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:** 4202- ROSEDALE OPT. 5 BED - ALT 1ST **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.

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

SITE NAME: PINE VALLEY & TESTON | OPT. 5 BED - ALT 1ST | DATE: Nov-18 | WINTER NATURAL AIR CHANGE RATE 0.340 | HEAT LOSS ΔT °F. 76 | CSA-F280-12
BUILDER: GOLD PARK HOMES | TYPE: 4202- ROSEDALE | GFA: 3785 | LO# 80274 | SUMMER NATURAL AIR CHANGE RATE 0.124 | HEAT GAIN ΔT °F. 16 | SB-12 PACKAGE A1

ROOM USE			MBR			ENS				BED-2			BED-3			BED-4			ENS-2			BED-5			ENS-3			ENS-4/5				
EXP. WALL			34			37				12			36			16			0			13			9			6				
CLG. HT.			10			9				9			9			9			9			9			9			9				
	FACTORS																															
GRS.WALL AREA	LOSS	GAIN	340			333				108			324			144			0			117			81			54				
GLAZING				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		18	383	303	0	0	0	0	0	0	0	0	0	0	0	0	9	192	151	0	0	0		
EAST	21.3	42.4	0	0	0	0	0	0		0	0	0	53	1128	2247	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
SOUTH	21.3	25.7	0	0	0	0	0	0		0	0	0	0	0	0	38	809	978	0	0	0	18	383	463	0	0	0	0	0	0		
WEST	21.3	42.4	54	1149	2289	18	383	763		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		
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		
NET EXPOSED WALL	4.5	0.9	286	1276	265	315	1406	292		90	402	83	271	1209	251	106	473	98	0	0	0	99	442	92	72	321	67	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		
EXPOSED CLG	1.3	0.6	285	366	182	210	270	134		228	293	146	280	359	179	240	308	153	104	133	66	182	234	116	45	58	29	84	108	54		
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	0	0		
EXPOSED FLOOR	2.6	0.5	0	0	0	0	0	0		0	0	0	280	714	148	0	0	0	50	128	27	0	0	0	25	64	13	0	0	0		
BASEMENT/CRAWL HEAT LOSS				0			0				0			0			0			0			0			0			0				
SLAB ON GRADE HEAT LOSS				0			0				0			0			0			0			0			0			0				
SUBTOTAL HT LOSS				2791			2058				1077			3411			1590			261			1058			634			349				
SUB TOTAL HT GAIN					2736			1189				532			2825			1230			93			671			260			104			
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		0.20	0.31		0.20	0.31			
AIR CHANGE HEAT LOSS				870			641				336			1063			495			81			330			198			109				
AIR CHANGE HEAT GAIN					307			133				60			317			138			10			75			29			12			
DUCT LOSS				0			0				0			447			0			34			0			83			0				
DUCT GAIN					0			0				0			421			0			10			0			29			0			
HEAT GAIN PEOPLE	240		2		480	0		0		1		240	1		240	1		240	0		0	1		240	0		0	0		0			
HEAT GAIN APPLIANCES/LIGHTS					831			0				831			831			831			0			831			0			0			
TOTAL HT LOSS BTU/H				3661			2700				1413			4921			2085			377			1388			915			457				
TOTAL HT GAIN x 1.3 BTU/H					5661			1719				2161			6025			3170			148			2363			414			150			

