

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.
Municipality VAUGHAN (WOODBIDGE)			Postal code
Plan number/ other description			Lot/con.
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: 4202- ROSEDALE OPT. 5 BED - ALT 1ST - WOB 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.			
October 5, 2018			
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.

SITE NAME: PINE VALLEY & TESTON										OPT. 5 BED - ALT 1ST - WOB										DATE: Nov-18										WINTER NATURAL AIR CHANGE RATE 0.407										HEAT LOSS ΔT °F. 76										CSA-F280-12																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
BUILDER: GOLD PARK HOMES										TYPE: 4202-ROSEDALE										GFA: 3785										LO# 80275										SUMMER NATURAL AIR CHANGE RATE 0.137										HEAT GAIN ΔT °F. 13										SB-12 PACKAGE A1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
ROOM USE					MBR					ENS					BED-2					BED-3					BED-4					ENS-2					BED-5					ENS-3					ENS-4/5																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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NORTH					21.3	16.0	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

ROOM USE				DIN				KT/GT		LIB		LAUN				FOY		MUD		WIC				WOB		BAS		
EXP. WALL				17				100		12		32				59		15		6				43		159		
CLG. HT.				11				11		11		9				11		12		9				10		10		
FACTORS																												
GRS.WALL AREA		LOSS GAIN		187				1100		132		288				649		180		54				430		1113		
GLAZING				LOSS GAIN				LOSS GAIN		LOSS GAIN		LOSS GAIN				LOSS GAIN		LOSS GAIN		LOSS GAIN				LOSS GAIN		LOSS GAIN		
NORTH	21.3	16.0	0	0	0			39	830	623	23	489	367	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST	21.3	41.6	0	0	0			0	0	0	0	0	0	41	872	1704	7	149	291	0	0	0	0	0	0	0	0	0
SOUTH	21.3	24.9	34	724	847			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	404	473	0	0
WEST	21.3	41.6	0	0	0			123	2617	5111	0	0	0	0	0	0	0	0	0	0	0	0	0	106	2256	4405	0	0
SKYLT.	37.2	101.5	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	4.3	0	0	0			10	252	43	0	0	0	0	0	0	57	1439	242	20	505	85	0	0	0	0	20	505
NET EXPOSED WALL	4.5	0.8	153	683	115			928	4141	697	109	486	82	247	1102	186	585	2611	440	160	714	120	54	241	41	0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.6	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			0	0	0	0	0	0	388	498	228	0	0	0	0	0	0	84	108	49	0	0	0
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0			0	0	0	0	0	0	30	82	38	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.6	0.4	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	84	214	36	0	0	0	0
BASEMENT/CRAWL HEAT LOSS								0									0											
SLAB ON GRADE HEAT LOSS								0									0											
SUBTOTAL HT LOSS								7841						2555			4199											
SUB TOTAL HT GAIN								6474						2155			973											
LEVEL FACTOR / MULTIPLIER			0.30	0.58				0.30	0.58		0.30	0.58		0.20	0.37		0.30	0.58		0.30	0.58		0.20	0.37			0.50	1.59
AIR CHANGE HEAT LOSS								4583						953			2454											
AIR CHANGE HEAT GAIN								563						187			85											
DUCT LOSS								0						0			0											
DUCT GAIN								0						0			0											
HEAT GAIN PEOPLE	240							0						0			0											
HEAT GAIN APPLIANCES/LIGHTS								704						704			0											
TOTAL HT LOSS BTU/H								2228						3508			6653											
TOTAL HT GAIN x 1.3 BTU/H								2274						3960			1375											

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

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

DATE: Nov-18

GFA: 3785

LO# 80275

HEATING CFM 1525 COOLING CFM 1525
TOTAL HEAT LOSS 73,244 TOTAL HEAT GAIN 48,294
AIR FLOW RATE CFM 20.82 AIR FLOW RATE CFM 31.58

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

^LENNOX

AFUE = 96 %

EL296UH090XE48C

INPUT (BTU/H) = 88,000

FAN SPEED

OUTPUT (BTU/H) = 85,000

LOW 0

DESIGN CFM = 1525

MEDLOW 0

CFM @ .6" E.S.P.

