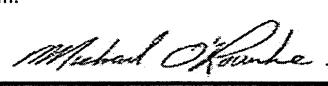


Schedule 1: Designer Information

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 - THE HIGHBOURNE OPT. 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.

SITE NAME: PINE VALLEY & TESTON BUILDER: GOLD PARK HOMES										TYPE: 5005 - THE HIGHBOURNE		OPT. ELEVATOR		GFA: 4483		DATE: Jan-18 LOW 77482		WINTER NATURAL AIR CHANGE RATE 0.350 SUMMER NATURAL AIR CHANGE RATE 0.121		HEAT LOSS AT °F. 76 HEAT GAIN AT °F. 14		CSA-F280-12 SB-12 PACKAGE A1	
ROOM USE		MBR		ENS		WIC		BED-2		BED-3		BED-4		ENS-2		WIC-2		ENS-3		ENS-4			
EXP. WALL		46		36		13		32		50		19		6		9		4		7			
CLG. HT.		11		10		10		11		11		10		10		10		10		10			
FACTORS																							
GRS.WALL AREA		506		360		130		382		550		180		80		90		40		70			
GLAZING		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN			
NORTH		21.3	16.3	0	0	0	6	128	98	18	383	293	0	0	0	0	0	0	0	0	0		
EAST		21.3	41.8	0	0	0	0	0	0	70	1490	2928	73	1553	3054	0	0	0	0	0	0		
SOUTH		21.3	25.2	0	0	0	0	0	0	0	0	28	596	705	32	681	806	0	0	0	0		
WEST		21.3	41.8	50	1064	2092	34	724	1422	0	0	0	0	0	0	0	0	0	0	8	170		
SKYL.T.		37.2	102.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
DOORS		25.2	4.6	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	456	2035	370	326	1455	264	124	553	100	264	1178	214	449	2004	364	158	705	128		
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		
EXPOSED CLG		1.3	0.6	533	684	322	323	415	195	247	317	149	254	326	154	272	349	164	285	366	172		
NO A T T I C EXPOSED CLG		2.7	1.3	0	0	0	0	0	0	0	0	24	66	31	84	231	109	0	0	0	0		
EXPOSED FLOOR		2.6	0.5	0	0	0	0	0	0	164	393	71	278	709	129	104	265	48	0	0	0		
BASEMENT/CRAWL HEAT LOSS				0	0	0	0	0	0	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	0	0	0	0	0	0		
SUBTOTAL HT LOSS				3783		2593		1391		4152		4998		1752		632		586		419	582		
SUB TOTAL HT GAIN				0.20	0.30	0.20	0.30	0.20	0.30	0.20	0.30	0.20	0.30	0.20	0.30	0.20	0.30	0.20	0.30	0.20	0.30		
LEVEL FACTOR / MULTIPLIER				1149		787		422		1517		1517		532		192		178		127	177		
AIR CHANGE HEAT LOSS				0		0		181		541		682		89		82		76		55	25		
DUCT LOSS				0		0		0		0		573		0		26		13		14	0		
HEAT GAIN PEOPLE		240		480	0	0	0	0	1	240	1	240	1	240	0	0	0	0	0	0	0		
HEAT GAIN APPLIANCES/LIGHTS				692		0		692		692		692		692		0		0		0	0		
TOTAL HT LOSS BTU/H				4832		3380		1994		5953		7167		2284		907		840		601	758		
TOTAL HT GAIN x 1.3 BTU/H				5432		2642		1637		7122		8197		2785		368		192		198	442		