ROOM USE			DIN				KT/GT			LIB			LAUN				FOY			MUD			WIC				LOD			BAS		
EXP. WALL			17				100			12			32				59			15			6				43			202		
CLG. HT.			11				11			12			9				11			12			9				10			10		
	FACTORS																															
GRS.WALL AREA	LOSS	GAIN	187				1100			144			288				649			180			54				430			1672		
GLAZING				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		39	830	656	23	489	387	0	0	0		0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
EAST	21.3	42.4	0	0	0		0	0	0	0	0	0	41	872	1738		7	149	297	0	0	0	0	0	0		0	0	0	0	0	0
SOUTH	21.3	25.7	34	724	875		0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
WEST	21.3	42.4	0	0	0		123	2617	5214	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0		20	426	848	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
DOORS	25.2	5.2	0	0	0		10	252	52	0	0	0	0	0	0		57	1439	299	20	505	105	0	0	0		0	0	0	20	505	105
NET EXPOSED WALL	4.5	0.9	153	683	142		928	4141	861	121	540	112	247	1102	229		585	2611	543	160	714	148	54	241	50		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	0	0	0	0	0	0		238	856	178	348	1252	260
EXPOSED CLG	1.3	0.6	0	0	0		0	0	0	0	0	0	388	498	248		0	0	0	0	0	0	84	108	54		0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.7	1.4	0	0	0		0	0	0	0	0	0	30	82	41		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	84	214	45		0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS				0				0			0			0				0			0			0							6921		
SLAB ON GRADE HEAT LOSS				0				0			0			0				0			0			0				0				
SUBTOTAL HT LOSS				1406				7841			1029			2555				4199			1219			563				1282			8678		
SUB TOTAL HT GAIN					1017				6783			499			2256				1139			253			148				1026			365	
LEVEL FACTOR / MULTIPLIER			0.30	0.49			0.30	0.49		0.30	0.49		0.20	0.31			0.30	0.49		0.30	0.49		0.20	0.31						0.50	1.28		
AIR CHANGE HEAT LOSS				685				3817			501			796				2044			593			175							12734		
AIR CHANGE HEAT GAIN					114				760			56			253				128			28			17								156
DUCT LOSS				0				0			0			0				0			0			74							0		
DUCT GAIN					0				0			0			0				0			0			16								0
HEAT GAIN PEOPLE	240		0		0		0		0	0		0	0		0		0		0	0		0	0		0		0		0	0		0	
HEAT GAIN APPLIANCES/LIGHTS					831				831			831			831				0			0			0				0				831
TOTAL HT LOSS BTU/H				2091				11658			1531			3351				6243			1812			812				1282			21412	
TOTAL HT GAIN x 1.3 BTU/H					2551				10888			1802			4342				1646			366			236				1334			1758

TOTAL HEAT GAIN BTU/H: 47396 | TONS: 3.95 | LOSS DUE TO VENTILATION LOAD BTU/H: 3181 | STRUCTURAL HEAT LOSS: 68109 | TOTAL COMBINED HEAT LOSS BTU/H: 71290

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

Michael O'Rourke

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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SITE NAME: PINE VALLEY & TESTON — OPT. 5 BED - ALT 1ST
BUILDER: GOLD PARK HOMES — TYPE: 4202- ROSEDALE — DATE: Nov-18 — GFA: 3785 — LO# 80274

