

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.
Municipality VAUGHAN (WOODBIDGE)			Postal code
Plan number/ other description			Lot/con.
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@hvacdsgns.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]			
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> House <input type="checkbox"/> Small Buildings <input type="checkbox"/> Large Buildings <input type="checkbox"/> Complex Buildings </div> <div> <input checked="" type="checkbox"/> HVAC – House <input type="checkbox"/> Building Services <input type="checkbox"/> Detection, Lighting and Power <input type="checkbox"/> Fire Protection </div> <div> <input type="checkbox"/> Building Structural <input type="checkbox"/> Plumbing – House <input type="checkbox"/> Plumbing – All Buildings <input type="checkbox"/> On-site Sewage Systems </div> </div>			
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 - LOT 93 - OPT. ELEVATOR THE KNIGHTSWOOD Project: PINE VALLEY & TESTON	
D. Declaration of Designer			
I, <u>MICHAEL O'ROURKE</u> (print name)		declare that (choose one as appropriate):	
<input type="checkbox"/> 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: _____			
<input checked="" type="checkbox"/> 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>			
<input type="checkbox"/> 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.			
November 2, 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

THE KNIGHTSWOOD										DATE: Nov-18		WINTER NATURAL AIR CHANGE RATE		HEAT LOSS AT °F.		CSA-F280-12	
SITE NAME: PINE VALLEY & TESTON										LO# 80578		SUMMER NATURAL AIR CHANGE RATE		HEAT GAIN AT °F.		SB-12 PACKAGE A1	
BUILDER: GOLD PARK HOMES										TYPE: 5005 - LOT 93 - OPT. ELEVATOR		GFA: 4405					
ROOM USE	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS-2	WIC-2	ENS-3	ENS-4	WIC-3						
EXP. WALL	46	36	11	36	36	19	8	3	4	7	14						
CLG. HT.	11	10	10	11	10	10	10	10	10	10	10						
FACTORS																	
GRS.WALL AREA	506	360	110	396	360	190	80	30	40	70	140						
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS						
NORTH	0	0	6	128	96	0	0	0	0	0	0						
EAST	0	0	0	0	0	0	0	0	0	0	0						
SOUTH	0	0	0	0	0	0	0	0	0	0	0						
WEST	0	0	0	0	0	0	0	0	0	0	0						
SKYL.T.	21.3	41.6	50	1064	2078	34	724	1413	0	0	0						
DOORS	37.2	101.5	0	0	0	0	0	0	0	0	0						
NET EXPOSED WALL	4.5	0.8	326	1455	245	104	464	78	331	1477	249						
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.6	0	0	0	0	0	0	0	0	0						
EXPOSED CLG	1.3	0.6	533	684	313	323	415	190	209	268	123						
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0	0	0	0	0	0	0						
EXPOSED FLOOR	2.6	0.4	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	3783	2593	1253	3945	3031	2126	798	287	297	582	1029						
SUB TOTAL HT GAIN	2734	1848	363	3259	2729	1534	263	63	84	307	952						
LEVEL FACTOR / MULTIPLIER	0.20	0.34	0.20	0.34	0.20	0.34	0.20	0.34	0.20	0.34	0.20						
AIR CHANGE HEAT LOSS	1299	890	430	1354	1040	730	274	99	102	200	353						
AIR CHANGE HEAT GAIN	206	139	27	245	205	0	107	39	6	23	72						
DUCT LOSS	0	0	168	530	407	0	28	7	0	0	0						
DUCT GAIN	0	0	39	457	400	0	0	0	0	0	0						
HEAT GAIN PEOPLE	240	0	0	1	240	1	0	0	0	0	0						
HEAT GAIN APPLIANCES/LIGHTS	821	0	0	821	821	240	0	0	0	0	0						
TOTAL HT LOSS BTU/H	5082	3483	1851	5828	4478	2855	1179	424	398	781	1382						
TOTAL HT GAIN x 1.3 BTU/H	5512	2582	558	6529	5713	3523	405	97	118	430	1331						