ROOM USE		LIB		DIN		KIT/GT		CAB		LAUN		PWD		FOY		MUD		BAS	
EXP. WALL		31		32		87		45		0		5		35		18		238	
CLG. HT.		11		11		11		11		10		11		11		12		10	
FACTORS																			
GRS.WALL AREA		341		352		957		495		0		55		385		216		1686	
GLAZING		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN	
NORTH		21.3	16.3	0	0	0	46	979	748	0	0	9	192	148	0	0	0	0	20
EAST		21.3	41.8	56	1192	2343	0	0	0	0	0	0	0	0	0	0	0	0	426
SOUTH		21.3	25.2	0	0	34	724	856	63	1341	1586	0	0	0	0	0	0	0	325
WEST		21.3	41.8	0	0	0	0	116	2447	4811	63	1341	2636	0	0	0	0	0	0
SKYL.T.		37.2	102.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DOORS		25.2	4.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL		4.5	0.8	285	1272	231	318	1419	258	776	3463	629	46	205	37	323	1565	284	20
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	805
EXPOSED CLG		1.3	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	92
NO A T T I C EXPOSED CLG		2.7	1.3	0	0	0	0	0	0	102	131	62	0	0	0	0	0	0	0
EXPOSED FLOOR		2.6	0.5	0	0	0	0	0	0	203	558	263	0	40	110	52	41	113	714
BASEMENT/CRAWL HEAT LOSS				0	0	0	0	0	0	66	143	26	0	0	0	0	0	0	2569
SLAB ON GRADE HEAT LOSS				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS				2464		2143		7315		4886		274		507		3120		1380	
SUB TOTAL HT GAIN				0.30	0.44	0.30	0.44	0.30	0.44	0.20	0.30	0.30	0.44	0.30	0.44	0.30	0.44	0.30	0.44
LEVEL FACTOR / MULTIPLIER				1088		947		3232		2159		83		224		1378		610	
AIR CHANGE HEAT LOSS				0		89		436		383		7		19		48		20	
DUCT LOSS				0		0		0		0		36		0		0		0	
HEAT GAIN PEOPLE		240		0	0	0	0	0	0	0	79	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS				692		692		692		692		692		692		0		692	
TOTAL HT LOSS BTU/H				3552		3089		10546		7045		393		731		4498		1989	
TOTAL HT GAIN x 1.3 BTU/H				4514		2464		102595		7617		1126		330		841		1252	

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

OPT. ELEVATOR
TYPE: 5005 - THE HIGHBOURNE

DATE: Jan-18

GFA: 4483 LO# 77482

HEATING CFM 1955 COOLING CFM 1955
TOTAL HEAT LOSS 88,857 TOTAL HEAT GAIN 59,571
AIR FLOW RATE CFM 22.05 AIR FLOW RATE CFM 32.82

AFUE = 96 %
INPUT (BTU/H) = 110,000
OUTPUT (BTU/H) = 106,000

EL296UH110XE60C
FAN SPEED 110

DESIGN CFM = 1955
CFM @ .6" E.S.P.
TEMPERATURE RISE 50 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
SIA	0	0	18	13	7
R/A	0	0	5	3	1

All SIA diffusers 4"x10" unless noted otherwise on layout.

All SIA runs 5"Ø unless noted otherwise on layout.

RUN #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS-2	WIC-2	ENS-3	MBR	ENS-4	LIB	DIN	KIT/GT	KIT/GT	KIT/GT	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	2.47	2.73	1.99	1.98	2.39	2.28	0.91	0.84	0.60	2.47	0.76	1.78	3.09	2.64	2.64	2.64	0.39	0.73	4.50	1.99	4.00	4.00	4.00	4.00
CFM PER RUN HEAT	54	60	44	44	53	50	20	19	13	54	17	39	68	58	58	58	9	16	99	44	88	88	88	88
RM GAIN MBH	2.72	2.28	1.64	2.37	2.73	2.77	0.36	0.19	0.20	2.72	0.44	2.26	2.46	2.57	2.57	2.57	1.13	0.33	0.84	1.25	0.31	0.31	0.31	0.31
CFM PER RUN COOLING	89	75	54	78	90	91	12	6	6	89	15	74	81	84	84	84	37	11	28	41	10	10	10	10
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	0.15
ACTUAL DUCT LGH.	70	70	53	49	75	48	47	48	53	64	59	57	29	52	69	54	36	73	40	47	67	60	54	38
EQUIVALENT LENGTH	200	200	170	160	170	160	150	170	170	150	140	140	103	120	140	110	200	170	210	160	150	120	103	90
TOTAL EFFECTIVE LENGTH	270	270	223	209	245	208	207	198	223	234	209	197	132	172	209	164	236	243	250	207	217	180	157	128
ADJUSTED PRESSURE	0.05	0.06	0.07	0.07	0.06	0.07	0.08	0.08	0.07	0.06	0.07	0.08	0.08	0.11	0.09	0.07	0.09	0.06	0.06	0.08	0.07	0.08	0.09	0.11
ROUND DUCT SIZE	6	6	5	6	6	6	4	4	4	6	4	5	5	5	5	5	4	4	6	4	6	6	5	5
HEATING VELOCITY (ft/min)	275	306	323	224	270	255	229	218	149	275	195	286	499	426	296	426	103	184	505	505	449	449	646	646
COOLING VELOCITY (ft/min)	454	382	396	398	459	464	138	69	69	454	172	543	595	617	428	617	424	126	505	470	51	51	73	73
OUTLET GRILL SIZE	4X10	4X10	3X10	4X10	4X10	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10
TRUNK	D	C	C	G	F	E	C	G	G	D	E	F	E	D	B	C	G	A	F	C	A	B	D	E

