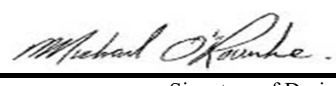


Schedule 1: Designer Information

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: 4202- ROSEDALE OPT. 5 BED - WOB Project: PINE VALLEY & TESTON	
D. Declaration of Designer			
I, <u>MICHAEL O'ROURKE</u> (print name)		declare that (choose one as appropriate):	
☐ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: _____ Firm BCIN: _____			
☒ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code. Individual BCIN: <u>19669</u> Basis for exemption from registration and qualification: <u>O.B.C SENTENCE 3.2.4.1 (4)</u>			
☐ The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification: _____			
I certify that:			
1. The information contained in this schedule is true to the best of my knowledge. 2. I have submitted this application with the knowledge and consent of the firm.			
February 25, 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 BUILDER: GOLD PARK HOMES										OPT. 5 BED - WOB TYPE: 4202-ROSEDALE										GFA: 3598										DATE: Feb-20 LO# 79974										WINTER NATURAL AIR CHANGE RATE 0.407 SUMMER NATURAL AIR CHANGE RATE 0.137										HEAT LOSS ΔT °F. 76 HEAT GAIN ΔT °F. 13										CSA-F280-12 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				LOSS GAIN																													
NORTH				21.3	16.0	0	0	0	0	0	0	0	18	383	288	0	0	0	0	0	0	0	0	0	0	0	0	0	9	192	144	0	0	0	0	0	0																																
EAST				21.3	41.6	0	0	0	0	0	0	0	0	0	53	1128	2202	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																
SOUTH				21.3	24.9	0	0	0	0	0	0	0	0	0	0	0	0	0	38	809	946	0	0	0	18	383	448	0	0	0	0	0	0	0	0	0	0	0																															
WEST				21.3	41.6	54	1149	2244	18	383	748	0	0	0	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	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	0	0	0	0	0	0	0	0																																
DOORS				25.2	4.3	0	0	0	0	0	0	0	0	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	0.8	286	1276	215	315	1406	237	90	402	68	271	1209	204	106	473	80	0	0	0	99	442	74	72	321	54	54	241	41																																					
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	0	0	0	0	0	0	0	0																																
EXPOSED CLG				1.3	0.6	285	366	167	210	270	123	228	293	134	280	359	165	240	308	141	104	133	61	182	234	107	45	58	26	84	108	49																																					
NO ATTIC EXPOSED CLG				2.7	1.3	0	0	0	0	0	0	0	0	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	0.4	0	0	0	0	0	0	144	367	62	280	714	120	0	0	0	104	265	45	0	0	0	45	115	19	0	0	0	0	0	0	0	0																																
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				0																					
SUBTOTAL HT LOSS				2791				2058				1445				3411				1590				399				1058				685				349																																	
SUB TOTAL HT GAIN				2626				1108				551				2691				1167				106				630				244				90																																	
LEVEL FACTOR / MULTIPLIER				0.20	0.33			0.20	0.33			0.20	0.33		0.20	0.33		0.20	0.33		0.20	0.33		0.20	0.33		0.20	0.33		0.20	0.33																																						
AIR CHANGE HEAT LOSS				932				687				482				1139				531				133				354				229				116																																	
AIR CHANGE HEAT GAIN				221				93				46				226				98				9				53				20				8																																	
DUCT LOSS				0				0				193				455				0				53				0				91				0																																	
DUCT GAIN				0				0				156				388				0				11				0				26				0																																	
HEAT GAIN PEOPLE				240	2			480	0			1	240	1	240	1	240	0	240	0	1	240	0	1	240	0	0	0	0	0	0	0	0	0	0	0	0	0																															
HEAT GAIN APPLIANCES/LIGHTS				728				0				728				728				728				0				728				0				0																																	
TOTAL HT LOSS BTU/H				3723				2746				2120				5005				2121				585				1412				1006				465																																	
TOTAL HT GAIN x 1.3 BTU/H				5271				1561				2238				5554				2902				164				2145				378				127																																	

[illegible]

TOTAL HEAT GAIN BTU/H: 47456

TONS: 3.95

LOSS DUE TO VENTILATION LOAD BTU/H: 3181

STRUCTURAL HEAT LOSS: 71657

TOTAL COMBINED HEAT LOSS BTU/H: 74838

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

OPT. 5 BED - WOB
TYPE: 4202- ROSEDALE

DATE: Feb-20

GFA: 3598

LO# 79974

HEATING CFM 1525 COOLING CFM 1525
TOTAL HEAT LOSS 71,657 TOTAL HEAT GAIN 46,920
AIR FLOW RATE CFM 21.28 AIR FLOW RATE CFM 32.5