ROOM USE	LIB	DIN	KIT/IGT	CAB	LAUN	PWID	FOY	MUD			LOD	BAS
EXP. WALL	31	38	87	45	0	5	35	12			52	238
CLG. HT.	11	11	11	11	10	11	11	12			10	10
FACTORS												
GRS.WALL AREA	341	418	957	495	0	55	385	144			520	1978
GLAZING	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS			LOSS	LOSS
NORTH	0	0	46	0	0	9	0	0			0	0
EAST	56	1192	2327	0	0	0	28	596			0	6
SOUTH	0	0	20	63	0	0	0	0			0	128
WEST	0	0	115	63	0	0	0	0			0	96
SKYL.T.	21.3	41.6	426	1341	0	0	0	0			0	0
DOORS	37.2	101.5	4778	1341	0	0	0	0			0	6
NET EXPOSED WALL	4.5	0.8	363	1647	0	0	28	707			22	128
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.6	0	0	0	0	0	0			468	149
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0			914	0
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0	0	0	0			0	0
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0			0	0
BASEMENT/CRAWL HEAT LOSS	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
SUBTOTAL HT LOSS	2464	2853	7315	4886	317	507	2824	1058			0	8281
SUB TOTAL HT GAIN	2541	1205	6595	4719	104	229	1554	178			0	0
LEVEL FACTOR / MULTIPLIER	0.30	0.47	0.30	0.47	0.20	0.30	0.30	0.47			1512	10993
AIR CHANGE HEAT LOSS	1160	1344	3445	2301	109	239	1330	498			1090	659
AIR CHANGE HEAT GAIN	191	91	496	355	8	17	117	13			0.50	1.38
DUCT LOSS	0	0	0	0	43	0	0	0			17196	0
DUCT GAIN	0	0	0	0	93	0	0	0			0	0
HEAT GAIN PEOPLE	240	0	0	0	821	0	0	0			0	0
HEAT GAIN APPLIANCES/LIGHTS	821	821	821	821	469	745	4154	1557			0	821
TOTAL HT LOSS BTU/H	3624	4197	10760	7187	469	745	4154	1557			1512	28169
TOTAL HT GAIN x 1.3 BTU/H	4619	2752	10285	7664	1334	320	2172	249			1417	2095

60242	TONS: 5.02	LOSS DUE TO VENTILATION LOAD BTU/H: 3181	STRUCTURAL HEAT LOSS: 30137	TOTAL COMBINED HEAT LOSS BTU/H: 93317
TOTAL HEAT GAIN BTU/H:				

I 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.

Michael O'Rourke

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

Michael O'Rourke

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

THE KNIGHTSWOOD

TYPE: 5005 - LOT 93 - OPT. ELEVATOR DATE: Nov-18

GFA: 4405 LO# 80578

HEATING CFM 1955 COOLING CFM 1955
TOTAL HEAT LOSS 90,137 TOTAL HEAT GAIN 59,706
AIR FLOW RATE CFM 21.69 AIR FLOW RATE CFM 32.74

AFUE = 96 %
INPUT (BTU/H) = 110,000
OUTPUT (BTU/H) = 106,000
DESIGN CFM = 1955
CFM @ .6" E.S.P.

RUN COUNT	4th	3rd	2nd	1st	Bas
HEATING	0	0	19	13	7
COOLING	0	0	5	3	1

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

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

RUN #	1	2	3	4	5	6	7	8	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	2.54	2.76	1.85	1.94	2.24	1.43	1.18	0.42	0.40	2.54	0.78	1.81	4.20	2.69	2.69	2.69	0.47	0.75	4.15	1.56	4.24	4.24	4.24	4.24
CFM PER RUN HEAT	55	60	40	42	49	31	26	9	9	55	17	39	91	58	58	58	10	16	90	34	92	92	92	92
RM GAIN MBH	2.76	2.26	0.56	2.18	2.86	1.76	0.40	0.10	0.12	2.76	0.43	2.31	2.75	2.57	2.57	2.57	1.33	0.32	2.17	0.25	0.50	0.50	0.50	0.50
CFM PER RUN COOLING	90	74	18	71	94	58	13	3	4	90	14	76	90	84	84	84	44	10	71	8	16	16	16	16
ADJUSTED PRESSURE	0.15	0.16	0.16	0.16	0.15	0.16	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	70	48	47	48	53	64	59	57	29	52	69	54	36	73	40	47	67	60	54	38
EQUIVALENT LENGTH	190	200	170	160	160	160	160	150	170	170	150	140	103	120	140	110	200	170	210	160	150	120	103	90
TOTAL EFFECTIVE LENGTH	260	270	223	209	230	208	207	198	223	234	209	197	132	172	209	164	236	243	250	207	217	180	157	128
ADJUSTED PRESSURE	0.06	0.06	0.07	0.07	0.06	0.08	0.08	0.08	0.08	0.07	0.07	0.08	0.11	0.09	0.09	0.09	0.07	0.06	0.06	0.08	0.07	0.08	0.09	0.11
ROUND DUCT SIZE	6	6	4	5	6	5	4	4	4	6	6	6	6	6	6	6	5	4	6	4	6	6	6	6
HEATING VELOCITY (ft/min)	280	306	459	308	250	228	298	103	103	280	195	296	464	296	296	296	73	184	459	390	469	469	469	469
COOLING VELOCITY (ft/min)	459	377	207	521	479	426	149	34	46	459	161	388	459	428	428	428	323	115	362	92	82	82	82	82
OUTLET GRILL SIZE	4X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	4X10	3X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	4X10	3X10	4X10	4X10	4X10	4X10
TRUNK	D	C	C	G	F	E	C	G	G	D	E	F	E	D	B	C	E	A	F	C	A	B	D	E

25	BAS	26	BAS	27	BED-2	28	BED-2	29	BED-3	30	WIC-3	31	LIB	32	KIT/GT	33	CAB	34	CAB	35	CAB	36	ENS	37	ENS	38	BAS	39	BED-4	
ROOM NAME	BAS	BAS	BED-2	BED-2	BED-3	WIC-3	LIB	WIC-3	BED-3	WIC-3	LIB	LIB	WIC-3	KIT/GT	KIT/GT	CAB	CAB	CAB	CAB	CAB	ENS	ENS	ENS	ENS	ENS	BAS	BAS	BED-4	BED-4	
RM LOSS MBH	4.24	4.24	1.94	1.94	2.24	1.38	1.81	2.24	2.24	2.40	1.38	1.81	2.69	2.69	2.69	2.40	2.40	2.40	2.40	2.40	0.36	0.36	0.36	0.36	0.36	4.24	1.43	1.43	1.43	
CFM PER RUN HEAT	92	92	42	42	49	30	39	58	52	52	30	39	58	58	58	52	52	52	52	52	8	8	8	8	8	92	31	31	31	
RM GAIN MBH	0.50	0.50	2.18	2.18	2.86	1.33	2.31	2.57	2.55	2.55	1.33	2.31	2.57	2.57	2.55	2.55	2.55	2.55	2.55	2.55	0.16	0.16	0.16	0.16	0.16	0.50	1.76	1.76	1.76	
CFM PER RUN COOLING	16	16	71	71	94	44	76	84	84	84	44	76	84	84	84	84	84	84	84	84	5	5	5	5	5	16	58	58	58	
ADJUSTED PRESSURE	0.15	0.15	0.16	0.16	0.15	0.16	0.16	0.15	0.15	0.15	0.16	0.16	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.16	0.16	0.16	0.16	0.16	0.15	0.16	0.16	0.16	
ACTUAL DUCT LGH	34	50	52	55	75	58	51	55	69	71	58	51	55	55	55	69	71	71	71	71	82	56	58	58	58	23	48	48	48	
EQUIVALENT LENGTH	110	150	170	160	160	190	160	160	160	160	190	160	160	120	150	130	140	200	200	190	200	190	140	190	140	190	140	190	190	190
TOTAL EFFECTIVE LENGTH	144	200	222	215	235	248	211	175	219	201	222	256	248	163	238	248	256	256	256	248	256	248	163	238	248	163	238	238	238	238
ADJUSTED PRESSURE	0.1	0.07	0.07	0.07	0.06	0.06	0.07	0.08	0.07	0.07	0.06	0.07	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.09	0.07	0.07	0.07	0.07
ROUND DUCT SIZE	6	6	5	5	6	5	6	6	6	6	5	6	6	6	6	6	6	6	6	6	4	4	4	4	4	6	5	5	5	5
HEATING VELOCITY (ft/min)	469	469	308	308	250	220	199	296	265	265	265	265	265	265	265	265	265	265	265	265	92	92	92	92	92	469	228	228	228	228
COOLING VELOCITY (ft/min)	82	82	521	521	479	323	388	428	428	428	388	428	428	428	428	428	428	428	428	428	57	57	57	57	57	82	426	426	426	426
OUTLET GRILL SIZE	4X10	4X10	3X10	3X10	4X10	3X10	4X10	4X10	4X10	4X10	3X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10
TRUNK	G	F	G	G	F	F	F	F	F	F	F	F	F	B	B	A	A	A	A	A	C	C	C	C	C	E	E	E	E	E

SUPPLY AIR TRUNK SIZE										RETURN AIR TRUNK SIZE									
TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	0.06	9.2	10	475	624	0.06	12.6	18	8	624	0.06	12.6	18	8	624	0.06	12.6	18	8
TRUNK B	0.07	8.1	8	468	1955	0.06	19.4	34	10	828	0.06	19.4	34	10	828	0.06	19.4	34	10
TRUNK C	0.06	13.2	20	468	0	0.00	0	0	8	0	0.00	0	0	8	0	0.00	0	0	8
TRUNK D	0.06	9.1	10	468	0	0.00	0	0	8	0	0.00	0	0	8	0	0.00	0	0	8
TRUNK E	0.06	16.8	32	748	0	0.00	0	0	8	0	0.00	0	0	8	0	0.00	0	0	8
TRUNK F	0.06	10.6	14	499	0	0.00	0	0	8	0	0.00	0	0	8	0	0.00	0	0	8

RETURN AIR #										BR																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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TYPE: 5005 - LOT 93 - OPT. ELEVATOR
SITE NAME: PINE VALLEY & TESTON

LO # 80578
THE KNIGHTSWOOD

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES		9.32.3.1(1)
a)	<input checked="" type="checkbox"/> Direct vent (sealed combustion) only	
b)	<input type="checkbox"/> Positive venting induced draft (except fireplaces)	
c)	<input type="checkbox"/> Natural draft, B-vent or induced draft gas fireplace	
d)	<input type="checkbox"/> Solid Fuel (including fireplaces)	
e)	<input type="checkbox"/> No Combustion Appliances	

HEATING SYSTEM	
<input checked="" type="checkbox"/> Forced Air	<input type="checkbox"/> Non Forced Air
<input type="checkbox"/> Electric Space Heat	

HOUSE TYPE		9.32.1(2)
<input checked="" type="checkbox"/> I	Type a) or b) appliance only, no solid fuel	
<input type="checkbox"/> II	Type I except with solid fuel (including fireplaces)	
<input type="checkbox"/> III	Any Type c) appliance	
<input type="checkbox"/> IV	Type I, or II with electric space heat	
<input type="checkbox"/>	Other: Type I, II or IV no forced air	

SYSTEM DESIGN OPTIONS		O.N.H.W.P.
<input type="checkbox"/> 1	Exhaust only/Forced Air System	
<input type="checkbox"/> 2	HRV with Ducting/Forced Air System	
<input checked="" type="checkbox"/> 3	HRV Simplified/connected to forced air system	
<input type="checkbox"/> 4	HRV with Ducting/non forced air system	
<input type="checkbox"/>	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	7 @ 10.6 cfm	74.2 cfm
Other Rooms	6 @ 10.6 cfm	63.6 cfm
Table 9.32.3.A.	TOTAL	212.0 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	212	cfm
Less Principal Ventil. Capacity	155	cfm
Required Supplemental Capacity	57.0	cfm

PRINCIPAL EXHAUST FAN CAPACITY			
Model:	VANEE 65H		
Location:	BSMT		
155.0 cfm	3.0 sones		
<input checked="" type="checkbox"/> HVI Approved			
PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
155.0 CFM	76 F	1.08	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	<input checked="" type="checkbox"/> 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:	November-18

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																	
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																																	
LO#: 80578		Model: 5005 - LOT 93 - OPT. ELEVATOR		Builder: GOLD PARK HOMES		Date: 02/11/2018																																																											
Volume Calculation					Air Change & Delta T Data																																																												
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5.2.3.1 Heat Loss due to Air Leakage					6.2.6 Sensible Gain due to Air Leakage																																																												
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$					$HG_{satb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$																																																												
0.379 x 524.75 x 42 °C x 1.2 = 10080 W					= 0.127 x 524.75 x 7 °C x 1.2 = 570 W																																																												
= 34393 Btu/h					= 1946 Btu/h																																																												
5.2.3.2 Heat Loss due to Mechanical Ventilation					6.2.7 Sensible heat Gain due to Ventilation																																																												
$HL_{p-airb} = PVC \times DTD_h \times 1.08 \times (1 - E)$					$HL_{p-airb} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																																												
155 CFM x 76 °F x 1.08 x 0.25 = 3181 Btu/h					155 CFM x 13 °F x 1.08 x 0.25 = 536 Btu/h																																																												
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																																	
$HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{aglevel} + HL_{bglevel})\}$																																																																	
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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 5005 - LOT 93 - OPT. ELEVATOR	THE KNIGHTSWOOD	BUILDER: GOLD PARK HOMES
SFQT: 4405	LO# 80578	SITE: PINE VALLEY & TESTON

DESIGN ASSUMPTIONS

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

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	66713.0	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

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	-

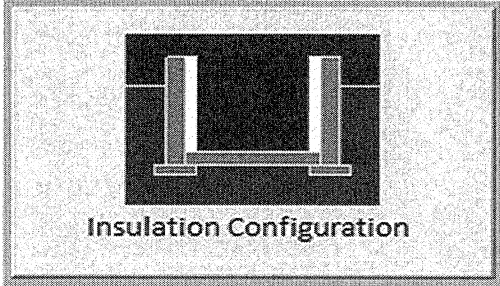
INDIVIDUAL BCIN: 19669

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):	3.2	
Door Area (m ²):	3.7	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		2426

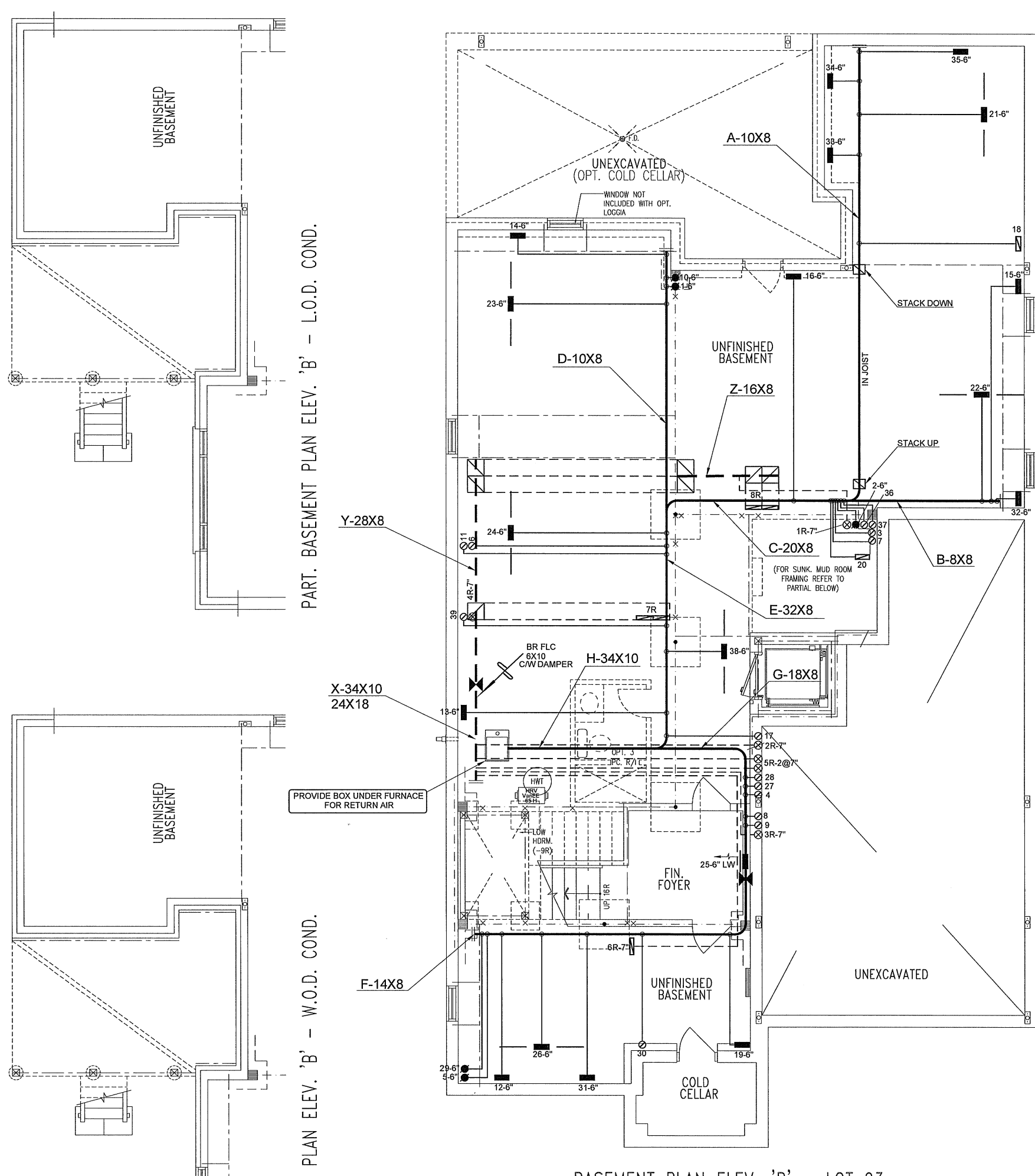
TYPE: 5005 - LOT 93 - OPT. ELEVATOR THE KNIGHTSWOOD
LO# 80578

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):	8.23			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1889.1			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2518.2 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):	0.379			
Cooling Air Leakage Rate (ACH/H):	0.127			

TYPE: 5005 - LOT 93 - OPT. ELEVATOR THE KNIGHTSWOOD
LO# 80578



BASEMENT PLAN ELEV. 'B' - LOT 93

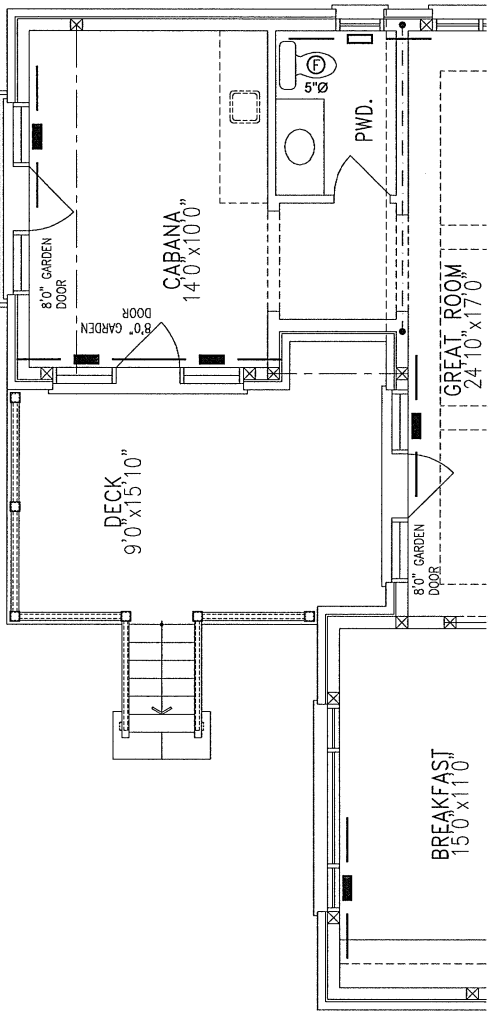
LOT 93
CSA-F280-12
PACKAGE A1

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.

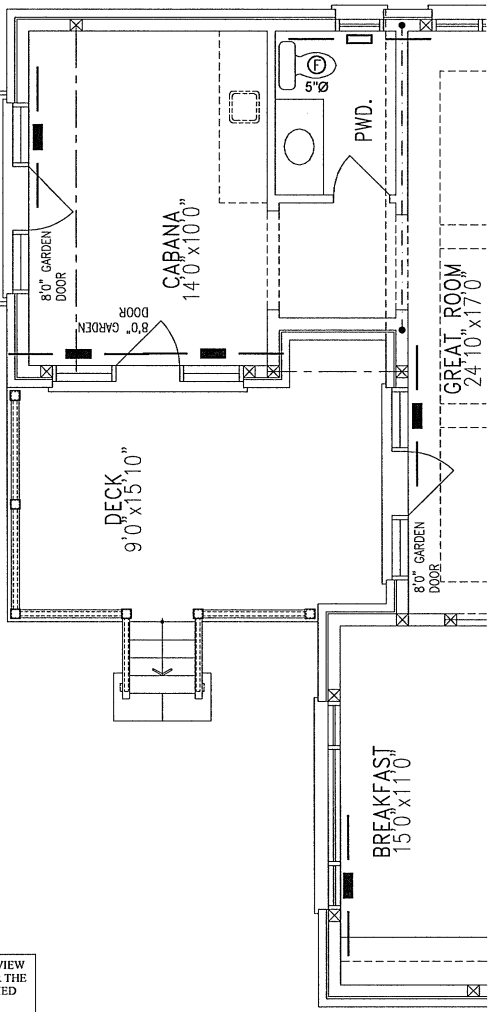
HVAC LEGEND							3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	FLOOR SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		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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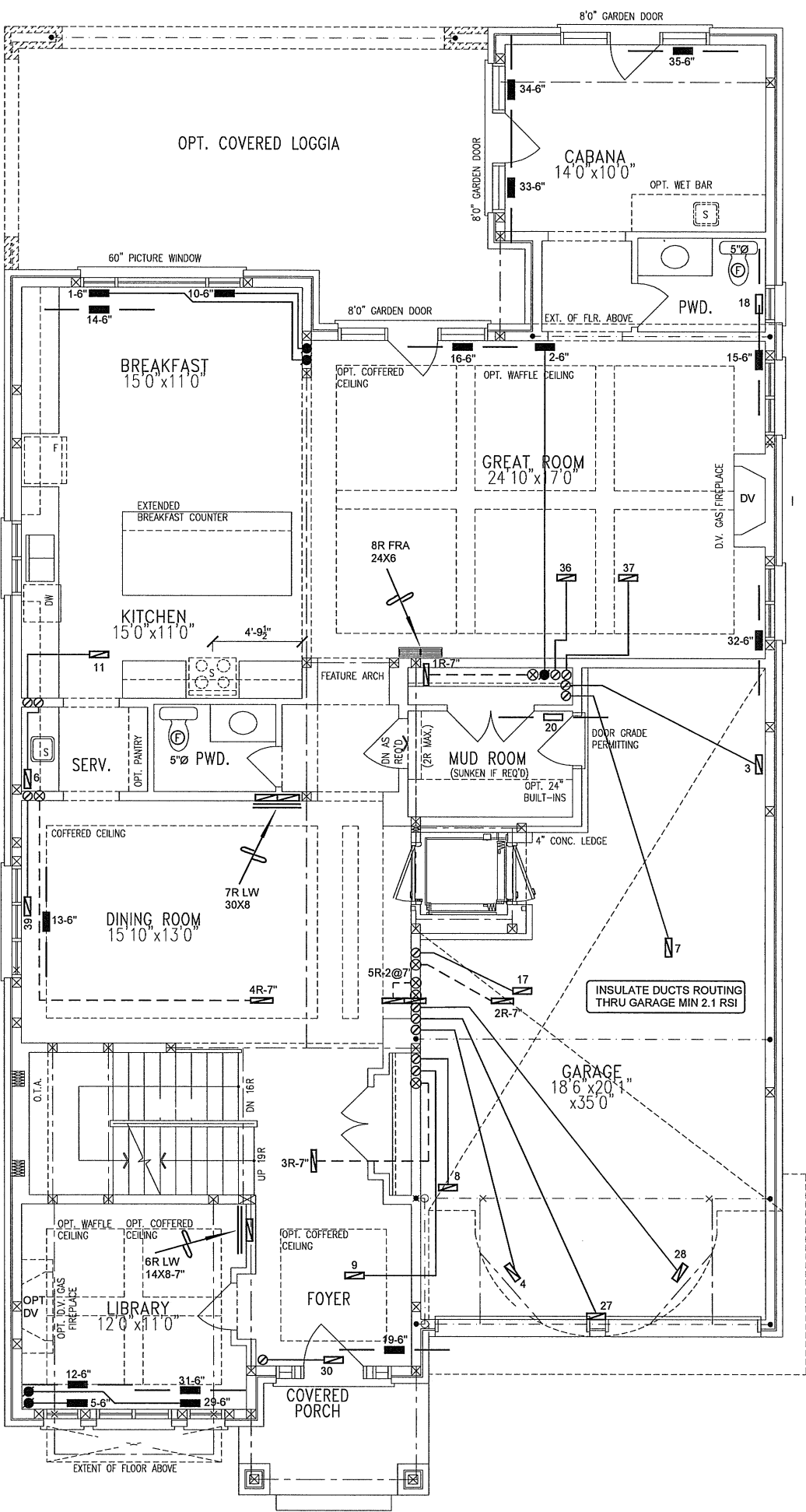
Client		<div><p>375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services</p></div>	HEAT LOSS 93317 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS				Sheet Title		
GOLDPARK HOMES			MAKE LENNOX	3RD FLOOR					BASEMENT HEATING LAYOUT		
Project Name PINE VALLEY & TESTON VAUGHAN, ONTARIO			MODEL EL296UH110XE60C	2ND FLOOR		19	5	7			
KNIGHTSWOOD			INPUT 110 MBTU/H	1ST FLOOR		13	3	3	Date	NOV/2018	
OPT. ELEVATOR			OUTPUT 106 MBTU/H	BASEMENT		7	1	0	Scale	1/8" = 1'-0"	
5005 - LOT 93		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							BCIN# 19669	
4405 sqft		FAN SPEED 1955 cfm @ 0.6" w.c.								LO#	80578