RUN #	25	26	27	28	29	30	31	32	33	34	35	36	37	38
ROOM NAME	BAS	BAS	BED-2	BED-2	BED-3	BED-3	LIB	KIT/GT	CAB	CAB	CAB	ENS	ENS	BAS
RM LOSS MBH	4.00	4.00	1.98	1.98	2.39	2.39	1.78	2.64	2.35	2.35	2.35	0.33	0.33	4.00
CFM PER RUN HEAT	88	88	44	44	53	53	39	58	52	52	52	7	7	88
RM GAIN MBH	0.31	0.31	2.37	2.37	2.73	2.73	2.26	2.57	2.54	2.54	2.54	0.18	0.18	0.31
CFM PER RUN COOLING	10	10	78	78	90	90	74	84	83	83	83	6	6	10
ADJUSTED PRESSURE	0.15	0.15	0.16	0.16	0.15	0.15	0.16	0.15	0.15	0.15	0.15	0.16	0.16	0.15
ACTUAL DUCT LGH.	34	50	52	55	80	63	51	55	69	71	82	56	58	23
EQUIVALENT LENGTH	110	150	170	160	170	200	160	120	150	130	140	200	190	140
TOTAL EFFECTIVE LENGTH	144	200	222	215	250	263	211	175	219	201	222	256	248	163
ADJUSTED PRESSURE	0.1	0.07	0.07	0.07	0.06	0.06	0.07	0.08	0.07	0.07	0.07	0.06	0.06	0.09
ROUND DUCT SIZE	5	6	6	6	6	6	5	6	6	6	6	4	4	5
HEATING VELOCITY (ft/min)	646	449	224	224	270	270	286	296	265	265	265	80	80	646
COOLING VELOCITY (ft/min)	73	51	398	398	459	459	543	428	423	423	423	69	69	73
OUTLET GRILL SIZE	3X10	4X10	4X10	4X10	4X10	4X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10
TRUNK	G	F	G	G	F	F	F	B	A	A	A	C	C	E

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	260	0.06	10	8	685	0.06	13.1	20	8	617	0.05	13.1	20	8	1630	0.05	18.9	32	10
TRUNK B	204	0.07	8	8	1954	0.05	20.3	38	10	740	0.05	20.3	38	10	955	0.05	15.5	28	8
TRUNK C	704	0.06	20	8	TRUNK G	0.00	0	0	8	0	0.00	0	0	8	TRUNK P	0.05	0	0	8
TRUNK D	254	0.05	9.4	8	TRUNK H	0.00	0	0	8	0	0.00	0	0	8	TRUNK Q	0.05	0	0	8
TRUNK E	1269	0.05	28	10	TRUNK I	0.00	0	0	8	0	0.00	0	0	8	TRUNK R	0.05	0	0	8
TRUNK F	424	0.06	14	8	TRUNK J	0.00	0	0	8	0	0.00	0	0	8	TRUNK S	0.05	0	0	8
					TRUNK K	0.00	0	0	8	0	0.00	0	0	8	TRUNK T	0.05	0	0	8
					TRUNK L	0.00	0	0	8	0	0.00	0	0	8	TRUNK U	0.05	0	0	8
RETURN AIR #										BR									
AIR VOLUME	115	130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	734
PLENUM PRESSURE	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	614
ACTUAL DUCT LGH.	84	51	62	59	47	30	51	1	1	1	1	1	1	1	14	1	1	1	540
EQUIVALENT LENGTH	200	135	155	140	170	195	0	0	0	0	0	0	0	0	145	0	0	0	18
TOTAL EFFECTIVE LH	284	186	217	244	182	189	200	246	1	1	1	1	1	1	159	0.08	0.08	0.08	
ADJUSTED PRESSURE	0.05	0.07	0.06	0.05	0.07	0.07	0.07	0.05	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36	
ROUND DUCT SIZE	7	6.8	6.9	7	8.5	7.9	9.9	10.8	0	0	0	0	0	0	9	9	9	9	
INLET GRILL SIZE	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
INLET GRILL SIZE	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	14	14	14	14	30	30	30	30	30	30	30	30	30	30	