HEATING CFM	1525	COOLING CFM	1525	furnace pressure	0.6					^LENNOX		AFUE = 96 %
TOTAL HEAT LOSS	68,109	TOTAL HEAT GAIN	46,735	furnace filter	0.05							
AIR FLOW RATE CFM	22.39	AIR FLOW RATE CFM	32.63	a/c coil pressure	0.2					EL296UH090XE48C	90	INPUT (BTU/H) = 88,000
				available pressure						FAN SPEED		OUTPUT (BTU/H) = **85,000**
				for s/a & r/a	0.35					LOW	0	
										MEDLOW	0	DESIGN CFM = **1525**
				plenum pressure s/a	0.18	r/a pressure	0.17			MEDIUM	1105	CFM @ .6 " E.S.P.
				max s/a dif press. loss	0.02	r/a grille press. Loss	0.02			MEDIUM HIGH	1255	
				min adjusted pressure s/a	0.16	adjusted pressure r/a	0.15			HIGH	1525	TEMPERATURE RISE 52 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	16	9	6
R/A	0	0	6	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	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	ENS	BED-2	BED-3	BED-5	ENS-2	LAUN	ENS-3	MBR	BED-4	DIN	KT/GT	KT/GT	KT/GT	KT/GT	LIB	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.83	1.35	1.35	1.41	1.64	1.39	0.38	1.68	0.92	1.83	2.08	2.09	2.91	2.91	2.91	2.91	1.53	3.12	1.81	3.78	3.78	3.78	3.78
CFM PER RUN HEAT	41	30	30	32	37	31	8	38	20	41	47	47	65	65	65	65	34	70	41	85	85	85	85
RM GAIN MBH.	2.83	0.86	0.86	2.16	2.01	2.36	0.15	2.17	0.41	2.83	3.17	2.55	2.72	2.72	2.72	2.72	1.80	0.82	0.37	0.52	0.52	0.52	0.52
CFM PER RUN COOLING	92	28	28	71	66	77	5	71	13	92	103	83	89	89	89	89	59	27	12	17	17	17	17
ADJUSTED PRESSURE	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	69	53	61	60	49	25	42	55	48	73	23	10	43	47	46	57	36	42	27	45	50	13	36
EQUIVALENT LENGTH	160	150	130	190	150	140	190	190	160	140	190	150	130	130	130	130	120	150	160	120	110	120	130
TOTAL EFFECTIVE LENGTH	229	203	191	250	199	165	232	245	208	213	213	160	173	177	176	187	156	192	187	165	160	133	166
ADJUSTED PRESSURE	0.07	0.08	0.09	0.07	0.09	0.1	0.07	0.07	0.08	0.08	0.08	0.1	0.09	0.09	0.09	0.09	0.11	0.09	0.09	0.1	0.1	0.12	0.1
ROUND DUCT SIZE	**6**	4	4	5	5	**6**	4	5	4	**6**	**6**	**6**	**6**	**6**	**6**	**6**	5	5	4	5	5	5	5
HEATING VELOCITY (ft/min)	209	344	344	235	272	158	92	279	229	209	240	240	331	331	331	331	250	514	470	624	624	624	624
COOLING VELOCITY (ft/min)	469	321	321	521	485	393	57	521	149	469	525	423	454	454	454	454	433	198	138	125	125	125	125
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	B	A	A	C	E	C	E	D	E	B	E	C	A	A	B	B	C	D	E	A	B	C	D

RUN #	25	26	27	28		30	31	32	33
ROOM NAME	BED-3	LAUN	BAS	FOY		WIC	BED-3	BAS	ENS-4/5
RM LOSS MBH.	1.64	1.68	3.78	3.12		0.81	1.64	3.78	0.46
CFM PER RUN HEAT	37	38	85	70		18	37	85	10
RM GAIN MBH.	2.01	2.17	0.52	0.82		0.24	2.01	0.52	0.15
CFM PER RUN COOLING	66	71	17	27		8	66	17	5
ADJUSTED PRESSURE	0.17	0.17	0.16	0.17		0.17	0.17	0.16	0.17
ACTUAL DUCT LGH.	45	57	33	40		60	58	22	39
EQUIVALENT LENGTH	140	150	180	150		150	160	120	140
TOTAL EFFECTIVE LENGTH	185	207	213	190		210	218	142	179
ADJUSTED PRESSURE	0.09	0.08	0.08	0.09		0.08	0.08	0.11	0.1
ROUND DUCT SIZE	5	5	**6**	5		4	5	5	4
HEATING VELOCITY (ft/min)	272	279	433	514		207	272	624	115
COOLING VELOCITY (ft/min)	485	521	87	198		92	485	125	57
OUTLET GRILL SIZE	3X10	3X10	4X10	3X10		3X10	3X10	3X10	3X10
TRUNK	E	D	D	D		B	E	C	C

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	275	0.08	8.6	8	x	8	619	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	315	0.07	9.4	10	x	8	567	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	914	0.07	14	22	x	8	748	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	386	0.07	10.2	12	x	8	579	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	613	0.07	12.1	18	x	8	613	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	1165	0.06	16	32	x	8	655
TRUNK Y	430	0.06	11	14	x	8	553
TRUNK Z	920	0.06	14.6	24	x	8	690
DROP	1525	0.06	17.7	24	x	14	654

