

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: 5005 ELEV. 'B' - THE HIGHBOURNE OPT. 5 BED + ELEVATOR 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.			
January 24, 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.

ROOM USE	LIB	DIN	KIT/IGT	CAB	LAUN	PWD	FOY	MUD	BAS
EXP. WALL CLG. HT.	31 11	32 11	87 11	45 11	0 10	5 11	35 11	18 12	238 10
FACTORS									
GRS.WALL AREA	341	352	957	495	0	55	385	216	1666
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS
NORTH	0	0	46	0	0	0	0	0	20
EAST	56	0	0	0	0	9	0	0	426
SOUTH	21.3	724	20	63	0	0	0	0	0
WEST	21.3	42.4	426	1341	0	0	0	0	0
SKYL.T.	0	0	115	1341	0	0	0	0	0
DOORS	37.2	0	0	2671	0	0	0	0	0
NET EXPOSED FLOOR	25.2	0	0	0	0	0	0	0	0
NET EXPOSED WALL ABOVE GR	4.5	318	776	369	0	0	56	20	505
EXPOSED CLG	3.6	1419	3463	1647	0	46	1414	196	875
NO ATTIC EXPOSED CLG	1.3	0	0	342	0	205	329	1468	714
EXPOSED FLOOR	2.7	0	0	0	142	0	0	0	2569
BASEMENT/CRAWL HEAT LOSS	2.6	0	0	558	182	0	0	0	0
SLAB ON GRADE HEAT LOSS	0	0	0	278	91	0	0	0	0
SUBTOTAL HT LOSS	2464	2143	7315	4886	362	40	113	0	8437
SUB TOTAL HT GAIN	2638	1170	6883	4912	75	0	56	1300	11937
LEVEL FACTOR / MULTIPLIER	0.30	0.44	0.44	0.30	0.20	0.30	0.30	0.30	0.50
AIR CHANGE HEAT LOSS	1082	941	3212	2146	172	223	1315	606	15873
AIR CHANGE HEAT GAIN	250	111	651	465	16	24	62	27	92
DUCT LOSS	0	0	0	0	72	0	0	0	0
DUCT GAIN	0	0	0	0	87	0	0	0	0
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0	0
HEAT APPLIANCES/LIGHTS	684	684	684	684	684	0	0	684	684
TOTAL HT LOSS BTU/H	3545	3084	10527	7032	788	729	4310	1986	27810
TOTAL HT GAIN x 1.3 BTU/H	4644	2555	10654	7879	1238	354	932	12598	22777

REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

Richard C. Linder.

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

OPT. 5 BED + ELEVATOR

TYPE: 5005 ELEV. 'B' - THE HIGHBOURNI DATE: Jan-18

GFA: 4412 LO# 77535

HEATING CFM 1955 COOLING CFM 1955
TOTAL HEAT LOSS 86,817 TOTAL HEAT GAIN 60,169
AIR FLOW RATE CFM 22.52 AIR FLOW RATE CFM 32.49

EL296UH110XE60C
FAN SPEED
LOW 0
MEDIUM 1380
HIGH 1505
MEDIUM HIGH 1685
HIGH 1955

^LENNOX

110

AFUE = 96 %

INPUT (BTU/H) = 110,000

OUTPUT (BTU/H) = 106,000

4th	3rd	2nd	1st	Bas
0	0	18	13	7
0	0	6	3	1

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

All S/A runs 5'Ø unless noted otherwise on layout.

