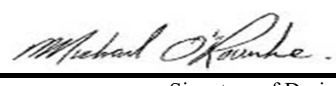


Schedule 1: Designer Information

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 SERV STAIR 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 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										OPT SERV STAIR										DATE: Feb-20										WINTER NATURAL AIR CHANGE RATE 0.340										HEAT LOSS ΔT °F. 76										CSA-F280-12																			
BUILDER: GOLD PARK HOMES										TYPE: 4202-ROSEDALE										GFA: 3700										LO# 85449										SUMMER NATURAL AIR CHANGE RATE 0.124										HEAT GAIN ΔT °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			47			34			7			18			36			12			0			38			9			11																																							
CLG. HT.			10			9			9			9			9			9			9			9			9			9																																							
FACTORS																																																																					
GRS.WALL AREA			470			306			63			162			324			108			0			342			81			99																																							
GLAZING			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN																																	
NORTH			21.3	16.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																		
EAST			21.3	42.4	0	0	0	0	0	0	0	0	0	0	0	53	1128	2247	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																		
SOUTH			21.3	25.7	0	0	0	0	11	234	283	0	0	0	0	0	0	0	0	18	383	463	0	0	0	20	426	515	0	0	0	0	9	192	232																																		
WEST			21.3	42.4	54	1149	2289	18	383	763	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																		
SKYLT.			37.2	103.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																		
DOORS			25.2	5.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																		
NET EXPOSED WALL			4.5	0.9	416	1856	386	277	1236	257	63	281	58	144	643	134	271	1209	251	90	402	83	0	0	0	281	1254	261	72	321	67	90	402	83																																			
NET EXPOSED BSMT WALL ABOVE GR			3.6	0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																		
EXPOSED CLG			1.3	0.6	480	616	306	168	216	107	98	126	63	324	416	207	280	359	179	168	216	107	45	58	29	276	354	176	45	58	29	66	85	42																																			
NO ATTIC EXPOSED CLG			2.7	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	82	41	0	0	0	0	0	0	0																																		
EXPOSED FLOOR			2.6	0.5	0	0	0	0	0	0	0	0	0	144	367	76	280	714	148	0	0	0	40	102	21	50	128	27	45	115	24	0	0	0	0																																		
BASEMENT/CRAWL HEAT LOSS						0			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						3622			2069			407			1809			3411			1000			160			3116			685			678																																				
SUB TOTAL HT GAIN						2982			1410			121			719			2825			654			50			2757			271			357																																				
LEVEL FACTOR / MULTIPLIER			0.20 0.28			0.20 0.28			0.20 0.28			0.20 0.28			0.20 0.28			0.20 0.28			0.20 0.28			0.20 0.28			0.20 0.28			0.20 0.28			0.20 0.28			0.20 0.28			0.20 0.28																														
AIR CHANGE HEAT LOSS			1011			578			114			505			952			279			45			870			191			189																																							
AIR CHANGE HEAT GAIN			326			154			13			79			309			72			5			302			30			39																																							
DUCT LOSS			0			0			0			231			436			0			20			399			88			0																																							
DUCT GAIN			0			0			0			184			418			0			6			386			30			0																																							
HEAT GAIN PEOPLE			240			2			480			0			0			1			240			1			240			0			0			0			0			0																											
HEAT GAIN APPLIANCES/LIGHTS						806			0			0			806			806			806			0			806			0			0			0			0			0																											
TOTAL HT LOSS BTU/H			4633			2647			521			2545			4799			1280			225			4385			964			867																																							
TOTAL HT GAIN x 1.3 BTU/H			5971			2034			175			2636			5977			2302			79			5526			429			515																																							