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	130	130	130	130	360	300	50	50	0	0	0	0	0	0	0	245
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.	62	69	49	53	30	52	60	57	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	155	165	145	185	185	140	205	205	0	0	0	0	0	0	0	145
TOTAL EFFECTIVE LH	217	234	194	238	215	192	265	262	1	1	1	1	1	1	1	159
ADJUSTED PRESSURE	0.07	0.06	0.08	0.06	0.07	0.08	0.06	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.09
ROUND DUCT SIZE	6.8	7	6.5	7	9.9	8.9	4.9	4.9	0	0	0	0	0	0	0	8
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	14	14	14	30	30	14	14	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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TYPE: 4202- ROSEDALE LO # 80274
SITE NAME: PINE VALLEY & TESTON OPT. 5 BED - ALT 1ST

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	6	@ 10.6 cfm	63.6	cfm
Table 9.32.3.A.		TOTAL	212.0	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	212	cfm
Less Principal Ventil. Capacity	155	cfm
Required Supplemental Capacity	57.0	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
ENS-2	QTXEN050C	50	✓	0.3
ENS-4/5	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#: 80274 Model: 4202- ROSEDALE Builder: GOLD PARK HOMES Date: 10/5/2018

Volume Calculation

House Volume

Level	Floor Area (ft^2)	Floor Height (ft)	Volume (ft^3)
Bsmt	1733	10	17330
First	1733	11	19063
Second	2076	9	18684
Third	0	9	0
Fourth	0	9	0
		Total:	55,077.0 ft^3
		Total:	1559.6 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 433.22 x 42 °C x 1.2 = 7464 W

= 25468 Btu/h

6.2.6 Sensible Gain due to Air Leakage

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

= 0.124 x 433.22 x 9 °C x 1.2 = 566 W

= 1931 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	25,468	9,960	1.278
2	0.3		15,641	0.488
3	0.2		16,904	0.301
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

HVAC DESIGNS LTD.

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 4202- ROSEDALE OPT. 5 BED - ALT 1ST **BUILDER:** GOLD PARK HOMES
SFQT: 3785 **LO#** 80274 **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):	55077.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
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: 68.0 ft	WIDTH: 33.0 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

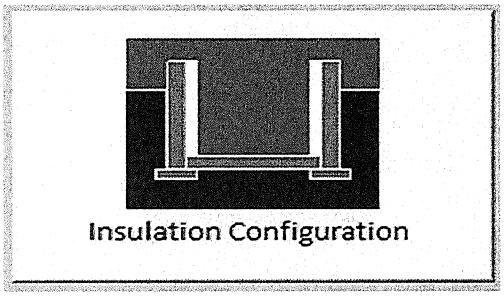
Michael O'Rourke.

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):	**20.7**	 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):	**1.9**	
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):		**2028**

TYPE: 4202- ROSEDALE OPT. 5 BED - ALT 1ST

LO# 80274

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):	1559.6
Air Leakage/Ventilation	
Air Tightness Type:	Present (1961-) (3.57 ACH)
Custom BDT Data:	ELA @ 10 Pa. 2079.0 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: 4202- ROSEDALE OPT. 5 BED - ALT 1ST