ROOM NAME	MBR	ENS	BED-5	BED-2	BED-3	BED-4	ENS-2/5	WIC-2	ENS-3	MBR	ENS-4	LIB	DIN	KIT/GT	KIT/GT	KIT/GT	LAUN	PWD	FOY	MUD	BAS	BAS	BAS
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	BED-5	BED-2	BED-3	BED-4	ENS-2/5	WIC-2	ENS-3	MBR	ENS-4	LIB	DIN	KIT/GT	KIT/GT	KIT/GT	LAUN	PWD	FOY	MUD	BAS	BAS	BAS
RM LOSS MBH	2.44	2.23	2.09	1.86	2.31	2.30	1.23	0.42	0.39	2.44	0.77	1.77	3.08	2.63	2.63	2.63	0.79	0.73	4.31	1.99	3.97	3.97	3.97
CFM PER RUN HEAT	55	50	47	42	52	52	28	9	55	55	17	40	69	59	59	59	18	16	97	45	89	89	89
RM GAIN MBH	2.78	1.99	2.06	2.21	2.92	2.84	0.48	0.12	0.14	2.78	0.47	2.32	2.55	2.67	2.67	2.67	1.24	0.35	0.93	1.30	0.33	0.33	0.33
CFM PER RUN COOLING	90	65	67	72	95	92	16	4	4	90	15	75	83	87	87	87	40	11	30	42	11	11	11
ADJUSTED PRESSURE	0.15	0.16	0.16	0.16	0.15	0.15	0.16	0.16	0.16	0.15	0.16	0.16	0.15	0.15	0.15	0.15	0.16	0.16	0.15	0.16	0.15	0.15	0.15
ACTUAL DUCT LGH.	70	70	71	49	70	48	74	48	53	64	59	57	29	52	69	54	36	73	40	47	67	60	54
EQUIVALENT LENGTH	200	200	170	160	160	160	200	150	170	170	150	140	103	120	140	110	200	170	210	160	150	120	103
TOTAL EFFECTIVE LENGTH	270	270	241	209	230	208	274	198	223	234	209	197	132	172	209	164	236	243	250	207	217	180	157
ADJUSTED PRESSURE	0.05	0.06	0.06	0.07	0.06	0.07	0.06	0.08	0.07	0.06	0.07	0.08	0.11	0.09	0.07	0.09	0.07	0.06	0.06	0.08	0.07	0.08	0.09
ROUND DUCT SIZE	6	5	5	5	6	6	4	4	4	6	4	5	5	5	6	5	4	4	6	4	6	6	5
HEATING VELOCITY (ft/min)	280	367	345	308	265	265	321	103	103	280	195	294	507	433	301	433	207	184	495	516	454	454	454
COOLING VELOCITY (ft/min)	459	477	492	529	484	469	184	46	46	459	172	551	609	639	444	639	459	126	153	482	56	56	81
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	3X10
TRUNK	D	C	C	G	F	F	E	C	G	D	E	F	E	D	B	C	G	A	F	C	A	B	D

ROOM NAME	BAS	BED-2	BED-3	WIC-3	LIB	KIT/GT	CAB	CAB	CAB	CAB	WIC	ENS	BAS
RM LOSS MBH	3.97	1.86	2.31	1.35	1.77	2.63	2.34	2.34	2.34	2.34	0.52	0.63	3.97
CFM PER RUN HEAT	89	42	52	30	40	59	53	53	53	53	12	14	89
RM GAIN MBH	0.33	2.21	2.92	1.41	2.32	2.67	2.63	2.63	2.63	2.63	0.17	0.59	0.33
CFM PER RUN COOLING	11	72	95	46	75	87	85	85	85	85	6	19	11
ADJUSTED PRESSURE	0.15	0.16	0.15	0.16	0.16	0.15	0.15	0.15	0.15	0.15	0.16	0.16	0.15
ACTUAL DUCT LGH	34	52	55	75	58	51	55	69	71	82	54	58	23
EQUIVALENT LENGTH	110	170	160	190	160	120	150	130	140	140	180	190	140
TOTAL EFFECTIVE LENGTH	144	200	222	248	211	175	219	201	222	234	248	163	163
ADJUSTED PRESSURE	0.1	0.07	0.07	0.06	0.06	0.08	0.07	0.07	0.07	0.07	0.07	0.06	0.09
ROUND DUCT SIZE	5	5	5	5	5	6	6	6	6	6	4	4	6
HEATING VELOCITY (ft/min)	653	308	308	265	294	301	270	270	270	270	138	161	454
COOLING VELOCITY (ft/min)	81	529	529	484	338	551	444	433	433	433	69	218	56
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	4X10
TRUNK	G	F	G	F	F	F	B	A	A	A	C	C	F

