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**		
VAUGHAN (WOODBRIDGE)				

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:** 5003 - THE OAKGROVE **Project:** PINE VALLEY & TESTON

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 5, 2018
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: PINE VALLEY & TESTON — DATE: Oct-18 — WINTER NATURAL AIR CHANGE RATE 0.340 — HEAT LOSS ΔT °F. 76 — CSA-F280-12

BUILDER: GOLD PARK HOMES — TYPE: 5003 - THE OAKGROVE — GFA: 3862 — LO# 77475 — SUMMER NATURAL AIR CHANGE RATE 0.124 — HEAT GAIN ΔT °F. 16 — SB-12 PACKAGE A1

ROOM USE			MBR			ENS			WIC			BED-2			BED-3			BED-4			BATH			STUDY			LAUN			ENS-2				
EXP. WALL			50			13			12			10			32			32			9			26			7			7				
CLG. HT.			10			9			9			9			9			9			9			9			9			9				
	FACTORS																																
GRS.WALL AREA	LOSS	GAIN	500			117			108			90			288			288			81			234			63			63				
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	19	404	319	0	0	0	0	0	0	17	362	286	19	404	319	0	0	0	0	0	0	0	0	0	9	192	151	9	192	151		
EAST	21.3	42.4	0	0	0	0	0	0	0	0	0	0	0	0	74	1575	3137	40	851	1696	44	936	1866	0	0	0	0	0	0	0	0	0		
SOUTH	21.3	25.7	0	0	0	23	489	592	0	0	0	0	0	0	0	0	0	14	298	360	0	0	0	0	0	0	0	0	0	0	0	0		
WEST	21.3	42.4	61	1298	2586	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	596	1187	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	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	0		
NET EXPOSED WALL	4.5	0.9	420	1874	390	94	419	87	108	482	100	73	326	68	196	870	181	234	1044	217	37	166	34	206	919	191	54	241	50	54	241	50		
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	0		
EXPOSED CLG	1.3	0.6	424	544	271	182	234	116	168	216	107	250	321	160	198	254	126	204	262	130	117	150	75	169	217	108	175	225	112	175	225	112		
NO ATTIC EXPOSED CLG	2.7	1.4	0	0	0	0	0	0	0	0	0	0	0	0	30	82	41	20	55	27	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	170	434	90	204	520	108	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
BASEMENT/CRAWL HEAT LOSS			0			0			0			0			0			0			0			0			0			0				
SLAB ON GRADE HEAT LOSS			0			0			0			0			0			0			0			0			0			0				
SUBTOTAL HT LOSS			4121			1143			698			1442			3706			2510			1252			1732			657			657				
SUB TOTAL HT GAIN					3566			795			207			603			3913			2431			1974			1486			313			313		
LEVEL FACTOR / MULTIPLIER			0.20	0.29		0.20	0.29		0.20	0.29		0.20	0.29		0.20	0.29		0.20	0.29		0.20	0.29		0.20	0.29		0.20	0.29		0.20	0.29			
AIR CHANGE HEAT LOSS				1193			331			202			417			1073			727			362			501			190			190				
AIR CHANGE HEAT GAIN					289			65			17			49			318			197			160			121			25			25		
DUCT LOSS				0			0			0			186			478			0			0			0			0			0			
DUCT GAIN					0			0			0			166			524			0			0			0			0			0		
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	1		240	0		0	0		0	0		0	0		0		
HEAT GAIN APPLIANCES/LIGHTS					770			0			0			770			770			770			0			770			770			0		
TOTAL HT LOSS BTU/H				5314			1473			900			2045			5257			3237			1614			2233			847			847			
TOTAL HT GAIN x 1.3 BTU/H					6636			1118			292			2377			7494			4729			2775			3089			1441			440		