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	16	9	6
R/A	0	0	6	2	1

plenum pressure s/a 0.18
max s/a dif press. loss 0.02
min adjusted pressure s/a 0.16

r/a pressure 0.17
r/a grille press. Loss 0.02
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	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	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.86	1.37	1.37	2.12	1.67	1.41	0.59	1.70	1.01	1.86	2.12	2.18	3.04	3.04	3.04	3.04	1.25	3.17	1.89	4.07	4.07	4.07	4.07
CFM PER RUN HEAT	40	29	29	45	36	30	12	36	21	40	45	46	65	65	65	65	27	67	40	87	87	87	87
RM GAIN MBH	2.64	0.78	0.78	2.24	1.85	2.14	0.16	1.99	0.38	2.64	2.90	2.30	2.61	2.61	2.61	2.61	0.19	0.48	0.29	1.37	1.37	1.37	1.37
CFM PER RUN COOLING	86	25	25	73	60	70	5	65	12	86	94	75	85	85	85	85	6	16	9	45	45	45	45
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	0.16	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	48	55	48	73	23	10	43	47	46	57	22	42	24	45	65	13	36
EQUIVALENT LENGTH	160	150	130	190	150	140	190	190	160	140	190	150	130	130	130	130	160	150	110	160	140	120	130
TOTAL EFFECTIVE LENGTH	229	203	191	250	199	165	238	245	208	213	213	160	173	177	176	187	182	192	134	205	205	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	0.09	0.09	0.09	0.09	0.09	0.09	0.13	0.08	0.08	0.12	0.1
ROUND DUCT SIZE	6	4	4	6	5	6	4	5	4	6	6	6	5	5	5	5	4	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	204	333	333	229	264	153	138	264	241	204	229	235	477	477	477	477	310	492	459	444	444	444	444
COOLING VELOCITY (ft/min)	438	287	287	372	441	357	57	477	138	438	479	382	624	624	624	624	69	117	103	229	229	229	229
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	B	A	A	E	E	C	E	D	E	B	E	C	A	A	B	B	E	D	C	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	1.67	1.70	4.07	3.17	0.83	1.67	4.07	0.47
CFM PER RUN HEAT	36	36	87	67	18	36	87	10
RM GAIN MBH	1.85	1.99	1.37	0.48	0.20	1.85	1.37	0.13
CFM PER RUN COOLING	60	65	45	16	6	60	45	4
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	6	4
HEATING VELOCITY (ft/min)	264	264	444	492	207	264	444	115
COOLING VELOCITY (ft/min)	441	477	229	117	69	441	229	46
OUTLET GRILL SIZE	3X10	3X10	4X10	3X10	3X10	3X10	4X10	3X10
TRUNK	E	D	D	D	B	E	C	C

SUPPLY AIR TRUNK SIZE

	TRUNK	STATIC	ROUND	RECT	VELOCITY
	CFM	PRESS.	DUCT	DUCT	(ft/min)
TRUNK A	275	0.08	8.6	8	619
TRUNK B	315	0.07	9.4	10	567
TRUNK C	890	0.07	13.9	22	728
TRUNK D	380	0.07	10.1	12	570
TRUNK E	638	0.07	12.3	18	638
TRUNK F	0	0.00	0	0	0

RETURN AIR TRUNK SIZE

	TRUNK	STATIC	ROUND	RECT	VELOCITY
	CFM	PRESS.	DUCT	DUCT	(ft/min)
TRUNK O	0	0.06	0	0	8
TRUNK P	0	0.06	0	0	8
TRUNK Q	0	0.06	0	0	8
TRUNK R	0	0.06	0	0	8
TRUNK S	0	0.06	0	0	8
TRUNK T	0	0.06	0	0	8
TRUNK U	0	0.06	0	0	8
TRUNK V	0	0.06	0	0	8
TRUNK W	0	0.06	0	0	8