LO# 80274

CSA-F280-12

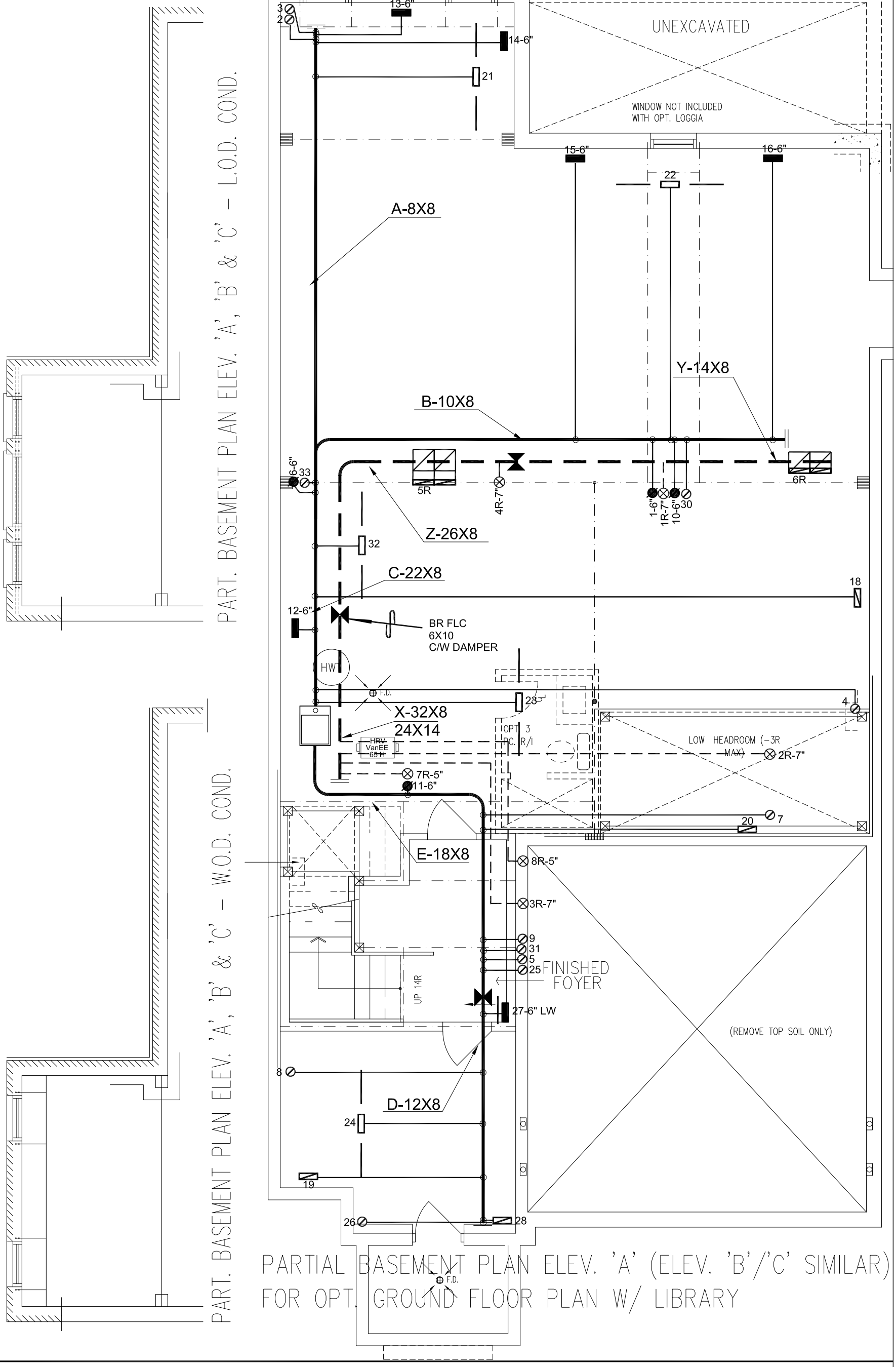
PACKAGE A1

WOD

LOD

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.



HVAC LEGEND

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

REVISIONS

No.	Description	Date
1.	ADDED RETURN #8 TO HALL	NOV/2018
2.	REVISED AS PER ARCHITECTURALS	FEB/2020
3.		