ROOM USE			DIN			LIV			KT/GT												FOY			MUD						LOD			BAS		
EXP. WALL			16			31			94												30			31						50			202		
CLG. HT.			11			11			11												11			12						10			10		
	FACTORS																																		
GRS.WALL AREA	LOSS	GAIN	176			341			1034												330			372						500			1714		
GLAZING				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	37	787	622										0	0	0	9	192	151				0	0	0	3	64	50
EAST	21.3	42.4	0	0	0	48	1021	2035	0	0	0										0	0	0	0	0	0				0	0	0	0	0	0
SOUTH	21.3	25.7	26	553	669	17	362	438	24	511	618										0	0	0	0	0	0				0	0	0	6	128	154
WEST	21.3	42.4	0	0	0	0	0	0	198	4213	8394										0	0	0	0	0	0				23	489	975	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
DOORS	25.2	5.2	0	0	0	0	0	0	0	0	0										62	1565	325	20	505	105				0	0	0	20	505	105
NET EXPOSED WALL	4.5	0.9	150	669	139	276	1232	256	775	3459	719										268	1196	249	343	1531	318				0	0	0	0	0	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				277	997	207	306	1101	229
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	0	0	0										0	0	0	0	0	0				0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.7	1.4	0	0	0	12	33	16	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	0	0	0	0	0				0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS				0			0			0												0			0							6912		
SLAB ON GRADE HEAT LOSS				0			0			0												0			0						0			
SUBTOTAL HT LOSS				1223			2648			8970												2761			2227						1486			8709		
SUB TOTAL HT GAIN					808			2745			10352												574			575						1182			539
LEVEL FACTOR / MULTIPLIER			0.30	0.44		0.30	0.44		0.30	0.44											0.30	0.44		0.30	0.44								0.50	1.27	
AIR CHANGE HEAT LOSS				534			1155			3914												1205			972									12967	
AIR CHANGE HEAT GAIN					66			223			840												47			47									140
DUCT LOSS				0			0			0												0			0									0	
DUCT GAIN					0			0			0												0			0									0
HEAT GAIN PEOPLE	240		0		0	0		0	0		0										0		0	0		0				0		0	0		0
HEAT GAIN APPLIANCES/LIGHTS					770			770			770												0			770						0			770
TOTAL HT LOSS BTU/H				1756			3803			12884												3966			3199						1486			21676	
TOTAL HT GAIN x 1.3 BTU/H					2137			4859			15551												807			1808						1537			1883

TOTAL HEAT GAIN BTU/H: 59632 — TONS: 4.97 — LOSS DUE TO VENTILATION LOAD BTU/H: 3181 — STRUCTURAL HEAT LOSS: 72540 — TOTAL COMBINED HEAT LOSS BTU/H: 75720

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

HVAC DESIGNS LTD.

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

TYPE: 5003 - THE OAKGROVE DATE: Oct-18 GFA: 3862 LO# 77475

HEATING CFM	1955		COOLING CFM	1955			furnace pressure	0.6									^LENNOX			AFUE = 96 %			
TOTAL HEAT LOSS	72,540		TOTAL HEAT GAIN	58,971			furnace filter	0.05									EL296UH110XE60C	110		INPUT (BTU/H) = 110,000			
AIR FLOW RATE CFM	26.95		AIR FLOW RATE CFM	33.15			a/c coil pressure	0.2									FAN SPEED			OUTPUT (BTU/H) = 106,000			
							available pressure										LOW	0					
							for s/a & r/a	0.35									MEDLOW	1380		DESIGN CFM = 1955			
							plenum pressure s/a	0.18		r/a pressure	0.17						MEDIUM	1505		CFM @ .6 " E.S.P.			
							max s/a dif press. loss	0.03		r/a grille press. Loss	0.02						MEDIUM HIGH	1685					
							min adjusted pressure s/a	0.15		adjusted pressure r/a	0.15						HIGH	1955		TEMPERATURE RISE 50 °F			

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	16	10	7
R/A	0	0	5	3	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	WIC	BED-2	BED-3	BED-4	BATH	STUDY	LAUN	MBR	ENS-2	DIN	LIV	KT/GT	KT/GT	KT/GT	KT/GT	KT/GT	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.77	0.74	0.90	2.05	1.75	1.62	1.61	2.23	0.85	1.77	0.85	1.76	1.90	2.58	2.58	2.58	2.58	2.58	3.97	3.20	3.31	3.31	3.31	3.31
CFM PER RUN HEAT	48	20	24	55	47	44	43	60	23	48	23	47	51	69	69	69	69	69	107	86	89	89	89	89
RM GAIN MBH.	2.21	0.56	0.29	2.38	2.50	2.36	2.77	3.09	1.44	2.21	0.44	2.14	2.43	3.11	3.11	3.11	3.11	3.11	0.81	1.81	0.49	0.49	0.49	0.49
CFM PER RUN COOLING	73	19	10	79	83	78	92	102	48	73	15	71	81	103	103	103	103	103	27	60	16	16	16	16
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.16	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.16	0.15	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	48	26	36	48	45	54	42	63	45	41	49	26	39	36	27	31	38	45	35	40	30	22	42	41
EQUIVALENT LENGTH	185	205	120	165	140	195	150	150	130	185	170	90	110	110	110	170	160	110	120	150	110	150	130	120
TOTAL EFFECTIVE LENGTH	233	231	156	213	185	249	192	213	175	226	219	116	149	146	137	201	198	155	155	190	140	172	172	161
ADJUSTED PRESSURE	0.07	0.07	0.11	0.08	0.09	0.07	0.08	0.08	0.1	0.08	0.08	0.15	0.11	0.11	0.12	0.08	0.08	0.1	0.1	0.09	0.12	0.09	0.09	0.1
ROUND DUCT SIZE	5	4	4	5	6	6	6	6	4	5	4	4	5	6	6	6	6	6	6	5	5	6	6	5
HEATING VELOCITY (ft/min)	352	229	275	404	240	224	219	306	264	352	264	539	374	352	352	352	352	352	546	631	653	454	454	653
COOLING VELOCITY (ft/min)	536	218	115	580	423	398	469	520	551	536	172	815	595	525	525	525	525	525	138	441	117	82	82	117
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	4X10	4X10	3X10
TRUNK	A	E	C	E	E	D	D	B	B	A	B	E	D	A	A	B	B	B	D	B	A	A	B	B