MEDIUM 1105

MEDIUM HIGH 1255

HIGH 1525

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 COUNT	4th	3rd	2nd	1st	Bas																				
S/A	0	0	16	9	7																				
R/A	0	0	6	2	1																				

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.	1.92	1.41	1.41	1.48	1.72	1.45	0.39	1.75	0.96	1.92	2.18	2.23	3.11	3.11	3.11	3.11	1.55	3.33	1.93	3.62	3.62	3.62	3.62
CFM PER RUN HEAT	40	29	29	31	36	30	8	37	20	40	45	46	65	65	65	65	32	69	40	75	75	75	75
RM GAIN MBH.	2.62	0.78	0.78	1.92	1.84	2.12	0.13	1.98	0.37	2.62	2.88	2.27	2.52	2.52	2.52	2.52	1.55	0.69	0.29	1.24	1.24	1.24	1.24
CFM PER RUN COOLING	83	25	25	61	58	67	4	63	12	83	91	72	79	79	79	79	49	22	9	39	39	39	39
ADJUSTED PRESSURE	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	69	53	61	60	49	25	42	55	48	73	23	10	43	47	46	57	36	42	27	57	50	13	36
EQUIVALENT LENGTH	160	150	130	190	150	140	190	190	160	140	190	150	130	130	130	130	120	150	160	170	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	227	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	0.11	0.1	0.1	0.1	0.09	0.11	0.09	0.09	0.08	0.11	0.13	0.1
ROUND DUCT SIZE	6	4	4	5	5	6	4	5	4	6	6	6	5	5	5	5	5	5	4	5	5	5	5
HEATING VELOCITY (ft/min)	204	333	333	228	264	153	92	272	229	204	229	235	477	477	477	477	235	507	459	551	551	551	551
COOLING VELOCITY (ft/min)	423	287	287	448	426	342	46	463	138	423	464	367	580	580	580	580	360	162	103	286	286	286	286
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	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	29	30	31	32	33
ROOM NAME	BED-3	LAUN	BAS	FOY	BAS	WIC	BED-3	BAS	ENS-4/5
RM LOSS MBH.	1.72	1.75	3.62	3.33	3.62	0.85	1.72	3.62	0.48
CFM PER RUN HEAT	36	37	75	69	75	18	36	75	10
RM GAIN MBH.	1.84	1.98	1.24	0.69	1.24	0.20	1.84	1.24	0.13
CFM PER RUN COOLING	58	63	39	22	39	6	58	39	4
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	45	57	33	40	66	60	58	22	39
EQUIVALENT LENGTH	140	150	180	150	140	150	160	120	140
TOTAL EFFECTIVE LENGTH	185	207	213	190	206	210	218	142	179
ADJUSTED PRESSURE	0.09	0.08	0.08	0.09	0.08	0.08	0.08	0.12	0.1
ROUND DUCT SIZE	5	5	5	5	5	4	5	5	4
HEATING VELOCITY (ft/min)	264	272	551	507	551	207	264	551	115
COOLING VELOCITY (ft/min)	426	463	286	162	286	69	426	286	46
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	E	D	D	D	B	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	263	0.08	8.5	8	x 8 592	TRUNK G	0	0.00	0	0 x 8 0
TRUNK B	378	0.07	10.1	12	x 8 567	TRUNK H	0	0.00	0	0 x 8 0
TRUNK C	940	0.07	14.2	24	x 8 705	TRUNK I	0	0.00	0	0 x 8 0
TRUNK D	362	0.07	9.9	12	x 8 543	TRUNK J	0	0.00	0	0 x 8 0
TRUNK E	583	0.07	11.8	16	x 8 656	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 #	1	2	3	4	5	6	7	8	BR
AIR VOLUME	130	130	130	130	360	300	50	50	0 245
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.	62	69	49	53	30	52	60	57	1 14
EQUIVALENT LENGTH	155	165	145	185	185	140	205	205	0 0 145
TOTAL EFFECTIVE LH	217	234	194	238	215	192	265	262	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 0.09
ROUND DUCT SIZE	6.8	7	6.5	7	9.9	8.9	4.9	4.9	0 0 0 8
INLET GRILL SIZE	8	8	8	8	8	8	8	8	0 0 0 8
INLET GRILL SIZE	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 24

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

TYPE: 4202- ROSEDALE
SITE NAME: PINE VALLEY & TESTON

LO # 80275
OPT. 5 BED - ALT 1ST - WOB

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>4</u> @ 10.6 cfm	<u>42.4</u> cfm
Kitchen & Bathrooms	<u>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Other Rooms	<u>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Table 9.32.3.A. TOTAL		<u>212.0</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>95.4</u> cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>212</u>	cfm
Less Principal Ventil. Capacity	<u>155</u>	cfm
Required Supplemental Capacity	<u>57.0</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
ENS	QTXEN050C	50	☒
ENS-2	QTXEN050C	50	☒
ENS-4/5	QTXEN050C	50	☒
PWD	QTXEN050C	50	☒