TYPE: 5005 - THE HIGHBOURNE
SITE NAME: PINE VALLEY & TESTON

LO # 77482
OPT. 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>3</u> @ 10.6 cfm	<u>31.8</u> cfm
Kitchen & Bathrooms	<u>7</u> @ 10.6 cfm	<u>74.2</u> cfm
Other Rooms	<u>8</u> @ 10.6 cfm	<u>84.8</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>79.5</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
ENS	QTXEN050C	50	☒
ENS-2	QTXEN050C	50	☒
ENS-4	QTXEN050C	50	☒
PWD	QTXEN050C	50	☒

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#: 77482		Model: 5005 - THE HIGHBOURNE		Builder: GOLD PARK HOMES		Date: 01/24/2018			
Volume Calculation									
House Volume	Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)					
	Bsmt	2052	10	20520					
	First	2052	11	22572					
	Second	2439	10	24390					
	Third	0	9	0					
	Fourth	0	9	0					
		Total:		67,482.0 ft³					
		Total:		1910.9 m³					
Air Change & Delta T Data									
				WINTER NATURAL AIR CHANGE RATE	0.350				
				SUMMER NATURAL AIR CHANGE RATE	0.121				
Design Temperature Difference									
				Tin °C	Tout °C	ΔT °C	ΔT °F		
				Winter DTDh	-20	42	76		
				Summer DTDc	23	31	14		
6.2.6 Sensible Gain due to Air Leakage									
$HG_{satb} = LR_{aire} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$									
0.350	x	530.80	x	8 °C	x	1.2	=		591 W
									= 2017 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	76 °F	x	1.08	x	0.25	=		578 Btu/h
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)									
$HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{ager} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$									
Level	Level Factor (LF)	HLaire Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairebv / HLlevel)					
1	0.5	32,123	11,937	1.346					
2	0.3		21,813	0.442					
3	0.2		21,161	0.304					
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: 5005 - THE HIGHBOURNE	OPT. ELEVATOR	BUILDER: GOLD PARK HOMES
SFQT: 4483	LO# 77482	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)	74

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):	67482.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
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		Compliance Package A1	
Component		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	-