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	DIN	KT/GT	LAUN	PWD	FOY	MUD	HIS	LOD	BAS
				17	100	0	16	59	17	6	43	202
				11	11	9	12	11	12	9	10	10
GRS.WALL AREA	LOSS	GAIN		187	1100	0	192	649	204	54	430	1672
GLAZING	LOSS	GAIN		LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
NORTH	21.3	16.8	0	0	0	0	0	0	0	0	0	0
EAST	21.3	42.4	0	0	0	0	0	0	0	0	0	0
SOUTH	21.3	25.7	34	724	875	29	617	746	0	0	0	0
WEST	21.3	42.4	0	0	0	123	2617	5214	0	0	20	426
SKYLT.	37.2	103.0	0	0	0	0	0	0	0	0	0	0
DOORS	25.2	5.2	0	0	0	10	252	52	0	0	0	0
NET EXPOSED WALL	4.5	0.9	153	683	142	928	4141	861	184	821	171	54
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.7	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	0
NO ATTIC EXPOSED CLG	2.7	1.4	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.6	0.5	0	0	0	0	0	0	0	0	0	0
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		4081		1326		563
SUB TOTAL HT GAIN					1017		61		276		148	
LEVEL FACTOR / MULTIPLIER				0.30	0.48	0.30	0.48	0.30	0.48	0.30	0.48	0.50
AIR CHANGE HEAT LOSS				670		3736		1944		632		12316
AIR CHANGE HEAT GAIN					111		7		93		16	
DUCT LOSS				0		0		0		0		0
DUCT GAIN				0		0		0		0		0
HEAT GAIN PEOPLE	240			0		0		0		0		0
HEAT GAIN APPLIANCES/LIGHTS						806		0		806		806
TOTAL HT LOSS BTU/H				2076		11577		6025		1958		20994
TOTAL HT GAIN x 1.3 BTU/H				2514		11204		1224		1445		1720

TOTAL HEAT GAIN BTU/H: 47375

TONS: 3.95

LOSS DUE TO VENTILATION LOAD BTU/H: 3181

STRUCTURAL HEAT LOSS: 68993

TOTAL COMBINED HEAT LOSS BTU/H: 72174

Michael O'Rourke

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

OPT SERV STAIR
TYPE: 4202- ROSEDALE

DATE: Feb-20

GFA: 3700 LO# 85449

HEATING CFM 1525 COOLING CFM 1525
TOTAL HEAT LOSS 68,993 TOTAL HEAT GAIN 46,714
AIR FLOW RATE CFM 22.1 AIR FLOW RATE CFM 32.65

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

EL296UH090XE48C
^LENNOX 90

AFUE = 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

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

LOW 0
MEDLOW 0
MEDIUM 1105
MEDIUM HIGH 1255
HIGH 1525

DESIGN CFM = **1525**
CFM @ 6" E.S.P.

All S/A diffusers 4"x10" unless noted otherwise on layout.
All S/A runs 5"Ø unless noted otherwise on layout.

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-4	ENS-2	LOFT	ENS-3	MBR	ENS-4	DIN	KT/GT	KT/GT	KT/GT	KT/GT	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	2.32	1.32	1.32	2.55	1.60	1.28	0.22	2.19	0.96	2.32	0.87	2.08	2.89	2.89	2.89	2.89	0.16	1.27	3.01	1.96	3.71	3.71	3.71	3.71
CFM PER RUN HEAT	51	29	29	56	35	28	5	48	21	51	19	46	64	64	64	64	3	28	67	43	82	82	82	82
RM GAIN MBH	2.99	1.02	1.02	2.64	1.99	2.30	0.08	2.76	0.43	2.99	0.52	2.51	2.80	2.80	2.80	2.80	1.14	0.26	0.61	1.44	0.51	0.51	0.51	0.51
CFM PER RUN COOLING	97	33	33	86	65	75	3	90	14	97	17	82	91	91	91	91	37	8	20	47	17	17	17	17
ADJUSTED PRESSURE	0.16	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.17	0.16	0.17	0.16	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	62	53	61	60	49	25	48	55	48	67	39	10	43	47	46	57	52	22	42	29	45	50	13	36
EQUIVALENT LENGTH	160	150	130	190	150	140	190	190	160	180	140	150	130	130	130	130	190	160	150	110	120	110	120	130
TOTAL EFFECTIVE LENGTH	222	203	191	250	199	165	238	245	208	247	179	160	173	177	176	187	242	182	192	139	165	160	133	166
ADJUSTED PRESSURE	0.07	0.08	0.09	0.06	0.09	0.1	0.07	0.07	0.08	0.07	0.1	0.1	0.09	0.09	0.09	0.09	0.07	0.09	0.09	0.12	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	4	5	5	5	5
HEATING VELOCITY (ft/min)	260	333	333	286	257	206	57	245	241	260	218	338	326	326	326	326	34	321	492	493	602	602	602	602
COOLING VELOCITY (ft/min)	495	379	379	438	477	551	34	459	161	495	195	602	464	464	464	464	424	92	147	539	125	125	125	125
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	C	A	A	E	E	C	E	D	E	C	C	C	A	A	B	B	B	E	D	C	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	1.60	2.19	3.71	3.01	0.52	0.79	1.60	3.71
CFM PER RUN HEAT	35	48	82	67	12	18	35	82
RM GAIN MBH	1.99	2.76	0.51	0.61	0.17	0.24	1.99	0.51
CFM PER RUN COOLING	65	90	17	20	6	8	65	17
ADJUSTED PRESSURE	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.16
ACTUAL DUCT LGH	45	57	33	40	50	53	58	22
EQUIVALENT LENGTH	140	150	180	150	180	180	160	120
TOTAL EFFECTIVE LENGTH	185	207	213	190	230	233	218	142
ADJUSTED PRESSURE	0.09	0.08	0.08	0.09	0.07	0.07	0.08	0.11
ROUND DUCT SIZE	5	6	5	5	4	4	5	5
HEATING VELOCITY (ft/min)	257	245	602	492	138	207	257	602
COOLING VELOCITY (ft/min)	477	459	125	147	69	92	477	125
OUTLET GRILL SIZE	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	E	D	D	D	B	C	E	C

SUPPLY AIR TRUNK SIZE

	TRUNK	STATIC	ROUND	RECT	VELOCITY
	CFM	PRESS.	DUCT	DUCT	(ft/min)
TRUNK A	268	0.08	8.6	8	603
TRUNK B	225	0.07	8.3	8	506
TRUNK C	913	0.07	14	22	747
TRUNK D	394	0.07	10.2	12	591
TRUNK E	609	0.06	12.5	18	609
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	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
AIR VOLUME	130	125	130	130	365	300	130	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
ACTUAL DUCT LGH	61	69	49	53	30	52	56	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	175	165	145	185	185	140	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	236	234	194	238	215	192	206	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.06	0.06	0.08	0.06	0.07	0.08	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
ROUND DUCT SIZE	7	6.9	6.5	7	9.9	8.9	6.8	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	8	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
INLET GRILL SIZE	14	14	14	14	30	30	14	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
TRUNK X	1525	0.06	17.7	32	x	10	686																	
TRUNK Y	430	0.06	11	14	x	8	553																	
TRUNK Z	925	0.06	14.6	24	x	8	694																	
DROP	1525	0.06	17.7	24	x	14	654																	

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

LO # 85449
OPT SERV STAIR

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>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Other Rooms	<u>8</u> @ 10.6 cfm	<u>84.8</u> cfm
Table 9.32.3.A. TOTAL		<u>222.6</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>222.6</u>	cfm
Less Principal Ventil. Capacity	<u>155</u>	cfm
Required Supplemental Capacity	<u>67.6</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
ENS-2	QTXEN050C	50	☒	0.3
ENS-4	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#: 85449	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>1647</td> <td>10</td> <td>16470</td> </tr> <tr> <td>First</td> <td>1647</td> <td>11</td> <td>18117</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>53,271.0 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>1508.5 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1647	10	16470	First	1647	11	18117	Second	2076	9	18684	Third	0	9	0	Fourth	0	9	0	Total:			53,271.0 ft³	Total:			1508.5 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;">0.124</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;">22</td> <td style="text-align: center;">31</td> <td style="text-align: center;">9</td> <td style="text-align: center;">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	ΔT °F	Winter DTDh	22	-20	42	76	Summer DTDc	22	31	9	16
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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 419.02 x 42 °C x 1.2 = 7219 W = 24633 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.124 x 419.02 x 9 °C x 1.2 = 547 W = 1868 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 16 °F x 1.08 x 0.25 = 661 Btu/h																																																									
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																												
Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)																																																								
1	0.5	24,633	9,960	1.237																																																								
2	0.3		15,512	0.476																																																								
3	0.2		17,643	0.279																																																								
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 SERV STAIR	BUILDER: GOLD PARK HOMES
SFQT: 3700	LO# 85449	SITE: PINE VALLEY & TESTON

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-4	OUTDOOR DESIGN TEMP.	88
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	72

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft ³):	53271.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 68.0 ft	WIDTH: 33.0 ft	EXPOSED PERIMETER:	202.0 ft

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

Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	21.12
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value	-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value	10	10
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value	10	11.13
Windows and Sliding Glass Doors Maximum U-Value	0.28	-
Skylights Maximum U-Value	0.49	-
Space Heating Equipment Minimum AFUE	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

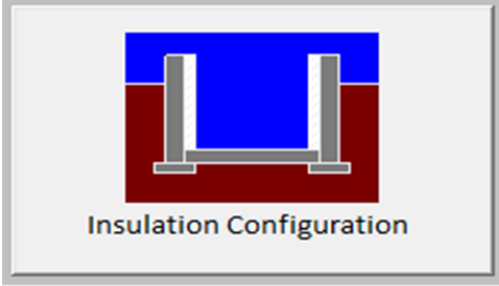
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Vaughan (Woodbridge)	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	20.7	 Insulation Configuration
Floor Width (m):	10.1	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m ²):	1.9	
Door Area (m ²):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		2028

TYPE: 4202- ROSEDALE
LO# 85449

OPT SERV STAIR

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):	1508.5			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2010.8 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):	0.124			

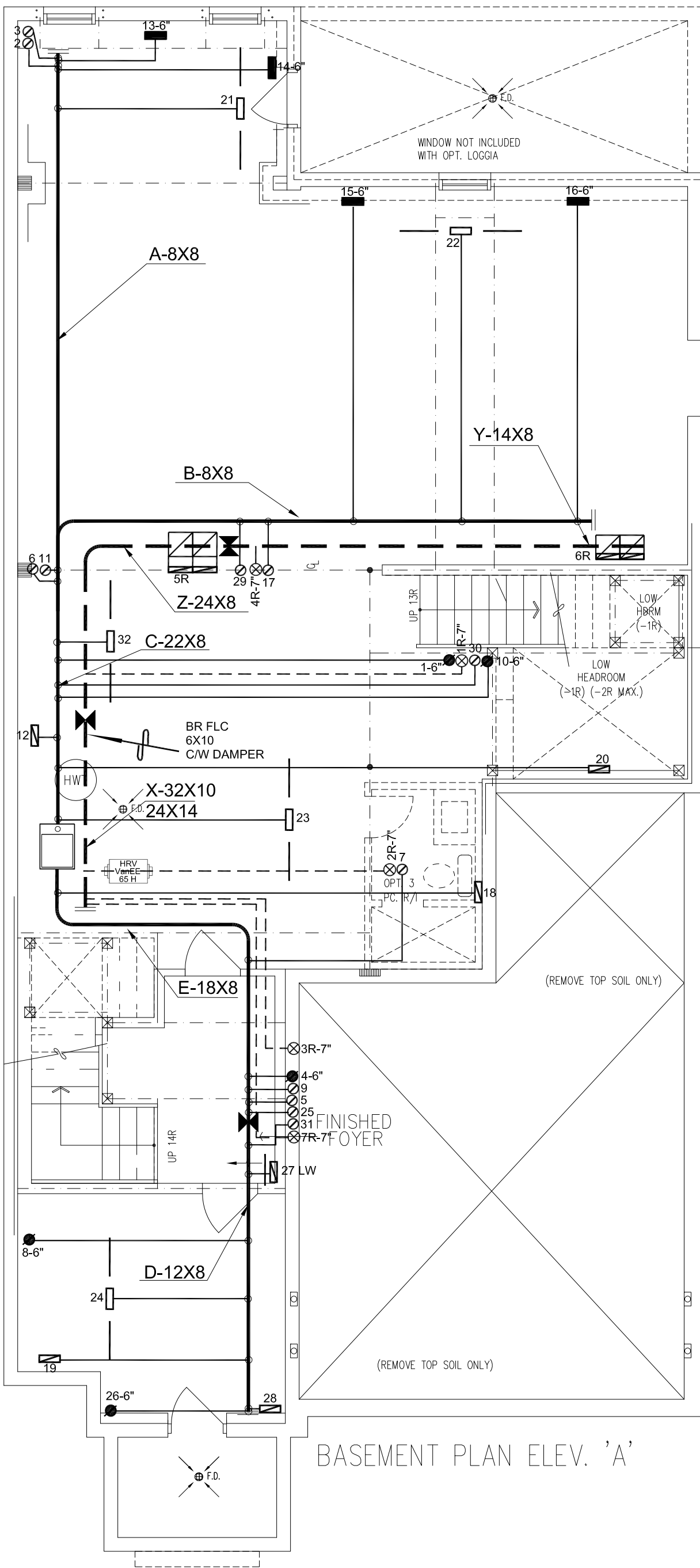
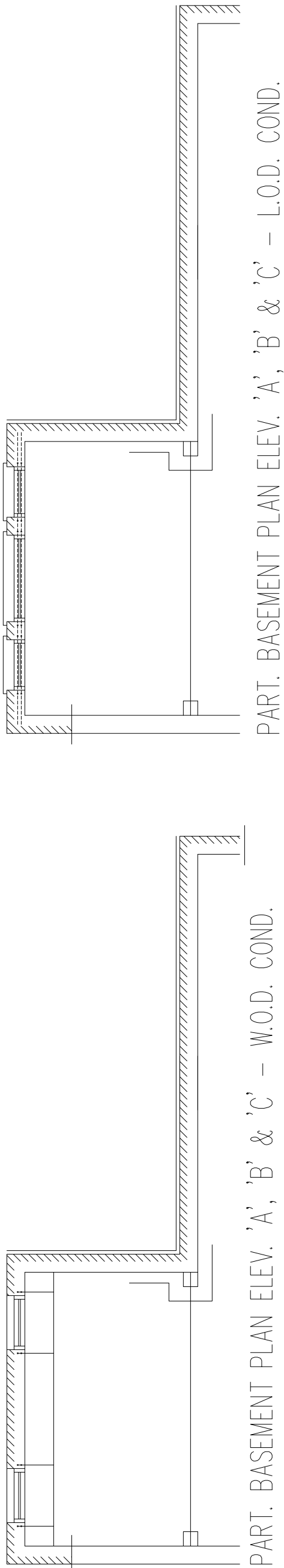
TYPE: 4202- ROSEDALE
LO# 85449

OPT SERV STAIR

PACKAGE A1

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

HVAC LEGEND										3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.			
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x6" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.			
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x6" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description		
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA-FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS			
									Date		



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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	HEAT LOSS 72174 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
OPT SERV STAIR ROSEDALE		OUTPUT 85 MBTU/H		BASEMENT	6	1	0	Date	FEB/2020
4202		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"	
3700 sqft	FAN SPEED 1525 cfm @ 0.6" w.c.		BCIN# 19669						
						LO#	85449		

CSA-F280-12

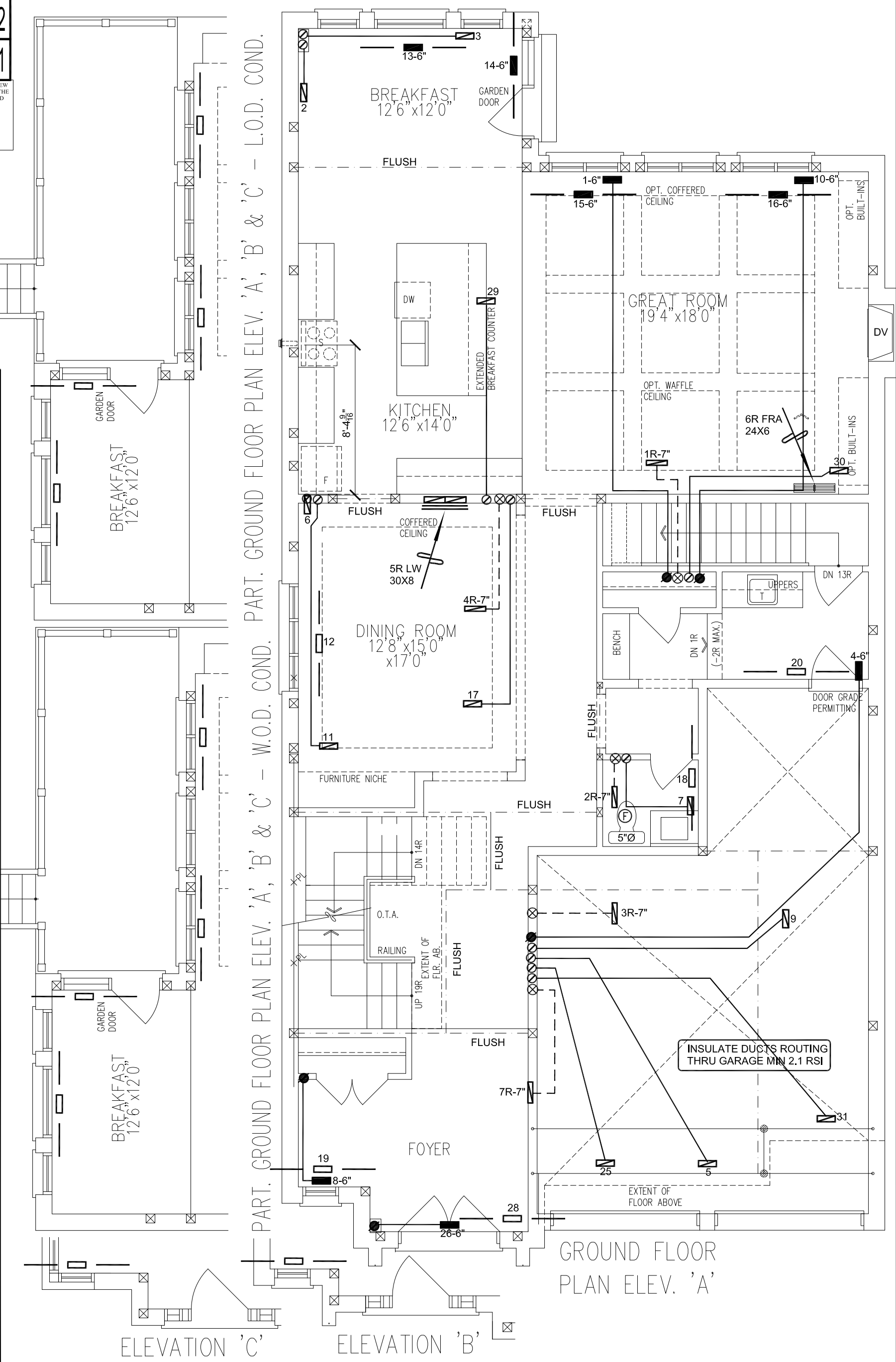
PACKAGE A1

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	HVAC LEGEND		
				SYMBOL	DESCRIPTION	SYMBOL
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK FROM 2nd FLOOR	
	SUPPLY AIR GRILLE		6" SUPPLY AIR GRILLE		30"x8" RETURN AIR GRILLE	
	SUPPLY AIR GRILLE 6" BOOT		6" SUPPLY AIR STACK 2nd FLOOR		RETURN AIR STACK ABOVE	
	SUPPLY AIR STACK ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		REDUCER	
				REVISIONS		
				No.	Description	Date
				1.		
				2.		
				3.		

