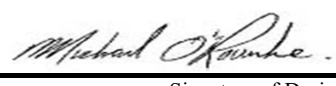


## Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

<b>A. Project Information</b>			
Building number, street name		Unit no.	Lot/con.
Municipality VAUGHAN (WOODBIDGE)	Postal code	Plan number/ other description	
<b>B. Individual who reviews and takes responsibility for design activities</b>			
Name <b>MICHAEL O'ROURKE</b>		Firm <b>HVAC DESIGNS LTD.</b>	
Street address <b>375 FINLEY AVE</b>		Unit no. <b>202</b>	Lot/con. <b>N/A</b>
Municipality <b>AJAX</b>	Postal code <b>L1S 2E2</b>	Province <b>ONTARIO</b>	E-mail <b>info@hvacdesigns.ca</b>
Telephone number <b>(905) 619-2300</b>	Fax number <b>(905) 619-2375</b>	Cell number ( )	
<b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]</b>			
<input type="checkbox"/> House <input type="checkbox"/> Small Buildings <input type="checkbox"/> Large Buildings <input type="checkbox"/> Complex Buildings <input checked="" type="checkbox"/> HVAC – House <input type="checkbox"/> Building Services <input type="checkbox"/> Detection, Lighting and Power <input type="checkbox"/> Fire Protection <input type="checkbox"/> Building Structural <input type="checkbox"/> Plumbing – House <input type="checkbox"/> Plumbing – All Buildings <input type="checkbox"/> On-site Sewage Systems			
Description of designer's work <b>HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12</b>		<b>Model:</b> 5004 THE BEAUMONT  <b>Project:</b> PINE VALLEY & TESTON	
<b>D. Declaration of Designer</b>			
I, <u><b>MICHAEL O'ROURKE</b></u> declare that (choose one as appropriate): (print name)			
<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.			
June 4, 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										DATE: Jun-20		WINTER NATURAL AIR CHANGE RATE 0.340		HEAT LOSS ΔT °F. 76		CSA-F280-12	
BUILDER: GOLD PARK HOMES										LO# 77477		SUMMER NATURAL AIR CHANGE RATE 0.124		HEAT GAIN ΔT °F. 16		SB-12 PACKAGE A1	
TYPE: 5004 THE BEAUMONT										GFA: 4184							
ROOM USE	EXP. WALL	CLG. HT.	FACTORS	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN
MBR	19	38															
ENS	9	12															
DRESS	9	9															
BED-2	11	11															
BED-3	18	18															
BED-4	43	43															
ENS-2	0	0															
WIC-2	13	13															
ENS-3	18	18															
GRS.WALL AREA	190	342															
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	
NORTH	21.3	16.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST	21.3	41.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH	21.3	25.0	0	0	0	9	192	225	4	85	100	0	0	0	0	0	0
WEST	21.3	41.1	42	894	1727	28	596	1152	0	0	0	0	0	0	0	0	0
SKYLT.	37.2	103.0	8	298	824	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
NET EXPOSED WALL	4.5	0.9	148	660	137	305	1361	283	104	464	96	81	361	75	99	442	92
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
EXPOSED CLG	1.3	0.6	460	590	294	312	400	199	228	293	146	183	235	117	136	175	87
NO ATTIC EXPOSED CLG	2.7	1.4	0	0	0	0	0	0	0	0	0	60	165	82	150	412	205
EXPOSED FLOOR	2.6	0.5	0	0	0	0	0	0	0	0	0	187	477	99	196	500	104
BASEMENT/CRAWL HEAT LOSS			0			0			0			0			0		
SLAB ON GRADE HEAT LOSS			0			0			0			0			0		
SUBTOTAL HT LOSS			2443			2549			842			1605			2622		
SUB TOTAL HT GAIN				2982			1859			342			998			2956	
LEVEL FACTOR / MULTIPLIER	0.20	0.34				0.20	0.34		0.20	0.34		0.20	0.34		0.20	0.34	
AIR CHANGE HEAT LOSS			821			857			283			540			881		
AIR CHANGE HEAT GAIN				261			162			30			87			258	
DUCT LOSS			0			0			0			214			350		
DUCT GAIN				0			0			0			210			422	
HEAT GAIN PEOPLE	240		2		480	0		0	0		1		240		1		240
HEAT GAIN APPLIANCES/LIGHTS					770			0		770			770			770	
TOTAL HT LOSS BTU/H				3263			3406			1125			2359			3853	
TOTAL HT GAIN x 1.3 BTU/H					5841			2628			1485			2997			6040

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN
LIBR	27	17															
DIN	11	11															
KIT	111	111															
GREAT	56	56															
LAUN	0	0															
ENS-4	6	6															
FOY	37	37															
MUD	18	18															
LOD	51	51															
BAS	230	230															
GRS.WALL AREA	297	187															
GLAZING	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	
NORTH	21.3	16.4	0	0	0	0	0	0	39	830	640	26	553	426	0	0	0
EAST	21.3	41.1	41	872	1686	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH	21.3	25.0	12	255	300	24	511	601	10	213	250	26	553	651	0	0	0
WEST	21.3	41.1	0	0	0	0	0	0	111	2362	4565	57	1213	2344	0	0	0
SKYLT.	37.2	103.0	0	0	0	0	0	0	0	0	0	4	149	412	0	0	0
DOORS	25.2	5.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.5	0.9	244	1089	226	163	727	151	1061	4735	984	787	3512	730	0	0	0
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
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	192	246	123	0	0	0	139	178	89
NO ATTIC EXPOSED CLG	2.7	1.4	0	0	0	0	0	0	0	0	0	342	940	468	0	0	0
EXPOSED FLOOR	2.6	0.5	0	0	0	0	0	0	0	0	0	0	0	0	75	191	40
BASEMENT/CRAWL HEAT LOSS			0			0			0			0			0		
SLAB ON GRADE HEAT LOSS			0			0			0			0			0		
SUBTOTAL HT LOSS			2217			1238			8386			6772			519		
SUB TOTAL HT GAIN				2213			752			6562			4619			541	
LEVEL FACTOR / MULTIPLIER	0.30	0.38				0.30	0.38		0.30	0.38		0.30	0.38		0.20	0.34	
AIR CHANGE HEAT LOSS			840			469			3176			2565			174		
AIR CHANGE HEAT GAIN				193			66			574			404			47	
DUCT LOSS			0			0			0			0			69		
DUCT GAIN				0			0			0			0			136	
HEAT GAIN PEOPLE	240		0		0	0		0	0		0	0		0	0		0
HEAT GAIN APPLIANCES/LIGHTS					770		770			770			770			770	
TOTAL HT LOSS BTU/H				3056			1707			11562			9336			762	
TOTAL HT GAIN x 1.3 BTU/H					4130			2064			10277			7531			1942

TOTAL HEAT GAIN BTU/H:

61133

TONS: 5.09

LOSS DUE TO VENTILATION LOAD BTU/H: 3181

STRUCTURAL HEAT LOSS: 82166

TOTAL COMBINED HEAT LOSS BTU/H: 85347

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

TYPE: 5004 THE BEAUMONT

DATE: Jun-20

GFA: 4184

LO# 77477

HEATING CFM 1955 COOLING CFM 1955  
TOTAL HEAT LOSS 82,166 TOTAL HEAT GAIN 60,472  
AIR FLOW RATE CFM 23.79 AIR FLOW RATE CFM 32.33

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

^LENNOX  
EL296UH110XE60C 110

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

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	17	12	8
R/A	0	0	5	4	1

plenium 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

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

DESIGN CFM = 1955  
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.

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	DRESS	BED-2	BED-3	BED-4	ENS-2	WIC-2	ENS-4	MBR	ENS-3	LIBR	DIN	KIT	KIT	GREAT	LAUN	KIT	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.63	2.20	1.12	2.36	1.28	1.90	0.33	1.21	0.60	1.63	1.82	1.53	1.71	2.89	2.89	3.11	0.76	2.89	3.89	2.01	3.27	3.27	3.27	3.27
CFM PER RUN HEAT	39	52	27	56	31	45	8	29	14	39	43	36	41	69	69	74	18	69	93	48	78	78	78	78
RM GAIN MBH	2.92	1.31	1.48	3.00	2.01	2.25	0.12	0.31	0.40	2.92	1.19	2.06	2.06	2.57	2.57	2.51	1.94	2.57	2.64	1.43	0.34	0.34	0.34	0.34
CFM PER RUN COOLING	94	42	48	97	65	73	4	10	13	94	38	67	67	83	83	81	63	83	86	46	11	11	11	11
ADJUSTED PRESSURE	0.16	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH	46	62	29	34	38	50	28	31	43	54	41	41	27	40	32	49	26	36	24	16	50	50	39	30
EQUIVALENT LENGTH	190	140	180	180	120	150	160	150	190	180	160	180	80	140	150	130	150	140	150	130	140	100	100	102
TOTAL EFFECTIVE LENGTH	236	202	209	214	158	200	188	181	233	234	201	221	107	180	182	179	176	176	174	146	180	190	139	132
ADJUSTED PRESSURE	0.07	0.09	0.08	0.08	0.11	0.09	0.09	0.1	0.07	0.07	0.09	0.08	0.16	0.09	0.09	0.09	0.1	0.09	0.09	0.12	0.1	0.09	0.12	0.13
ROUND DUCT SIZE	6	4	4	6	5	5	4	4	4	6	4	5	5	5	5	5	5	5	6	4	5	5	5	5
HEATING VELOCITY (ft/min)	199	597	310	286	228	330	92	333	161	199	493	264	301	507	507	543	132	507	474	551	573	573	573	573
COOLING VELOCITY (ft/min)	479	482	551	495	477	536	46	115	149	479	436	492	492	609	609	595	463	609	438	528	81	81	81	81
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10
TRUNK	B	C	D	F	F	E	F	D	E	B	F	E	F	C	C	A	D	B	E	D	A	A	C	C

RUN #	25	26	27	28	30	31	32	33	34	35	36	37	38
ROOM NAME	BAS	BAS	BAS	BAS	ENS	BED-3	BED-3	BED-4	BED-4	LIBR	KIT	GREAT	GREAT
RM LOSS MBH	3.27	3.27	3.27	3.27	1.70	1.28	1.28	1.90	1.90	1.53	2.89	3.11	3.11
CFM PER RUN HEAT	78	78	78	78	41	31	31	45	45	36	69	74	74
RM GAIN MBH	0.34	0.34	0.34	0.34	1.31	2.01	2.01	2.25	2.25	2.06	2.57	2.51	2.51
CFM PER RUN COOLING	11	11	11	11	42	65	65	73	73	67	83	81	81
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16
ACTUAL DUCT LGH	37	23	17	31	33	42	46	47	40	35	28	39	64
EQUIVALENT LENGTH	120	80	120	150	140	130	140	150	130	140	150	150	150
TOTAL EFFECTIVE LENGTH	157	103	137	181	173	172	186	197	170	175	178	189	214
ADJUSTED PRESSURE	0.11	0.17	0.13	0.1	0.1	0.1	0.09	0.09	0.1	0.1	0.09	0.09	0.08
ROUND DUCT SIZE	5	5	5	5	4	5	5	5	5	5	5	5	5
HEATING VELOCITY (ft/min)	573	573	573	573	470	228	228	330	330	264	507	543	543
COOLING VELOCITY (ft/min)	81	81	81	81	482	477	477	536	536	492	609	595	595
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	B	D	F	E	D	F	F	E	E	E	B	A	A

**SUPPLY AIR TRUNK SIZE**

	TRUNK	STATIC	ROUND	RECT	VELOCITY		TRUNK	STATIC	ROUND	RECT	VELOCITY
	CFM	PRESS.	DUCT	DUCT	(ft/min)		CFM	PRESS.	DUCT	DUCT	(ft/min)
TRUNK A	378	0.08	9.7	12	x 8	567	TRUNK G	0	0.00	0	0
TRUNK B	672	0.07	12.5	18	x 8	672	TRUNK H	0	0.00	0	0
TRUNK C	346	0.09	9.1	10	x 8	623	TRUNK I	0	0.00	0	0
TRUNK D	1259	0.07	15.8	28	x 8	809	TRUNK J	0	0.00	0	0
TRUNK E	392	0.07	10.2	12	x 8	588	TRUNK K	0	0.00	0	0
TRUNK F	711	0.07	12.8	20	x 8	640	TRUNK L	0	0.00	0	0

**RETURN AIR TRUNK SIZE**

	TRUNK	STATIC	ROUND	RECT	VELOCITY		TRUNK	STATIC	ROUND	RECT	VELOCITY
	CFM	PRESS.	DUCT	DUCT	(ft/min)		CFM	PRESS.	DUCT	DUCT	(ft/min)
TRUNK O	0	0.06	0	0	x 8	0	TRUNK P	0	0.06	0	0
TRUNK Q	0	0.06	0	0	x 8	0	TRUNK R	0	0.06	0	0
TRUNK S	0	0.06	0	0	x 8	0	TRUNK T	0	0.06	0	0
TRUNK U	0	0.06	0	0	x 8	0	TRUNK V	0	0.06	0	0
TRUNK W	0	0.06	0	0	x 8	0	TRUNK X	1465	0.06	17.4	32
TRUNK Y	685	0.06	13.1	20	x 8	617	TRUNK Z	490	0.06	11.5	16
TRUNK Z	490	0.06	11.5	16	x 8	551	DROP	1955	0.06	19.4	24
DROP	1955	0.06	19.4	24	x 18	652					

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	120	120	120	120	305	85	300	300	185	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	38	37	37	45	43	59	27	25	34	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	195	185	165	205	145	175	190	185	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	233	222	202	250	188	234	217	210	184	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.06	0.07	0.07	0.06	0.08	0.06	0.07	0.07	0.08	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	6.8	6.6	6.6	6.8	9	6	9.2	9.2	7.5	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	8	8	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	14	30	30	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



TYPE: 5004 THE BEAUMONT  
SITE NAME: PINE VALLEY & TESTON

LO # 77477

**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	<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>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Table 9.32.3.A. TOTAL		<u>201.4</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>201.4</u>	cfm
Less Principal Ventil. Capacity	<u>155</u>	cfm
Required Supplemental Capacity	<u>46.4</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY			
Model:	VANEE 65H		
Location:	BSMT		
<u>155.0</u> cfm	<u>3.0</u> sones		
<input checked="" type="checkbox"/> HVI Approved			
PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	$\Delta T$ °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	<input checked="" type="checkbox"/>	0.3
ENS-2	QTXEN050C	50	<input checked="" type="checkbox"/>	0.3
ENS-3	QTXEN050C	50	<input checked="" type="checkbox"/>	0.3
ENS-4	QTXEN050C	50	<input checked="" type="checkbox"/>	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)	<input checked="" type="checkbox"/> 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:	June-20



CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 77477	Model: 5004 THE BEAUMONT	Builder: GOLD PARK HOMES	Date: 6/4/2020																																																									
<b>Volume Calculation</b>			<b>Air Change &amp; Delta T Data</b>																																																									
<b>House Volume</b> <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>2007</td> <td>10</td> <td>20070</td> </tr> <tr> <td>First</td> <td>2007</td> <td>11</td> <td>22077</td> </tr> <tr> <td>Second</td> <td>2262</td> <td>9</td> <td>20358</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="3" style="text-align: right;">Total:</td> <td>62,505.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>1769.9 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	2007	10	20070	First	2007	11	22077	Second	2262	9	20358	Third	0	9	0	Fourth	0	9	0	Total:			62,505.0 ft³	Total:			1769.9 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>T<sub>in</sub> °C</th> <th>T<sub>out</sub> °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTD<sub>h</sub></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 DTD<sub>c</sub></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						T <sub>in</sub> °C	T <sub>out</sub> °C	ΔT °C	ΔT °F	Winter DTD <sub>h</sub>	22	-20	42	76	Summer DTD <sub>c</sub>	22	31	9	16
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<b>5.2.3.1 Heat Loss due to Air Leakage</b>			<b>6.2.6 Sensible Gain due to Air Leakage</b>																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ <p>0.340 x 491.65 x 42 °C x 1.2 = <span style="border: 1px solid black; padding: 2px;">8471 W</span></p> <p style="text-align: right;">= <span style="border: 1px solid black; padding: 2px;">28902 Btu/h</span></p>			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ <p>= 0.124 x 491.65 x 9 °C x 1.2 = <span style="border: 1px solid black; padding: 2px;">642 W</span></p> <p style="text-align: right;">= <span style="border: 1px solid black; padding: 2px;">2191 Btu/h</span></p>																																																									
<b>5.2.3.2 Heat Loss due to Mechanical Ventilation</b>			<b>6.2.7 Sensible heat Gain due to Ventilation</b>																																																									
$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>155 CFM x 76 °F x 1.08 x 0.25 = <span style="border: 1px solid black; padding: 2px;">3181 Btu/h</span></p>			$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>155 CFM x 16 °F x 1.08 x 0.25 = <span style="border: 1px solid black; padding: 2px;">661 Btu/h</span></p>																																																									
<b>5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)</b>																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																												
Level	Level Factor (LF)	HL <sub>airbv</sub> Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL <sub>clevel</sub> )	Air Leakage Heat Loss Multiplier (LF x HL <sub>airbv</sub> / HL <sub>clevel</sub> )																																																								
1	0.5	28,902	11,716	1.234																																																								
2	0.3		22,893	0.379																																																								
3	0.2		17,197	0.336																																																								
4	0		0	0.000																																																								
5	0		0	0.000																																																								
<p>*HL<sub>airbv</sub> = Air leakage heat loss + ventilation heat loss</p> <p>*For a balanced or supply only ventilation system HL<sub>airve</sub> = 0</p>																																																												

**HEAT LOSS AND GAIN SUMMARY SHEET****MODEL:** 5004 THE BEAUMONT**BUILDER:** GOLD PARK HOMES**SFQT:** 4184**LO#** 77477**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 <sup>3</sup> ):	62505.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft <sup>2</sup> ):	1.35	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 74.0 ft	WIDTH: 41.0 ft	EXPOSED PERIMETER:	230.0 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	-

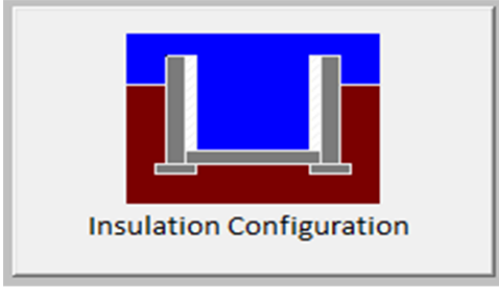
INDIVIDUAL BCIN: 19669

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):	22.6	 Insulation Configuration
Floor Width (m):	12.5	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m <sup>2</sup> ):	3.4	
Door Area (m <sup>2</sup> ):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		2353

TYPE: 5004 THE BEAUMONT  
LO# 77477

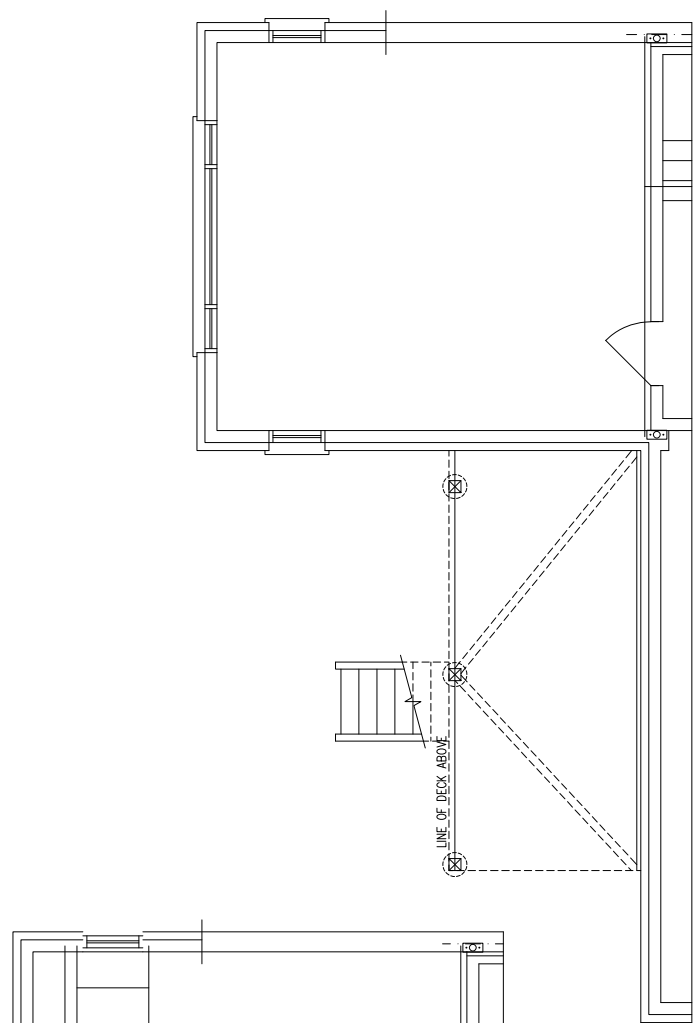


# Air Infiltration Residential Load Calculator

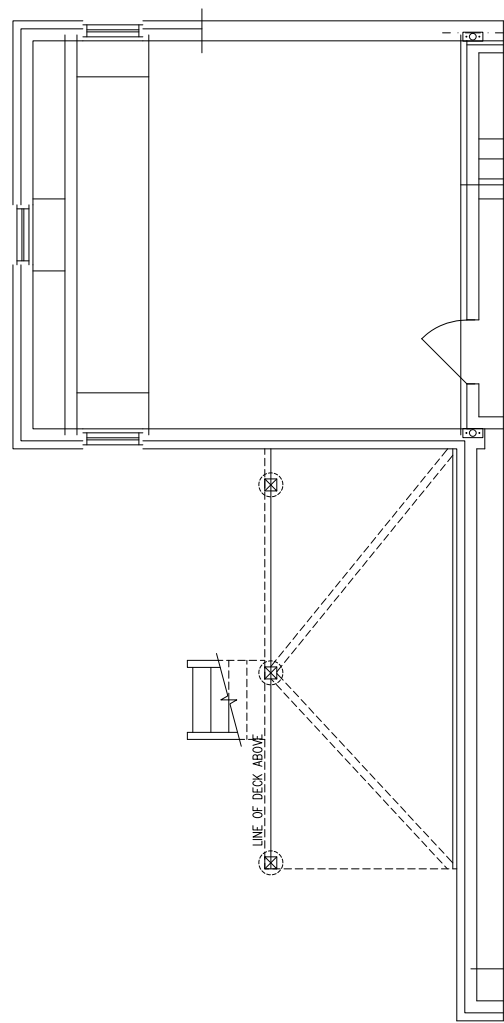
Supplemental tool for CAN/CSA-F280

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 <sup>3</sup> ):	1769.9			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2359.4 cm <sup>2</sup>		
	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			

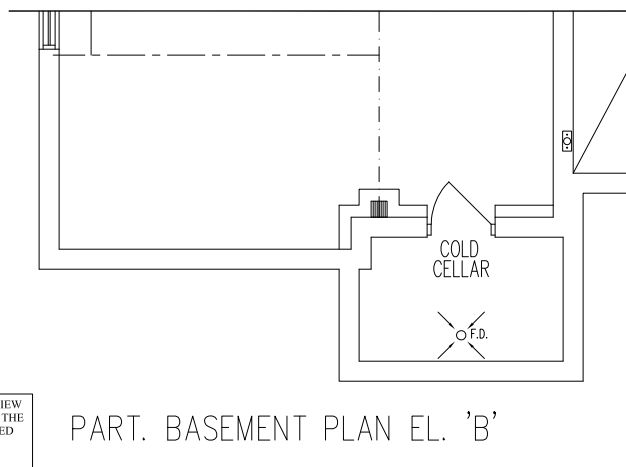
TYPE: 5004 THE BEAUMONT  
LO# 77477



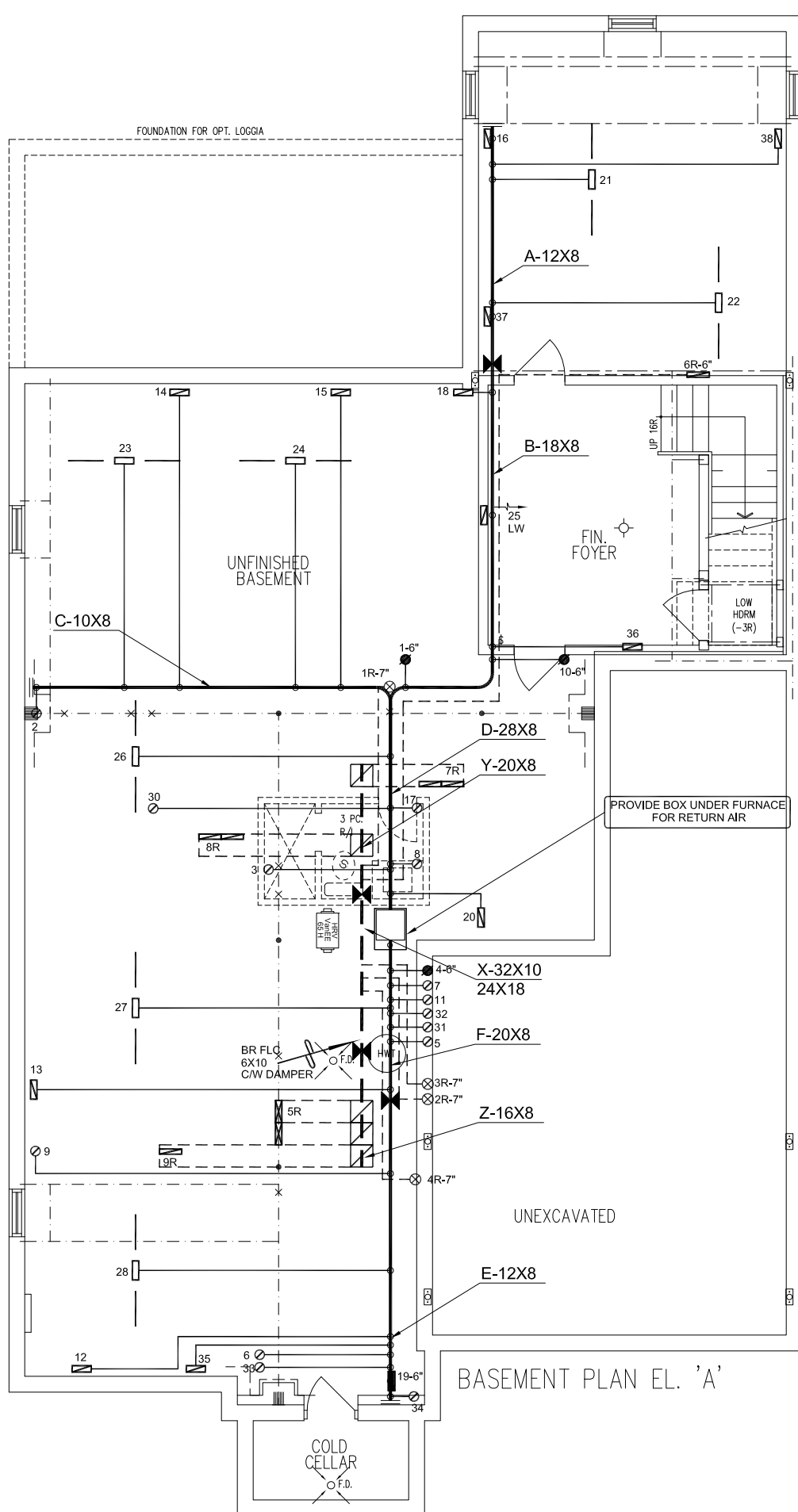
PART. BASEMENT PLAN ELEV. 'A', 'B' &amp; 'C' - L.O.D. COND.



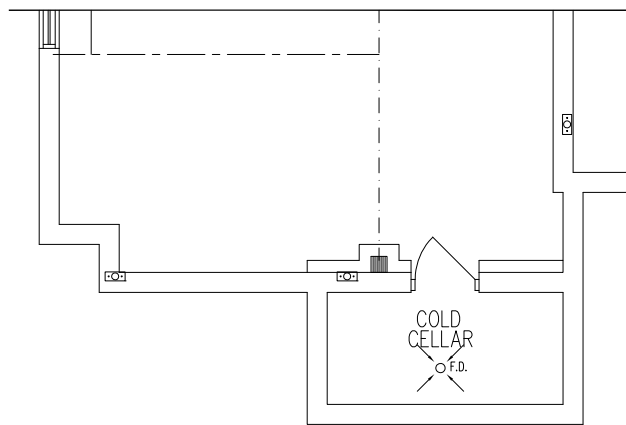
PART. BASEMENT PLAN ELEV. 'A', 'B' &amp; 'C' - W.O.D. COND.