RETURN AIR #	1	2	3	4	5	6	7	8	BR
AIR VOLUME	130	130	130	130	360	300	50	50	245
PLENUM PRESSURE	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	14
EQUIVALENT LENGTH	155	165	145	185	185	140	205	205	145
TOTAL EFFECTIVE LH	217	234	194	238	215	192	265	262	159
ADJUSTED PRESSURE	0.07	0.06	0.08	0.06	0.07	0.08	0.06	0.06	0.09
ROUND DUCT SIZE	6.8	7	6.5	7	9.9	8.9	4.9	4.9	8
INLET GRILL SIZE	8	8	8	8	8	8	8	8	8
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	30	30	14	14	24

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 # 79974
OPT. 5 BED - 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>4</u> @ 10.6 cfm <u>42.4</u> cfm	
Table 9.32.3.A.	TOTAL <u>190.8</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 95.4 cfm		

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>190.8</u> cfm	
Less Principal Ventil. Capacity	<u>155</u> cfm	
Required Supplemental Capacity	<u>35.8</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-4/5	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#: 79974	Model: 4202- ROSEDALE	Builder: GOLD PARK HOMES	Date: 2/25/2020																																																									
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>1540</td> <td>10</td> <td>15400</td> </tr> <tr> <td>First</td> <td>1540</td> <td>11</td> <td>16940</td> </tr> <tr> <td>Second</td> <td>2076</td> <td>9</td> <td>18684</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>51,024.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>1444.8 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1540	10	15400	First	1540	11	16940	Second	2076	9	18684	Third	0	9	0	Fourth	0	9	0	Total:			51,024.0 ft³	Total:			1444.8 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;">0.407</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.137</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;">24</td> <td style="text-align: center;">31</td> <td style="text-align: center;">7</td> <td style="text-align: center;">13</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.407	SUMMER NATURAL AIR CHANGE RATE	0.137	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-20	42	76	Summer DTDc	24	31	7	13
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																									
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Second	2076	9	18684																																																									
Third	0	9	0																																																									
Fourth	0	9	0																																																									
Total:			51,024.0 ft³																																																									
Total:			1444.8 m³																																																									
WINTER NATURAL AIR CHANGE RATE	0.407																																																											
SUMMER NATURAL AIR CHANGE RATE	0.137																																																											
Design Temperature Difference																																																												
	Tin °C	Tout °C	ΔT °C	ΔT °F																																																								
Winter DTDh	22	-20	42	76																																																								
Summer DTDc	24	31	7	13																																																								
5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.407 x 401.34 x 42 °C x 1.2 = 8274 W = 28230 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.137 x 401.34 x 7 °C x 1.2 = 468 W = 1595 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 13 °F x 1.08 x 0.25 = 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)	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	28,230	9,753	1.447																																																								
2	0.3		15,351	0.552																																																								
3	0.2		16,904	0.334																																																								
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 - WOB	BUILDER: GOLD PARK HOMES
SFQT: 3598	LO# 79974	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 (ft ³):	51024.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	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

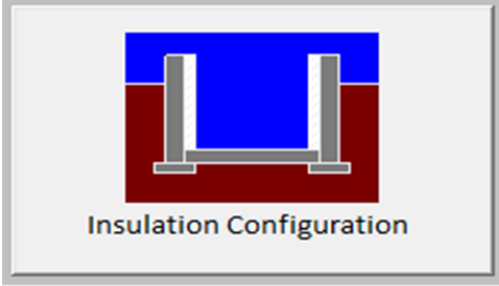
Component	Compliance Package A1	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 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

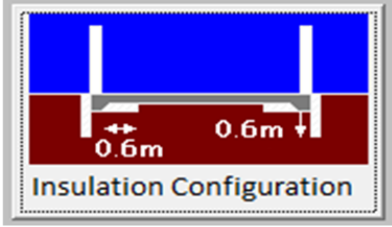
Weather Station Description		
Province:	Ontario	
Region:	Vaughan (Woodbridge)	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	 Insulation Configuration
Floor Width (m):	10.1	
Exposed 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# 79974

OPT. 5 BED - 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	
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# 79974

OPT. 5 BED - 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):	1444.8			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1926.0 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# 79974