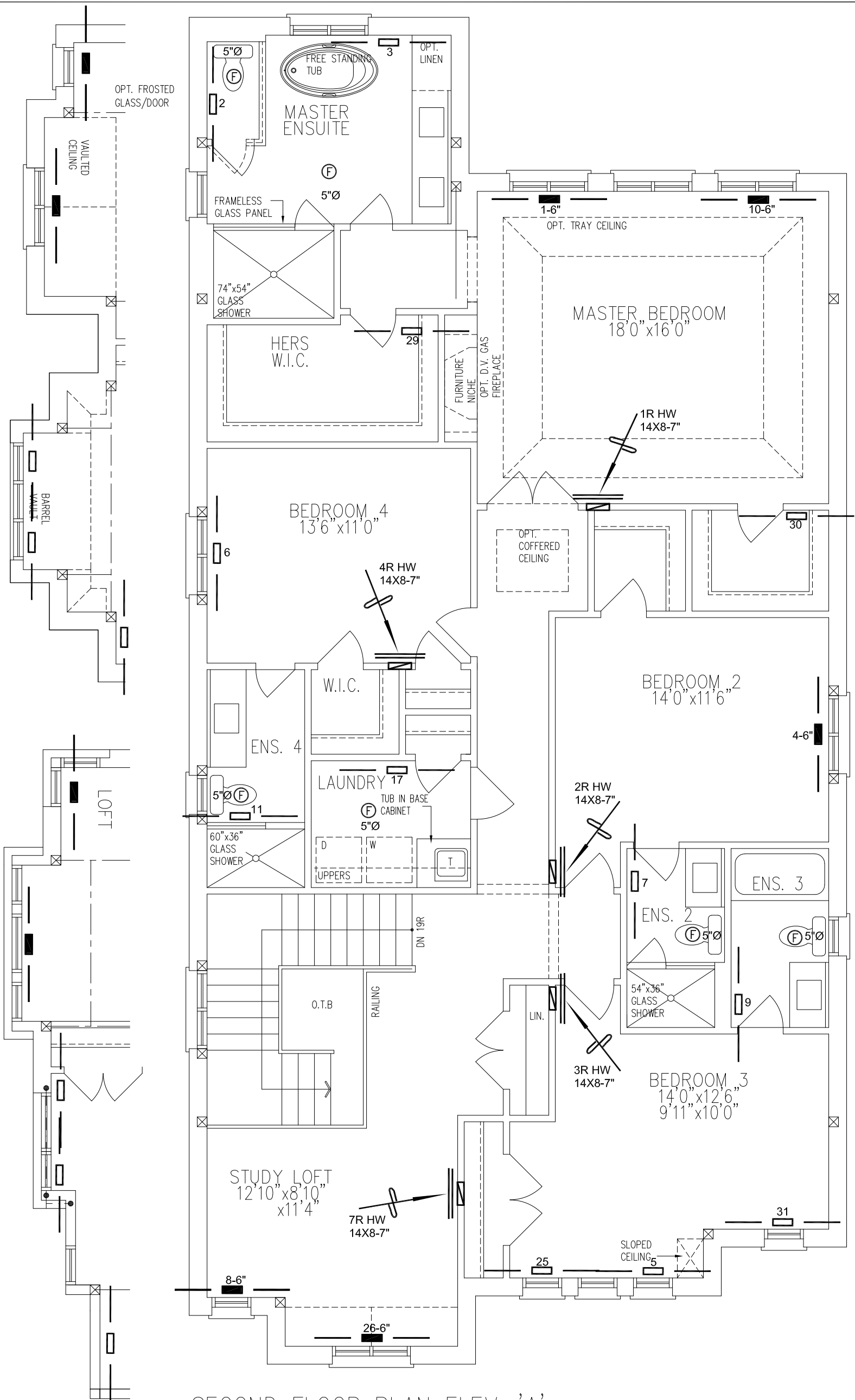


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Client		HVACDESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services	Sheet Title	
GOLD PARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	FEB/2020
PINE VALLEY & TESTON VAUGHAN, ONTARIO OPT SERV STAIR ROSEDALE 4202			Scale	3/16" = 1'-0"
		BCIN# 19669		
3700 sqft		LO#	85449	

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

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 OPT SERV STAIR ROSEDALE 4202	3700



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

SECOND FLOOR HEATING LAYOUT

Date FEB/2020

Scale $3/16" = 1'-0"$

BCIN# 19669

LO#	85449
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