RUN #	25	26	27	28	29	30	31	32	33
ROOM NAME	BAS	BAS	BAS	MBR	BED-3	BED-3	BED-4	LIV	ENS
RM LOSS MBH.	3.31	3.31	3.31	1.77	1.75	1.75	1.62	1.90	0.74
CFM PER RUN HEAT	89	89	89	48	47	47	44	51	20
RM GAIN MBH.	0.49	0.49	0.49	2.21	2.50	2.50	2.36	2.43	0.56
CFM PER RUN COOLING	16	16	16	73	83	83	78	81	19
ADJUSTED PRESSURE	0.16	0.16	0.16	0.17	0.16	0.16	0.17	0.16	0.17
ACTUAL DUCT LGH.	21	23	36	38	52	56	43	34	37
EQUIVALENT LENGTH	180	100	130	160	145	155	190	100	195
TOTAL EFFECTIVE LENGTH	201	123	166	198	197	211	233	134	232
ADJUSTED PRESSURE	0.08	0.13	0.1	0.09	0.08	0.08	0.07	0.12	0.07
ROUND DUCT SIZE	6	5	5	5	6	6	6	5	4
HEATING VELOCITY (ft/min)	454	653	653	352	240	240	224	374	229
COOLING VELOCITY (ft/min)	82	117	117	536	423	423	398	595	218
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10
TRUNK	E	E	D	A	E	E	D	D	E

SUPPLY AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK A	460	0.07	10.8	14	x	8	591	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	577	0.08	11.4	16	x	8	649	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	1061	0.07	14.8	26	x	8	735	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	429	0.07	10.6	14	x	8	552	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	890	0.07	13.9	22	x	8	728	TRUNK K	0	0.00	0	0	x	8	0
TRUNK F	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	0.06	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
TRUNK X	1665	0.06	18.2	34	x	10	705
TRUNK Y	590	0.06	12.4	18	x	8	590
TRUNK Z	0	0.06	0	0	x	8	0
DROP	1955	0.06	19.4	24	x	18	652

RETURN AIR #	1	2	3	4	5	6	7	8								BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	120	360	135	135	120	170	320	320	0	0	0	0	0	0	0	275
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	50	26	44	49	53	17	19	32	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	175	135	185	190	185	160	135	145	0	0	0	0	0	0	0	135
TOTAL EFFECTIVE LH	225	161	229	239	238	177	154	177	1	1	1	1	1	1	1	149
ADJUSTED PRESSURE	0.07	0.09	0.06	0.06	0.06	0.08	0.10	0.08	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.10
ROUND DUCT SIZE	6.6	9.3	7.1	7.1	6.8	7.2	8.7	9.2	0	0	0	0	0	0	0	8.2
INLET GRILL SIZE	8	8	8	8	8	8	8	8	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	30	14	14	14	14	30	30	0	0	0	0	0	0	0	24

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

HVAC DESIGNS LTD.

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

TYPE: 5003 - THE OAKGROVE LO # 77475
SITE NAME: PINE VALLEY & TESTON

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	5	@ 10.6 cfm	53	cfm
Other Rooms	7	@ 10.6 cfm	74.2	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	**79.5**	**cfm**

SUPPLEMENTAL VENTILATION CAPACITY 9.32.3.5.

Total Ventilation Capacity	201.4	cfm
Less Principal Ventil. Capacity	155	cfm
Required Supplemental Capacity	46.4	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE 65H Location: BSMT

155.0 cfm 3.0 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
BATH	QTXEN050C	50	✓	0.3
ENS-2	QTXEN050C	50	✓	0.3
PWD	QTXEN050C	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-18

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.