OPT. 5 BED - WOB

CSA-F280-12

WOB

PACKAGE A1

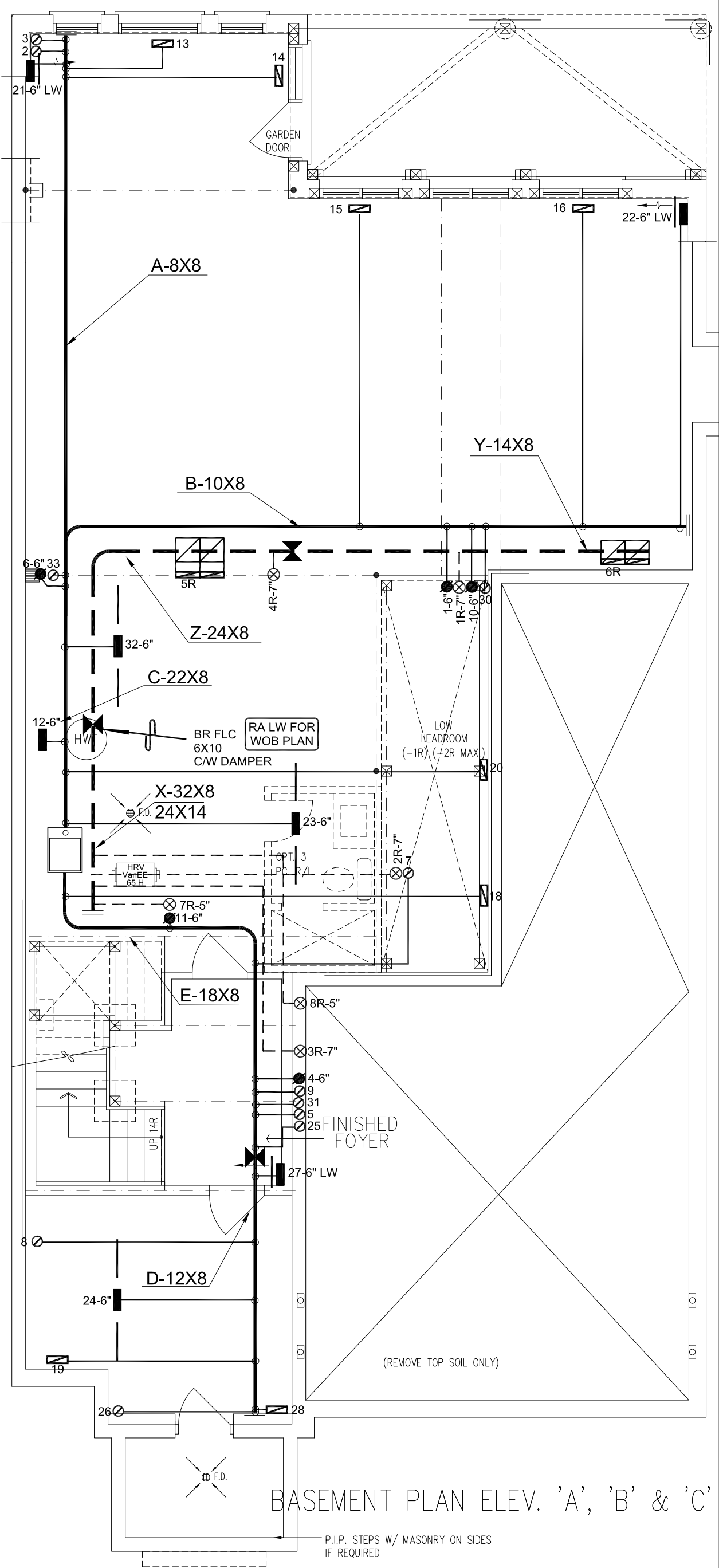
I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

Michael O'Rourke

Michael O'Rourke, BCIN# 19669

HVAC DESIGNS LTD.

HVAC LEGEND			1.	2.	3.
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	DESCRIPTION	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		
	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	FEB/2020
			2.	REVISED AS PER ARCHITECTURALS	NOV/2018