PART. BASEMENT PLAN EL. 'B'















BASEMENT PLAN EL. 'A'



PART. BASEMENT PLAN EL. 'C'

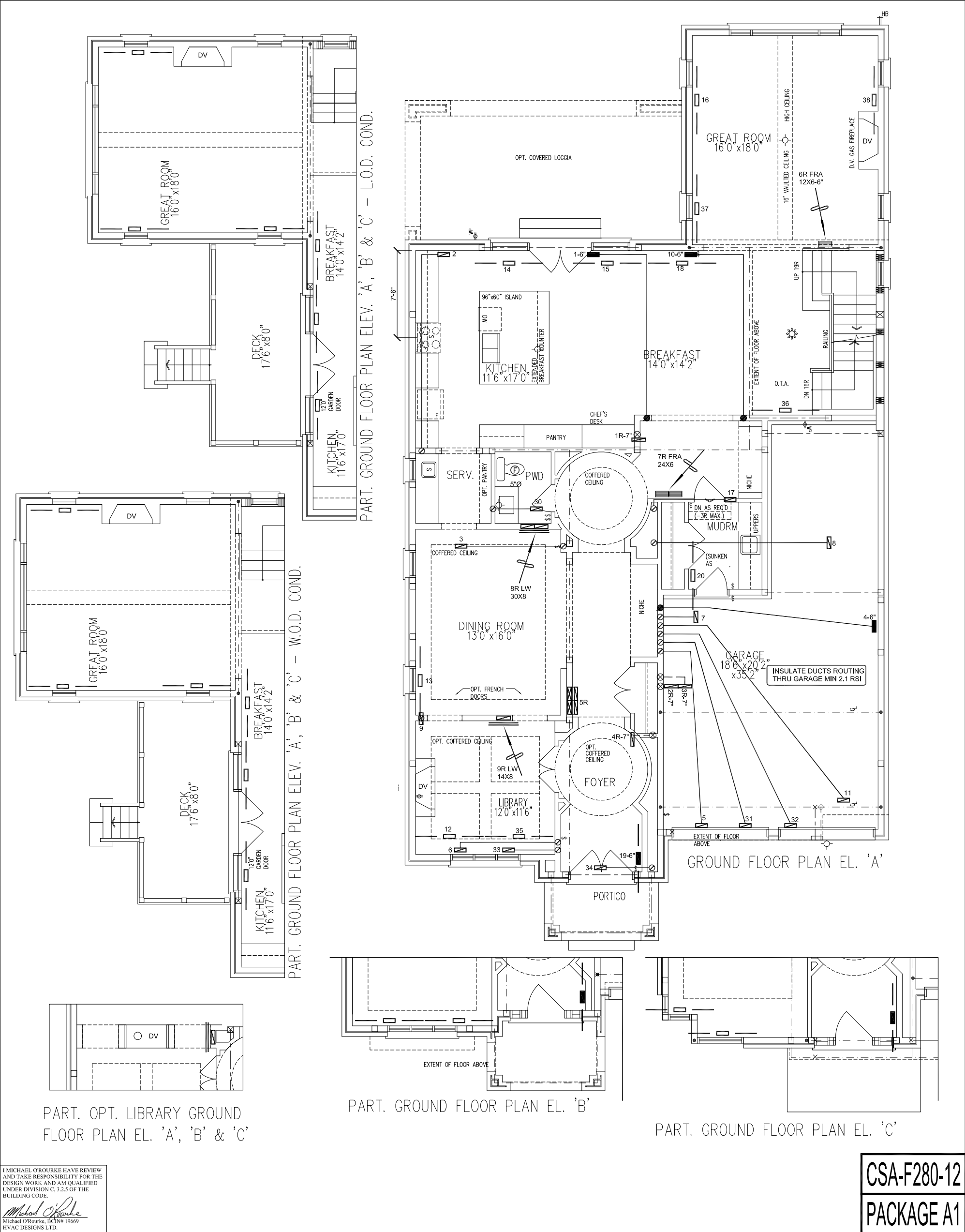
I MICHAEL O'ROURKE HAVE REVIEW  
AND TAKE RESPONSIBILITY FOR THE  
DESIGN WORK AND AM QUALIFIED  
UNDER DIVISION C, 3.2.5 OF THE  
BUILDING CODE.

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

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	REVISED AS PER ARCHITECTURALS	JUNE/2020
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	DECK CONDITIONS ADDED	SEPT/2018
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

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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>	HEAT LOSS 85347 BTU/H		# OF RUNS S/A R/A FANS				Sheet Title	
GOLD PARK HOMES			UNIT DATA		3RD FLOOR				BASEMENT HEATING LAYOUT	
Project Name			MAKE LENNOX		2ND FLOOR 17 5 6					
PINE VALLEY & TESTON VAUGHAN, ONTARIO			MODEL EL296110XE60C		1ST FLOOR 12 4 2					
THE BEAUMONT 5004			INPUT 110 MBTU/H		BASEMENT 8 1 0				Date	JAN/2018
4184 sqft			OUTPUT 106 MBTU/H		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	1/8" = 1'-0"
			COOLING 5.0 TONS						BCIN# 19669	
		FAN SPEED 1955 cfm @ 0.6" w.c.						LO#	77477	



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.

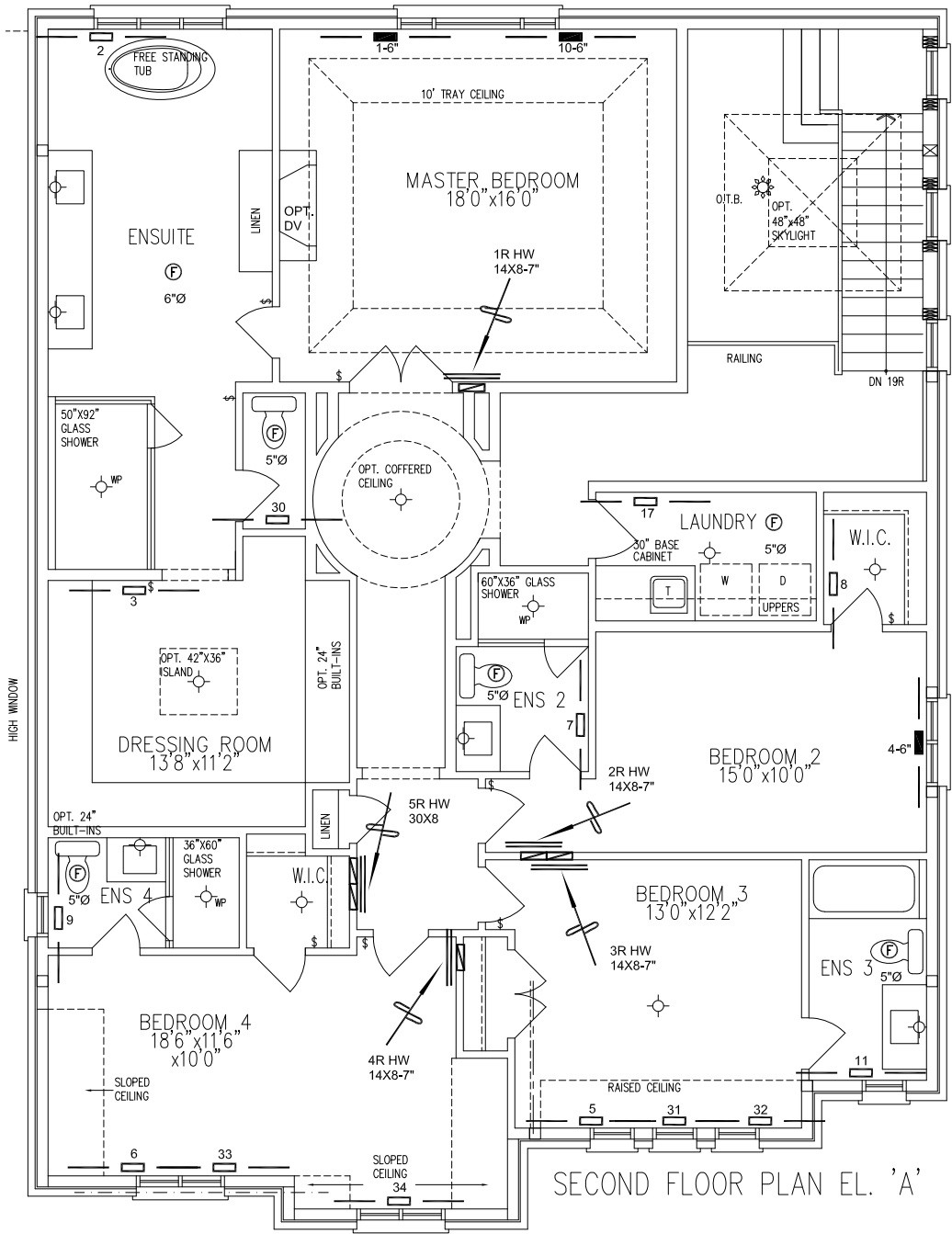
CSA-F280-12  
PACKAGE A1

HVAC LEGEND								3.		
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	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		

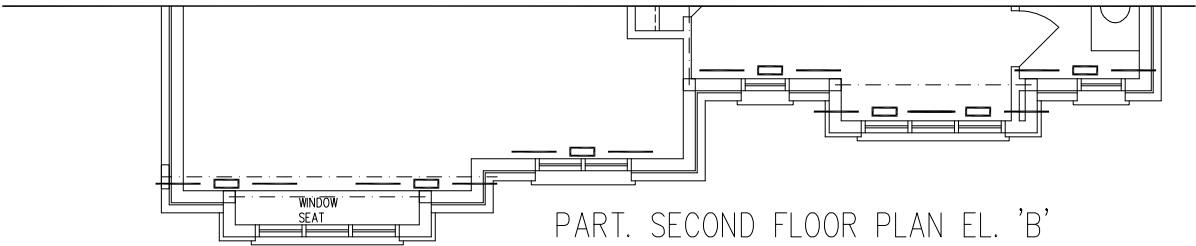
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GOLD PARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	JAN/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	1/8" = 1'-0"
THE BEAUMONT 5004			BCIN# 19669	
4184 sqft			LO#	77477

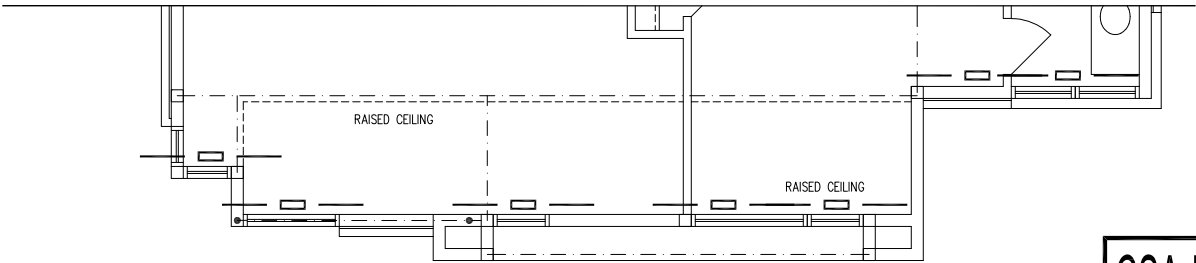




SECOND FLOOR PLAN EL. 'A'



PART. SECOND FLOOR PLAN EL. 'B'



PART. SECOND FLOOR PLAN EL. 'C'

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.	REVISED AS PER ARCHITECTURALS	JUNE/2020
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GOLD PARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	JAN/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	1/8" = 1'-0"
THE BEAUMONT			BCIN# 19669	
5004	4184 sqft		LO#	77477

## Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

<b>A. Project Information</b>			
Building number, street name		Unit no.	Lot/con.
Municipality VAUGHAN (WOODBIDGE)	Postal code	Plan number/ other description	
<b>B. Individual who reviews and takes responsibility for design activities</b>			
Name <b>MICHAEL O'ROURKE</b>		Firm <b>HVAC DESIGNS LTD.</b>	
Street address <b>375 FINLEY AVE</b>		Unit no. <b>202</b>	Lot/con. <b>N/A</b>
Municipality <b>AJAX</b>	Postal code <b>L1S 2E2</b>	Province <b>ONTARIO</b>	E-mail <b>info@hvacdesigns.ca</b>
Telephone number <b>(905) 619-2300</b>	Fax number <b>(905) 619-2375</b>	Cell number ( )	
<b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]</b>			
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <input type="checkbox"/> House  <input type="checkbox"/> Small Buildings  <input type="checkbox"/> Large Buildings  <input type="checkbox"/> Complex Buildings         </div> <div style="width: 30%;"> <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 style="width: 30%;"> <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 <b>HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12</b>		<b>Model:</b> 5004 THE BEAUMONT  OPT. 5 BEDROOM  <b>Project:</b> PINE VALLEY & TESTON	
<b>D. Declaration of Designer</b>			
I, <u><b>MICHAEL O'ROURKE</b></u> declare that (choose one as appropriate): (print name)			
<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.			
June 4, 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. 5 BEDROOM										DATE: Jun-20				WINTER NATURAL AIR CHANGE RATE 0.340										HEAT LOSS ΔT °F. 76				CSA-F280-12			
BUILDER: GOLD PARK HOMES										TYPE: 5004 THE BEAUMONT										LO# 77478				SUMMER NATURAL AIR CHANGE RATE 0.124										HEAT GAIN ΔT °F. 16				SB-12 PACKAGE A1			
ROOM USE		MBR			ENS			WIC			BED-2			BED-3			BED-4			ENS-2			WIC-2			BED-5			ENS-3												
EXP. WALL		19			31			7			11			18			43			0			13			10			18												
CLG. HT.		10			9			9			9			9			10			9			9			9			9												
FACTORS																																									
GRS.WALL AREA		LOSS GAIN			279			63			99			162			430			0			117			90			162												
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	16.6	0	0	0	0	0	0	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	41.1	0	0	0	0	0	0	0	0	0	0	0	63	1341	2591	60	1277	2468	0	0	0	0	0	0	0	0	0	0	13	277	535								
SOUTH		21.3	25.4	0	0	0	0	8	170	203	8	170	203	0	0	0	0	9	192	228	0	0	0	0	0	0	18	383	457	0	0	0	0								
WEST		21.3	41.1	42	894	1727	18	383	740	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
SKYL.T.		37.2	103.0	8	298	824	0	0	0	0	0	0	4	149	412	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								
NET EXPOSED WALL		4.5	0.9	148	660	137	253	1129	235	55	245	51	81	361	75	99	442	92	361	1611	335	0	0	0	117	522	109	72	321	67	149	665	138								
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								
EXPOSED CLG		1.3	0.6	460	590	294	220	282	140	91	117	58	183	235	117	136	175	87	267	343	170	84	108	54	78	100	50	180	231	115	77	99	49								
NO ATTIC EXPOSED CLG		2.7	1.4	0	0	0	0	0	0	0	0	0	0	0	0	60	165	82	150	412	205	0	0	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	187	477	99	196	500	104	20	51	11	45	115	24	78	199	41	0	0	0	77	196	41								
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					2443			1965			532			1605			2622			3885			223			821			935			1237									
SUB TOTAL HT GAIN					2982			1318			312			1002			2956			3417			77			200			639			763									
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	0.34		0.20	0.34		0.20	0.34		0.20	0.34		0.20	0.34		0.20	0.34						
AIR CHANGE HEAT LOSS					819			659			179			538			879			1303			75			275			314			415									
AIR CHANGE HEAT GAIN					259			115			27			87			257			297			7			17			56			66									
DUCT LOSS					0			0			0			214			350			519			30			110			0			165									
DUCT GAIN					0			0			0			213			425			475			8			22			0			83									
HEAT GAIN PEOPLE		240		2		480	0		0	0		0	1		240	1		240	1		240	0		0	0		1		240	0		0									
HEAT GAIN APPLIANCES/LIGHTS					797			0			0			797			797			797			0			0			797			0									
TOTAL HT LOSS BTU/H					3262			2623			711			2358			3851			5707			327			1206			1249			1817									
TOTAL HT GAIN x 1.3 BTU/H					5874			1863			441			3041			6077			6794			120			310			2251			1186									

