		KT/GT		STUDY		LAUN		PWD		FOY		MUD						LOD		BAS		
EXP. WALL			12		21		75		10		0		6		51		26						43		198		
CLG. HT.			11		20		11		11		9		11		11		12						10		10		
FACTORS																											
GRS.WALL AREA	LOSS	GAIN	132		420		825		110		0		66		561		312						430		1644		
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	
NORTH	21.3	16.8	32	681	538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85	67
EAST	21.3	42.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	103
SOUTH	21.3	25.7	0	0	0	74	1575	1905	0	0	0	20	426	515	0	0	0	0	0	0	0	0	0	0	4	85	103
WEST	21.3	42.4	0	0	0	0	0	0	98	2085	4154	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SKYLT.	37.2	103.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	25.2	5.2	0	0	0	0	0	0	20	505	105	0	0	0	0	0	0	52	1313	273	20	505	105	0	20	505	105
NET EXPOSED WALL	4.5	0.9	100	446	93	346	1544	321	707	3155	656	90	402	83	0	0	0	66	295	61	509	2272	472	292	1303	271	0
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	0	0	0	231	296	147	0	0	0	0	0	0	130	167	83	0	0	0	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.7	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.6	0.5	0	0	0	0	0	0	0	0	0	0	60	153	32	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS																											
SLAB ON GRADE HEAT LOSS																											
SUBTOTAL HT LOSS																											
SUB TOTAL HT GAIN																											
LEVEL FACTOR / MULTIPLIER			0.30	0.46		0.30	0.46		0.30	0.46		0.30	0.46		0.20	0.31		0.30	0.46		0.30	0.46				0.50	1.27
AIR CHANGE HEAT LOSS																											
AIR CHANGE HEAT GAIN																											
DUCT LOSS																											
DUCT GAIN																											
HEAT GAIN PEOPLE	240																										
HEAT GAIN APPLIANCES/LIGHTS																											
TOTAL HT LOSS BTU/H																											
TOTAL HT GAIN x 1.3 BTU/H																											

TOTAL HEAT GAIN BTU/H: 47931

TONS: 3.99

LOSS DUE TO VENTILATION LOAD BTU/H: 3181

STRUCTURAL HEAT LOSS: 69382

TOTAL COMBINED HEAT LOSS BTU/H: 72563



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

TYPE: 4203- THE FORESTCREST

DATE: Feb-20

GFA: 3688

LO# 77467

HEATING CFM 1525 COOLING CFM 1525
TOTAL HEAT LOSS 69,382 TOTAL HEAT GAIN 47,270
AIR FLOW RATE CFM 21.98 AIR FLOW RATE CFM 32.26

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

*LENNOX
EL296UH090XE48C

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

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	15	10	5
R/A	0	0	5	4	1

plenium pressure s/a 0.18 r/a pressure 0.17
max s/a dif press. loss 0.03 r/a grille press. Loss 0.02
min adjusted pressure s/a 0.15 adjusted pressure r/a 0.15

FAN SPEED 90
LOW 0
MEDLOW 0
MEDIUM 1105
MEDIUM HIGH 1255
HIGH 1525

DESIGN CFM = 1525
CFM @ .6" E.S.P.