Client

GOLD PARK HOMES

Project Name

PINE VALLEY & TESTON
VAUGHAN, ONTARIO
OPT. 5 BED
ROSEDALE - ALT 1ST
4202 3785 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 71290 BTU/H	
UNIT DATA	
MAKE	LENNOX
MODEL	EL296UH090XE48C
INPUT	88 MBTU/H
OUTPUT	85 MBTU/H
COOLING	4.0 TONS
FAN SPEED	1525 cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	16	5	5
1ST FLOOR	9	2	2
BASEMENT	6	1	0

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

Sheet Title

BASEMENT HEATING LAYOUT

Date OCT/2018

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 80274

CSA-F280-12

PACKAGE A1

WOD

LOD

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

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

BREAKFAST 12'6"x12'0"

GARDEN DOOR

HB

13-6"

3

2

14-6" GARDEN DOOR

EST: B3+L7

OPT. COVERED LOGGIA

FLUSH

1-6"

15-6"

DECORATIVE CEILING

10-6"

16-6"

OPT. BUILT-INS

DW

EXTENDED BREAKFAST COUNTER

GREAT ROOM 19'4"x18'0"

D.V. GAS FIREPLACE

6-6"

8'-4 9/16"

KITCHEN 12'6"x14'0"

4R-7"

1R+7"

6R FRA 24X6

30

OPT. BUILT-INS

F

FLUSH

B3

COFFERED CEILING

FLUSH

NICHE

OPT. COFFERED CEILING

5R LW 30X8

DINING ROOM 13'4"x15'0" x17'0"

18

LIBRARY 9'0"x12'0"

12-6"

4

11-6"

7R-5"

OPT. WAFFLE CEILING

F

5"Ø

FLUSH

UPPERS

BENCH

MUDROOM (SUNKEN AS REQ'D)

FURNITURE NICHE

2R+7"

DN AS REQ'D (-3R MAX.)

7

FLUSH

20

DN 16R

FLUSH

8R-5"

HB

LOW HORM.

O.T.A.

3R-7"

9

RAILING

UP 19R

EXTENT OF FLR. AB.

FLUSH

GARDEN DOOR

INSULATE DUCTS ROUTING THRU GARAGE MIN 2.1 RSI

31

BREAKFAST 12'6"x12'0"

FOYER

19

8

25

5

28

26

EXTENT OF FLOOR ABOVE

PAGROUND FLOOR PLAN ELEV. 'A' (ELEV. 'B'/'C' SIMILAR) W/ LIBRARY

ELEVATION 'C'

ELEVATION 'B'

HVAC LEGEND

SYMBOL	DESCRIPTION
N	SUPPLY AIR BOOT ABOVE
	SUPPLY AIR GRILLE
	SUPPLY AIR GRILLE 6" BOOT
	SUPPLY AIR STACK FROM 2nd FLOOR
	6" SUPPLY AIR STACK 2nd FLOOR

SYMBOL	DESCRIPTION
	6" SUPPLY AIR BOOT ABOVE
	14"x8" RETURN AIR GRILLE
	30"x8" RETURN AIR GRILLE
	FRA- FLOOR RETURN AIR GRILLE

SYMBOL	DESCRIPTION
	RETURN AIR STACK ABOVE
	RETURN AIR STACK 2nd FLOOR
	REDUCER

REVISIONS

No.	Description	Date
1.	ADDED RETURN #8 TO HALL	NOV/2018
2.	REVISED AS PER ARCHITECTURALS	FEB/2020
3.		

Client

GOLD PARK HOMES

Project Name

PINE VALLEY & TESTON
VAUGHAN, ONTARIO
OPT. 5 BED
ROSEDALE - ALT 1ST
4202 3785 sqft

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Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