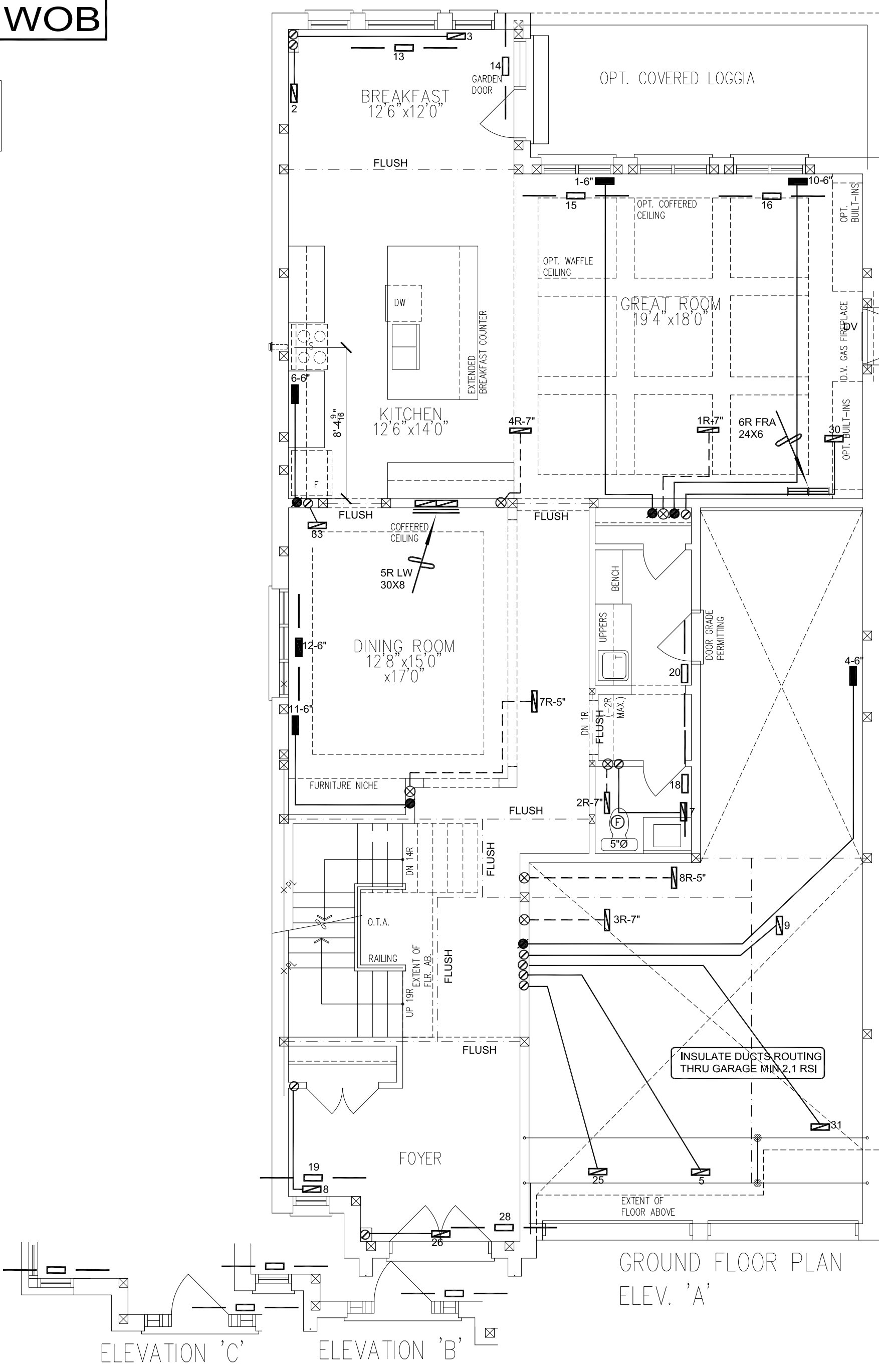
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Client	HVACDESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.	HEAT LOSS 74838 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS			Sheet Title	
GOLD PARK HOMES		MAKE LENNOX		3RD FLOOR			BASEMENT HEATING LAYOUT	
Project Name		MODEL EL296UH090XE48C		2ND FLOOR	16	6		
PINE VALLEY & TESTON VAUGHAN, ONTARIO	INPUT 88 MBTU/H		1ST FLOOR	9	2	2		
OPT. 5 BED	OUTPUT 85 MBTU/H		BASEMENT	6	1	0	Date	SEPT/2018
ROSEDALE	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				Scale	3/16" = 1'-0"
4202 - WOB	FAN SPEED 1525 cfm @ 0.6" w.c.						BCIN# 19669	
3785 sqft			LO#				79974	

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

HVAC LEGEND			1.	2.	3.
SYMBOL	DESCRIPTION	SYMBOL			
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		
	FRA-FLOOR RETURN AIR GRILLE		14"x8" RETURN AIR GRILLE		
	30"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE		
	REDUCER		RETURN AIR STACK 2nd FLOOR		
REVISIONS					
			No.	Description	Date
			1.	REVISED AS PER ARCHITECTURALS	FEB/2020
			2.	ADDED RETURN #8 TO HALL	NOV/2018