TEMPERATURE RISE 52 °F

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	ENS	BED-2	BED-3	BED-4	ENS-2	LOFT	ENS-3	MBR	ENS-4	DIN	LIV	KT/GT	KT/GT	STUDY	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.79	1.44	1.44	1.67	2.26	2.17	0.70	0.94	1.09	1.79	1.36	1.64	2.49	2.79	2.79	1.20	0.46	0.43	5.22	2.63	4.57	4.57	4.57	4.57
CFM PER RUN HEAT	39	32	32	37	50	48	15	21	24	39	30	36	55	61	61	26	10	9	115	58	100	100	100	100
RM GAIN MBH	2.42	0.98	0.98	1.96	3.03	2.80	0.36	1.63	0.46	2.42	1.21	1.72	2.11	2.63	2.63	1.67	1.08	0.09	1.07	1.35	0.79	0.79	0.79	0.79
CFM PER RUN COOLING	78	32	32	63	98	90	12	53	15	78	39	55	68	85	85	54	35	3	35	44	25	25	25	25
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.15	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	46	62	72	29	47	64	21	53	42	41	42	8	28	57	49	35	32	43	55	8	48	33	24	46
EQUIVALENT LENGTH	130	160	140	160	150	170	140	180	190	130	120	90	150	130	120	140	110	140	120	130	130	90	150	110
TOTAL EFFECTIVE LENGTH	176	222	212	189	197	234	161	233	232	171	162	98	178	187	169	175	142	183	175	138	178	123	174	156
ADJUSTED PRESSURE	0.1	0.08	0.08	0.09	0.08	0.07	0.11	0.07	0.07	0.1	0.11	0.18	0.1	0.09	0.1	0.1	0.12	0.09	0.09	0.12	0.09	0.13	0.09	0.1
ROUND DUCT SIZE	5	4	4	5	6	6	4	5	4	5	4	4	5	5	5	4	4	4	6	4	6	6	6	6
HEATING VELOCITY (ft/min)	286	367	367	272	255	245	172	154	275	286	344	413	404	448	448	298	115	103	586	665	510	510	510	510
COOLING VELOCITY (ft/min)	573	367	367	463	500	459	138	389	172	573	447	631	499	624	624	620	402	34	178	505	127	127	127	127
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	4X10	4X10	4X10	4X10
TRUNK	C	A	A	D	C	B	D	A	C	E	C	D	B	A	A	A	C	B	B	E	A	E	B	B

RUN #	25	26	27	28	29	30
ROOM NAME	BED-3	BED-4	KT/GT	LIV	HERS	BAS
RM LOSS MBH	2.26	2.17	2.79	2.49	0.52	4.57
CFM PER RUN HEAT	50	48	61	55	11	100
RM GAIN MBH	3.03	2.80	2.63	2.11	0.17	0.79
CFM PER RUN COOLING	98	90	85	68	5	25
ADJUSTED PRESSURE	0.16	0.16	0.16	0.17	0.17	0.16
ACTUAL DUCT LGH	49	66	41	31	73	12
EQUIVALENT LENGTH	170	130	90	130	180	120
TOTAL EFFECTIVE LENGTH	219	196	131	161	253	132
ADJUSTED PRESSURE	0.07	0.08	0.12	0.11	0.07	0.12
ROUND DUCT SIZE	6	6	5	5	4	6
HEATING VELOCITY (ft/min)	255	245	448	404	126	510
COOLING VELOCITY (ft/min)	500	459	624	499	57	127
OUTLET GRILL SIZE	4X10	4X10	3X10	3X10	3X10	4X10
TRUNK	C	B	C	B	A	D

SUPPLY AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	344	0.07	9.7	12	x 8 516
TRUNK B	530	0.07	11.4	16	x 8 596
TRUNK C	1138	0.07	14.9	26	x 8 788
TRUNK D	188	0.09	7.3	8	x 8 423
TRUNK E	1335	0.07	16.2	30	x 8 801
TRUNK F	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	0.06	0	0	x 8 0
TRUNK P	0	0.06	0	0	x 8 0
TRUNK Q	0	0.06	0	0	x 8 0
TRUNK R	0	0.06	0	0	x 8 0
TRUNK S	0	0.06	0	0	x 8 0
TRUNK T	0	0.06	0	0	x 8 0
TRUNK U	0	0.06	0	0	x 8 0
TRUNK V	0	0.06	0	0	x 8 0
TRUNK W	0	0.06	0	0	x 8 0

RETURN AIR #	1	2	3	4	5	6	7	8	9	BR
AIR VOLUME	175	125	125	130	155	175	155	155	125	0
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH	48	46	47	56	47	32	23	33	48	1
EQUIVALENT LENGTH	165	185	205	145	200	195	205	195	190	0
TOTAL EFFECTIVE LH	213	231	252	201	247	227	228	228	238	1
ADJUSTED PRESSURE	0.07	0.06	0.06	0.07	0.06	0.07	0.06	0.06	0.06	14.80
ROUND DUCT SIZE	7.5	6.9	6.9	6.8	7.5	7.5	7.5	6.9	0	0
INLET GRILL SIZE	8	8	8	8	8	8	8	8	0	0
	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	14	14	14	14	0	0