Sheet Title

FIRST FLOOR HEATING LAYOUT

Date OCT/2018

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 80274

CSA-F280-12

PACKAGE A1

WOD

LOD

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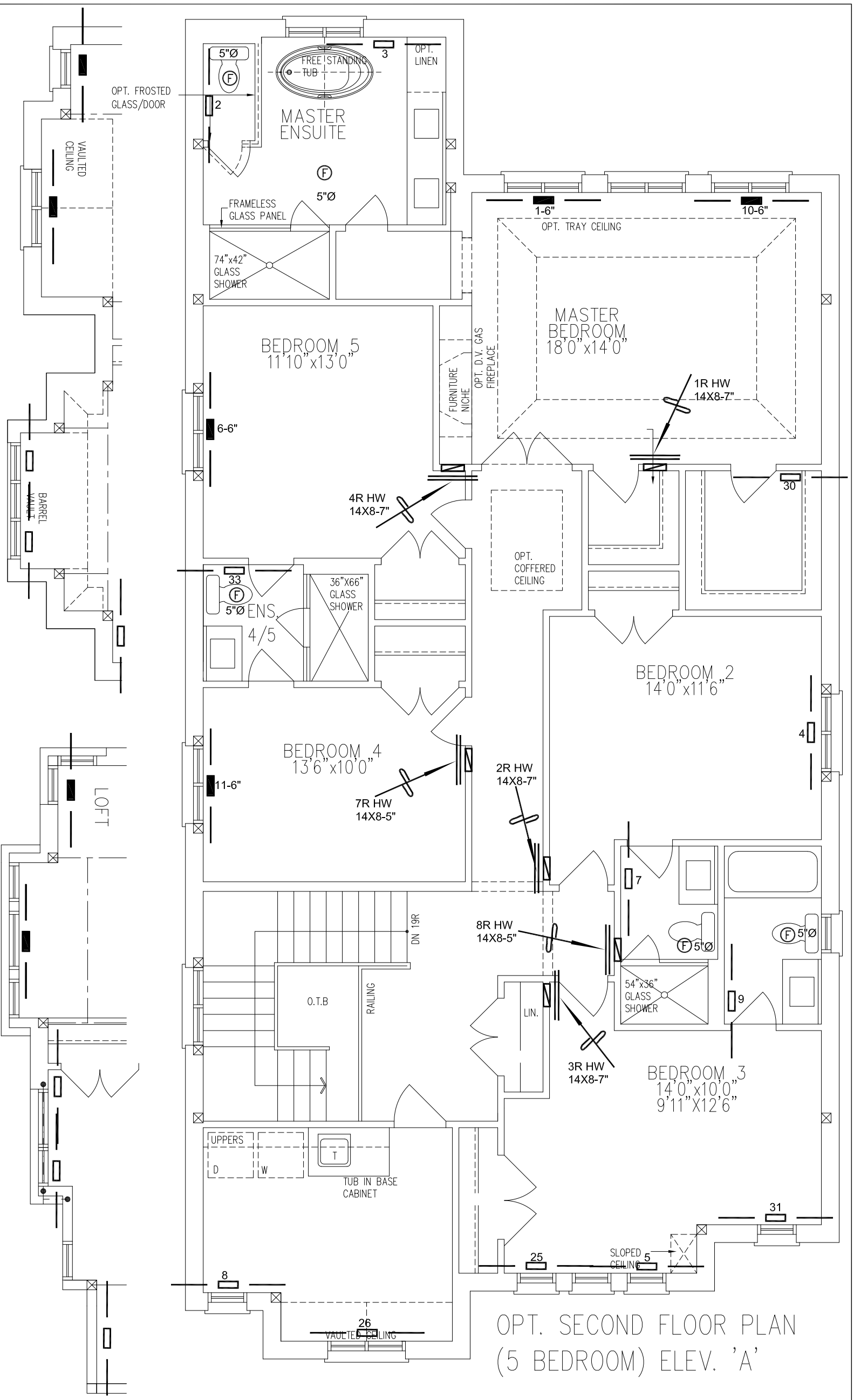
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

PARTIAL SECOND FLOOR PLAN – ELEVATION 'B'

PARTIAL SECOND FLOOR PLAN – ELEVATION 'C'



HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE

SYMBOL	DESCRIPTION
	RETURN AIR STACK ABOVE
	RETURN AIR STACK 2nd FLOOR
	REDUCER

REVISIONS

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3.		

Client

GOLD PARK HOMES

Project Name

PINE VALLEY & TESTON
VAUGHAN, ONTARIO
OPT. 5 BED
ROSEDALE - ALT 1ST
4202 3785 sqft

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Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

Sheet Title

SECOND FLOOR HEATING LAYOUT

Date OCT/2018

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 80274