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	☒ HVI Approved	
@ 32 deg F (0 deg C)		

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

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

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

DESIGNER CERTIFICATION	
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.	
Name:	HVAC Designs Ltd.
Signature:	
HRAI #	001820
Date:	October-18

CSA F280-12 Residential Heat Loss and Heat Gain Calculations									
Formula Sheet (For Air Leakage / Ventilation Calculation)									
LO#: 80275		Model: 4202- ROSEDALE		Builder: GOLD PARK HOMES		Date: 10/5/2018			
Volume Calculation				Air Change & Delta T Data					
House Volume									
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)						
Bsmt	1733	10	17330						
First	1733	11	19063						
Second	2076	9	18684						
Third	0	9	0						
Fourth	0	9	0						
Total:			55,077.0 ft³						
Total:			1559.6 m³						
5.2.3.1 Heat Loss due to Air Leakage				6.2.6 Sensible Gain due to Air Leakage					
$HL_{airb} = LR_{airb} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$				$HG_{satb} = LR_{aire} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$					
0.407	x	433.22	x	42 °C	x	1.2	=	8931 W	
								=	30472 Btu/h
5.2.3.2 Heat Loss due to Mechanical Ventilation				6.2.7 Sensible heat Gain due to Ventilation					
$HL_{pairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$				$HL_{pairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$					
155 CFM	x	76 °F	x	1.08	x	0.25	=	3181 Btu/h	
								=	536 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)	HLairbv 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	30,472	9,602	1.587					
2	0.3		15,641	0.584					
3	0.2		16,904	0.361					
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: 4202- ROSEDALE	OPT. 5 BED - ALT 1ST - WOB	BUILDER: GOLD PARK HOMES
SFQT: 3785	LO# 80275	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):	55077.0	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: 68.0 ft	WIDTH: 33.0 ft	EXPOSED PERIMETER:	159.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	43.0 ft

2012 OBC - COMPLIANCE PACKAGE**Component****Compliance Package
A1****Nominal Min. Eff.**

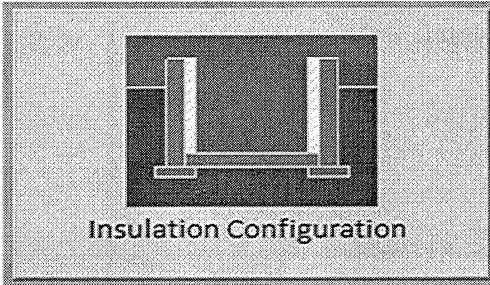
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	21.12
Below Grade Slab Entire surface > 600 mm below 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

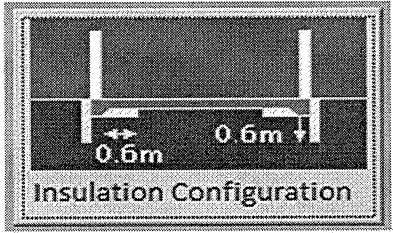
Weather Station Description		
Province:	Ontario	
Region:	Vaughan (Woodbridge)	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	 Insulation Configuration
Floor Width (m):	10.1	
Exposed Perimeter (m):	48.5	
Wall Height (m):	3.0	
Depth Below Grade (m):	1.79	
Window Area (m ²):	0.0	
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):		750

TYPE: 4202- ROSEDALE
LO# 80275

OPT. 5 BED - ALT 1ST - WOB

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		
Length (m):	1.5	 Insulation Configuration
Width (m):	10.1	
Exposed Perimeter (m):	13.1	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		162