ROOM USE		LIBR	DIN	KIT	GREAT	LAUN	ENS-4/5	FOY	MUD		LOD	BAS
EXP. WALL		27	17	111	56	0	6	37	18		51	230
CLG. HT.		11	11	11	16	9	9	11	13		10	10
FACTORS												
GRS.WALL AREA	LOSS GAIN	297	187	1221	896	0	54	407	234		510	1916
GLAZING	LOSS GAIN											
NORTH	21.3 16.6	0 0 0	0 0 0	39 830 648	26 553 432	0 0 0	0 0 0	0 0 0	0 0 0		0 0 0	6 128 100
EAST	21.3 41.1	41 872 1686	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	35 745 1439	0 0 0		0 0 0	0 0 0
SOUTH	21.3 25.4	12 255 305	24 511 609	10 213 254	26 553 660	0 0 0	8 170 203	0 0 0	0 0 0		0 0 0	9 192 228
WEST	21.3 41.1	0 0 0	0 0 0	111 2362 4565	57 1213 2344	0 0 0	0 0 0	0 0 0	0 0 0		25 532 1028	0 0 0
SKYL.T.	37.2 103.0	0 0 0	0 0 0	0 0 0	0 0 0	4 149 412	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	20 505 105	20 505 105		0 0 0	20 505 105
NET EXPOSED WALL	4.5 0.9	244 1089 226	163 727 151	1061 4735 984	787 3512 730	0 0 0	46 205 43	352 1571 327	214 955 199		0 0 0	0 0 0
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		281 1011 210	384 1382 287
EXPOSED CLG	1.3 0.6	0 0 0	0 0 0	192 246 123	0 0 0	139 178 89	60 77 38	0 0 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	342 940 468	0 0 0	0 0 0	0 0 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 0 0	75 191 40	0 0 0	0 0 0	0 0 0		0 0 0	0 0 0
BASEMENT/CRAWL HEAT LOSS		0	0	0	0	0	0	0	0		0	8016
SLAB ON GRADE HEAT LOSS		0	0	0	0	0	0	0	0		0	
SUBTOTAL HT LOSS		2217	1238	8386	6772	519	453	2821	1460		0	
SUB TOTAL HT GAIN		2217	760	6573	4634	541	284	1871	304		1543	10222
LEVEL FACTOR / MULTIPLIER	0.30 0.38		0.30 0.38	0.30 0.38	0.30 0.38	0.20 0.34	0.20 0.34	0.30 0.38	0.30 0.38		0.50 1.23	720
AIR CHANGE HEAT LOSS		840	469	3176	2565	174	152	1068	553			14451
AIR CHANGE HEAT GAIN		193	66	572	403	47	25	163	26			170
DUCT LOSS		0	0	0	0	69	0	0	0			0
DUCT GAIN		0	0	0	0	138	0	0	0			0
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0	0		0	0
HEAT GAIN APPLIANCES/LIGHTS		797	797	797	797	797	0	0	0		0	0
TOTAL HT LOSS BTU/H		3056	1707	11562	9336	762	604	3889	2013		1543	24674
TOTAL HT GAIN x 1.3 BTU/H		4169	2111	10325	7584	1980	401	2644	429		1610	1158

TOTAL HEAT GAIN BTU/H: 61029

TONS: 5.09

LOSS DUE TO VENTILATION LOAD BTU/H: 3181

STRUCTURAL HEAT LOSS: 82258

TOTAL COMBINED HEAT LOSS BTU/H: 85438



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

OPT. 5 BEDROOM  
TYPE: 5004 THE BEAUMONT

DATE: Jun-20

GFA: 4184

LO# 77478

HEATING CFM 1955 COOLING CFM 1955  
TOTAL HEAT LOSS 82,258 TOTAL HEAT GAIN 60,367  
AIR FLOW RATE CFM 23.77 AIR FLOW RATE CFM 32.39

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

^LENNOX  
EL296UH110XE60C 110

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

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	18	12	8
R/A	0	0	6	4	1

plenium 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

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

DESIGN CFM = 1955  
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.

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	BED-5	BED-2	BED-3	BED-4	ENS-2	WIC-2	ENS-4/5	MBR	ENS-3	LIBR	DIN	KIT	KIT	GREAT	LAUN	KIT	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.63	1.31	1.25	2.36	1.28	1.90	0.33	1.21	0.60	1.63	1.82	1.53	1.71	2.89	2.89	3.11	0.76	2.89	3.89	2.01	3.28	3.28	3.28	3.28
CFM PER RUN HEAT	39	31	30	56	31	45	8	29	14	39	43	36	41	69	69	74	18	69	92	48	78	78	78	78
RM GAIN MBH	2.94	0.93	2.25	3.04	2.03	2.26	0.12	0.31	0.40	2.94	1.19	2.08	2.11	2.58	2.58	2.53	1.98	2.58	2.64	0.43	0.35	0.35	0.35	0.35
CFM PER RUN COOLING	95	30	73	98	66	73	4	10	13	95	38	68	68	84	84	82	64	84	86	14	11	11	11	11
ADJUSTED PRESSURE	0.16	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH	46	62	39	34	38	50	28	31	43	54	41	41	27	40	32	49	26	36	24	16	50	50	39	30
EQUIVALENT LENGTH	190	140	210	180	120	150	160	150	190	180	160	180	80	140	150	130	150	140	150	130	130	140	100	102
TOTAL EFFECTIVE LENGTH	236	202	249	214	158	200	188	181	233	234	201	221	107	180	182	179	176	176	174	146	180	190	139	132
ADJUSTED PRESSURE	0.07	0.09	0.07	0.08	0.11	0.09	0.09	0.1	0.07	0.07	0.09	0.08	0.16	0.09	0.09	0.09	0.1	0.09	0.09	0.12	0.1	0.09	0.12	0.13
ROUND DUCT SIZE	6	4	5	6	5	5	4	4	4	6	4	5	5	5	5	5	5	5	6	4	5	5	5	5
HEATING VELOCITY (ft/min)	199	356	220	286	228	330	92	333	161	199	493	264	301	507	507	543	132	507	469	551	573	573	573	573
COOLING VELOCITY (ft/min)	484	344	536	500	485	536	46	115	149	484	436	499	499	617	617	602	470	617	438	161	81	81	81	81
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10
TRUNK	B	C	D	F	F	E	F	D	E	B	F	E	F	C	C	A	D	B	E	D	A	A	C	C

RUN #	25	26	27	28	29	30	31	32	33	34	35	36	37	38
ROOM NAME	BAS	BAS	BAS	BAS	WIC	ENS	BED-3	BED-3	BED-4	LIBR	KIT	GREAT	GREAT	GREAT
RM LOSS MBH	3.28	3.28	3.28	3.28	0.71	1.31	1.28	1.28	1.90	1.90	1.53	2.89	3.11	3.11
CFM PER RUN HEAT	78	78	78	78	17	31	31	31	45	45	36	69	74	74
RM GAIN MBH	0.35	0.35	0.35	0.35	0.44	0.93	2.03	2.03	2.26	2.26	2.08	2.58	2.53	2.53
CFM PER RUN COOLING	11	11	11	11	14	30	66	66	73	73	68	84	82	82
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	37	23	17	31	34	33	42	46	47	40	35	28	39	64
EQUIVALENT LENGTH	120	80	120	150	140	140	130	140	150	130	140	150	150	150
TOTAL EFFECTIVE LENGTH	157	103	137	181	174	173	172	186	197	170	175	178	189	214
ADJUSTED PRESSURE	0.11	0.17	0.13	0.1	0.1	0.1	0.09	0.09	0.1	0.1	0.09	0.09	0.08	0.08
ROUND DUCT SIZE	5	5	5	5	4	4	5	5	5	5	5	5	5	5
HEATING VELOCITY (ft/min)	573	573	573	573	195	356	228	228	330	330	264	507	543	543
COOLING VELOCITY (ft/min)	81	81	81	81	161	344	485	485	536	536	499	617	602	602
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	B	D	F	E	D	D	F	F	E	E	E	B	A	A

**SUPPLY AIR TRUNK SIZE**

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)
TRUNK A	378	0.08	9.7	12	x	8	567	TRUNK G	0	0.00	0	0	8
TRUNK B	672	0.07	12.5	18	x	8	672	TRUNK H	0	0.00	0	0	8
TRUNK C	325	0.09	8.9	10	x	8	585	TRUNK I	0	0.00	0	0	8
TRUNK D	1248	0.07	15.8	28	x	8	802	TRUNK J	0	0.00	0	0	8
TRUNK E	391	0.07	10.2	12	x	8	587	TRUNK K	0	0.00	0	0	8
TRUNK F	710	0.07	12.8	20	x	8	639	TRUNK L	0	0.00	0	0	8

**RETURN AIR TRUNK SIZE**

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)
TRUNK O	0	0.05	0	0	x	8
TRUNK P	0	0.05	0	0	x	8
TRUNK Q	0	0.05	0	0	x	8
TRUNK R	0	0.05	0	0	x	8
TRUNK S	0	0.05	0	0	x	8
TRUNK T	0	0.05	0	0	x	8
TRUNK U	0	0.05	0	0	x	8
TRUNK V	0	0.05	0	0	x	8
TRUNK W	0	0.05	0	0	x	8
TRUNK X	1465	0.05	18.2	32	x	10
TRUNK Y	685	0.05	13.7	22	x	8
TRUNK Z	490	0.05	12.1	18	x	8
DROP	1955	0.05	20.3	24	x	18

RETURN AIR #	1	2	3	4	5	6	7	8	9	10		BR
AIR VOLUME	110	110	110	110	305	85	300	300	185	40	0	300
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
ACTUAL DUCT LGH	38	37	37	45	43	59	27	25	34	43	1	18
EQUIVALENT LENGTH	195	185	165	205	145	175	190	185	150	285	0	195
TOTAL EFFECTIVE LH	233	222	202	250	188	234	217	210	184	328	1	213
ADJUSTED PRESSURE	0.06	0.07	0.07	0.06	0.08	0.06	0.07	0.07	0.08	0.05	14.80	0.07
ROUND DUCT SIZE	6.6	6.3	6.3	6.6	9	6	9.2	9.2	7.5	4.7	0	9.2
INLET GRILL SIZE	8	8	8	8	8	8	8	8	8	8	0	8
	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	30	14	30	30	14	14	0	30

TYPE: 5004 THE BEAUMONT  
SITE NAME: PINE VALLEY & TESTON

LO # 77478  
OPT. 5 BEDROOM

**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	<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>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Other Rooms	<u>5</u> @ 10.6 cfm	<u>53.0</u> cfm
Table 9.32.3.A.	TOTAL	<u>201.4</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>201.4</u>	cfm
Less Principal Ventil. Capacity	<u>155</u>	cfm
Required Supplemental Capacity	<u>46.4</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY			
Model:	VANEE 65H		
Location:	BSMT		
<u>155.0</u> cfm	<u>3.0</u> sones		
<input checked="" type="checkbox"/> HVI Approved			
PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	$\Delta T$ °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	<input checked="" type="checkbox"/>	0.3
ENS-2	QTXEN050C	50	<input checked="" type="checkbox"/>	0.3
ENS-3	QTXEN050C	50	<input checked="" type="checkbox"/>	0.3
ENS-4/5	QTXEN050C	50	<input checked="" type="checkbox"/>	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)	<input checked="" type="checkbox"/> 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:	June-20

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 77478	Model: 5004 THE BEAUMONT	Builder: GOLD PARK HOMES	Date: 6/4/2020																																																									
<b>Volume Calculation</b>			<b>Air Change &amp; Delta T Data</b>																																																									
<b>House Volume</b> <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>2007</td> <td>10</td> <td>20070</td> </tr> <tr> <td>First</td> <td>2007</td> <td>11</td> <td>22077</td> </tr> <tr> <td>Second</td> <td>2262</td> <td>9</td> <td>20358</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="3" style="text-align: right;">Total:</td> <td>62,505.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>1769.9 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	2007	10	20070	First	2007	11	22077	Second	2262	9	20358	Third	0	9	0	Fourth	0	9	0	Total:			62,505.0 ft³	Total:			1769.9 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 30%; 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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<b>5.2.3.1 Heat Loss due to Air Leakage</b>			<b>6.2.6 Sensible Gain due to Air Leakage</b>																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ <p>0.340 x 491.65 x 42 °C x 1.2 = <span style="border: 1px solid black; padding: 2px;">8471 W</span></p> <p style="text-align: right;">= <span style="border: 1px solid black; padding: 2px;">28902 Btu/h</span></p>			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ <p>= 0.124 x 491.65 x 9 °C x 1.2 = <span style="border: 1px solid black; padding: 2px;">642 W</span></p> <p style="text-align: right;">= <span style="border: 1px solid black; padding: 2px;">2191 Btu/h</span></p>																																																									
<b>5.2.3.2 Heat Loss due to Mechanical Ventilation</b>			<b>6.2.7 Sensible heat Gain due to Ventilation</b>																																																									
$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>155 CFM x 76 °F x 1.08 x 0.25 = <span style="border: 1px solid black; padding: 2px;">3181 Btu/h</span></p>			$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>155 CFM x 16 °F x 1.08 x 0.25 = <span style="border: 1px solid black; padding: 2px;">661 Btu/h</span></p>																																																									
<b>5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)</b>																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																												
Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL <sub>level</sub> )	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)																																																								
1	0.5	28,902	11,766	1.228																																																								
2	0.3		22,893	0.379																																																								
3	0.2		17,239	0.335																																																								
4	0		0	0.000																																																								
5	0		0	0.000																																																								
<p>*HLairbv = Air leakage heat loss + ventilation heat loss</p> <p>*For a balanced or supply only ventilation system HLairve = 0</p>																																																												



**HEAT LOSS AND GAIN SUMMARY SHEET**

<b>MODEL:</b> 5004 THE BEAUMONT	<b>OPT.</b> 5 BEDROOM	<b>BUILDER:</b> GOLD PARK HOMES
<b>SFQT:</b> 4184	<b>LO#</b> 77478	<b>SITE:</b> 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 <sup>3</sup> ):	62505.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
INTERIOR LIGHTING LOAD (Btu/h/ft <sup>2</sup> ):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 74.0 ft	WIDTH: 41.0 ft	EXPOSED PERIMETER:	230.0 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	-

