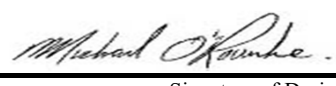


Schedule 1: Designer Information

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: 4201- THE MAPLEWOOD Project: PINE VALLEY & TESTON	
D. Declaration of Designer			
I, <u>MICHAEL O'ROURKE</u> declare that (choose one as appropriate): (print name)			
☐ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: _____ Firm BCIN: _____			
☒ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code. Individual BCIN: <u>19669</u> Basis for exemption from registration and qualification: <u>O.B.C SENTENCE 3.2.4.1 (4)</u>			
☐ The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification: _____			
I certify that:			
1. The information contained in this schedule is true to the best of my knowledge. 2. I have submitted this application with the knowledge and consent of the firm.			
February 24, 2020		 Signature of Designer	
Date			

NOTE:

- For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) d) of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
- Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of authorization, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

Application for a Permit Construct or Demolish – Effective January 1, 2015

SITE NAME: PINE VALLEY & TESTON										DATE: Feb-20										WINTER NATURAL AIR CHANGE RATE 0.340										HEAT LOSS ΔT °F. 76										CSA-F280-12																													
BUILDER: GOLD PARK HOMES										TYPE: 4201- THE MAPLEWOOD										GFA: 2723										LO# 77464										SUMMER NATURAL AIR CHANGE RATE 0.114										HEAT GAIN ΔT °F. 13										SB-12 PACKAGE A1									
ROOM USE		MBR		ENS		BED-2		BED-3		BED-4		L-BATH																																																									
EXP. WALL		36		20		24		29		35		15																																																									
CLG. HT.		12		11		11		9		9		9																																																									
FACTORS																																																																					
GRS.WALL AREA		LOSS GAIN		432		220		264		261		315		135																																																							
GLAZING				LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN																																																							
NORTH		21.3	16.0	0	0	0	27	575	431	20	426	319	19	404	304	0	0	0	0	0	0	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	0	0	0	41	872	1704	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																		
WEST		21.3	41.6	37	787	1537	0	0	0	0	0	0	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	395	1763	297	193	861	145	244	1089	183	242	1080	182	274	1223	206	135	602	101																																																
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	0	0	0	0	0	0	0	0	0	194	249	114	294	377	173	65	83	38																																																
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	0	0	0	0	0	0	294	750	126	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				2550		1436		1515		1733		3222		686																																																							
SUB TOTAL HT GAIN				1834		576		503		599		2209		140																																																							
LEVEL FACTOR / MULTIPLIER		0.30		0.38		0.30		0.38		0.30		0.88		0.20		0.88		0.20		0.88																																																	
AIR CHANGE HEAT LOSS				962		542		572		1532		2848		606																																																							
AIR CHANGE HEAT GAIN				244		77		67		80		294		19																																																							
DUCT LOSS				0		0		0		0		607		0																																																							
DUCT GAIN				0		0		0		0		417		0																																																							
HEAT GAIN PEOPLE		240		2		480	0	0	1		240	1		240	1		240	0																																																			
HEAT GAIN APPLIANCES/LIGHTS						1430		0		1430		1430		1430		1430		0		0																																																	
TOTAL HT LOSS BTU/H				3513		1978		2086		3265		6677		1292																																																							
TOTAL HT GAIN x 1.3 BTU/H				5185		849		2911		3054		5967		206																																																							