TYPE: 4202- ROSEDALE
LO# 80275

OPT. 5 BED - ALT 1ST - WOB

Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

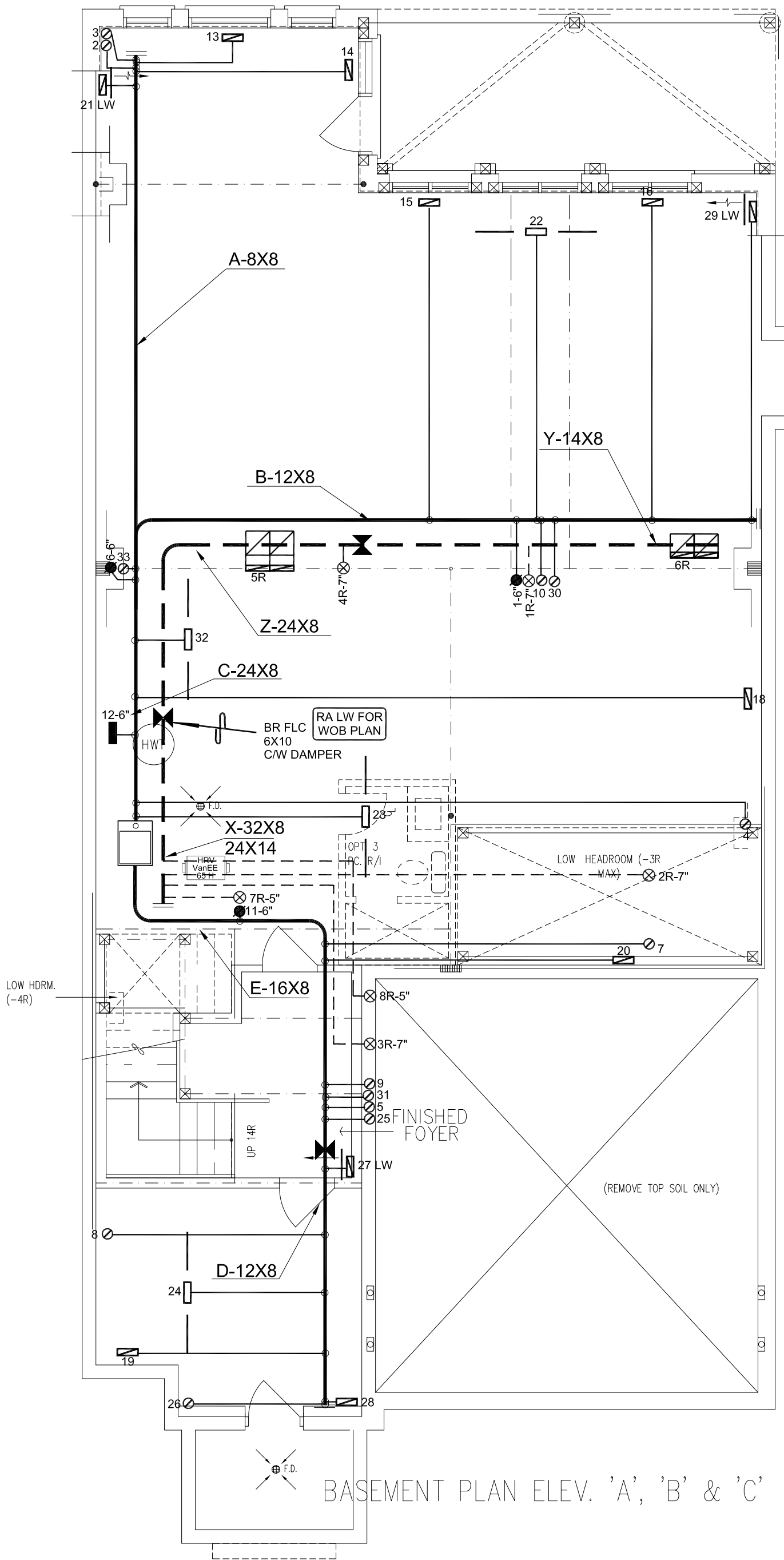
Weather Station Description				
Province:	Ontario			
Region:	Vaughan (Woodbridge)			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	9.14			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	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	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):	0.407			
Cooling Air Leakage Rate (ACH/H):	0.137			

TYPE: 4202- ROSEDALE
LO# 80275

OPT. 5 BED - ALT 1ST - WOB

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

HVAC LEGEND										3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	REVISED AS PER ARCHITECTURALS	FEB/2020		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14'x8' RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	ADDED RETURN #8 TO HALL	NOV/2018		
	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				