SUPPLY AIR TRUNK SIZE												RETURN AIR TRUNK SIZE																			
TRUNK				ROUND				RECT				VELOCITY (ft/min)				TRUNK				ROUND				RECT				VELOCITY (ft/min)			
CFM	STATIC PRESS.	DUCT	RECT DUCT	DUCT	RECT DUCT	DUCT	RECT DUCT	DUCT	RECT DUCT	DUCT	RECT DUCT	CFM	STATIC PRESS.	DUCT	RECT DUCT	DUCT	RECT DUCT	DUCT	RECT DUCT	DUCT	RECT DUCT	CFM	STATIC PRESS.	DUCT	RECT DUCT	DUCT	RECT DUCT				
TRUNK A	264	0.07	10	9.2	8	8	8	8	8	8	8	TRUNK G	651	0.06	20	12.8	8	8	8	8	8	8	TRUNK O	0	0.05	0	0	0			
TRUNK B	207	0.06	8	8	8	8	8	8	8	8	8	TRUNK H	1955	0.05	38	20.3	10	741	10	741	10	741	TRUNK P	0	0.05	0	0	0			
TRUNK C	726	0.05	20	13.4	20	8	8	8	8	8	8	TRUNK I	0	0.00	0	0	0	0	0	0	0	TRUNK Q	0	0.05	0	0	0				
TRUNK D	258	0.05	10	9.5	10	8	8	8	8	8	8	TRUNK J	0	0.00	0	0	0	0	0	0	0	TRUNK R	0	0.05	0	0	0				
TRUNK E	1300	0.05	28	17.4	28	10	669	10	669	10	669	TRUNK K	0	0.00	0	0	0	0	0	0	0	TRUNK S	0	0.05	0	0	0				
TRUNK F	400	0.06	14	10.7	14	8	514	8	514	8	514	TRUNK L	0	0.00	0	0	0	0	0	0	0	TRUNK T	0	0.05	0	0	0				

RETURN AIR #	1	2	3	4	5	6	7	8	9	BR																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
AIR VOLUME	115	135	130	115	240	200	350	320	85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0</

TYPE: 5005 ELEV. 'B' - THE HIGHBOURNE
SITE NAME: PINE VALLEY & TESTON

LO # 77535
OPT. 5 BED + ELEVATOR

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>7</u> @ 10.6 cfm	<u>74.2</u> cfm
Other Rooms	<u>7</u> @ 10.6 cfm	<u>74.2</u> cfm
Table 9.32.3.A.	TOTAL	<u>233.2</u> cfm

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

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>233.2</u>	cfm
Less Principal Ventil. Capacity	<u>155</u>	cfm
Required Supplemental Capacity	<u>78.2</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-2/5	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	☒ 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:	January-18

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																									
Formula Sheet (For Air Leakage / Ventilation Calculation)																																									
LO#: 77535		Model: 5005 ELEV. 'B' - THE Highbourne		Builder: GOLD PARK HOMES		Date: 24/01/2018																																			
Volume Calculation																																									
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				SUMMER NATURAL AIR CHANGE RATE		0.128																																			
5.2.3.1 Heat Loss due to Air Leakage $HL_{airb} = LR_{airb} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.350 x 524.59 x 42 °C x 1.2 = 9304 W = 31747 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) $HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{level})</th> <th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="5">31,747</td> <td>11,937</td> <td>1.330</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>21,688</td> <td>0.439</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>20,108</td> <td>0.316</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>0</td> <td>0.000</td> </tr> </tbody> </table>										Level	Level Factor (LF)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)	1	0.5	31,747	11,937	1.330	2	0.3	21,688	0.439	3	0.2	20,108	0.316	4	0	0	0.000	5	0	0	0.000						
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5	0		0	0.000																																					
6.2.6 Sensible Gain due to Air Leakage $HG_{salb} = LR_{aire} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.128 x 524.59 x 9 °C x 1.2 = 706 W = 2407 Btu/h																																									
6.2.7 Sensible heat gain due to Ventilation $HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 155 CFM x 16 °F x 1.08 x 0.25 = 661 Btu/h																																									