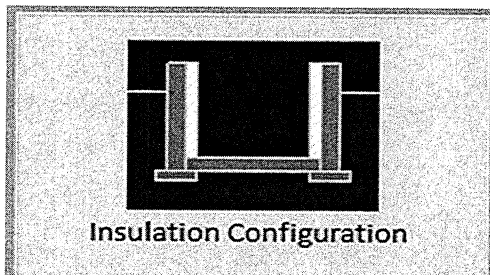
INDIVIDUAL BCIN: 19669

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 - THE HIGHBOURNE
LO# 77482

OPT. ELEVATOR

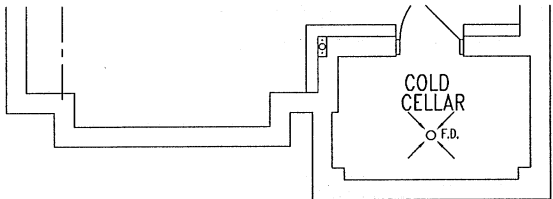
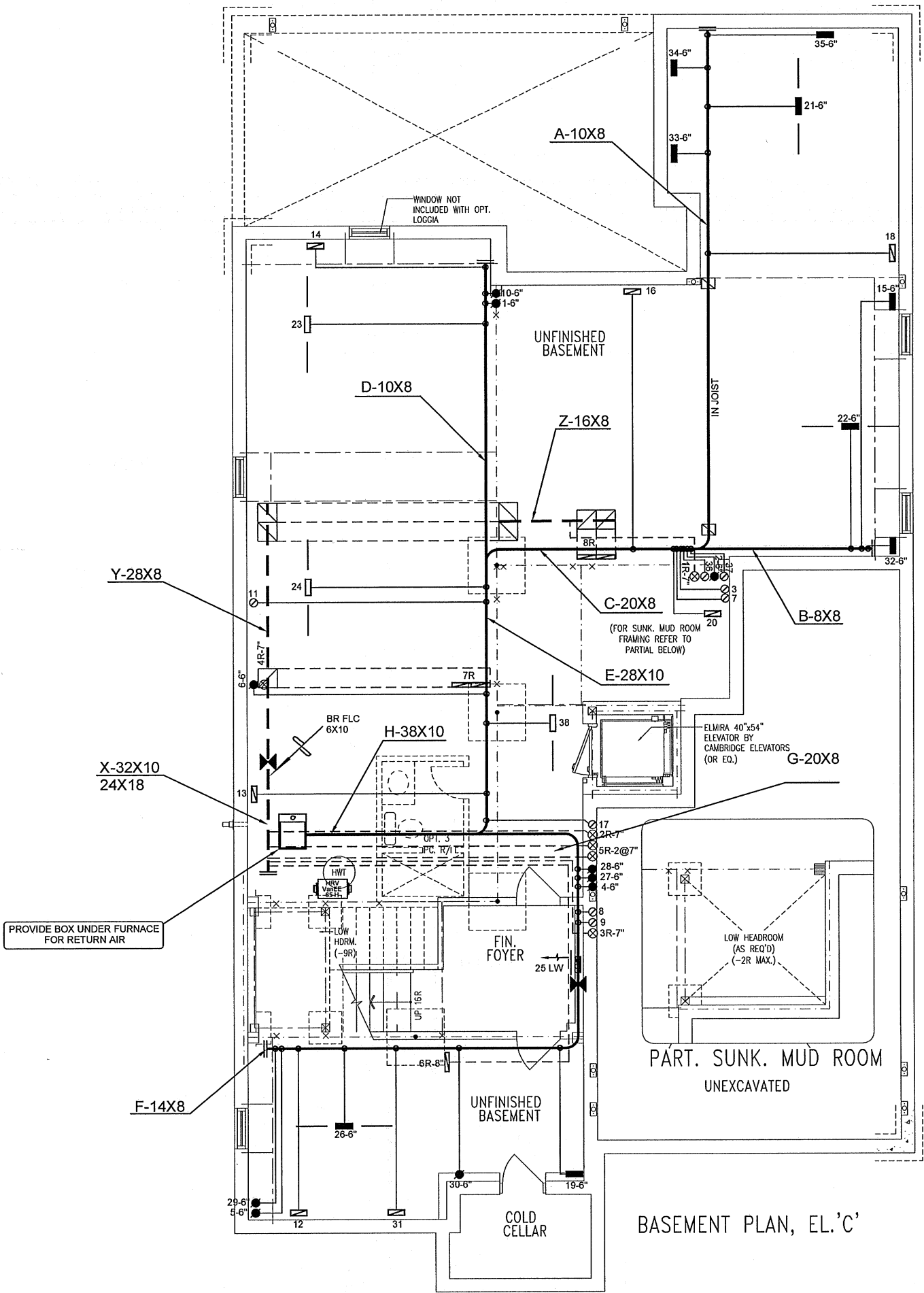
Air Infiltration Residential Load Calculator

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):	1910.9			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2547.3 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):	0.121			

TYPE: 5005 - THE HIGHBOURNE
LO# 77482

OPT. ELEVATOR



I MICHAEL O'ROURKE HAVE REVIEWED 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.
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	
REVISIONS								

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

Client
GOLDPARK HOMES

Project Name
**PINE VALLEY & TESTON
VAUGHAN, ONTARIO
OPT. ELEVATOR
THE HIGHBOURNE
5005 4483 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@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 91837 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS		
MAKE	LENNOX	3RD FLOOR		
MODEL	EL296UH110XE60C	2ND FLOOR	18	5
INPUT	110 MBTU/H	1ST FLOOR	13	3
OUTPUT	106 MBTU/H	BASEMENT	7	1
COOLING	5.0 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		
FAN SPEED	1955 cfm @ 0.6" w.c.			