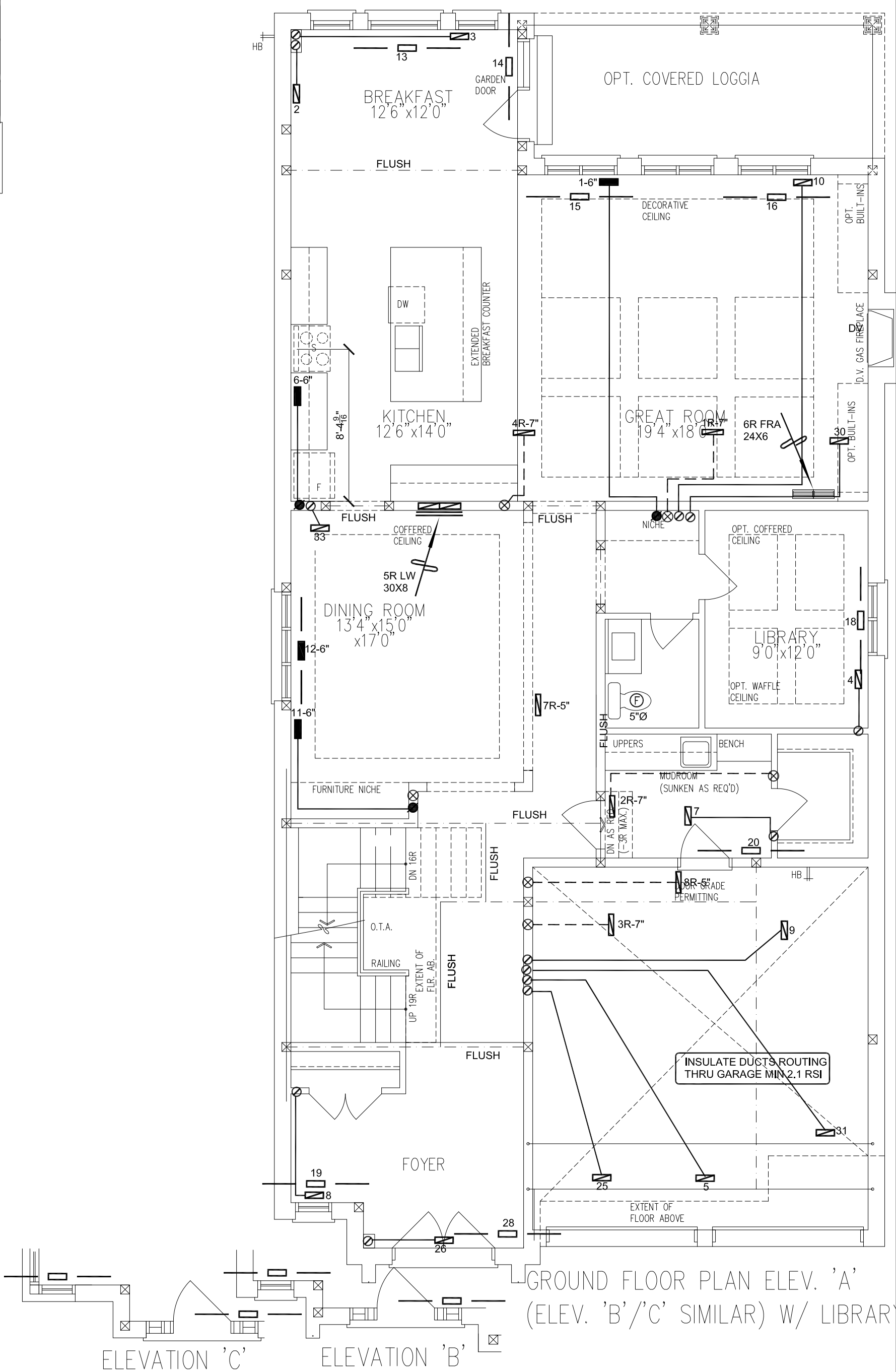


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Client		HVAC DESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services		HEAT LOSS 76424 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 PINE VALLEY & TESTON VAUGHAN, ONTARIO OPT. 5 BED - WOB ROSEDALE - ALT 1ST 4202 3785 sqft		MODEL EL296UH090XE48C		2ND FLOOR 16 5 5						
		INPUT 88 MBTU/H		1ST FLOOR 9 2 2						
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.		OUTPUT 85 MBTU/H		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			Date OCT/2018			
		COOLING 4.0 TONS					Scale 3/16" = 1'-0"			
		FAN SPEED 1525 cfm @ 0.6" w.c.					BCIN# 19669			
							LO# 80275			

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HVAC DESIGNS LTD.

HVAC LEGEND										3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	REVISED AS PER ARCHITECTURALS	FEB/2020		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		RETURN AIR STACK ABOVE	1.	ADDED RETURN #8 TO HALL	NOV/2018				
	SUPPLY AIR GRILLE 6' BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		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		 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	Sheet Title	
GOLD PARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	OCT/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO OPT. 5 BED - WOB ROSEDALE - ALT 1ST 4202 3785 sqft			Scale	3/16" = 1'-0"
			BCIN# 19669	
		LO#	80275	

CSA-F280-12

PACKAGE A1

WOB

1

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

Michael O'Rourke, BCIN# 19669

HVAC DESIGNS LTD.

HVAC LEGEND										3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	REVISED AS PER ARCHITECTURALS	FEB/2020		
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	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA-FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS				