

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 ALT 1ST 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.				
September 10, 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.

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

SITE NAME: PINE VALLEY & TESTON BUILDERS: GOLD PARK HOMES ALT 1ST TYPE: 4202-ROSEDALE DATE: Sep-18 LO# 77629 GFA: 3592 WINTER NATURAL AIR CHANGE RATE 0.340 HEAT LOSS AT "F" 76 CSA-F280-12
SUMMER NATURAL AIR CHANGE RATE 0.124 HEAT GAIN AT "F" 16 SB-12 PACKAGE A1

ROOM USE	MBR	ENS	HERS	BED-2	BED-3	BED-4	ENS-2	LOFT	ENS-3	ENS-4	
EXP. WALL CLG. HT.	47	34	8	18	36	12	0	39	9	11	
GRS.WALL AREA	470	306	72	162	324	108	0	351	81	99	
GLAZING	0	0	0	0	0	0	0	0	0	0	
NORTH	0	0	0	0	0	0	0	0	0	0	
EAST	0	0	0	0	0	0	0	0	0	0	
SOUTH	0	0	0	0	0	0	0	0	0	0	
WEST	0	0	0	0	0	0	0	0	0	0	
SKYL.T.	54	1149	2289	18	383	483	0	20	426	515	0
DOORS	37.2	103.0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.5	0.9	416	1856	366	277	1236	257	72	321	87
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.7	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	480	616	308	168	216	107	98	126	63
NO A TTIC EXPOSED CLG	2.7	1.4	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.6	0.5	0	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
SUBTOTAL HT LOSS	3822	2882	447	1809	3411	1000	160	3155	685	678	357
SUB TOTAL HT GAIN	0.20	0.27	0.20	0.27	0.20	0.27	0.20	0.27	0.20	0.27	0.20
LEVEL FACTOR / MULTIPLIER	982	550	119	480	906	266	42	839	182	180	37
AIR CHANGE HEAT LOSS	0	0	0	0	0	0	0	0	0	0	0
AIR CHANGE HEAT GAIN	0	0	0	0	0	0	0	0	0	0	0
DUCT LOSS	0	0	0	0	0	0	0	0	0	0	0
DUCT GAIN	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	2	480	0	1	240	1	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	703	0	0	0	0	0	0	0	0	0	0
TOTAL HT LOSS BTU/H	4584	2618	566	2518	4748	1266	222	4394	954	858	513
TOTAL HT GAIN x 1.3 BTU/H											

ROOM USE	DIN	KTGT	LIB	LAUN	FOY	MUD	HIS	LOD	BAS	
EXP. WALL CLG. HT.	17	100	12	9	69	26	7	43	202	
GRS.WALL AREA	187	1100	132	0	649	312	63	430	1672	
GLAZING	0	0	0	0	0	0	0	0	0	
NORTH	0	0	0	0	0	0	0	0	0	
EAST	0	0	0	0	0	0	0	0	0	
SOUTH	0	0	0	0	0	0	0	0	0	
WEST	0	0	0	0	0	0	0	0	0	
SKYL.T.	37.2	103.0	0	0	0	0	0	0	0	
DOORS	25.2	5.2	0	0	0	0	0	0	0	
NET EXPOSED WALL	4.5	0.9	163	683	142	0	0	0	0	
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.7	0	0	0	0	0	0	0	
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	0	
NO A TTIC EXPOSED CLG	2.7	1.4	0	0	0	0	0	0	0	
EXPOSED FLOOR	2.6	0.5	0	0	0	0	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	1406	7841	976	123	4081	1808	803	1317	8669	
SUB TOTAL HT GAIN	0.30	0.44	0.30	0.27	0.30	0.44	0.20	0.27	0.60	
LEVEL FACTOR / MULTIPLIER	618	3445	429	33	1793	794	160	238	849	
AIR CHANGE HEAT LOSS	0	0	0	0	0	0	0	0	0	
AIR CHANGE HEAT GAIN	0	0	0	0	0	0	0	0	0	
DUCT LOSS	0	0	0	0	0	0	0	0	0	
DUCT GAIN	0	0	0	0	0	0	0	0	0	
HEAT GAIN PEOPLE	0	0	0	0	0	0	0	0	0	
HEAT GAIN APPLIANCES/LIGHTS	703	0	0	0	0	0	0	0	0	
TOTAL HT LOSS BTU/H	2024	11286	703	156	5874	2802	840	1317	20466	
TOTAL HT GAIN x 1.3 BTU/H	2373	11018	1405	1614	1217	1453	247	1442	1888	

TOTAL HEAT GAIN BTU/H: 47487 TONS: 3.56 LOSS DUE TO VENTILATION LOAD BTU/H: 3181 STRUCTURAL HEAT LOSS: 88699 TOTAL COMBINED HEAT LOSS BTU/H: 71880

Michael O'Rourke

SITE NAME: PINE VALLEY & TESTON
BUILDER: GOLD PARK HOMESTYPE: 4202-ROSEDALE
ALT 1ST

DATE: Sep-18

GFA: 3592

LO# 77529

HEATING CFM 1525
TOTAL HEAT LOSS 68,689
AIR FLOW RATE CFM 22.2COOLING CFM 1525
TOTAL HEAT GAIN 48,826
AIR FLOW RATE CFM 32.57ALLENNOX
EL296UH090XE48C
FAN SPEED
LOW
MEDIUM
HIGHAFUE = 96 %
INPUT (BTU/H) = 88,000
OUTPUT (BTU/H) = 85,000

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	17	9	6
R/A	0	0	5	2	1

furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
available pressure for s/a & r/a 0.35
plenium pressure s/a 0.18
max s/a diff press. loss 0.02
min adjusted pressure s/a 0.16DESIGN CFM = 1525
CFM @ 8" E.S.P.

All S/A diffusers 4"x10" unless noted otherwise on layout.

r/a pressure 0.17
r/a grille press. Loss 0.02
adjusted pressure r/a 0.15

TEMPERATURE RISE 52 °F

RUN #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	ENS	BED-2	BED-3	BED-3	ENS-2	LOFT	ENS-3	MBR	ENS-4	DIN	K7/GT	K7/GT	K7/GT	K7/GT	LAUN	LIB	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	2.29	1.31	1.31	2.52	1.58	1.58	1.27	2.20	0.95	2.29	0.86	2.02	2.82	2.82	2.82	2.82	0.16	1.40	2.94	2.60	3.63	3.63	3.63	3.63
CFM PER RUN HEAT	51	29	29	56	35	35	28	5	49	51	19	45	63	63	63	63	3	31	65	58	81	81	81	81
RM GAIN MBH	2.91	1.01	1.01	2.48	1.94	1.94	2.16	0.08	0.43	2.91	0.51	2.37	2.75	2.75	2.75	2.75	1.00	1.61	0.61	1.45	0.50	0.50	0.50	0.50
CFM PER RUN COOLING	95	33	33	81	63	63	70	3	87	14	95	77	90	90	90	90	33	53	20	47	16	16	16	16
ADJUSTED PRESSURE	0.16	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.17	0.16	0.17	0.17	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	69	53	61	39	49	25	42	55	48	73	39	10	43	47	46	57	52	36	42	27	45	50	13	36
EQUIVALENT LENGTH	160	150	130	180	150	140	190	190	160	140	140	150	130	130	130	130	190	120	150	160	120	110	120	130
TOTAL EFFECTIVE LENGTH	229	203	191	219	199	165	232	245	208	213	179	160	173	177	178	187	242	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	0.1	0.11	0.09	0.09	0.09	0.09	0.07	0.11	0.09	0.09	0.1	0.1	0.12	0.1
ROUND DUCT SIZE	6	4	4	6	5	5	4	6	4	6	4	5	6	6	6	6	4	4	5	5	5	5	5	5
HEATING VELOCITY (ft/min)	260	333	333	286	257	206	57	250	241	260	218	330	321	321	321	321	34	356	477	426	595	595	595	595
COOLING VELOCITY (ft/min)	484	379	379	413	463	514	34	444	161	484	195	565	459	459	459	459	379	608	147	345	117	117	117	117
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	B	A	A	C	E	C	E	D	E	B	C	C	A	A	B	B	B	C	D	E	A	B	C	D

RUN #	25	26	27	28	29	30	31	32
ROOM NAME	BED-3	LOFT	BAS	FOY	HERS	HIS	BED-3	BAS
RM LOSS MBH	1.58	2.20	3.63	2.94	0.57	0.84	1.58	3.63
CFM PER RUN HEAT	35	49	81	65	13	19	35	81
RM GAIN MBH	1.94	2.69	0.50	0.61	0.19	0.25	1.94	0.50
CFM PER RUN COOLING	63	87	16	20	6	8	63	16
ADJUSTED PRESSURE	0.17	0.16	0.16	0.17	0.17	0.17	0.16	0.16
ACTUAL DUCT LGH	45	57	33	40	50	60	58	22
EQUIVALENT LENGTH	140	150	180	150	180	150	160	120
TOTAL EFFECTIVE LENGTH	185	207	213	190	230	210	218	142
ADJUSTED PRESSURE	0.09	0.08	0.08	0.09	0.07	0.08	0.08	0.11
ROUND DUCT SIZE	5	6	5	5	4	4	5	5
HEATING VELOCITY (ft/min)	257	250	595	477	149	218	257	595
COOLING VELOCITY (ft/min)	463	444	117	147	69	92	463	117
OUTLET GRILL SIZE	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	E	D	D	D	B	B	E	C

SUPPLY AIR TRUNK SIZE										RETURN AIR TRUNK SIZE									
TRUNK	STATIC	ROUND	RECT	VELOCITY	TRUNK	STATIC	ROUND	RECT	VELOCITY	TRUNK	STATIC	ROUND	RECT	VELOCITY	TRUNK	STATIC	ROUND	RECT	VELOCITY
CFM	PRESS.	DUCT	DUCT	(ft/min)	CFM	PRESS.	DUCT	DUCT	(ft/min)	CFM	PRESS.	DUCT	DUCT	(ft/min)	CFM	PRESS.	DUCT	DUCT	(ft/min)
TRUNK A	265	0.08	8.5	8	X	8	596	TRUNK G	0	0.00	0	0	0	8	0	0.06	0	0	8
TRUNK B	344	0.07	9.7	8	X	8	516	TRUNK H	0	0.00	0	0	0	X	8	0.06	0	0	X
TRUNK C	950	0.07	14.2	8	X	8	713	TRUNK I	0	0.00	0	0	0	X	8	0.06	0	0	X
TRUNK D	390	0.07	10.2	X	8	585	TRUNK J	0	0.00	0	0	0	0	X	8	0.06	0	0	X
TRUNK E	579	0.07	11.8	X	8	651	TRUNK K	0	0.00	0	0	0	0	X	8	0.06	0	0	X
TRUNK F	0	0.00	0	X	8	0	TRUNK L	0	0.00	0	0	0	0	X	8	0.06	0	0	X
										BR									
AIR VOLUME	130	125	130	340	5	6	7	0	0	0	0	0	0	0	0	0.06	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	0.06	0.06	0.06	0.06
ACTUAL DUCT LGH	62	69	49	53	30	52	56	1	1	1	1	1	1	1	1	0.06	0.06	0.06	0.06
EQUIVALENT LENGTH	155	165	145	185	185	140	150	0	0	0	0	0	0	0	0	0.06	0.06	0.06	0.06
TOTAL EFFECTIVE LH	217	234	194	238	215	192	206	1	1	1	1	1	1	1	1	0.06	0.06	0.06	0.06
ADJUSTED PRESSURE	0.07	0.06	0.08	0.06	0.07	0.08	0.07	0.08	0.07	0.08	0.07	0.08	0.07	0.08	0.07	0.06	0.06	0.06	0.06
ROUND DUCT SIZE	6.8	6.9	6.5	7	9.7	9.4	6.8	0	0	0	0	0	0	0	0	0.06	0.06	0.06	0.06
INLET GRILL SIZE	8	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0.06	0.06	0.06	0.06
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0.06	0.06	0.06	0.06
INLET GRILL SIZE	14	14	14	14	30	30	14	0	0	0	0	0	0	0	0	0.06	0.06	0.06	0.06

Michael O'Rourke

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

LO # 77529
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	3 @ 10.6 cfm	31.8 cfm
Kitchen & Bathrooms	6 @ 10.6 cfm	63.6 cfm
Other Rooms	8 @ 10.6 cfm	84.8 cfm
Table 9.32.3.A.	TOTAL	222.6 cfm

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

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	222.6	cfm
Less Principal Ventil. Capacity	155	cfm
Required Supplemental Capacity	67.6	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
ENS	QTXEN050C	50	☒
ENS-2	QTXEN050C	50	☒
ENS-4	QTXEN050C	50	☒
PWD	QTXEN050C	50	☒

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE 65H		
155 cfm high	64 cfm low	
75 % 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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	September-18

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																					
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																																					
LO#: 77529	Model: 4202- ROSEDALE	Builder: GOLD PARK HOMES	Date: 9/10/2018																																																																		
Volume Calculation		Air Change & Delta T Data																																																																			
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>House Volume Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> <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="2" style="text-align: right;">Total:</td> <td></td> <td>51,024.0 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>1444.8 m³</td> </tr> </table>		House Volume 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 colspan="2" style="text-align: center;">WINTER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.340</td> </tr> <tr> <td colspan="2" style="text-align: center;">SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.124</td> </tr> </table> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="4" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> </tr> <tr> <td>Winter DTDh</td> <td>22</td> <td>-20</td> <td>42</td> </tr> <tr> <td>Summer DTDc</td> <td>22</td> <td>31</td> <td>9</td> </tr> <tr> <td></td> <td></td> <td></td> <td>ΔT °F</td> </tr> <tr> <td></td> <td></td> <td></td> <td>76</td> </tr> <tr> <td></td> <td></td> <td></td> <td>16</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE		0.340	SUMMER NATURAL AIR CHANGE RATE		0.124	Design Temperature Difference					Tin °C	Tout °C	ΔT °C	Winter DTDh	22	-20	42	Summer DTDc	22	31	9				ΔT °F				76				16
House Volume Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																																		
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Second	2076	9	18684																																																																		
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Fourth	0	9	0																																																																		
Total:			51,024.0 ft³																																																																		
Total:			1444.8 m³																																																																		
WINTER NATURAL AIR CHANGE RATE		0.340																																																																			
SUMMER NATURAL AIR CHANGE RATE		0.124																																																																			
Design Temperature Difference																																																																					
	Tin °C	Tout °C	ΔT °C																																																																		
Winter DTDh	22	-20	42																																																																		
Summer DTDc	22	31	9																																																																		
			ΔT °F																																																																		
			76																																																																		
			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	401.34	x																																																																		
		42 °C	x																																																																		
		1.2	=																																																																		
			6915 W																																																																		
			=																																																																		
			23594 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																																																																		
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																																					
$HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{qgr} + HL_{bgcr}) \div (HL_{qclvl} + HL_{bgclvl})\}$																																																																					
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLaive Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{clvl})</th> <th>Air Leakage Heat Loss Multiplier (LF x HLaiveb / HL_{clvl})</th> </tr> <tr> <td>1</td> <td>0.5</td> <td rowspan="4" style="text-align: center;">23,594</td> <td>9,986</td> <td>1.181</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>16,113</td> <td>0.439</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>17,763</td> <td>0.266</td> </tr> <tr> <td>4</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td></td> <td>0</td> <td>0.000</td> </tr> </table>				Level	Level Factor (LF)	HLaive Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clvl})	Air Leakage Heat Loss Multiplier (LF x HLaiveb / HL _{clvl})	1	0.5	23,594	9,986	1.181	2	0.3	16,113	0.439	3	0.2	17,763	0.266	4	0	0	0.000	5	0		0	0.000																																							
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*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	ALT 1ST	BUILDER: GOLD PARK HOMES
SFQT: 3592	LO# 77529	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 (ft³):	51024.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	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

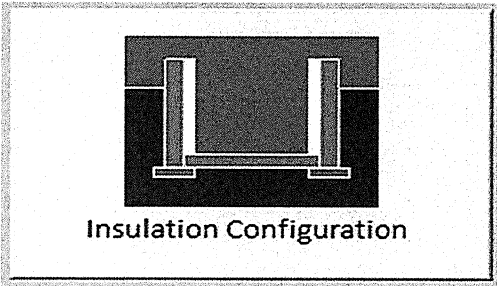
Component	Compliance Package A1	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20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



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):	2.0	
Door Area (m ²):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		2025

TYPE: 4202- ROSEDALE
LO# 77529

ALT 1ST

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):	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):	0.340			
Cooling Air Leakage Rate (ACH/H):	0.124			

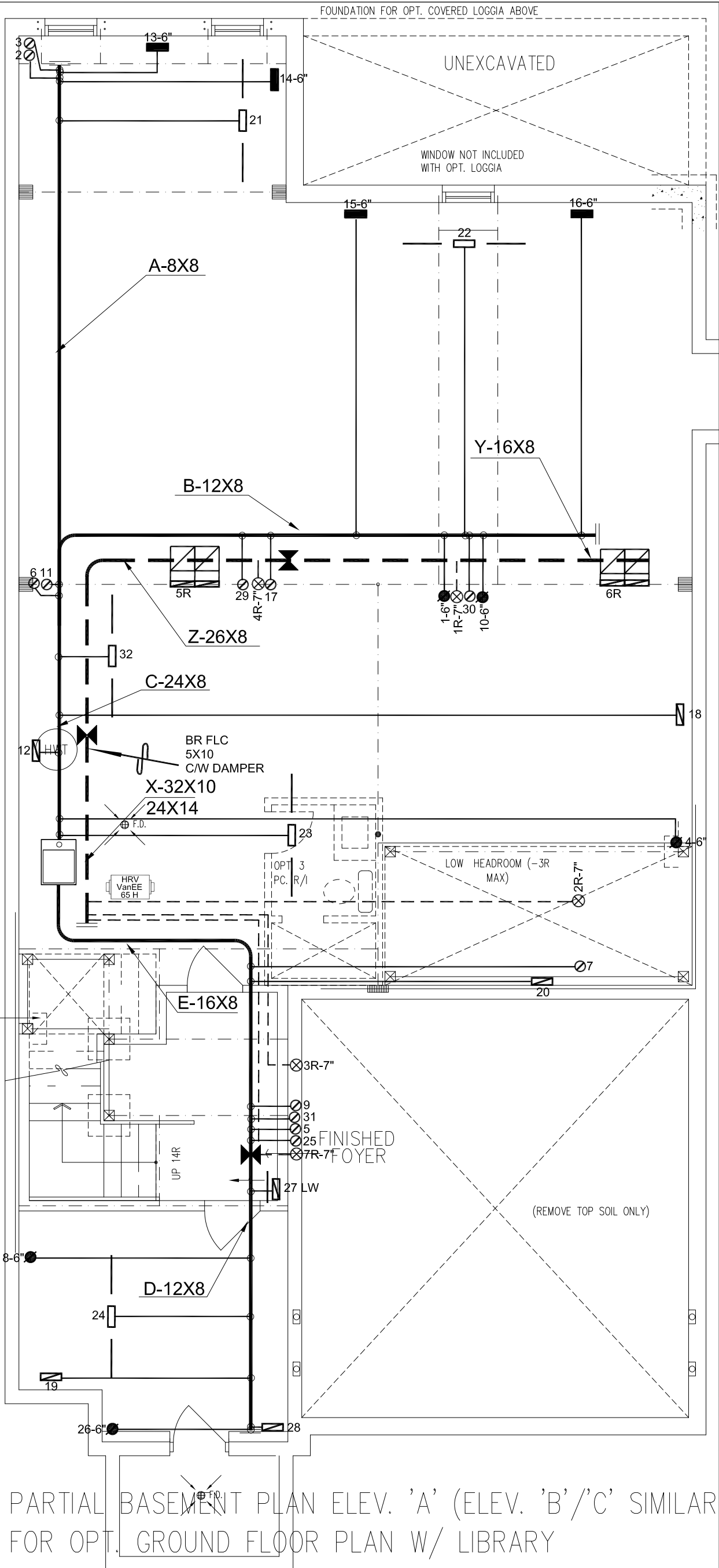
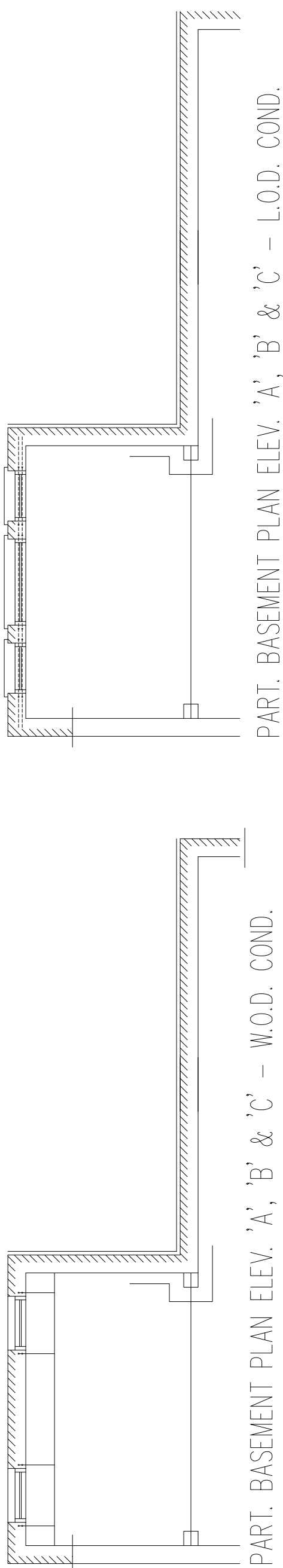
TYPE: 4202- ROSEDALE
LO# 77529

ALT 1ST

PACKAGE A1

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.	DECK CONDITIONS ADDED	SEPT/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				



PARTIAL BASEMENT PLAN ELEV. 'A' (ELEV. 'B'/'C' SIMILAR
FOR OPT. GROUND FLOOR PLAN W/ LIBRARY

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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.	HEAT LOSS 71880 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		17	5	6		
PINE VALLEY & TESTON VAUGHAN, ONTARIO		INPUT 88 MBTU/H	1ST FLOOR		9	2	2		
ALT. 1ST		OUTPUT 85 MBTU/H	BASEMENT 6 1 0					Date	JAN/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		FAN SPEED 1525 cfm @ 0.6" w.c.						BCIN# 19669	
3592 sqft							LO#	77529	

CSA-F280-12

PACKAGE A1

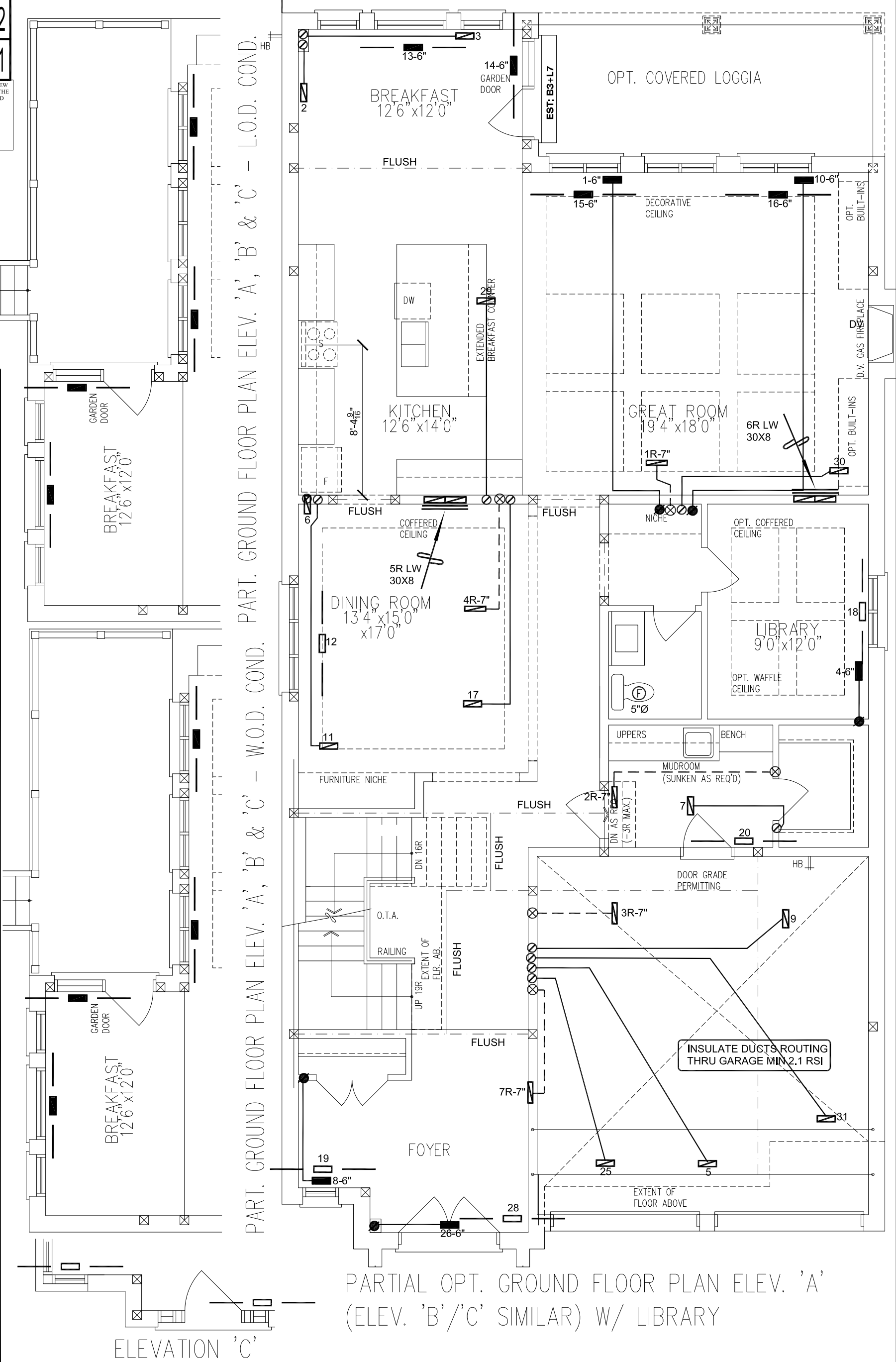
I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

Michael O'Rourke

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

SYMBOL		DESCRIPTION		SYMBOL		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	
		SUPPLY AIR STACK ABOVE				FRA-FLOOR RETURN AIR GRILLE	
		RETURN AIR STACK ABOVE				REDUCER	
REVISIONS		Description		No.		Date	
		REVISED AS PER ARCHITECTURALS		1.		DECK CONDITIONS ADDED	
						FEB/2020	
						SEPT/2018	

HVAC LEGEND



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Client	GOLD PARK HOMES
Project Name	PINE VALLEY & TESTON VAUGHAN, ONTARIO ALT. 1ST ROSEDALE 4202
	3592 sqft

HVACDESIGNS LTD.

375 Finley Ave. Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
Email: info@hvacdsgns.ca
Web: www.hvacdsgns.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	FIRST FLOOR HEATING LAYOUT
Date	JAN/2018
Scale	3/16" = 1'-0"
	BCIN# 19669
LO#	77529