375 Finley Ave. Suite 202 Ajax, ON L1S 2E2
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#: 77475 Model: 5003 - THE OAKGROVE Builder: GOLD PARK HOMES Date: 10/5/2018

Volume Calculation

House Volume

Level	Floor Area (ft^2)	Floor Height (ft)	Volume (ft^3)
Bsmt	1760	10	17600
First	1760	11	19360
Second	2125	9	19125
Third	0	9	0
Fourth	0	9	0
		Total:	56,085.0 ft^3
		Total:	1588.2 m^3

Air Change & Delta T Data

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

5.2.3.1 Heat Loss due to Air Leakage

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

0.340 x 441.15 x 42 °C x 1.2 = 7601 W

= 25934 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

= 0.124 x 441.15 x 9 °C x 1.2 = 576 W

= 1966 Btu/h

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

155 CFM x 76 °F x 1.08 x 0.25 = 3181 Btu/h

6.2.7 Sensible heat Gain due to Ventilation

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

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_{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)
1	0.5	25,934	10,196	1.272
2	0.3		17,829	0.436
3	0.2		17,917	0.289
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: 5003 - THE OAKGROVE **BUILDER:** GOLD PARK HOMES
SFQT: 3862 **LO#** 77475 **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):	56085.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD ($Btu/h/ft^2$):	1.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 61.0 ft	WIDTH: 40.0 ft	EXPOSED PERIMETER:	202.0 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

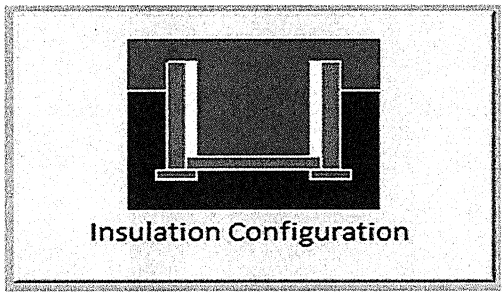
Michael O'Rourke.

HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

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):	**12.2**	
Exposed Perimeter (m):	**0.0**	
Wall Height (m):	**3.0**	
Depth Below Grade (m):	**2.13**	
Window Area (m^2):	**3.0**	
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):		**2025**

TYPE: 5003 - THE OAKGROVE
LO# 77475

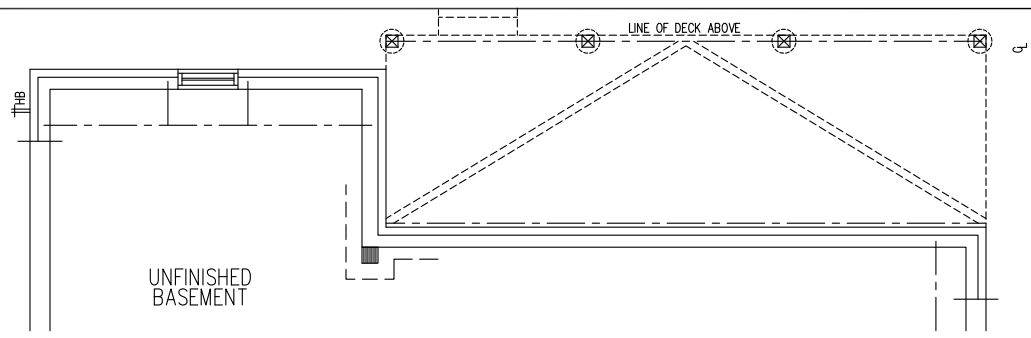
HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

Air Infiltration Residential Load Calculator

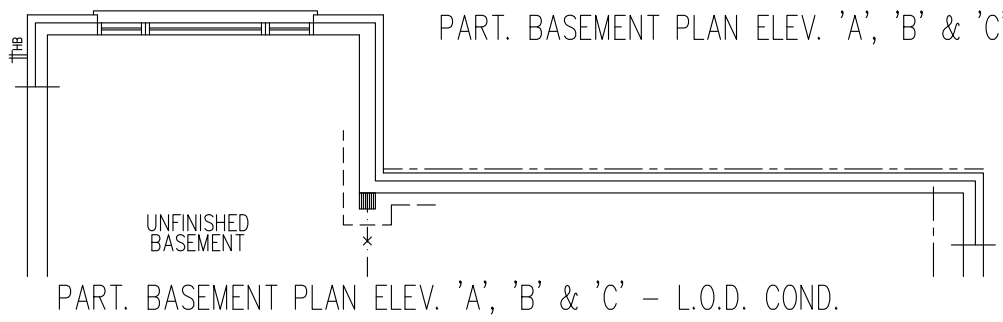
Supplemental tool for CAN/CSA-F280

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):	1588.2
Air Leakage/Ventilation	
Air Tightness Type:	Present (1961-) (3.57 ACH)
Custom BDT Data:	ELA @ 10 Pa. 2117.1 cm^2
	3.57 ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply 73.2 / Total Exhaust 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**