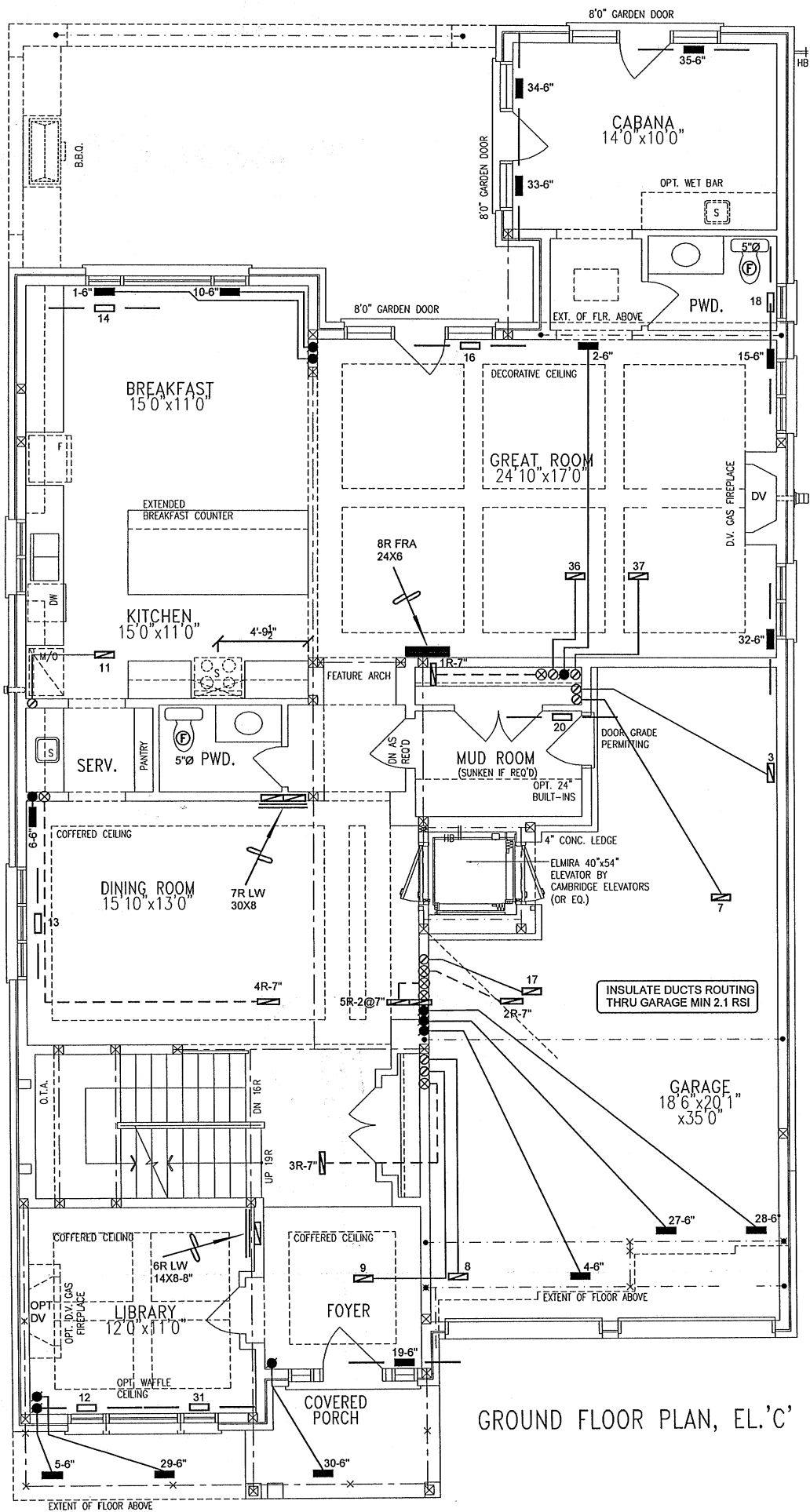
Sheet Title
**BASEMENT
HEATING
LAYOUT**

Date
JAN/2018

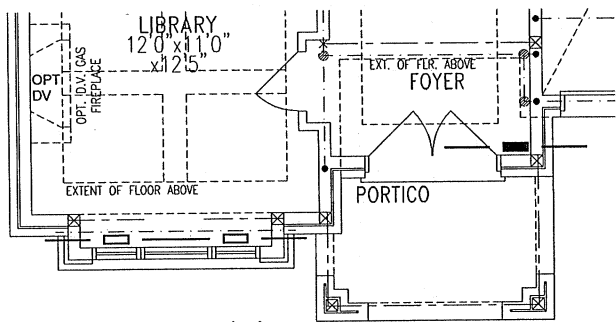
Scale
1/8" = 1'-0"

BCIN# 19669

LO# 77482



GROUND FLOOR PLAN, EL. 'C'



GROUND FLOOR PLAN, EL. 'A'

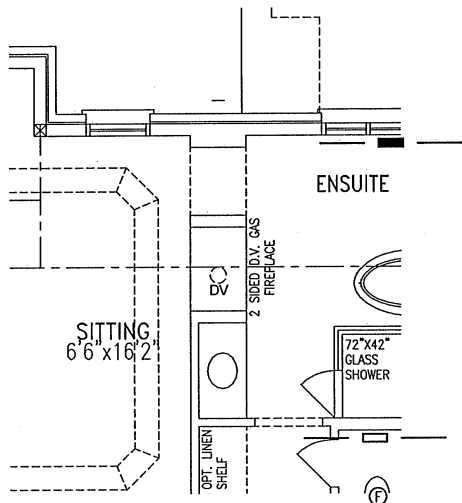
I MICHAEL O'Rourke HAVE REVIEW
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C, 3.2.5 OF THE
BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

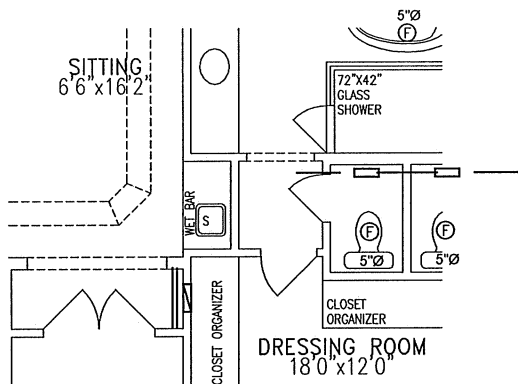
HVAC LEGEND						3.		
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	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	No.
REVISIONS								Date

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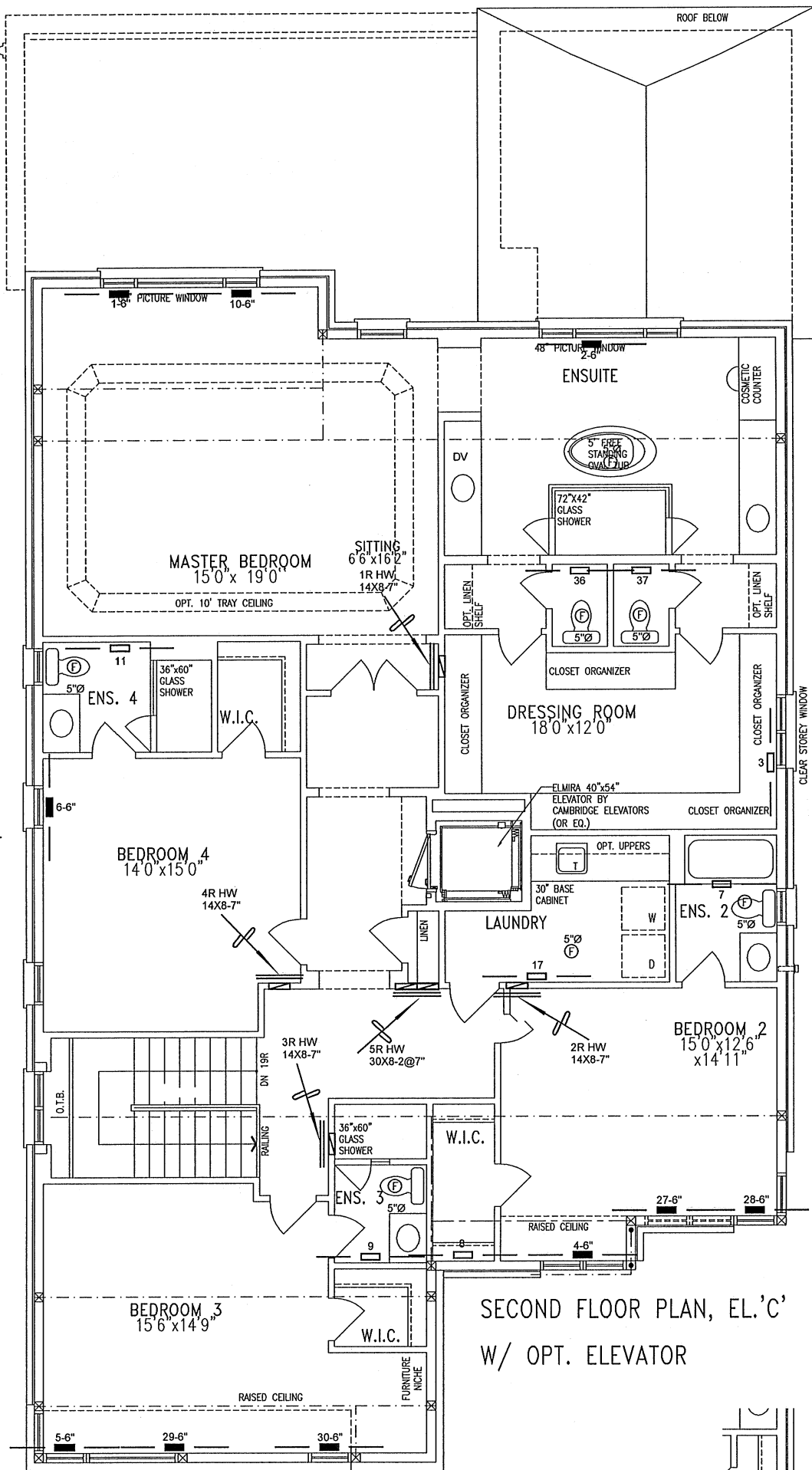
Client GOLDPARK HOMES		HVACDESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services	Sheet Title FIRST FLOOR HEATING LAYOUT	
Project Name PINE VALLEY & TESTON VAUGHAN, ONTARIO OPT. ELEVATOR THE HIGHBOURNE 5005 4483 sqft			Date JAN/2018	
		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.	Scale 1/8" = 1'-0"	
			BCIN# 19669	
			LO#	77482