*HLairbv = Air leakage heat loss + ventilation heat loss
*For a balanced or supply only ventilation system HLairv = 0

HEAT LOSS AND GAIN SUMMARY SHEET**MODEL:** 5005 ELEV. 'B' - THE HIGHBOURNE OPT. 5 BED + ELEVATOR**BUILDER:** GOLD PARK HOMES**SFQT:** 4412**LO#** 77535**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):	66692.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 77.0 ft	WIDTH: 42.0 ft	EXPOSED PERIMETER:	238.0 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	-

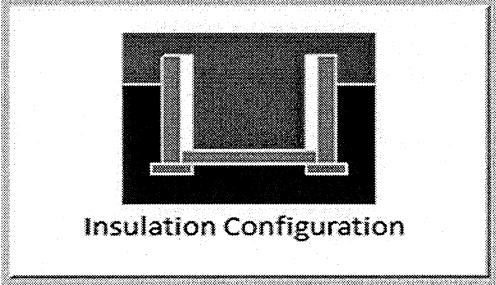
INDIVIDUAL BCIN: 19669

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):	23.5	 Insulation Configuration
Floor Width (m):	12.8	
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):	2472	

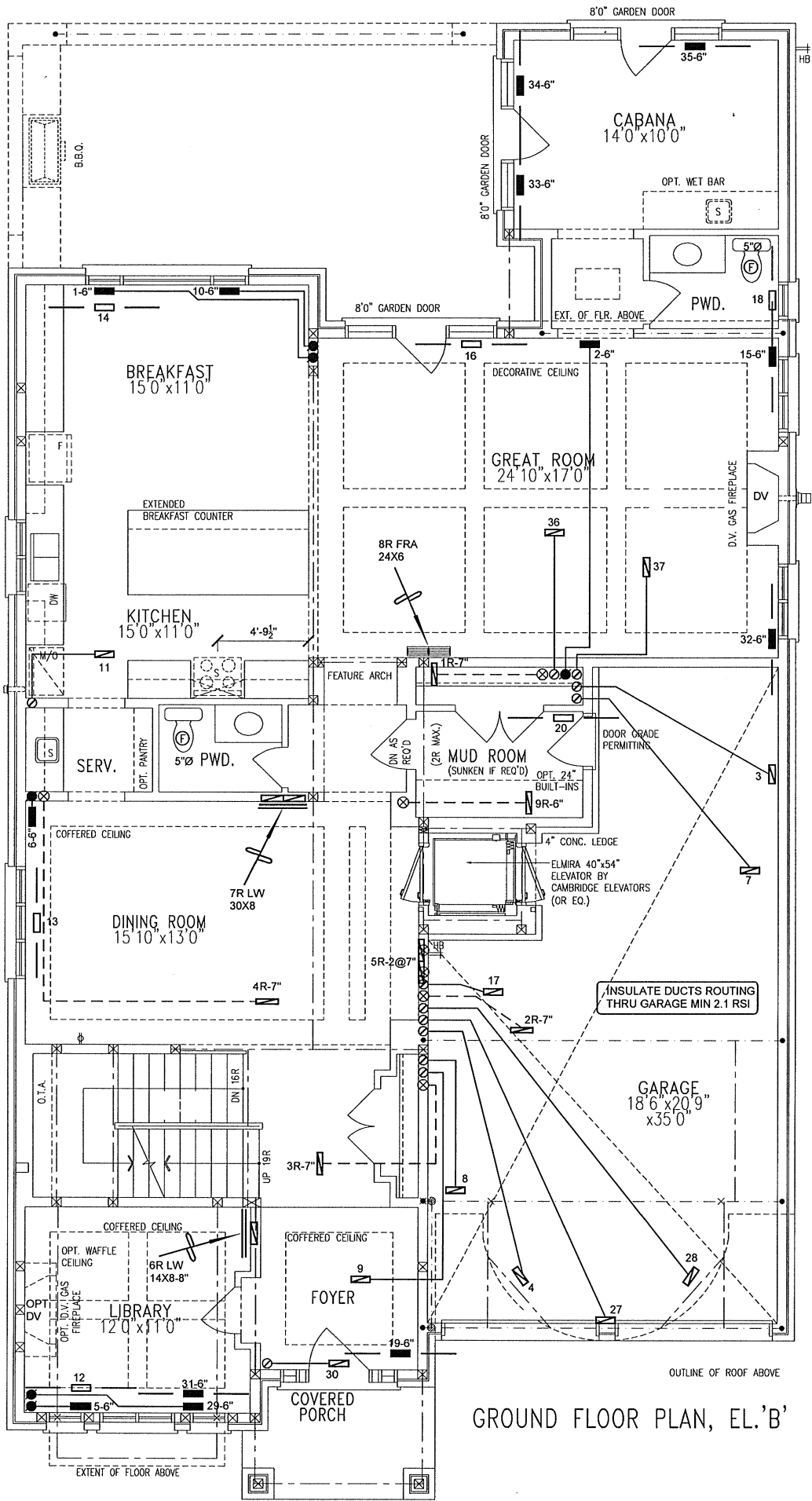
TYPE: 5005 ELEV. 'B' - THE HIGHBOURNE OPT. 5 BED + ELEVATOR
LO# 77535

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):	7.32			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1888.5			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2517.4 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):	0.350			
Cooling Air Leakage Rate (ACH/H):	0.128			

TYPE: 5005 ELEV. 'B' - THE HIGHBOURNE OPT. 5 BED + ELEVATOR
LO# 77535



GROUND FLOOR PLAN, EL. 'B'

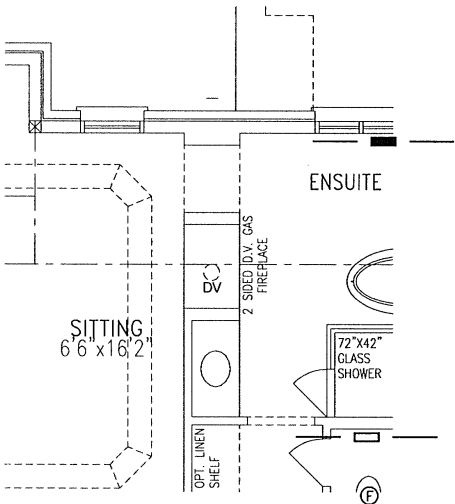
I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE:
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

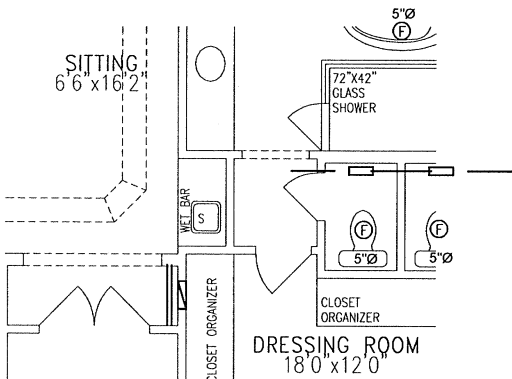
HVAC LEGEND						3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	2.
	FLOOR SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	1.
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	No. Description Date
REVISIONS								