TRUNK X	1525	0.06	17.7	32	x 10 686
TRUNK Y	485	0.06	11.5	16	x 8 546
TRUNK Z	915	0.06	14.6	24	x 8 686
DROP	1525	0.06	17.7	24	x 14 654

TYPE: 4203- THE FORESTCREST
SITE NAME: PINE VALLEY & TESTON

LO # 77467

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	<u>2</u> @ 21.2 cfm	<u>42.4</u> cfm
Other Bedrooms	<u>3</u> @ 10.6 cfm	<u>31.8</u> cfm
Kitchen & Bathrooms	<u>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Other Rooms	<u>8</u> @ 10.6 cfm	<u>84.8</u> cfm
Table 9.32.3.A.	TOTAL	<u>222.6</u> 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		<u>79.5</u> cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>222.6</u>	cfm
Less Principal Ventil. Capacity	<u>155</u>	cfm
Required Supplemental Capacity	<u>67.6</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY			
Model:	VANEE 65H		
Location:	BSMT		
<u>155.0</u> cfm	<u>3.0</u> sones		
☒ HVI Approved			
PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
155.0 CFM	X 76 F	X 1.08	X 0.25

SUPPLEMENTAL FANS		NUTONE		
Location	Model	cfm	HVI	Sones
ENS	QTXEN050C	50	☒	0.3
ENS-2	QTXEN050C	50	☒	0.3
ENS-4	QTXEN050C	50	☒	0.3
PWD	QTXEN050C	50	☒	0.3

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model:	VANEE 65H	
<u>155</u> cfm high	<u>64</u> cfm low	
<u>75</u> % 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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	February-20

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 77467	Model: 4203- THE FORESTCREST	Builder: GOLD PARK HOMES	Date: 2/24/2020																																																									
Volume Calculation			Air Change & Delta T Data																																																									
House Volume <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> </thead> <tbody> <tr> <td>Bsmt</td> <td>1728</td> <td>10</td> <td>17280</td> </tr> <tr> <td>First</td> <td>1728</td> <td>11</td> <td>19008</td> </tr> <tr> <td>Second</td> <td>2103</td> <td>9</td> <td>18927</td> </tr> <tr> <td>Third</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td>Fourth</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>55,215.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>1563.5 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1728	10	17280	First	1728	11	19008	Second	2103	9	18927	Third	0	9	0	Fourth	0	9	0	Total:			55,215.0 ft³	Total:			1563.5 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 20%; text-align: center;">0.340</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.124</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="5" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTDh</td> <td style="text-align: center;">22</td> <td style="text-align: center;">-20</td> <td style="text-align: center;">42</td> <td style="text-align: center;">76</td> </tr> <tr> <td>Summer DTDc</td> <td style="text-align: center;">22</td> <td style="text-align: center;">31</td> <td style="text-align: center;">9</td> <td style="text-align: center;">16</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.340	SUMMER NATURAL AIR CHANGE RATE	0.124	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-20	42	76	Summer DTDc	22	31	9	16
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5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.340 x 434.31 x 42 °C x 1.2 = 7483 W = 25532 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.124 x 434.31 x 9 °C x 1.2 = 567 W = 1936 Btu/h																																																									
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to Ventilation																																																									
$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 155 CFM x 76 °F x 1.08 x 0.25 = 3181 Btu/h			$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 155 CFM x 16 °F x 1.08 x 0.25 = 661 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 _{level})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)																																																								
1	0.5	25,532	10,090	1.265																																																								
2	0.3		16,802	0.456																																																								
3	0.2		16,282	0.314																																																								
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																																																												

HEAT LOSS AND GAIN SUMMARY SHEET**MODEL:** 4203- THE FORESTCREST**BUILDER:** GOLD PARK HOMES**SFQT:** 3688**LO#** 77467**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)	72

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 (ft ³):	55215.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.35	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 66.0 ft	WIDTH: 33.0 ft	EXPOSED PERIMETER:	198.0 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	-