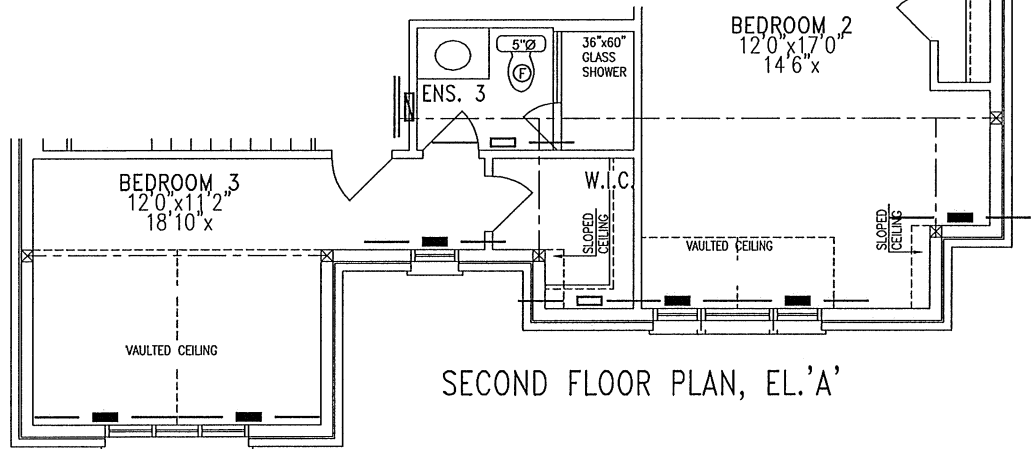
PART. SECOND FLOOR PLAN
OPT. SITTING AREA FIREPLACE



PART. SECOND FLOOR PLAN
OPT. SITTING AREA WET BAR



SECOND FLOOR PLAN, EL.'C'
W/ OPT. ELEVATOR



SECOND FLOOR PLAN, EL.'A'

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	
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	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 SECOND FLOOR HEATING LAYOUT	
Project Name PINE VALLEY & TESTON VAUGHAN, ONTARIO OPT. ELEVATOR THE HIGBOURNE			Date JAN/2018	
5005			Scale 1/8" = 1'-0"	
4483 sqft			BCIN# 19669	
			LO# 77482	