ROOM USE	K/G/D			PWD			FOY			MUD			LOD			BAS		
EXP. WALL	62			10			43			7			43			202		
CLG. HT.	20			11			11			11			10			10		
FACTORS																		
GRS.WALL AREA	LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN	
GLAZING																		
NORTH	21.3	16.0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	85	64
EAST	21.3	41.6	0	0	0	0	0	0	0	17	362	706	0	0	0	0	0	0
SOUTH	21.3	24.9	102	2171	2540	7	149	174	0	0	0	0	0	0	0	4	85	100
WEST	21.3	41.6	28	596	1163	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
DOORS	25.2	4.3	20	505	85	0	0	0	40	1010	170	20	505	85	0	0	0	0
NET EXPOSED WALL	4.5	0.8	1090	4864	819	103	460	77	416	1856	313	57	254	43	0	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
EXPOSED CLG	1.3	0.6	513	658	301	0	0	0	210	270	123	0	0	0	230	828	139	348
NO ATTIC EXPOSED CLG	2.7	1.3	238	654	300	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	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS																		
SLAB ON GRADE HEAT LOSS																		
SUBTOTAL HT LOSS			9448						609			3498			0			
SUB TOTAL HT GAIN				5208						252		1313			1423			
LEVEL FACTOR / MULTIPLIER		0.30	0.38				0.30	0.38		0.30	0.38		0.30	0.38		0.50	1.17	
AIR CHANGE HEAT LOSS			3566						230			1320						12463
AIR CHANGE HEAT GAIN				694					34			175			17			246
DUCT LOSS			0						0			0			0			0
DUCT GAIN				0					0			0			0			0
HEAT GAIN PEOPLE	240		0		0		0		0		0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS					1430				0			0			0			1430
TOTAL HT LOSS BTU/H				13014					838			4818			1046			
TOTAL HT GAIN x 1.3 BTU/H					9532					371			1934			1694		2886

TOTAL HEAT GAIN BTU/H:

35312

TONS: 2.94

LOSS DUE TO VENTILATION LOAD BTU/H: 3181

STRUCTURAL HEAT LOSS: 61602

TOTAL COMBINED HEAT LOSS BTU/H: 64782

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

TYPE: 4201- THE MAPLEWOOD

DATE: Feb-20

GFA: 2723

LO# 77464

HEATING CFM 1105 COOLING CFM 1105
TOTAL HEAT LOSS 61,602 TOTAL HEAT GAIN 34,776
AIR FLOW RATE CFM 17.94 AIR FLOW RATE CFM 31.77

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

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

DESIGN CFM = 1105
CFM @ .6" E.S.P.

TEMPERATURE RISE 71 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	4	12	5
R/A	0	0	3	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	10	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	ENS	BED-2	BED-3	BED-4	L-BATH	BED-4	MBR	K/G/D	K/G/D	K/G/D	K/G/D	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.76	0.99	0.99	2.09	3.26	3.34	1.29	3.34	1.76	3.25	3.25	3.25	3.25	0.84	4.82	1.05	4.62	4.62	4.62	4.62
CFM PER RUN HEAT	32	18	18	37	59	60	23	60	32	58	58	58	58	15	86	19	83	83	83	83
RM GAIN MBH	2.59	0.42	0.42	2.91	3.05	2.98	0.21	2.98	2.59	2.38	2.38	2.38	2.38	0.37	1.93	0.19	0.92	0.92	0.92	0.92
CFM PER RUN COOLING	82	13	13	92	97	95	7	95	82	76	76	76	76	12	61	6	29	29	29	29
ADJUSTED PRESSURE	0.16	0.17	0.17	0.16	0.16	0.16	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	56	19	18	10	50	46	21	49	51	62	55	60	26	28	33	12	49	50	12	47
EQUIVALENT LENGTH	120	120	130	180	160	140	140	150	110	170	150	120	140	130	90	140	120	110	130	130
TOTAL EFFECTIVE LENGTH	176	139	148	190	210	186	161	199	161	232	205	180	166	158	123	152	169	160	142	177
ADJUSTED PRESSURE	0.09	0.12	0.12	0.09	0.08	0.09	0.11	0.08	0.1	0.07	0.08	0.1	0.1	0.11	0.13	0.11	0.1	0.1	0.11	0.09
ROUND DUCT SIZE	5	4	4	6	6	6	4	6	5	6	6	6	6	4	6	4	5	5	5	5
HEATING VELOCITY (ft/min)	235	207	207	189	301	306	264	306	235	296	296	296	296	172	438	218	609	609	609	609
COOLING VELOCITY (ft/min)	602	149	149	469	495	484	80	484	602	388	388	388	388	138	311	69	213	213	213	213
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	4X10	4X10	3X10	4X10	3X10	4X10	4X10	4X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10
TRUNK	A	B	E	E	C	C	D	C	A	A	A	B	D	C	C	D	A	B	D	C