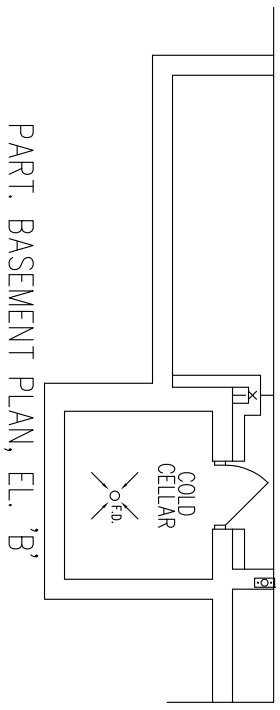
TYPE: 5003 - THE OAKGROVE
LO# 77475



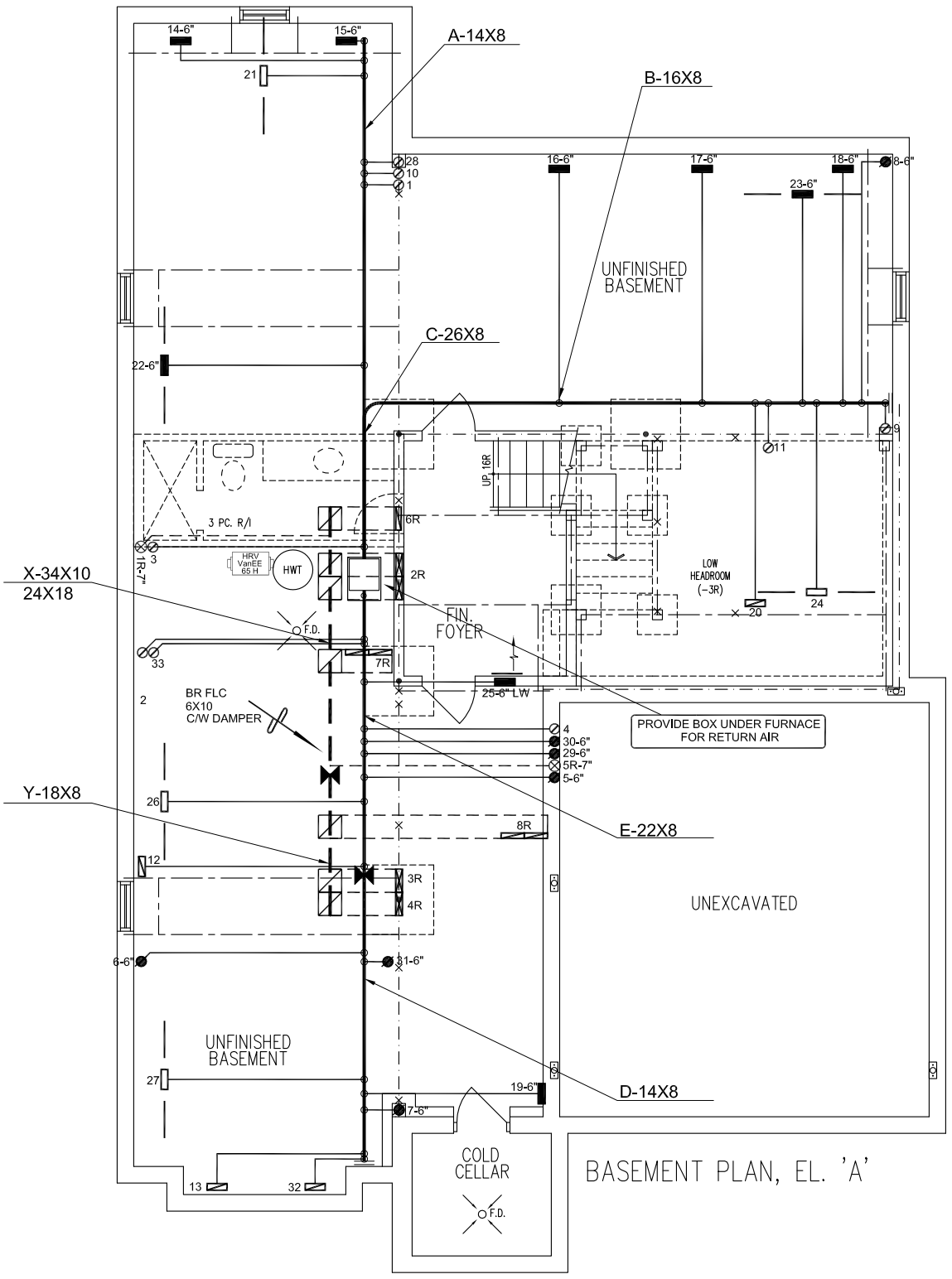
PART. BASEMENT PLAN ELEV. 'A', 'B' & 'C' – W.O.D. COND.



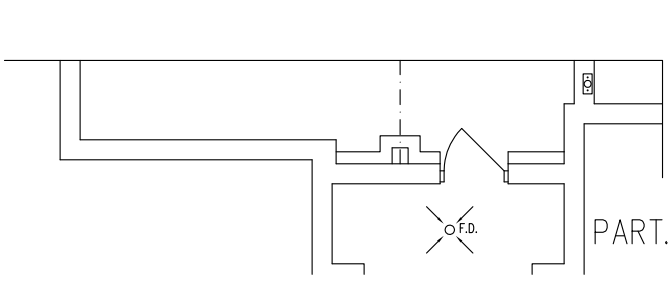
PART. BASEMENT PLAN ELEV. 'A', 'B' & 'C' – L.O.D. COND.