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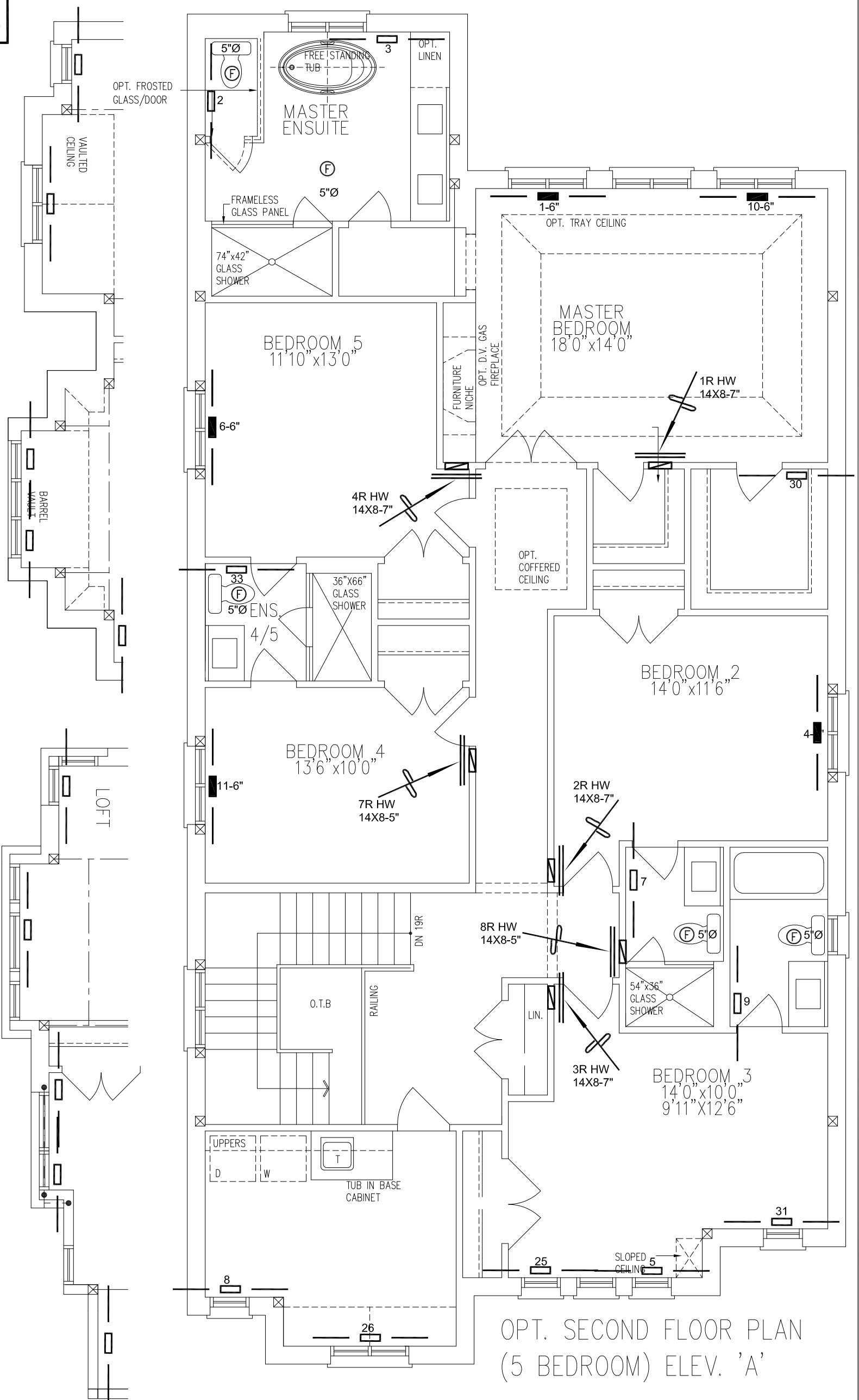
Client		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets 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	
GOLD PARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	SEPT/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	3/16" = 1'-0"
OPT. 5 BED			BCIN# 19669	
ROSEDALE			LO# 79974	
4202 - WOB	3785 sqft			

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

PARTIAL SECOND FLOOR PLAN – ELEVATION 'B'

PARTIAL SECOND FLOOR PLAN – ELEVATION 'C'



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GOLD PARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	SEPT/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	3/16" = 1'-0"
OPT. 5 BED ROSEDALE 4202 - WOB			BCIN# 19669	
3785 sqft			LO#	79974