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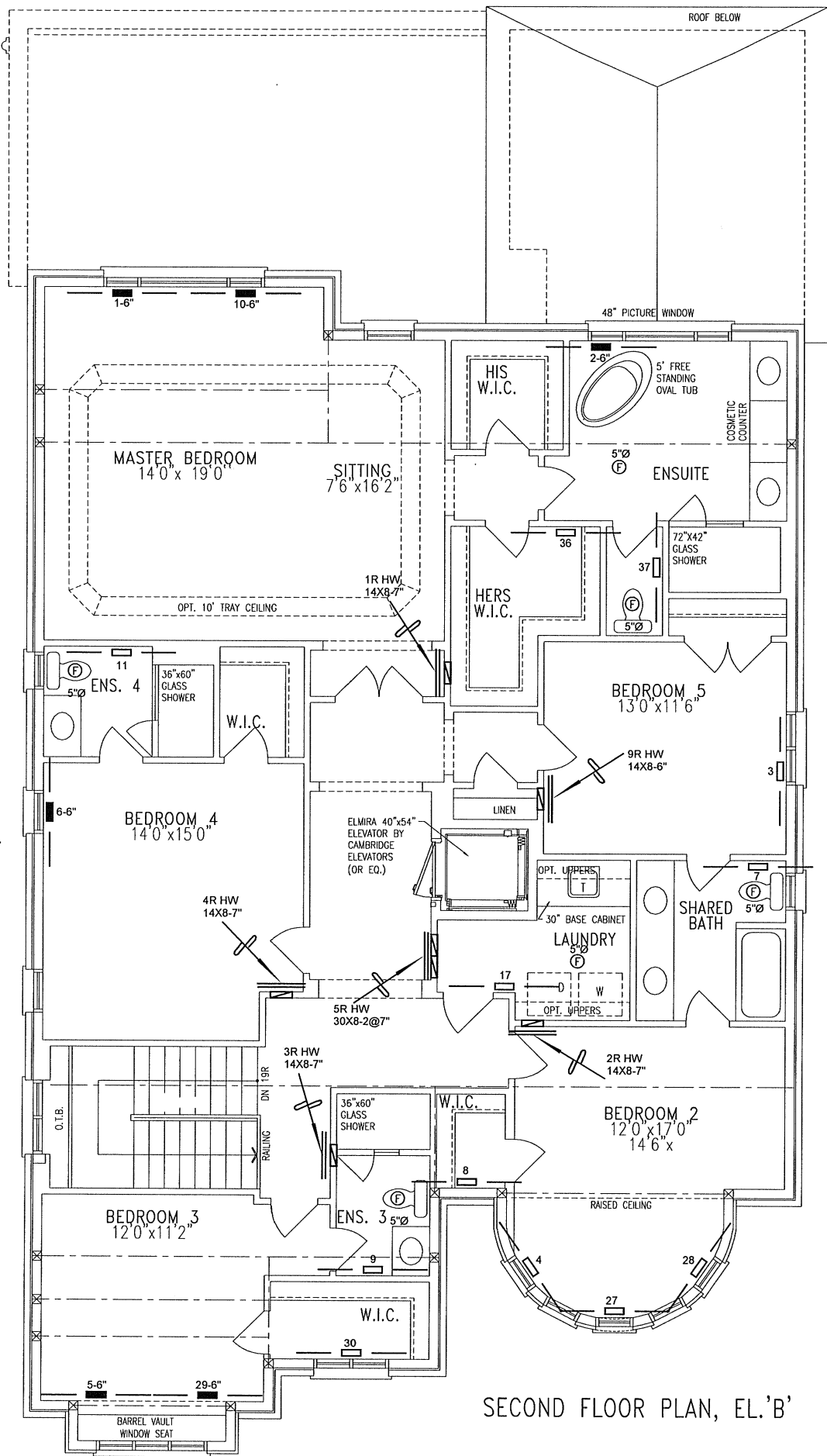
Client GOLDPARK HOMES		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply 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 FIRST FLOOR HEATING LAYOUT	
Project Name PINE VALLEY & TESTON VAUGHAN, ONTARIO THE HIGBOURNE OPT. 5 BED + ELEVATOR 5005 ELEV. 'B' 4412 sqft			Date JAN/2018	
			Scale 1/8" = 1'-0"	
			BCIN# 19669	
			LO# 77535	



PART. SECOND FLOOR PLAN
OPT. SITTING AREA FIREPLACE



PART. SECOND FLOOR PLAN
OPT. SITTING AREA WET BAR



SECOND FLOOR PLAN, EL.'B'

I MICHAEL O'ROURKE HAVE REVIEW
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C.32.5 OF THE
BUILDING CODE
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	FLOOR SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

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Client
GOLDPARK HOMES

Project Name
**PINE VALLEY & TESTON
VAUGHAN, ONTARIO
THE HIGHBOURNE
OPT. 5 BED + ELEVATOR
5005 ELEV. 'B' 4412 sqft**

HVACDESIGNS LTD.
375 Finley Ave. Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
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Sheet Title
**SECOND FLOOR
HEATING
LAYOUT**

Date
JAN/2018

Scale
1/8" = 1'-0"

BCIN# 19669

LO# **77535**