PART. BASEMENT PLAN, EL. 'B'



BASEMENT PLAN, EL. 'A'



PART. BASEMENT PLAN, EL. 'C'

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.

WOD CSA-F280-12

LOD 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.	REVISED AS PER ARCHITECTURALS	FEB/2020
1.	DECK CONDITIONS ADDED	OCT/2018

REVISIONS

Client

GOLD PARK HOMES

Project Name

PINE VALLEY & TESTON
VAUGHAN, ONTARIO

THE OAKGROVE

5003 3862 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@hvacdesigns.ca
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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 75720 BTU/H	
UNIT DATA	
MAKE	LENNOX
MODEL	EL296UH110XE60C
INPUT	110 MBTU/H
OUTPUT	106 MBTU/H
COOLING	5.0 TONS
FAN SPEED	1955 cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	16	5	4
1ST FLOOR	10	3	2
BASEMENT	7	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

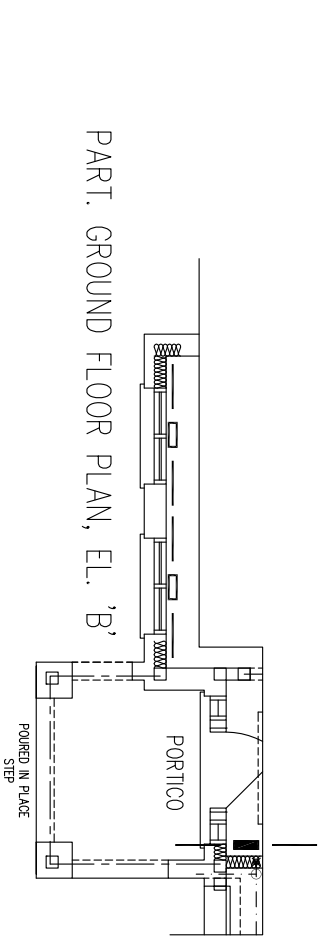
BASEMENT HEATING LAYOUT

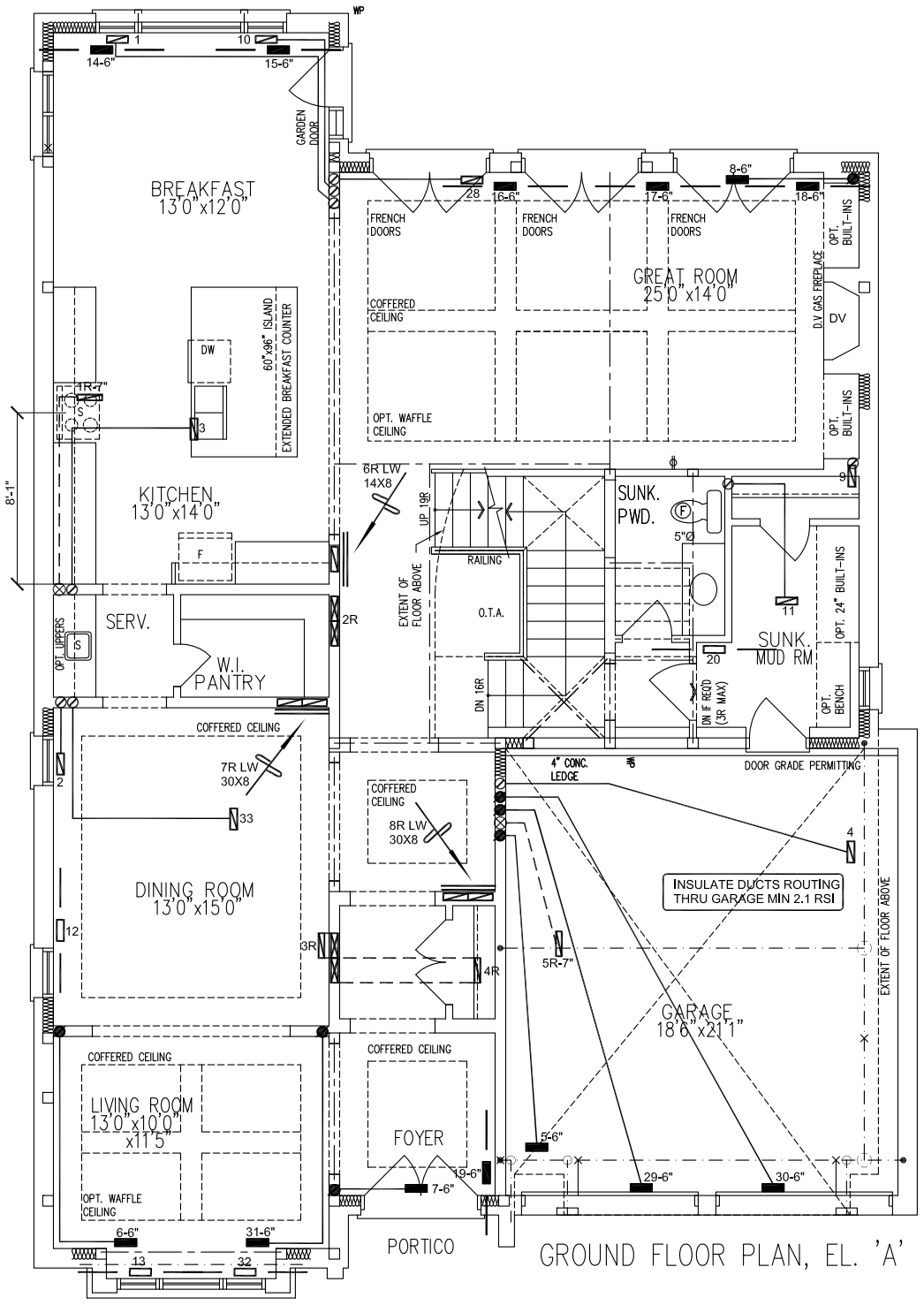
Date JAN/2018

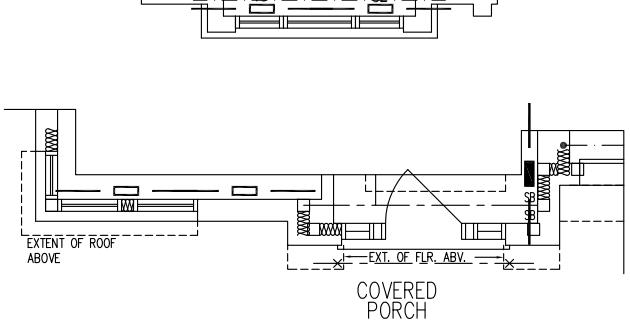
Scale 1/8" = 1'-0"

BCIN# 19669

LO# 77475







PART. GROUND FLOOR PLAN, EL. 'C'

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.

WOD	CSA-F280-12
LOD	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

REVISIONS

No.	Description	Date
3.		
2.	REVISED AS PER ARCHITECTURALS	FEB/2020
1.	DECK CONDITIONS ADDED	OCT/2018