RUN #	25
ROOM NAME	BAS
RM LOSS MBH	4.62
CFM PER RUN HEAT	83
RM GAIN MBH	0.92
CFM PER RUN COOLING	29
ADJUSTED PRESSURE	0.16
ACTUAL DUCT LGH	33
EQUIVALENT LENGTH	140
TOTAL EFFECTIVE LENGTH	173
ADJUSTED PRESSURE	0.09
ROUND DUCT SIZE	5
HEATING VELOCITY (ft/min)	609
COOLING VELOCITY (ft/min)	213
OUTLET GRILL SIZE	3X10
TRUNK	B

SUPPLY AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	263	0.07	8.8	10	x 8 473
TRUNK B	505	0.07	11.2	14	x 8 649
TRUNK C	363	0.08	9.6	10	x 8 653
TRUNK D	546	0.08	11.2	14	x 8 702
TRUNK E	1105	0.07	15.1	26	x 8 765
TRUNK F	0	0.00	0	0	x 8 0

RETURN AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK O	0	0.05	0	0	x 8 0
TRUNK P	0	0.05	0	0	x 8 0
TRUNK Q	0	0.05	0	0	x 8 0
TRUNK R	0	0.05	0	0	x 8 0
TRUNK S	0	0.05	0	0	x 8 0
TRUNK T	0	0.05	0	0	x 8 0
TRUNK U	0	0.05	0	0	x 8 0
TRUNK V	0	0.05	0	0	x 8 0
TRUNK W	0	0.05	0	0	x 8 0

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
AIR VOLUME	115	120	165	155	300	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH	46	45	43	17	57	40	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	225	210	145	185	150	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	271	255	188	202	207	205	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.05	0.06	0.08	0.07	0.07	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80
ROUND DUCT SIZE	7	6.8	7.1	7.2	9.2	4.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	30	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
TRUNK X	1105	0.05	16.4	32	x	8	622																		
TRUNK Y	465	0.05	11.8	16	x	8	523																		
TRUNK Z	390	0.05	11.1	14	x	8	501																		
DROP	1105	0.05	16.4	24	x	10	663																		

TYPE: 4201- THE MAPLEWOOD
SITE NAME: PINE VALLEY & TESTON

LO # 77464

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES		9.32.3.1(1)
a)	☒ Direct vent (sealed combustion) only	
b)	☐ Positive venting induced draft (except fireplaces)	
c)	☐ Natural draft, B-vent or induced draft gas fireplace	
d)	☐ Solid Fuel (including fireplaces)	
e)	☐ No Combustion Appliances	

HEATING SYSTEM	
☒ Forced Air	☐ Non Forced Air
☐ Electric Space Heat	

HOUSE TYPE		9.32.1(2)
☒ I	Type a) or b) appliance only, no solid fuel	
☐ II	Type I except with solid fuel (including fireplaces)	
☐ III	Any Type c) appliance	
☐ IV	Type I, or II with electric space heat	
☐	Other: Type I, II or IV no forced air	

SYSTEM DESIGN OPTIONS		O.N.H.W.P.
☐ 1	Exhaust only/Forced Air System	
☐ 2	HRV with Ducting/Forced Air System	
☒ 3	HRV Simplified/connected to forced air system	
☐ 4	HRV with Ducting/non forced air system	
☐	Part 6 Design	

TOTAL VENTILATION CAPACITY		9.32.3.3(1)
Basement + Master Bedroom	<u>2</u> @ 21.2 cfm	<u>42.4</u> cfm
Other Bedrooms	<u>3</u> @ 10.6 cfm	<u>31.8</u> cfm
Kitchen & Bathrooms	<u>5</u> @ 10.6 cfm	<u>53</u> cfm
Other Rooms	<u>2</u> @ 10.6 cfm	<u>21.2</u> cfm
Table 9.32.3.A. TOTAL		<u>148.4</u> cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED		9.32.3.4.(1)
1 Bedroom	31.8	cfm
2 Bedroom	47.7	cfm
3 Bedroom	63.6	cfm
4 Bedroom	79.5	cfm
5 Bedroom	95.4	cfm
TOTAL		<u>79.5</u> cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>148.4</u>	cfm
Less Principal Ventil. Capacity	<u>155</u>	cfm
Required Supplemental Capacity	<u>-6.6</u>	cfm

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

SUPPLEMENTAL FANS		NUTONE		
Location	Model	cfm	HVI	Sones
ENS	QTXEN050C	50	☒	0.3
L-BATH	QTXEN050C	50	☒	0.3
LAUN	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#: 77464	Model: 4201- THE MAPLEWOOD	Builder: GOLD PARK HOMES	Date: 2/24/2020																																																									
Volume Calculation			Air Change & Delta T Data																																																									
House Volume <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> </thead> <tbody> <tr> <td>Bsmt</td> <td>1886</td> <td>10</td> <td>18860</td> </tr> <tr> <td>First</td> <td>1886</td> <td>11</td> <td>20746</td> </tr> <tr> <td>Second</td> <td>1589</td> <td>9</td> <td>14301</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>53,907.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>1526.5 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1886	10	18860	First	1886	11	20746	Second	1589	9	14301	Third	0	9	0	Fourth	0	9	0	Total:			53,907.0 ft³	Total:			1526.5 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 20%; text-align: center;">0.340</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.114</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	0.340	SUMMER NATURAL AIR CHANGE RATE	0.114	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-20	42	76	Summer DTDc	24	31	7	13
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5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.340 x 424.02 x 42 °C x 1.2 = 7306 W = 24927 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.114 x 424.02 x 7 °C x 1.2 = 414 W = 1411 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	24,927	10,612	1.174																																																								
2	0.3		19,814	0.377																																																								
3	0.2		5,642	0.884																																																								
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:** 4201- THE MAPLEWOOD**BUILDER:** GOLD PARK HOMES**SFQT:** 2723**LO#** 77464**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):	53907.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.60	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	-

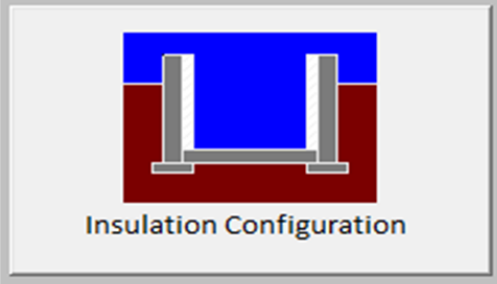
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



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):	3.3	
Door Area (m ²):	3.7	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1980

TYPE: 4201- THE MAPLEWOOD
LO# 77464

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):	1526.5			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2034.8 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	73.2	73.2		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.340			
Cooling Air Leakage Rate (ACH/H):	0.114			

TYPE: 4201- THE MAPLEWOOD
LO# 77464

CSA-F280-12

WOD

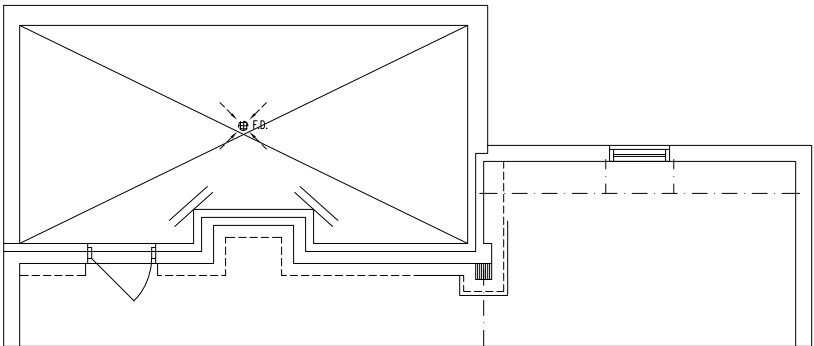
PACKAGE A1

LOD

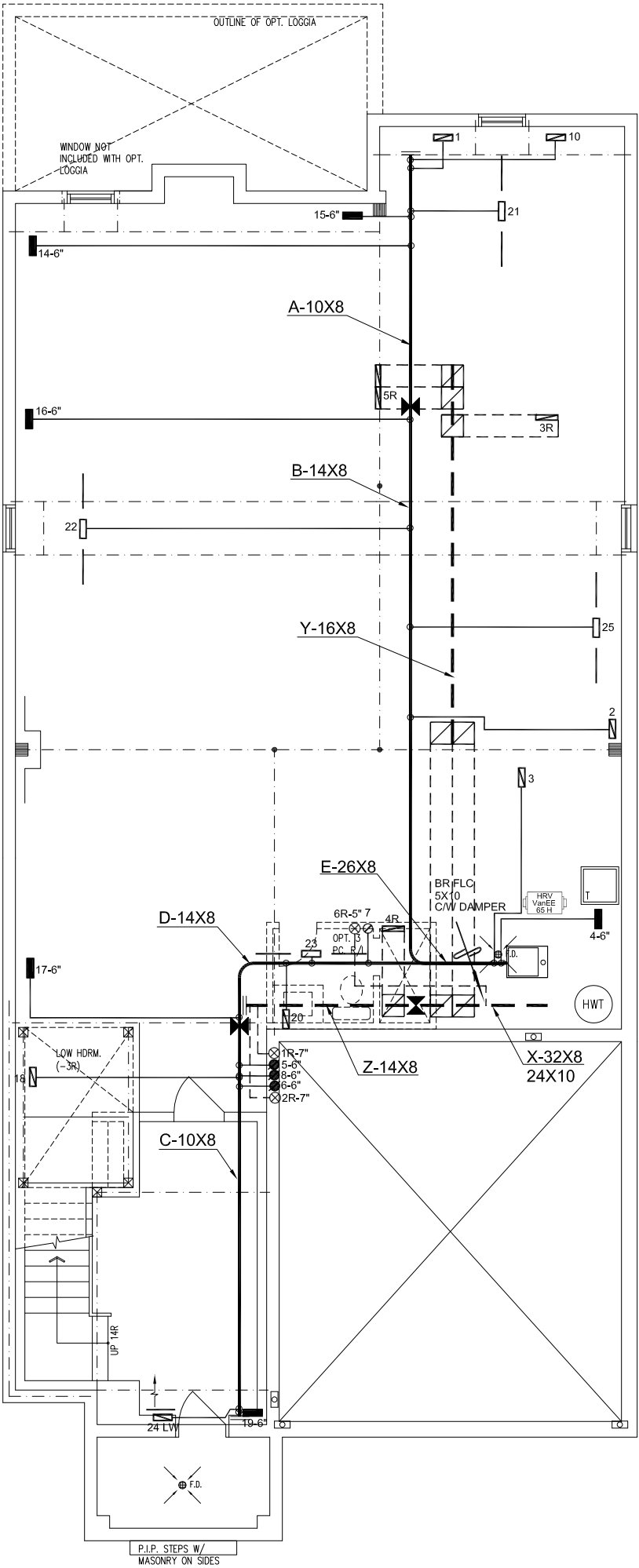
I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

Michael O'Rourke

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

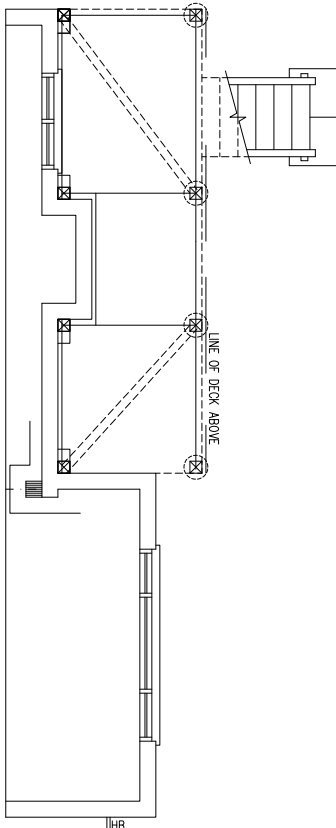


PART. BASEMENT PLAN EL. 'A'
OPT. LOGGIA CONDITION (ELEV. 'B' SIMILAR)

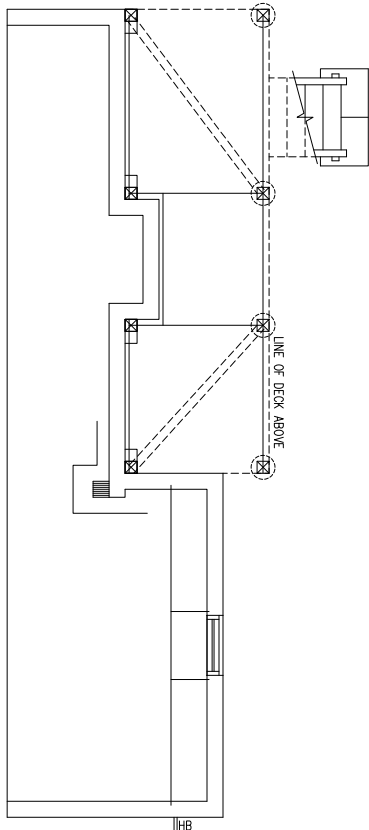


BASEMENT PLAN EL. 'A'

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



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



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

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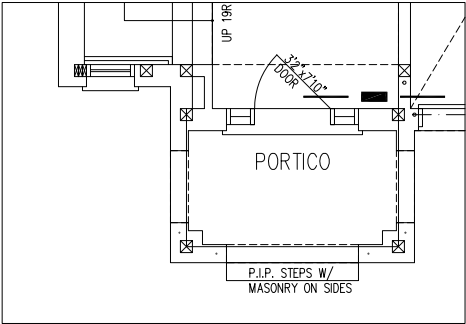
Client	HVACDESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply 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 64782 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	4	3			1
PINE VALLEY & TESTON VAUGHAN, ONTARIO		INPUT 88 MBTU/H		1ST FLOOR	12	3			6
		OUTPUT 85 MBTU/H		BASEMENT	5	1	0	Date	JAN/2018
THE MAPLEWOOD 4201	COOLING 3.0 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	1/8" = 1'-0"		
2723 sqft	FAN SPEED 1105 cfm @ 0.6" w.c.					BCIN# 19669			
						LO#	77464		

WOD

LOD

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

3.	REVISED AS PER ARCHITECTURALS	FEB/2020
2.	ADDED RETURN #6 TO HALL	NOV/2018
1.	DECK CONDITIONS ADDED	OCT/2018
No.	Description	Date
REVISIONS		



PART. GROUND FLOOR PLAN EL. 'B'

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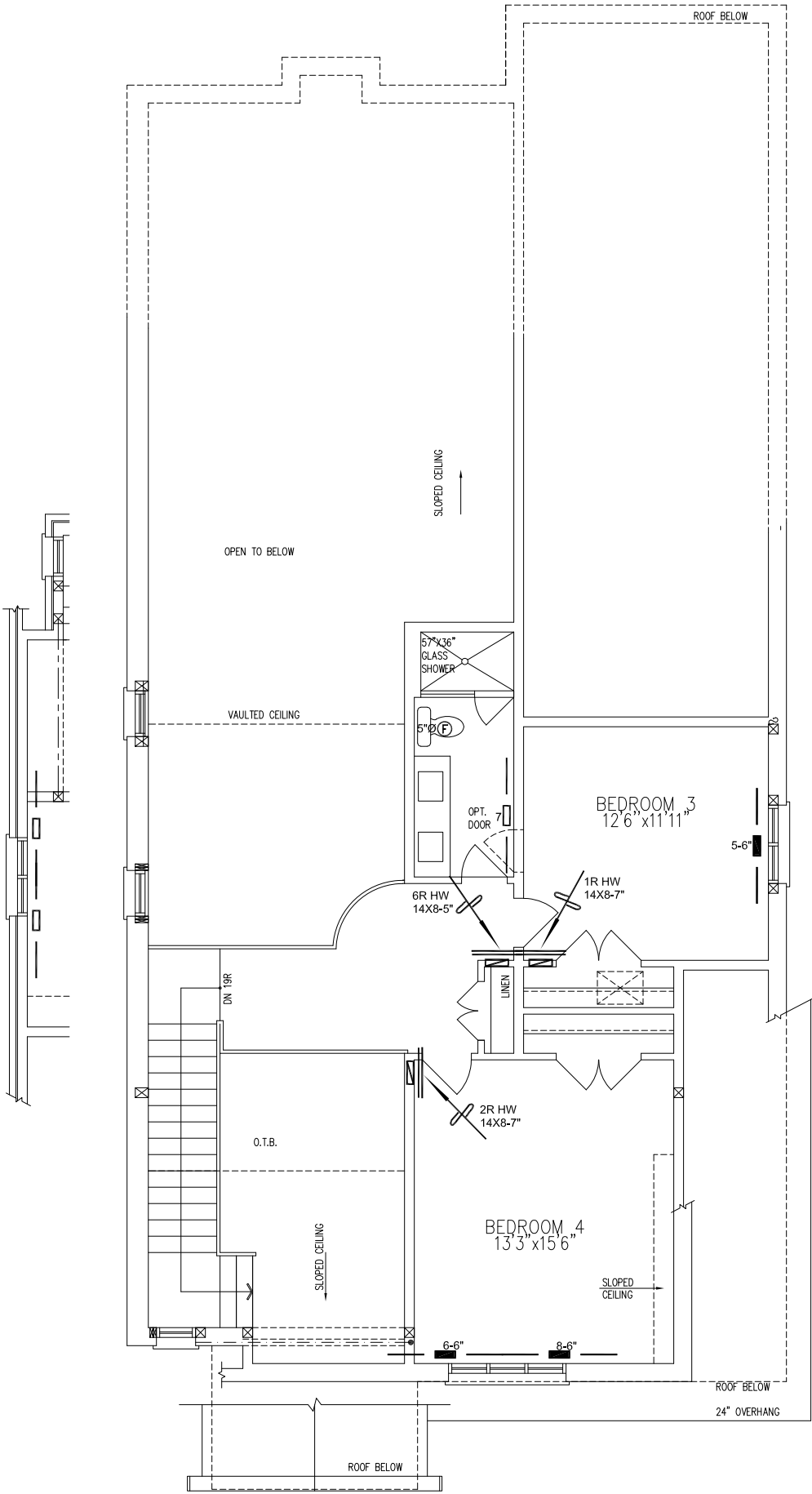
Client		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets 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 HEATING LAYOUT	
Project Name			Date	JAN/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	1/8" = 1'-0"
THE MAPLEWOOD 4201 2723 sqft			BCIN# 19669	
		LO#	77464	

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		
SYMBOL	DESCRIPTION	SYMBOL
	SUPPLY AIR GRILLE	
	SUPPLY AIR GRILLE 6" BOOT	
	SUPPLY AIR BOOT ABOVE	
	SUPPLY AIR STACK FROM 2nd FLOOR	
	SUPPLY AIR STACK 2nd FLOOR	
	FRA-FLOOR RETURN AIR GRILLE	
	30"x6" RETURN AIR GRILLE	
	RETURN AIR STACK ABOVE	
	REDUCER	
REVISIONS		3.
		2.
		1.
Description		No.
REVISED AS PER ARCHITECTURALS		Date
ADDED RETURN #6 TO HALL		NOV/2018
DECK CONDITIONS ADDED		OCT/2018

PART LOFT FLOOR PLAN EL. 'B'



LOFT FLOOR PLAN EL. 'A'

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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			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	JAN/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	1/8" = 1'-0"
THE MAPLEWOOD 4201 2723 sqft			BCIN# 19669	
			LO#	77464