CSA-F280-12

PACKAGE A1

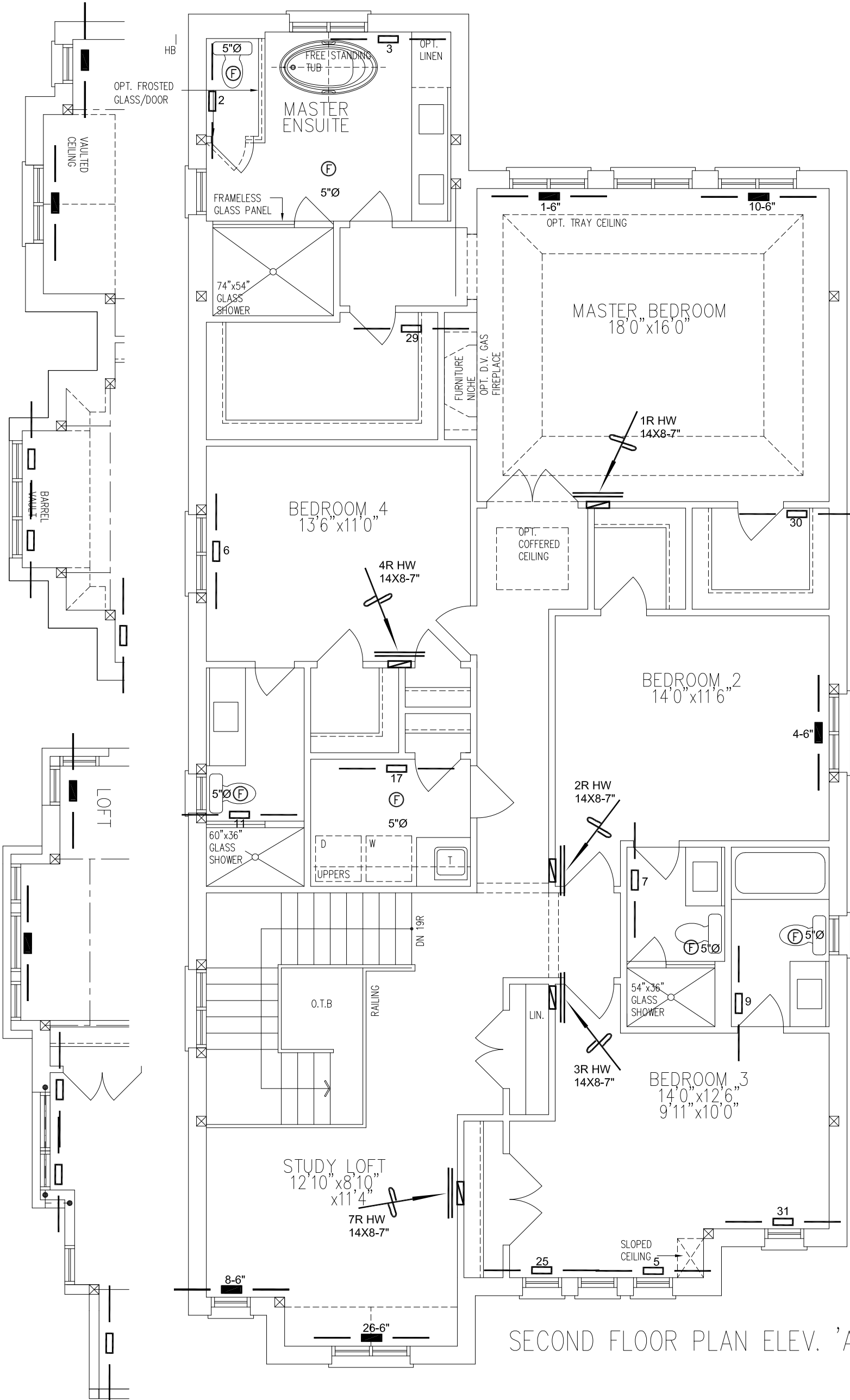
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Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

HVAC LEGEND			1.	2.	3.
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		RETURN AIR STACK ABOVE
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		RETURN AIR STACK 2nd FLOOR
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA-FLOOR RETURN AIR GRILLE
	REDUCER				
REVISIONS					
			2.	REVISED AS PER ARCHITECTURALS	FEB/2020
			1.	DECK CONDITIONS ADDED	SEPT/2018
			No.	Description	Date

PARTIAL SECOND FLOOR PLAN – ELEVATION 'B'

PARTIAL SECOND FLOOR PLAN – ELEVATION 'C'



SECOND FLOOR PLAN ELEV. 'A'

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Client

GOLD PARK HOMES

Project Name

PINE VALLEY & TESTON
VAUGHAN, ONTARIO
ALT. 1ST
ROSEDALE
4202

3592 sqft

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Sheet Title	
SECOND FLOOR HEATING LAYOUT	
Date	JAN/2018
Scale	3/16" = 1'-0"
BCIN# 19669	
LO#	77529