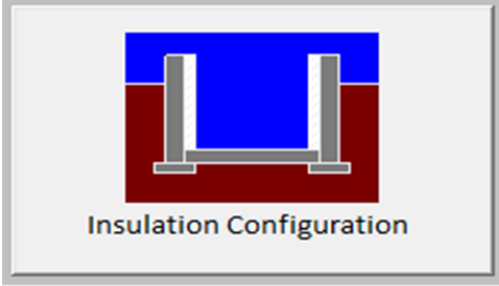
INDIVIDUAL BCIN: 19669

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):	20.1	 Insulation Configuration
Floor Width (m):	10.1	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m ²):	4.0	
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):		1951

TYPE: 4203- THE FORESTCREST
LO# 77467

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):	7.01			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1563.5			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2084.2 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	73.2	73.2		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.340			
Cooling Air Leakage Rate (ACH/H):	0.124			

TYPE: 4203- THE FORESTCREST
LO# 77467

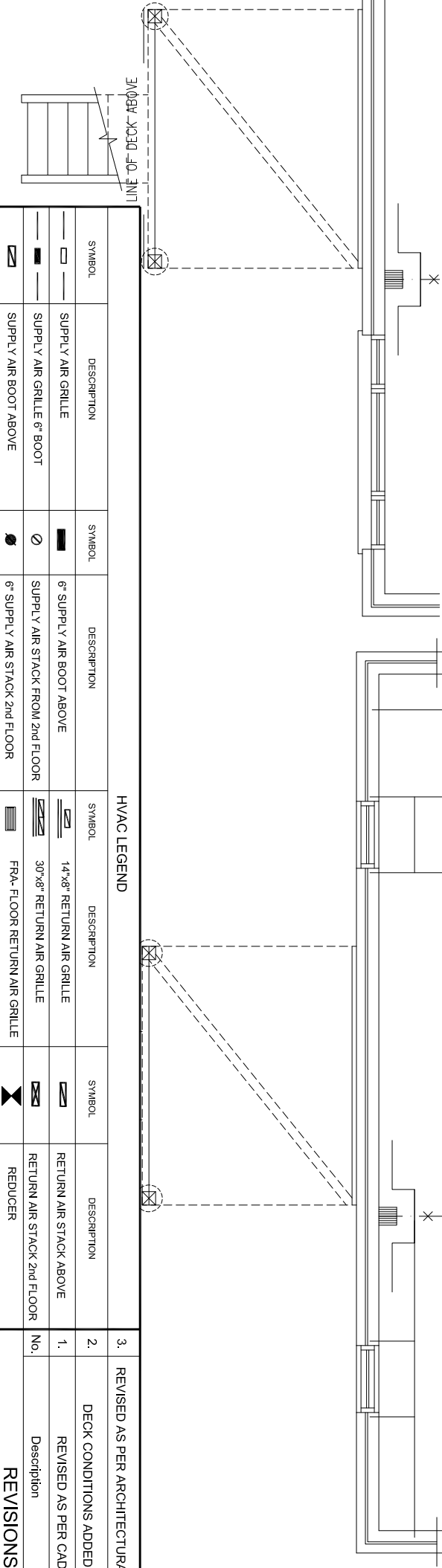
CSA-F280-12

PACKAGE A1

I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

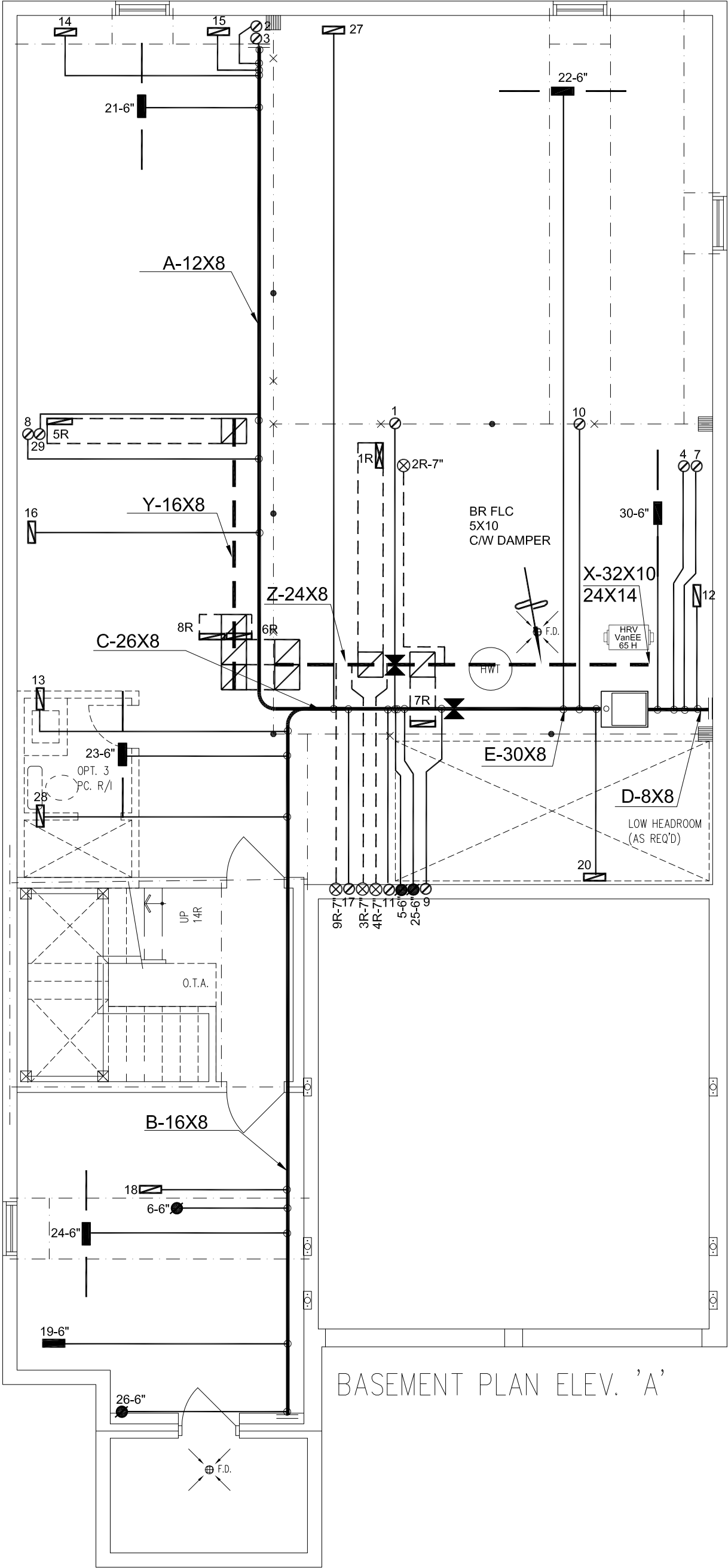
Michael O'Rourke

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



PART. BASEMENT PLAN ELEV. 'A', 'B' & 'C' - L.O.D. COND.

PART. BASEMENT PLAN ELEV. 'A', 'B' & 'C' - W.O.D. COND.



BASEMENT PLAN ELEV. 'A'

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Client

GOLD PARK HOMES

Project Name

PINE VALLEY & TESTON
VAUGHAN, ONTARIO

THE FORESTCREST
4203

3688 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 72563 BTU/H UNIT DATA		# OF RUNS	S/A	R/A	FANS
MAKE	LENNOX	3RD FLOOR			
MODEL	EL296UH090XE48C	2ND FLOOR	15	5	6
INPUT	88 MBTU/H	1ST FLOOR	10	4	2
OUTPUT	85 MBTU/H	BASEMENT	5	1	0
COOLING	4.0 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			
FAN SPEED	1525 cfm @ 0.6" w.c.				

Sheet Title

BASEMENT
HEATING
LAYOUT

Date

JAN/2018

Scale

3/16" = 1'-0"

BCIN# 19669

LO# 77467

CSA-F280-12

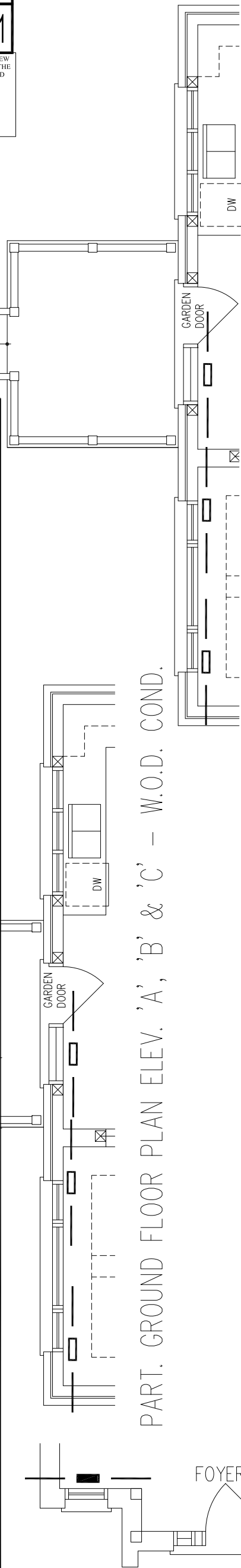
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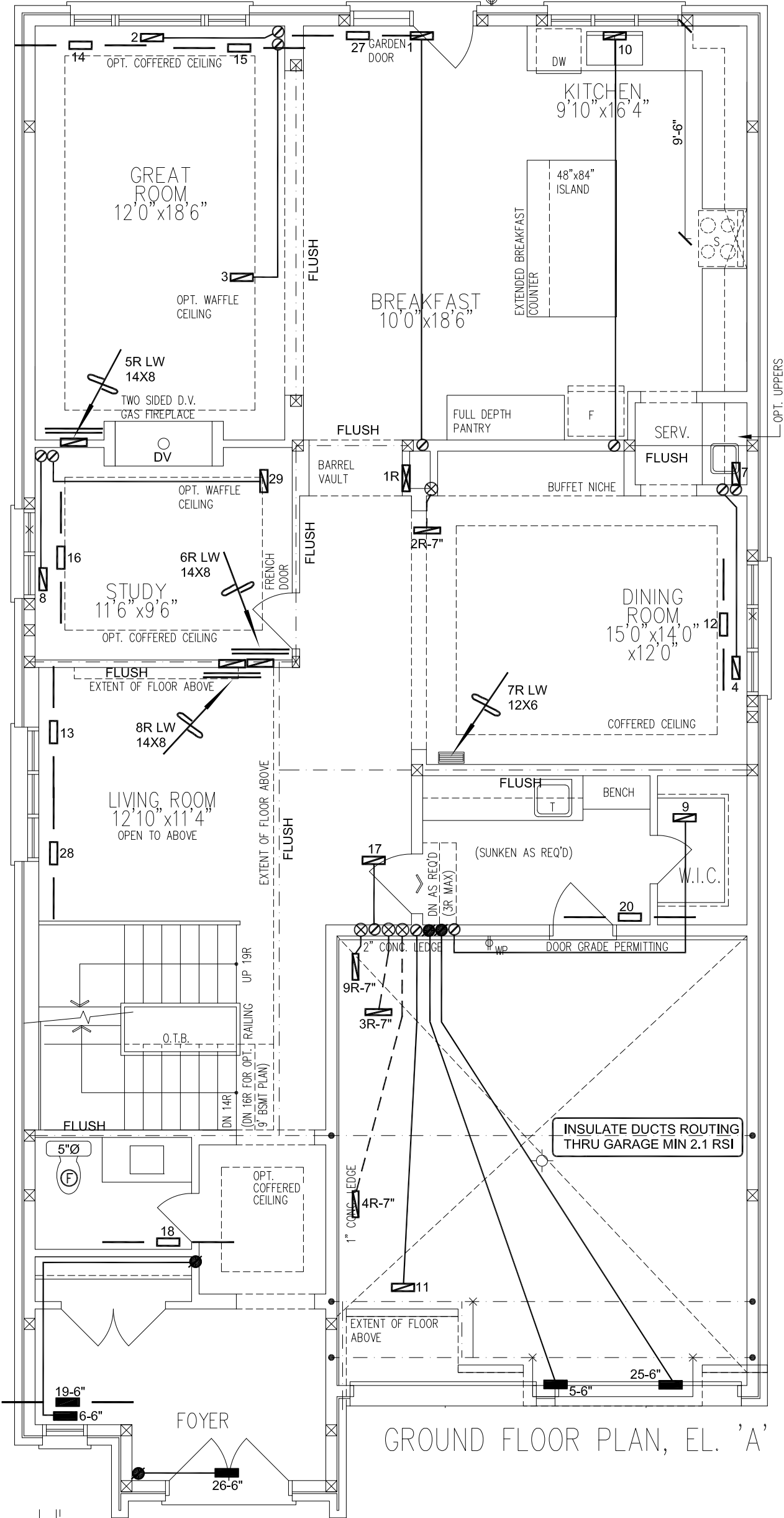
Michael O'Rourke