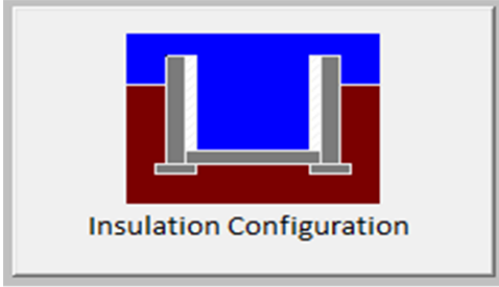
INDIVIDUAL BCIN: 19669

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):	22.6	 <p>Insulation Configuration</p>
Floor Width (m):	12.5	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m <sup>2</sup> ):	3.7	
Door Area (m <sup>2</sup> ):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		2349

TYPE: 5004 THE BEAUMONT  
LO# 77478

OPT. 5 BEDROOM

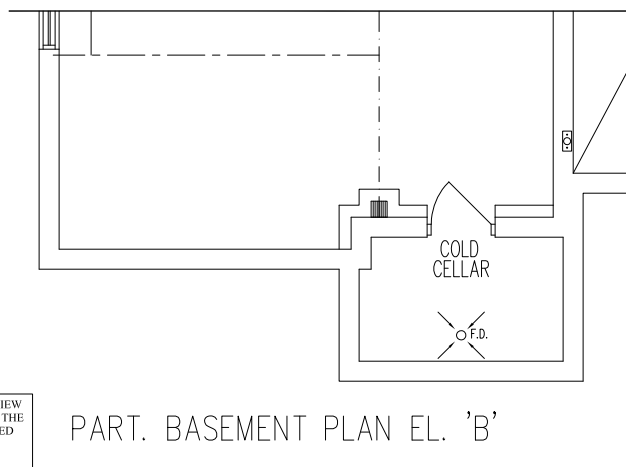
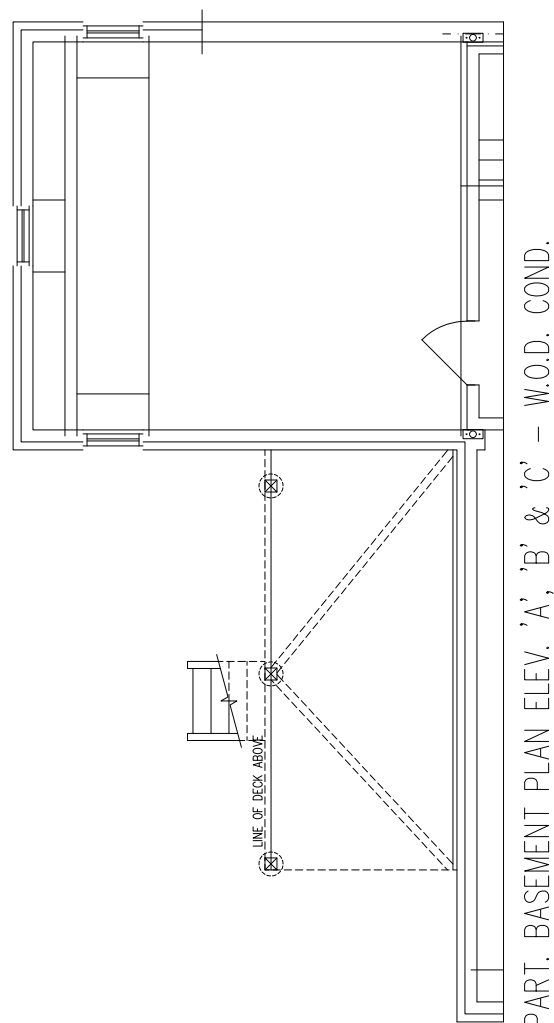
# Air Infiltration Residential Load Calculator

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 <sup>3</sup> ):	1769.9			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2359.4 cm <sup>2</sup>		
	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			

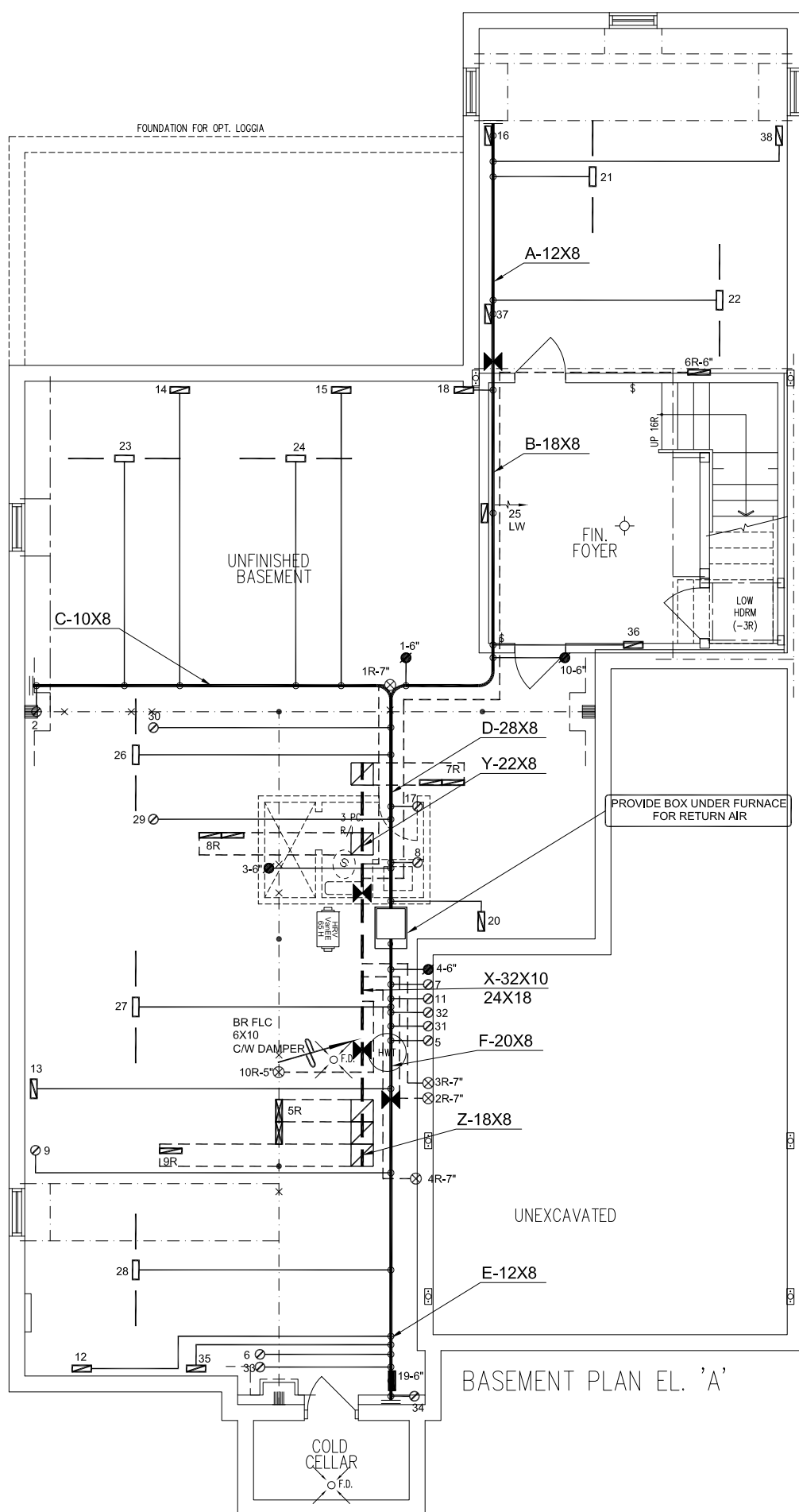
TYPE: 5004 THE BEAUMONT  
LO# 77478

OPT. 5 BEDROOM

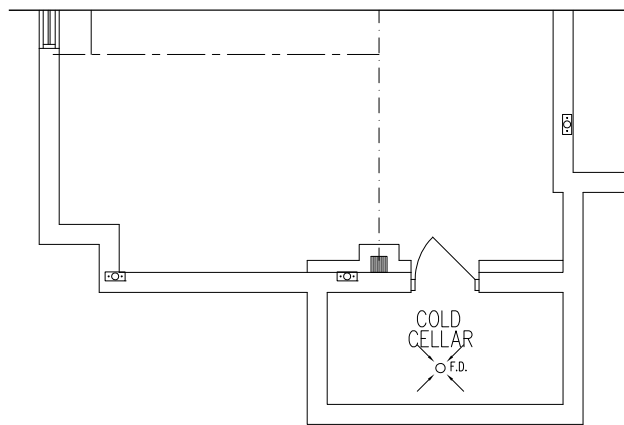


I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

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



BASEMENT PLAN EL. 'A'



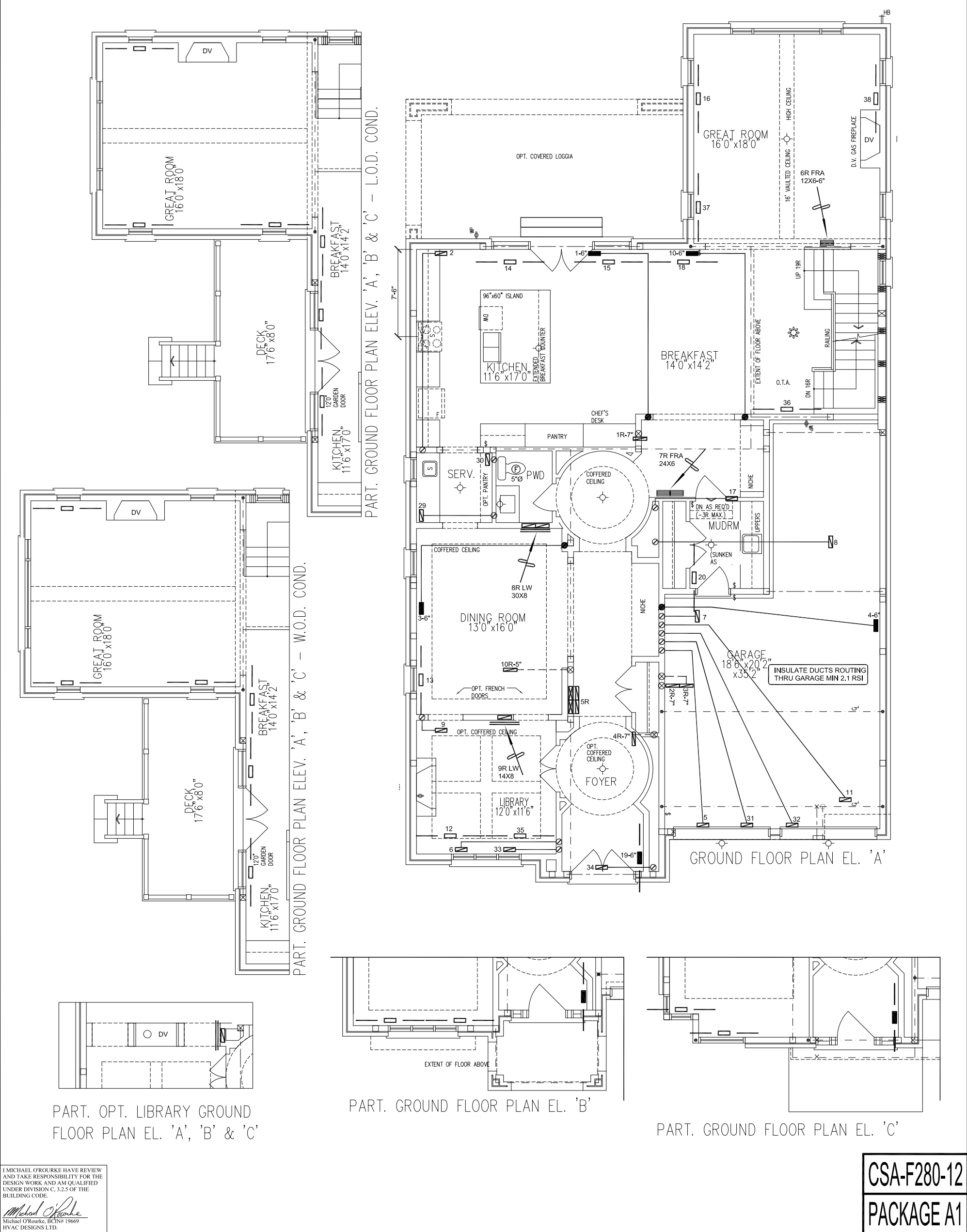
PART. BASEMENT PLAN EL. 'C'

CSA-F280-12
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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 85438 BTU/H		# OF RUNS S/A R/A FANS				Sheet Title	
GOLD PARK HOMES			UNIT DATA		3RD FLOOR				BASEMENT HEATING LAYOUT	
Project Name PINE VALLEY & TESTON VAUGHAN, ONTARIO OPT. 5 BEDROOM THE BEAUMONT 5004 4184 sqft			MAKE LENNOX		2ND FLOOR 18 6 6					
			MODEL EL296110XE60C		1ST FLOOR 12 4 2					
			INPUT 110 MBTU/H		BASEMENT 8 1 0					
			OUTPUT 106 MBTU/H		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					
			COOLING 5.0 TONS							
		FAN SPEED 1955 cfm @ 0.6" w.c.						Date JAN/2018		
								Scale 1/8" = 1'-0"		
								BCIN# 19669		
								LO# 77478		



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.