PART. GROUND FLOOR PLAN ELEV. 'B' - L.O.D. COND.



PART. GROUND FLOOR PLAN ELEV. 'B' - W.O.D. COND.



GROUND FLOOR PLAN ELEV. 'B' - LOT 93

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.

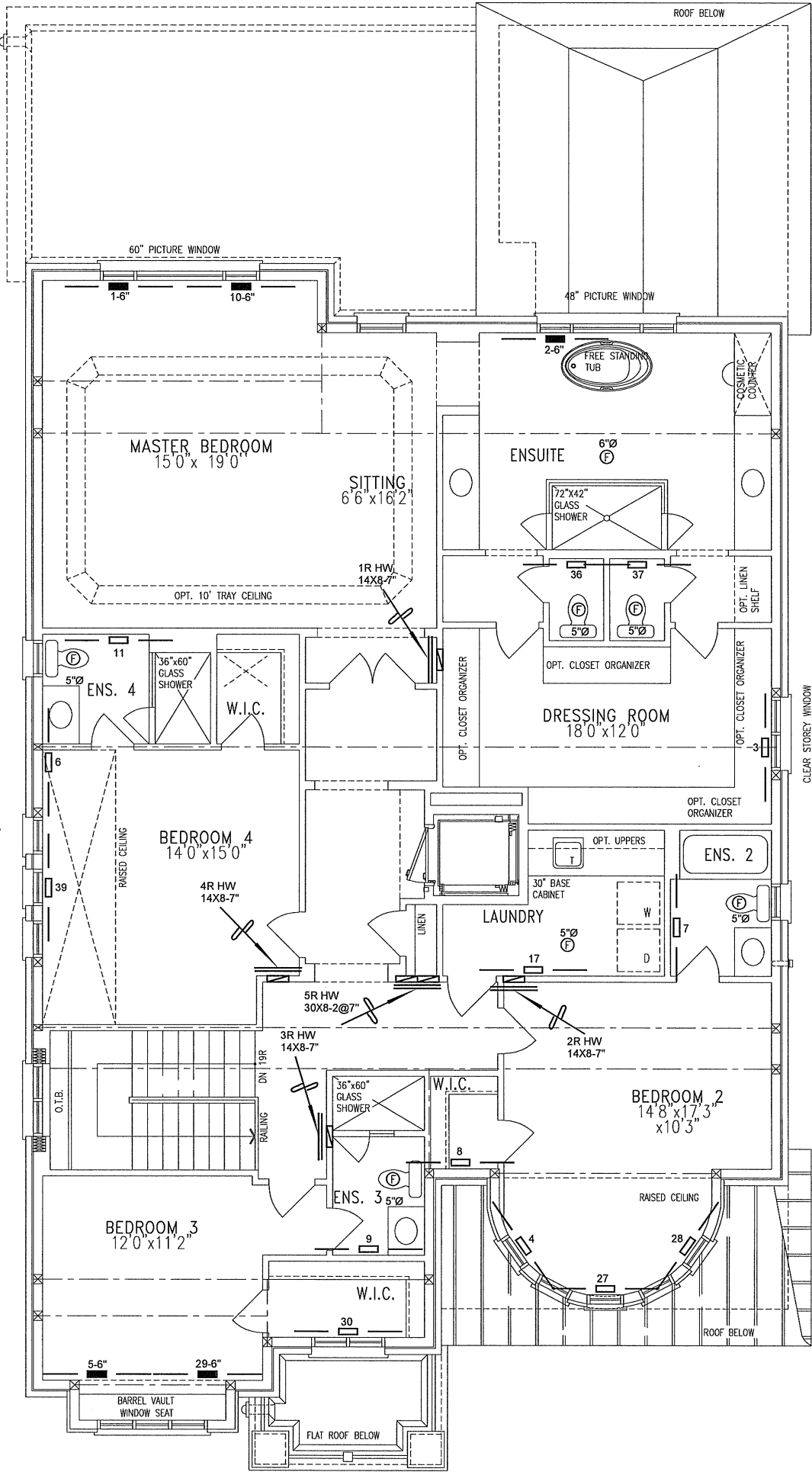
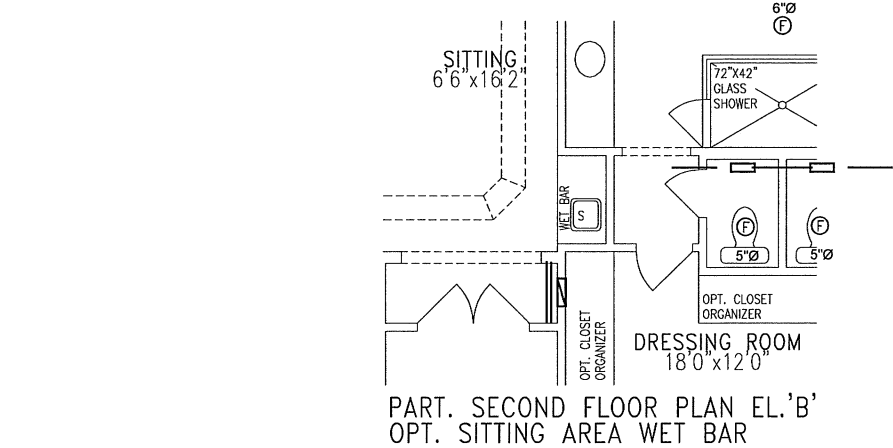
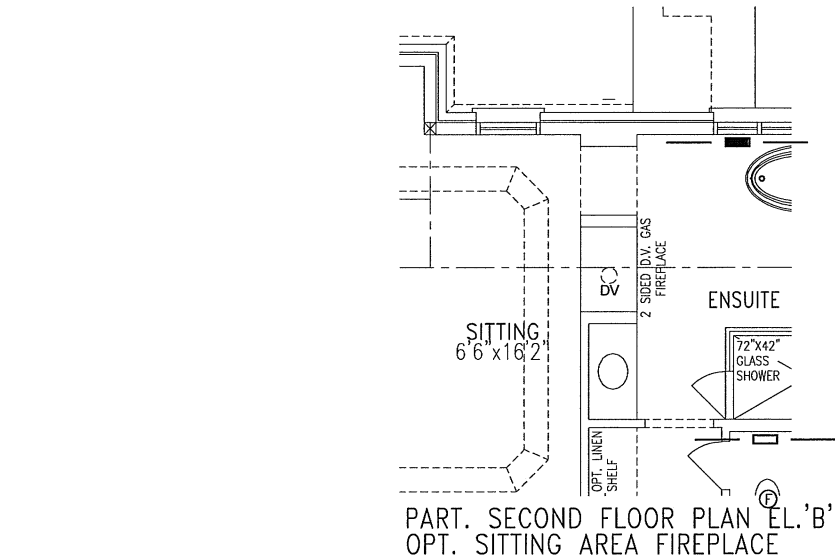
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

LOT 93
CSA-F280-12
PACKAGE A1

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
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	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		<div></div> <div>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</div> <div>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.</div>	Sheet Title	
GOLDPARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	NOV/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	1/8" = 1'-0"
KNIGHTSWOOD			BCIN# 19669	
OPT. ELEVATOR		LO#	80578	
5005 - LOT 93		4405 sqft		



SECOND FLOOR PLAN ELEV. 'B' - LOT 93

LOT 93
CSA-F280-12
PACKAGE A1

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.

HVAC LEGEND								3.		
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Project Name		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.	Date	NOV/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO KNIGHTSWOOD OPT. ELEVATOR 5005 - LOT 93 4405 sqft			Scale	1/8" = 1'-0"
			BCIN# 19669	
			LO#	80578