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

HVAC LEGEND			REVISIONS	
SYMBOL	DESCRIPTION	SYMBOL	3.	2.
	SUPPLY AIR GRILLE		REVISD AS PER ARCHITECTURALS	DECK CONDITIONS ADDED
	SUPPLY AIR GRILLE 6" BOOT		1.	REVISD AS PER CAD
	SUPPLY AIR STACK FROM 2nd FLOOR		No.	Date
	FRA- FLOOR RETURN AIR GRILLE			



PART. GROUND FLOOR PLAN ELEV. 'A', 'B' & 'C' - L.O.D. COND.



GROUND FLOOR PLAN EL. 'B' & 'C'

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Client	GOLD PARK HOMES
Project Name	PINE VALLEY & TESTON VAUGHAN, ONTARIO
	THE FORESTCREST 4203 3688 sqft

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	FIRST FLOOR HEATING LAYOUT
Date	JAN/2018
Scale	3/16" = 1'-0"
	BCIN# 19669
LO#	77467

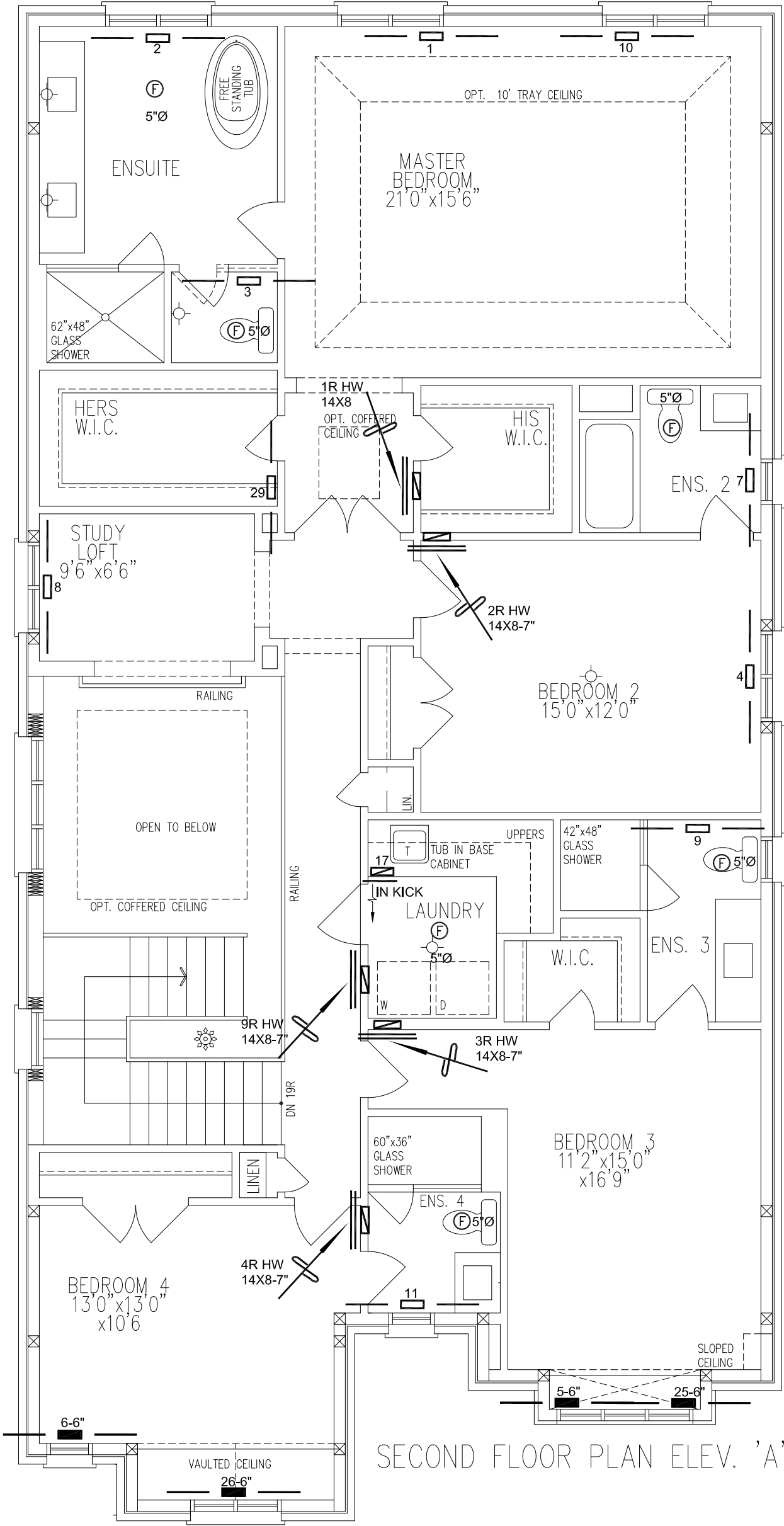
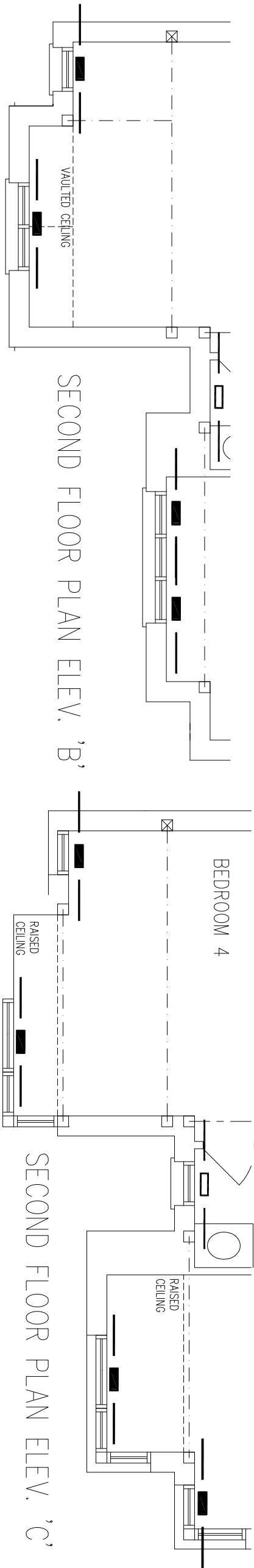
CSA-F280-12

PACKAGE A1

I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

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

SYMBOL		DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	3.
—		SUPPLY AIR GRILLE	—	6" SUPPLY AIR BOOT ABOVE	—	14"x8" RETURN AIR GRILLE	—	RETURN AIR STACK ABOVE	2. DECK CONDITIONS ADDED
—		SUPPLY AIR GRILLE 6" BOOT	—	SUPPLY AIR STACK FROM 2nd FLOOR	—	30"x8" RETURN AIR GRILLE	—	RETURN AIR STACK 2nd FLOOR	1. REVISED AS PER CAD
—		SUPPLY AIR BOOT ABOVE	—	6" SUPPLY AIR STACK 2nd FLOOR	—	FRA-FLOOR RETURN AIR GRILLE	—	REDUCER	REVISIONS
—			—		—		—		Description
			—		—		—		Date
			—		—		—		FEB/2020



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Client	GOLD PARK HOMES
Project Name	PINE VALLEY & TESTON VAUGHAN, ONTARIO
	THE FORESTCREST 4203 3688 sqft

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Sheet Title	SECOND FLOOR HEATING LAYOUT
Date	JAN/2018
Scale	3/16" = 1'-0"
	BCIN# 19669
LO#	77467