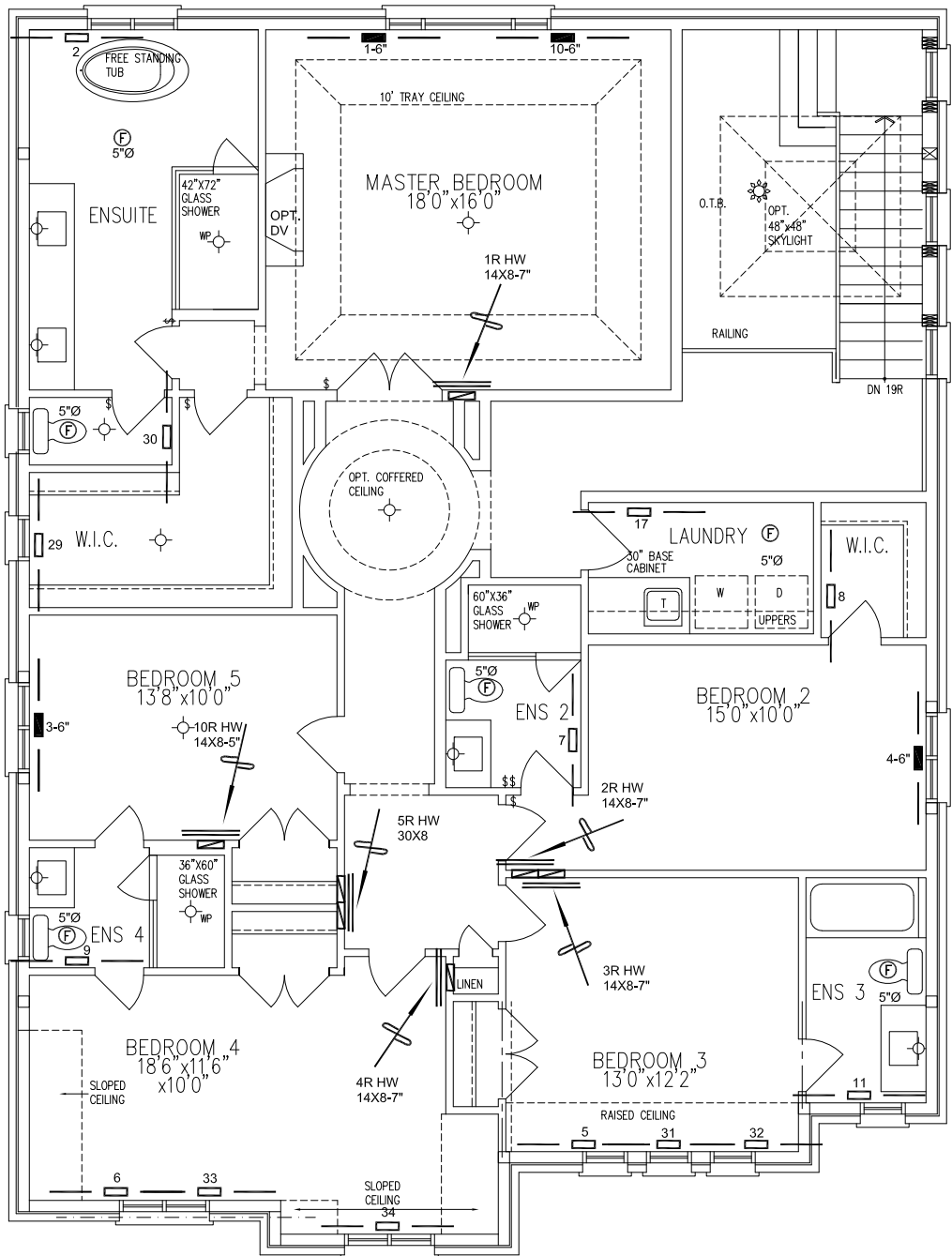
CSA-F280-12  
PACKAGE A1

HVAC LEGEND							3.	REVISED AS PER ARCHITECTURALS	JUNE/2020
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		2.	ADDED RETURN # 10	NOV/2018
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		1.	DECK CONDITIONS ADDED	SEPT/2018
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		No.	Description	Date
							REVISIONS		

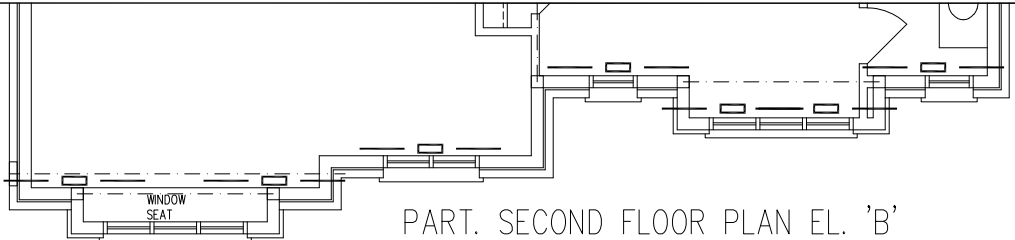
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GOLD PARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name		Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.	Date	JAN/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	1/8" = 1'-0"
OPT. 5 BEDROOM THE BEAUMONT			BCIN# 19669	
5004			LO#	77478
4184 sqft				

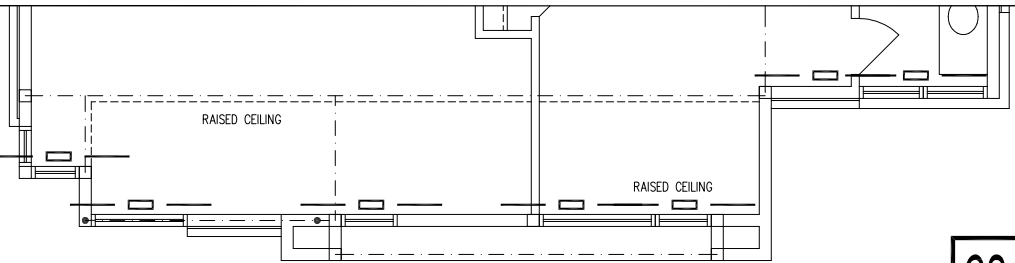




OPT. 5 BED. SECOND FLOOR PLAN EL. 'A'



PART. SECOND FLOOR PLAN EL. 'B'



PART. SECOND FLOOR PLAN EL. 'C'

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.

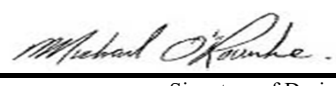
HVAC LEGEND								3.	REVISED AS PER ARCHITECTURALS	JUNE/2020
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	ADDED RETURN # 10	NOV/2018
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	DECK CONDITIONS ADDED	SEPT/2018
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

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GOLD PARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	JAN/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	1/8" = 1'-0"
OPT. 5 BEDROOM			BCIN# 19669	
THE BEAUMONT			LO#	77478
5004	4184 sqft			

## Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

<b>A. Project Information</b>			
Building number, street name		Unit no.	Lot/con.
Municipality VAUGHAN (WOODBIDGE)	Postal code	Plan number/ other description	
<b>B. Individual who reviews and takes responsibility for design activities</b>			
Name <b>MICHAEL O'ROURKE</b>		Firm <b>HVAC DESIGNS LTD.</b>	
Street address <b>375 FINLEY AVE</b>		Unit no. <b>202</b>	Lot/con. <b>N/A</b>
Municipality <b>AJAX</b>	Postal code <b>L1S 2E2</b>	Province <b>ONTARIO</b>	E-mail <b>info@hvacdesigns.ca</b>
Telephone number <b>(905) 619-2300</b>	Fax number <b>(905) 619-2375</b>	Cell number ( )	
<b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]</b>			
<input type="checkbox"/> House <input type="checkbox"/> Small Buildings <input type="checkbox"/> Large Buildings <input type="checkbox"/> Complex Buildings <input checked="" type="checkbox"/> HVAC – House <input type="checkbox"/> Building Services <input type="checkbox"/> Detection, Lighting and Power <input type="checkbox"/> Fire Protection <input type="checkbox"/> Building Structural <input type="checkbox"/> Plumbing – House <input type="checkbox"/> Plumbing – All Buildings <input type="checkbox"/> On-site Sewage Systems			
Description of designer's work <b>HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12</b>		<b>Model:</b> 5004 THE BEAUMONT OPT. ELEVATOR <b>Project:</b> PINE VALLEY & TESTON	
<b>D. Declaration of Designer</b>			
I, <u><b>MICHAEL O'ROURKE</b></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.			
June 4, 2020			
Date		Signature of Designer	

**NOTE:**

- For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) d) of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
- Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of authorization, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

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

SITE NAME: PINE VALLEY & TESTON										OPT. ELEVATOR					DATE: Jun-20		WINTER NATURAL AIR CHANGE RATE 0.340					HEAT LOSS ΔT °F. 76		CSA-F280-12																																			
BUILDER: GOLD PARK HOMES										TYPE: 5004 THE BEAUMONT					GFA: 4330		LO# 77479		SUMMER NATURAL AIR CHANGE RATE 0.124					HEAT GAIN ΔT °F. 16		SB-12 PACKAGE A1																																	
ROOM USE			MBR			ENS			DRESS			BED-2			BED-3			BED-4			ENS-2			HALL			ENS-3																																
EXP. WALL			19			38			12			11			18			43			0			13			18																																
CLG. HT.			10			9			9			9			9			10			9			9			9																																
FACTORS																																																											
GRS.WALL AREA			LOSS			GAIN			190			342			108			99			162			430			0			117			162																										
GLAZING			LOSS			GAIN			LOSS			GAIN			LOSS			GAIN			LOSS			GAIN			LOSS			GAIN			LOSS			GAIN																							
NORTH			21.3	16.6	0	0	0	0	0	0	0	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	41.1	0	0	0	0	0	0	0	0	0	0	0	0	0	63	1341	2591	60	1277	2468	0	0	0	0	0	0	0	0	0	0	0	0	0																							
SOUTH			21.3	25.4	0	0	0	0	9	192	228	4	85	102	0	0	0	0	0	0	0	9	192	228	0	0	0	0	0	0	0	0	0	0	0	0	0																						
WEST			21.3	41.1	42	894	1727	28	596	1152	0	0	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	8	298	824	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	149	412	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	148	660	137	305	1361	283	104	464	96	81	361	75	99	442	92	361	1611	335	0	0	0	117	522	109	149	665	138	0	0	0	0																								
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	460	590	294	312	400	199	228	293	146	187	240	119	136	175	87	267	343	170	84	108	54	74	95	47	77	99	49	0	0	0	0																								
NO ATTIC EXPOSED CLG			2.7	1.4	0	0	0	0	0	0	0	0	0	0	0	0	60	165	82	150	412	205	0	0	0	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	150	383	80	196	500	104	20	51	11	30	77	16	0	0	0	77	196	41	0	0	0	0																								
BASEMENT/CRAWL HEAT LOSS																																																											
SLAB ON GRADE HEAT LOSS																																																											
SUBTOTAL HT LOSS						2443						2549						842						1367						2622						3885						184						766						1237					
SUB TOTAL HT GAIN						2982						1862						344						573						2956						3417						70						568						763					
LEVEL FACTOR / MULTIPLIER			0.20			0.36			0.20			0.36			0.20			0.36			0.20			0.36			0.20			0.36			0.20			0.36			0.20			0.36			0.20			0.36											
AIR CHANGE HEAT LOSS			888						927						306						497						953						1413						67						279						450								
AIR CHANGE HEAT GAIN						269						168						31						52						267						308						6						51						69					
DUCT LOSS			0						0						0						186						358						530						25						0						169								
DUCT GAIN						0						0						162						422						472						8						0						83											
HEAT GAIN PEOPLE			240			2			480			0			0			1			240			1			240			1			240			0			0			0			0			0			0			0					
HEAT GAIN APPLIANCES/LIGHTS									758			0			758			758						758						758						758						0						0			0			0					
TOTAL HT LOSS BTU/H						3331						3476						1148						2051						3933						5828						276						1045						1855					
TOTAL HT GAIN x 1.3 BTU/H						5837						2639						1473						2321						6035						6755						108						805						1189					

ROOM USE			LIBR			DIN			KIT			GREAT			LAUN			ENS-4			FOY			MUD									LOD			BAS		
EXP. WALL			27			17			97			56			0			6			37			36									51			230		
CLG. HT.			11						11			16			9			9			11			13									10			10		
GRS.WALL AREA	FACTORS		297			187			1067			896			0			54			407			468									510			1916		
GLAZING	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	16.6	0	0	0	0	0	0	39	830	648	26	553	432	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	128	100		
EAST	21.3	41.1	41	872	1686	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35	745	1439	0	0	0	0	0	0	0	0	0	0	0	0	0		
SOUTH	21.3	25.4	12	255	305	24	511	609	10	213	254	26	553	660	0	0	0	8	170	203	0	0	0	0	0	0	0	0	0	0	0	0	9	192	228			
WEST	21.3	41.1	0	0	0	0	0	0	111	2362	4565	57	1213	2344	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	4	149	412	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	20	505	105	40	1010	210	0	0	0	0	0	0	20	505	105			
NET EXPOSED WALL	4.5	0.9	244	1089	226	163	727	151	907	4048	841	787	3512	730	0	0	0	46	205	43	352	1571	327	428	1910	397	0	0	0	0	0	0	0	0	0			
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	0	0			
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	192	246	123	0	0	0	139	178	89	60	77	38	0	0	0	0	0	0	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	342	940	468	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
BASEMENT/CRAWL HEAT LOSS			0			0			0			0			0			0			0			0			0			0			0			8016		
SLAB ON GRADE HEAT LOSS			0			0			0			0			0			0			0			0			0			0			0			0		
SUBTOTAL HT LOSS			2217			1238			7699			6772			327			453			2821			2920						1543			10222					
SUB TOTAL HT GAIN			2217			760			6431			4634			501			284			1871			607						1238			720					
LEVEL FACTOR / MULTIPLIER			0.30	0.38		0.30	0.38		0.30	0.38		0.30	0.38		0.20	0.36		0.20	0.36		0.30	0.38		0.30	0.38					0.50			1.29					
AIR CHANGE HEAT LOSS			852			476			2959			2603			119			165			1084			1122									15160					
AIR CHANGE HEAT GAIN			200			69			580			418			45			26			169			55									177					
DUCT LOSS			0			0			0			0			0			0			0			0									0					
DUCT GAIN			0			0			0			0			0			0			0			0									0					
HEAT GAIN PEOPLE	240		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
HEAT GAIN APPLIANCES/LIGHTS			758			758			758			758			758			758			0			758									0			0		
TOTAL HT LOSS BTU/H			3069			1714			10658			9374			446			617			3905			4042						1543			25383					
TOTAL HT GAIN x 1.3 BTU/H			4128			2064			10100			7553			1696			403			2652			1846						1610			1166					

TOTAL HEAT GAIN BTU/H: 61041

TONS: 5.09

LOSS DUE TO VENTILATION LOAD BTU/H: 3181

STRUCTURAL HEAT LOSS: 83694

TOTAL COMBINED HEAT LOSS BTU/H: 86875



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

OPT. ELEVATOR  
TYPE: 5004 THE BEAUMONT

DATE: Jun-20

GFA: 4330

LO# 77479

HEATING CFM 1955 COOLING CFM 1955  
TOTAL HEAT LOSS 83,694 TOTAL HEAT GAIN 60,380  
AIR FLOW RATE CFM 23.36 AIR FLOW RATE CFM 32.38

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

^LENNOX  
EL296UH110XE60C 110

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

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	18	13	8
R/A	0	0	5	4	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

FAN SPEED 0  
LOW 1380  
MEDLOW 1505  
MEDIUM 1685  
HIGH 1955

DESIGN CFM = 1955  
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.

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	DRESS	BED-2	BED-3	BED-4	ENS-2	HALL	ENS-4	MBR	ENS-3	LIBR	DIN	KIT	KIT	GREAT	LAUN	KIT	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.67	1.66	1.15	2.05	1.31	1.94	0.28	1.04	0.62	1.67	1.86	1.53	1.71	2.66	2.66	3.12	0.45	2.66	3.90	2.02	3.37	3.37	3.37	3.37
CFM PER RUN HEAT	39	39	27	48	31	45	6	24	14	39	43	36	40	62	62	73	10	62	91	47	79	79	79	79
RM GAIN MBH	2.92	1.28	1.47	2.32	2.01	2.25	0.11	0.80	0.40	2.92	1.19	2.06	2.06	2.53	2.53	2.52	1.70	2.53	2.65	0.92	0.35	0.35	0.35	0.35
CFM PER RUN COOLING	94	41	48	75	65	73	4	26	13	94	39	67	67	82	82	82	55	82	86	30	11	11	11	11
ADJUSTED PRESSURE	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH	46	62	29	34	38	50	28	31	43	54	41	41	27	40	32	49	26	36	24	16	50	50	39	30
EQUIVALENT LENGTH	190	140	180	180	120	150	160	180	190	180	160	180	80	140	150	130	150	140	150	130	140	100	100	102
TOTAL EFFECTIVE LENGTH	236	202	209	214	158	200	188	211	233	234	201	221	107	180	182	179	176	176	174	146	180	190	139	132
ADJUSTED PRESSURE	0.07	0.09	0.08	0.08	0.11	0.09	0.09	0.08	0.07	0.07	0.09	0.08	0.16	0.09	0.09	0.09	0.1	0.09	0.09	0.12	0.1	0.09	0.12	0.13
ROUND DUCT SIZE	6	4	4	5	5	5	4	4	4	6	4	5	5	5	5	5	4	5	6	4	5	5	5	5
HEATING VELOCITY (ft/min)	199	447	310	352	228	330	69	275	161	199	493	264	294	455	455	536	115	455	464	539	580	580	580	580
COOLING VELOCITY (ft/min)	479	470	551	551	477	536	46	298	149	479	447	492	492	602	602	602	631	602	438	344	81	81	81	81
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10
TRUNK	B	C	D	F	F	E	F	D	E	B	F	E	F	C	C	A	D	B	E	D	A	A	C	C

RUN #	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
ROOM NAME	BAS	BAS	BAS	BAS	ENS	ENS	BED-3	BED-3	BED-4	LIBR	KIT	GREAT	GREAT	GREAT	MUD
RM LOSS MBH	3.37	3.37	3.37	3.37	1.66	0.16	1.31	1.31	1.94	1.94	1.53	2.66	3.12	3.12	2.02
CFM PER RUN HEAT	79	79	79	79	39	4	31	31	45	45	36	62	73	73	47
RM GAIN MBH	0.35	0.35	0.35	0.35	1.28	0.08	2.01	2.01	2.25	2.25	2.06	2.53	2.52	2.52	0.92
CFM PER RUN COOLING	11	11	11	11	41	3	65	65	73	73	67	82	82	82	30
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.17
ACTUAL DUCT LGH	37	23	17	31	34	33	42	46	47	40	35	28	39	64	35
EQUIVALENT LENGTH	120	80	120	150	140	140	130	140	150	130	140	150	150	150	90
TOTAL EFFECTIVE LENGTH	157	103	137	181	174	173	172	186	197	170	175	178	189	214	125
ADJUSTED PRESSURE	0.11	0.17	0.13	0.1	0.1	0.1	0.09	0.09	0.1	0.1	0.09	0.09	0.09	0.08	0.14
ROUND DUCT SIZE	5	5	5	5	4	4	5	5	5	5	5	5	5	5	4
HEATING VELOCITY (ft/min)	580	580	580	580	447	46	228	228	330	330	264	455	536	536	539
COOLING VELOCITY (ft/min)	81	81	81	81	470	34	477	477	536	536	492	602	602	602	344
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	B	D	F	E	D	D	F	F	E	E	E	B	A	A	D

**SUPPLY AIR TRUNK SIZE**

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	377	0.08	9.7	12	x 8 566
TRUNK B	658	0.07	12.4	18	x 8 658
TRUNK C	321	0.09	8.9	10	x 8 578
TRUNK D	1256	0.07	15.8	28	x 8 807
TRUNK E	391	0.07	10.2	12	x 8 587
TRUNK F	700	0.07	12.7	18	x 8 700

**RETURN AIR TRUNK SIZE**

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK O	0	0.06	0	0	x 8 0
TRUNK P	0	0.06	0	0	x 8 0
TRUNK Q	0	0.06	0	0	x 8 0
TRUNK R	0	0.06	0	0	x 8 0
TRUNK S	0	0.06	0	0	x 8 0
TRUNK T	0	0.06	0	0	x 8 0
TRUNK U	0	0.06	0	0	x 8 0
TRUNK V	0	0.06	0	0	x 8 0
TRUNK W	0	0.06	0	0	x 8 0
TRUNK X	1465	0.06	17.4	32	x 10 659
TRUNK Y	685	0.06	13.1	20	x 8 617
TRUNK Z	490	0.06	11.5	16	x 8 551
DROP	1955	0.06	19.4	24	x 18 652

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	120	120	120	120	305	85	300	300	185	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	38	37	37	45	43	59	27	25	34	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	195	185	165	205	145	175	190	185	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	233	222	202	250	188	234	217	210	184	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.06	0.07	0.07	0.06	0.08	0.06	0.07	0.07	0.08	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	6.8	6.6	6.6	6.8	9	6	9.2	9.2	7.5	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	8	8	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	14	30	30	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



TYPE: 5004 THE BEAUMONT  
SITE NAME: PINE VALLEY & TESTON

LO # 77479  
OPT. ELEVATOR

**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	<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>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Table 9.32.3.A. TOTAL		<u>201.4</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>201.4</u>	cfm
Less Principal Ventil. Capacity	<u>155</u>	cfm
Required Supplemental Capacity	<u>46.4</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY			
Model:	VANEE 65H		
Location:	BSMT		
<u>155.0</u> cfm	<u>3.0</u> sones		
<input checked="" type="checkbox"/> HVI Approved			
PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	$\Delta T$ °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	<input checked="" type="checkbox"/>	0.3
ENS-2	QTXEN050C	50	<input checked="" type="checkbox"/>	0.3
ENS-3	QTXEN050C	50	<input checked="" type="checkbox"/>	0.3
ENS-4	QTXEN050C	50	<input checked="" type="checkbox"/>	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)	<input checked="" type="checkbox"/> 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:	June-20



CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 77479	Model: 5004 THE BEAUMONT	Builder: GOLD PARK HOMES	Date: 6/4/2020																																																									
<b>Volume Calculation</b>			<b>Air Change &amp; Delta T Data</b>																																																									
<b>House Volume</b> <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>2153</td> <td>10</td> <td>21530</td> </tr> <tr> <td>First</td> <td>2153</td> <td>11</td> <td>23683</td> </tr> <tr> <td>Second</td> <td>2262</td> <td>9</td> <td>20358</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="3" style="text-align: right;">Total:</td> <td>65,571.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>1856.8 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	2153	10	21530	First	2153	11	23683	Second	2262	9	20358	Third	0	9	0	Fourth	0	9	0	Total:			65,571.0 ft³	Total:			1856.8 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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<b>5.2.3.1 Heat Loss due to Air Leakage</b>			<b>6.2.6 Sensible Gain due to Air Leakage</b>																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ <p>0.340 x 515.77 x 42 °C x 1.2 = 8886 W</p> <p style="text-align: right;">= 30320 Btu/h</p>			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ <p>= 0.124 x 515.77 x 9 °C x 1.2 = 674 W</p> <p style="text-align: right;">= 2299 Btu/h</p>																																																									
<b>5.2.3.2 Heat Loss due to Mechanical Ventilation</b>			<b>6.2.7 Sensible heat Gain due to Ventilation</b>																																																									
$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>155 CFM x 76 °F x 1.08 x 0.25 = 3181 Btu/h</p>			$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>155 CFM x 16 °F x 1.08 x 0.25 = 661 Btu/h</p>																																																									
<b>5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)</b>																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																												
Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL <sub>level</sub> )	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)																																																								
1	0.5	30,320	11,766	1.289																																																								
2	0.3		23,666	0.384																																																								
3	0.2		16,674	0.364																																																								
4	0		0	0.000																																																								
5	0		0	0.000																																																								
<p>*HLairbv = Air leakage heat loss + ventilation heat loss</p> <p>*For a balanced or supply only ventilation system HLairve = 0</p>																																																												

**HEAT LOSS AND GAIN SUMMARY SHEET**

<b>MODEL:</b> 5004 THE BEAUMONT	<b>OPT. ELEVATOR</b>	<b>BUILDER:</b> GOLD PARK HOMES
<b>SFQT:</b> 4330	<b>LO#</b> 77479	<b>SITE:</b> 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 <sup>3</sup> ):	65571.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft <sup>2</sup> ):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 74.0 ft	WIDTH: 41.0 ft	EXPOSED PERIMETER:	230.0 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	-

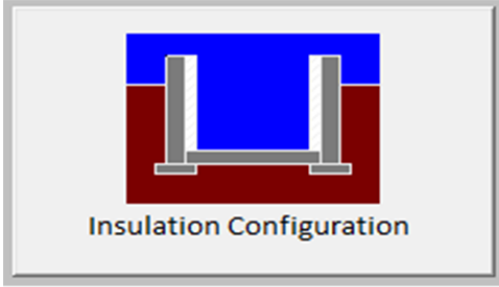
INDIVIDUAL BCIN: 19669

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):	22.6	 <p>Insulation Configuration</p>
Floor Width (m):	12.5	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m <sup>2</sup> ):	3.7	
Door Area (m <sup>2</sup> ):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		2349

TYPE: 5004 THE BEAUMONT  
LO# 77479

OPT. ELEVATOR

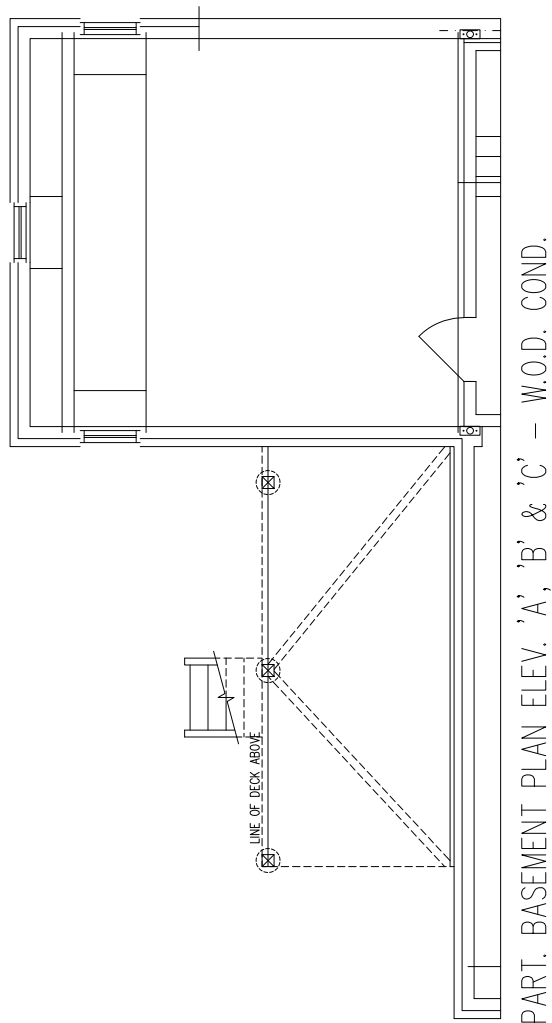
# Air Infiltration Residential Load Calculator

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):	7.01			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m <sup>3</sup> ):	1856.8			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2475.1 cm <sup>2</sup>		
	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: 5004 THE BEAUMONT  
LO# 77479

OPT. ELEVATOR



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

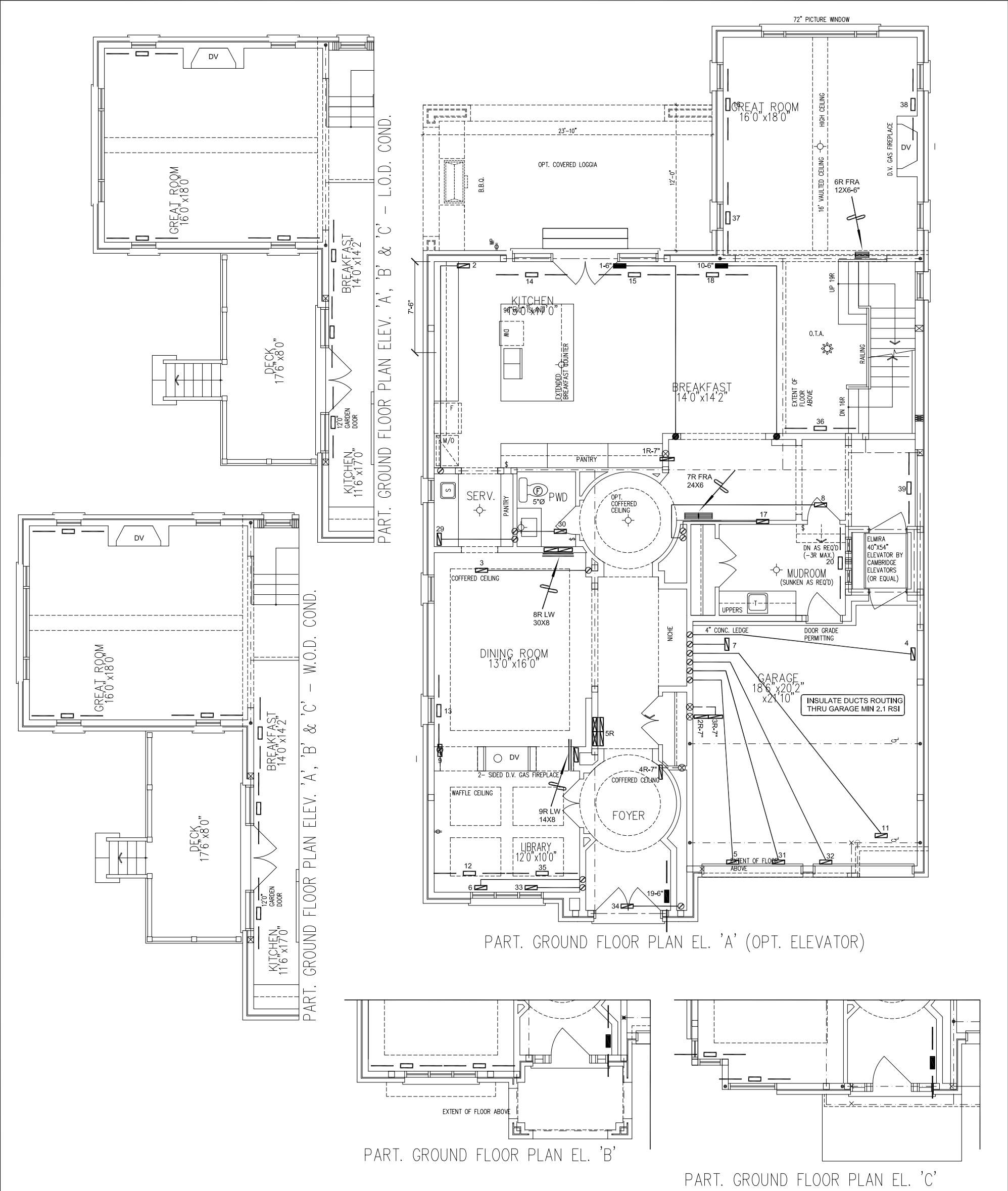
## PACKAGE A1

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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>	HEAT LOSS 86875 BTU/H		# OF RUNS S/A R/A FANS				Sheet Title	
GOLD PARK HOMES  Project Name PINE VALLEY & TESTON VAUGHAN, ONTARIO OPT. ELEVATOR THE BEAUMONT 5004			UNIT DATA		3RD FLOOR				BASEMENT HEATING LAYOUT  Date JAN/2018  Scale 1/8" = 1'-0"  BCIN# 19669  LO# 77479	
			MAKE LENNOX		2ND FLOOR 18 5 6					
			MODEL EL296110XE60C		1ST FLOOR 13 4 2					
			INPUT 110 MBTU/H		BASEMENT 8 1 0					
			OUTPUT 106 MBTU/H		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					
			COOLING 5.0 TONS							
FAN SPEED 1955 cfm @ 0.6" w.c.										
4330 sqft		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.								