Client
GOLD PARK HOMES

Project Name
PINE VALLEY & TESTON
VAUGHAN, ONTARIO

THE OAKGROVE
5003 3862 sqft

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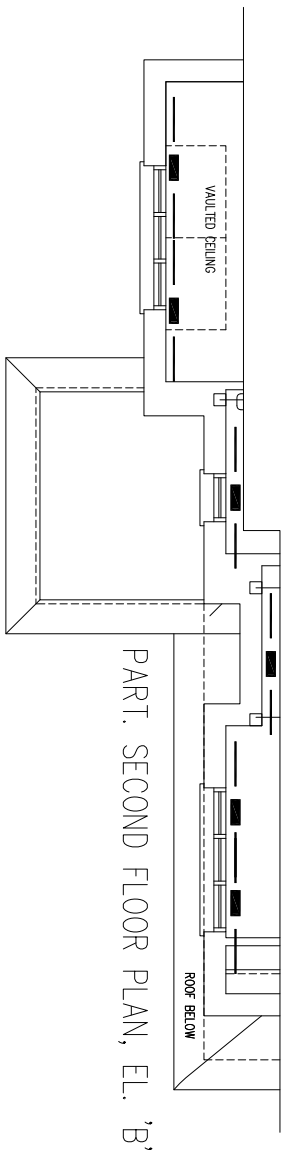
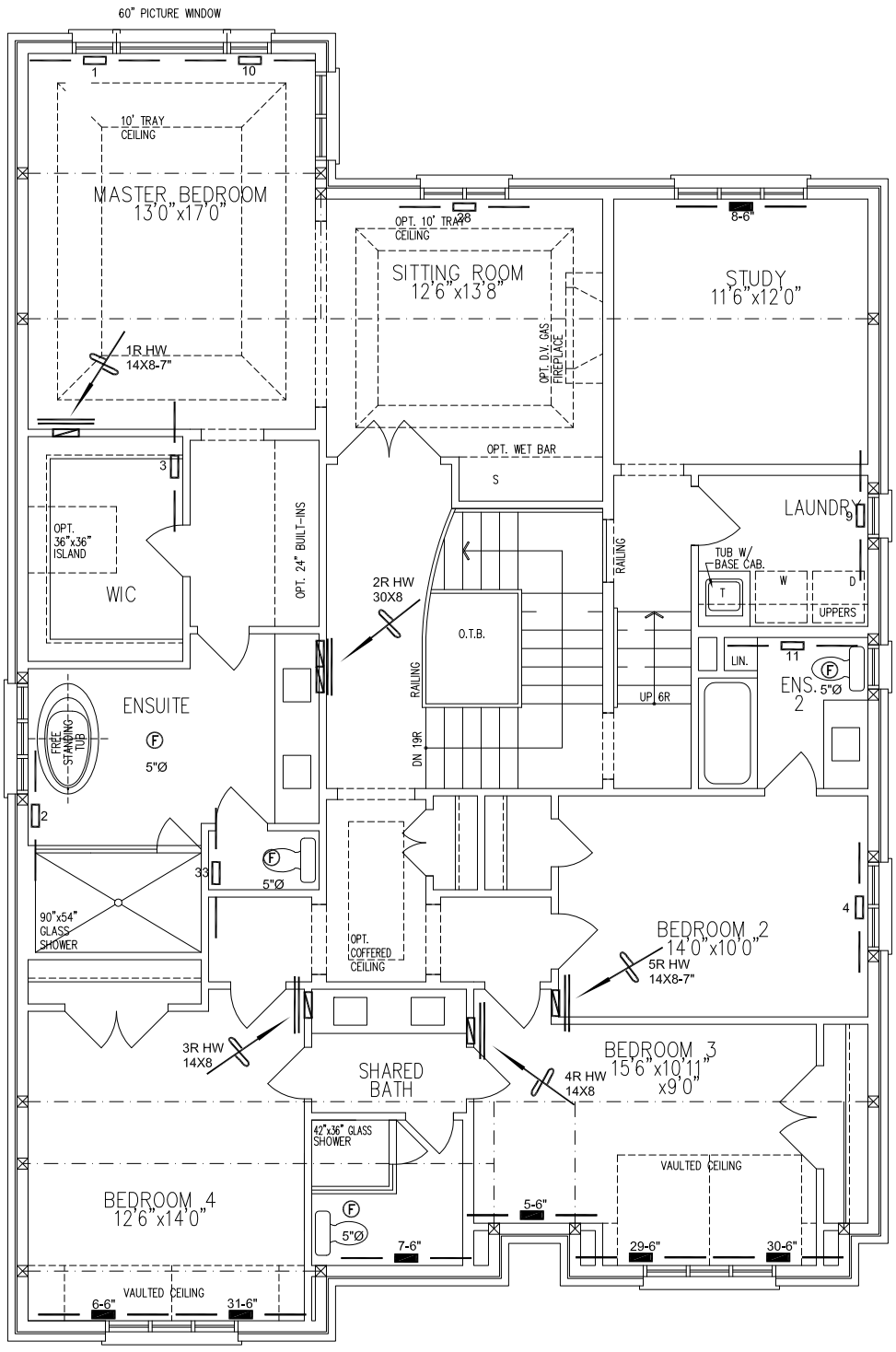
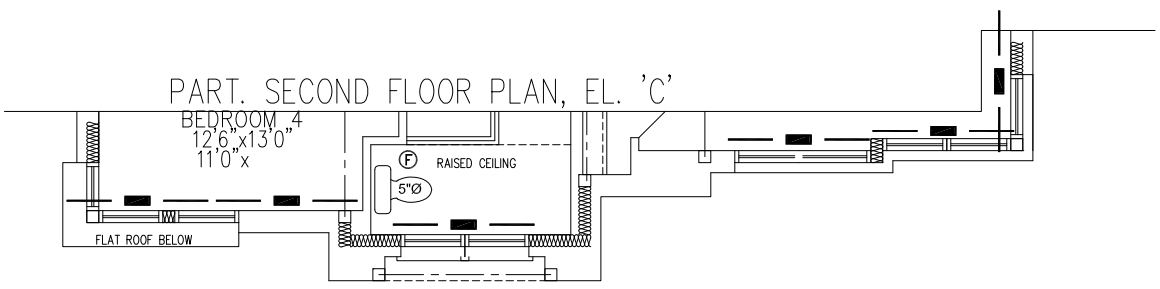
Sheet Title
FIRST FLOOR HEATING LAYOUT

Date JAN/2018
Scale 1/8" = 1'-0"
BCIN# 19669
LO# 77475





SECOND FLOOR PLAN, EL. 'A'



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

WOD	CSA-F280-12
LOD	PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
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No.	Description	Date
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1.	DECK CONDITIONS ADDED	OCT/2018

REVISIONS

Client

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Project Name

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Sheet Title

SECOND FLOOR HEATING LAYOUT

Date JAN/2018
Scale 1/8" = 1'-0"
BCIN# 19669
LO# 77475