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

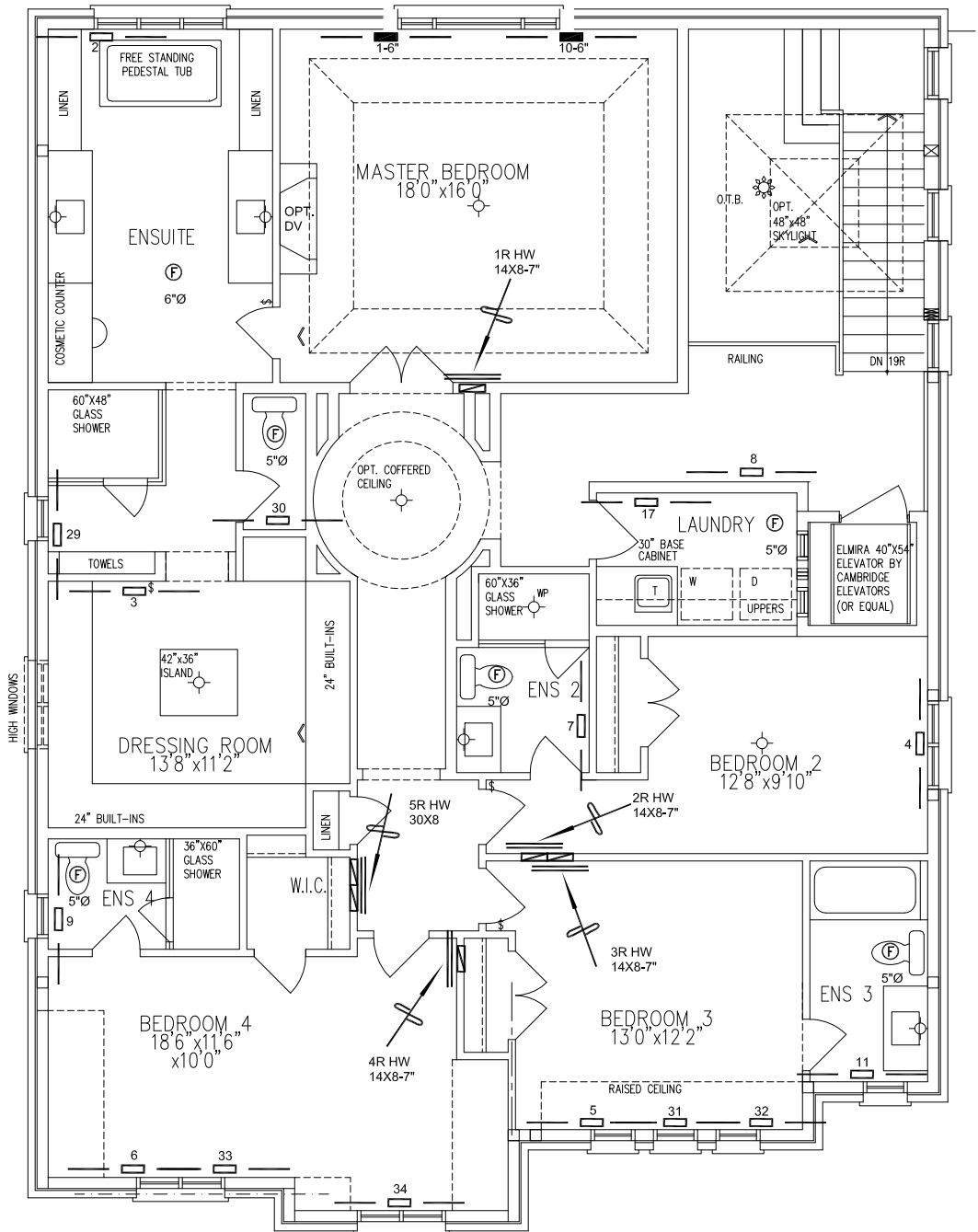
HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	REVISED AS PER ARCHITECTURALS	JUNE/2020
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	DECK CONDITIONS ADDED	SEPT/2018
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

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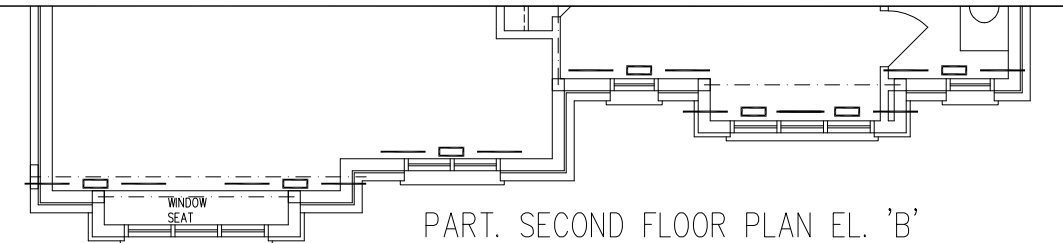
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GOLD PARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	JAN/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	1/8" = 1'-0"
OPT. ELEVATOR			BCIN# 19669	
THE BEAUMONT			LO# 77479	
5004	4330 sqft			

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.

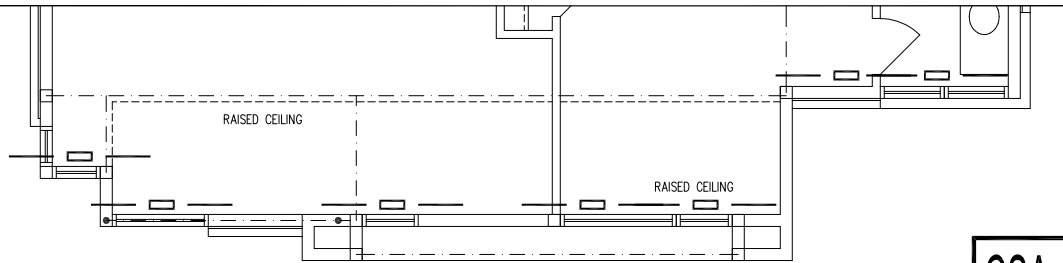
*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.



PART. SECOND FLOOR PLAN EL. 'A' (OPT. ELEVATOR)



PART. SECOND FLOOR PLAN EL. 'B'



PART. SECOND FLOOR PLAN EL. 'C'

CSA-F280-12  
PACKAGE A1

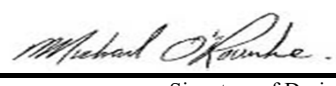
HVAC LEGEND								3.		
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GOLD PARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	JAN/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	1/8" = 1'-0"
OPT. ELEVATOR			BCIN# 19669	
THE BEAUMONT			LO#	77479
5004				
4330 sqft				

## Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

<b>A. Project Information</b>			
Building number, street name		Unit no.	Lot/con.
Municipality VAUGHAN (WOODBIDGE)	Postal code	Plan number/ other description	
<b>B. Individual who reviews and takes responsibility for design activities</b>			
Name <b>MICHAEL O'ROURKE</b>		Firm <b>HVAC DESIGNS LTD.</b>	
Street address <b>375 FINLEY AVE</b>		Unit no. <b>202</b>	Lot/con. <b>N/A</b>
Municipality <b>AJAX</b>	Postal code <b>L1S 2E2</b>	Province <b>ONTARIO</b>	E-mail <b>info@hvacdesigns.ca</b>
Telephone number <b>(905) 619-2300</b>	Fax number <b>(905) 619-2375</b>	Cell number ( )	
<b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]</b>			
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <input type="checkbox"/> House  <input type="checkbox"/> Small Buildings  <input type="checkbox"/> Large Buildings  <input type="checkbox"/> Complex Buildings         </div> <div style="width: 30%;"> <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 style="width: 30%;"> <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 <b>HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12</b>		<b>Model:</b> 5004 THE BEAUMONT CORNER <b>Project:</b> PINE VALLEY & TESTON	
<b>D. Declaration of Designer</b>			
I, <u><b>MICHAEL O'ROURKE</b></u> declare that (choose one as appropriate): (print name)			
<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.			
June 4, 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										CORNER										DATE: Jun-20										WINTER NATURAL AIR CHANGE RATE 0.340										HEAT LOSS ΔT °F. 76										CSA-F280-12																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
BUILDER: GOLD PARK HOMES										TYPE: 5004 THE BEAUMONT										GFA: 4294										LO# 80139										SUMMER NATURAL AIR CHANGE RATE 0.118										HEAT GAIN ΔT °F. 14										SB-12 PACKAGE A1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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NORTH										21.3	15.8	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

ROOM USE			LIBR			DIN			KIT			GREAT			LAUN			ENS-4			FOY			MUD									LOD			BAS		
EXP. WALL			27			20			113			56			0			6			37			18									71			240		
CLG. HT.			11			11			11			16			9			9			11			13									10			10		
FACTORS																																						
GRS.WALL AREA	LOSS	GAIN	297			220			1243			896			0			54			407			234									710			2106		
GLAZING	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	15.8	0	0	0	0	0	0	39	830	618	28	596	444	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	85	63	12	255	190			
EAST	21.3	39.9	38	809	1517	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	128	240	0	0	0	0	0	0	25	532	998	0	0	0			
SOUTH	21.3	24.5	0	0	0	22	468	538	20	426	489	28	596	685	0	0	0	8	170	196	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
WEST	21.3	39.9	0	0	0	0	0	0	110	2341	4393	58	1234	2316	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
SKYLT.	37.2	102.0	0	0	0	0	0	0	0	0	0	0	0	0	4	149	408	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	40	1010	183	20	505	92	0	0	0	0	0	0	20	505	92			
NET EXPOSED WALL	4.5	0.8	259	1156	210	198	884	160	1074	4793	870	782	3490	634	0	0	0	46	205	37	361	1611	293	214	955	173	0	0	0	0	0	0	0	0	0			
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	397	1429	259	294	1058	192				
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	192	246	116	0	0	0	139	178	84	60	77	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0	0	0	0	0	0	0	342	940	443	0	0	0	0	0	0	0	0	0	0	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	0	0	75	191	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
BASEMENT/CRAWL HEAT LOSS																																						
SLAB ON GRADE HEAT LOSS																																						
SUBTOTAL HT LOSS						1964		1352			8636		6856			519		453			2749		1460							0				8413				
SUB TOTAL HT GAIN							1727			699			6486		4521				527		269			716		265					1321			474				
LEVEL FACTOR / MULTIPLIER			0.30	0.39			0.30	0.39		0.30	0.39		0.30	0.39		0.20	0.35		0.20	0.35		0.30	0.39		0.30	0.39						0.50	1.21					
AIR CHANGE HEAT LOSS						762		524			3349		2659			180		157			1066		566											14877				
AIR CHANGE HEAT GAIN							145			59		545		380			44		23			60				22								151				
DUCT LOSS						0		0			0		0			70		0			0		0										0					
DUCT GAIN						0		0			0		0			172		0		0		0		0		0							0					
HEAT GAIN PEOPLE	240		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
HEAT GAIN APPLIANCES/LIGHTS							1145			1145		1145		1145			1145		1145		0		0		1145								0	0				
TOTAL HT LOSS BTU/H						2726		1876		11985		9515		768		610		3815				2026		1862						2046			25109					
TOTAL HT GAIN x 1.3 BTU/H							3922		2473		10629		7860		2454		380				1008									1717				812				

TOTAL HEAT GAIN BTU/H: 61169

TONS: 5.10

LOSS DUE TO VENTILATION LOAD BTU/H: 3181

STRUCTURAL HEAT LOSS: 83568

TOTAL COMBINED HEAT LOSS BTU/H: 86749





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

CORNER  
TYPE: 5004 THE BEAUMONT

DATE: Jun-20

GFA: 4294 LO# 80139

HEATING CFM 1955 COOLING CFM 1955  
TOTAL HEAT LOSS 83,568 TOTAL HEAT GAIN 60,591  
AIR FLOW RATE CFM 23.39 AIR FLOW RATE CFM 32.27

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

^LENNOX  
EL296UH110XE60C 110  
FAN SPEED LOW 0  
MEDLOW 1380  
MEDIUM 1505  
MEDIUM HIGH 1685  
HIGH 1955

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

DESIGN CFM = 1955  
CFM @ .6" E.S.P.

TEMPERATURE RISE 50 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	18	12	8
R/A	0	0	5	4	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	DRESS	BED-2	BED-3	BED-4	ENS-2	WIC-2	ENS-4	MBR	ENS-3	LIBR	DIN	KIT	KIT	GREAT	LAUN	KIT	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.57	1.85	1.56	2.40	1.12	1.76	0.33	1.22	0.61	1.57	1.76	1.36	1.88	3.00	3.00	3.17	0.77	3.00	3.81	2.03	3.39	3.39	3.39	3.39
CFM PER RUN HEAT	37	43	36	56	26	41	8	28	14	37	41	32	44	70	70	74	18	70	89	47	79	79	79	79
RM GAIN MBH	2.90	1.47	2.43	3.49	1.71	2.04	0.11	0.28	0.38	2.90	0.94	1.96	2.47	2.66	2.66	2.62	2.45	2.66	1.01	1.86	0.32	0.32	0.32	0.32
CFM PER RUN COOLING	94	47	78	112	55	66	4	9	12	94	30	63	80	86	86	85	79	86	33	60	10	10	10	10
ADJUSTED PRESSURE	0.16	0.17	0.17	0.15	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH	46	62	29	34	38	50	28	31	43	54	41	41	27	40	32	49	26	36	24	16	50	50	39	30
EQUIVALENT LENGTH	190	140	180	180	120	150	160	150	190	180	160	180	80	140	150	130	150	140	150	130	140	100	100	102
TOTAL EFFECTIVE LENGTH	236	202	209	214	158	200	188	181	233	234	201	221	107	180	182	179	176	176	174	146	180	190	139	132
ADJUSTED PRESSURE	0.07	0.09	0.08	0.07	0.11	0.09	0.09	0.1	0.07	0.07	0.09	0.08	0.16	0.09	0.09	0.09	0.1	0.09	0.09	0.12	0.1	0.09	0.12	0.13
ROUND DUCT SIZE	6	4	5	6	4	5	4	4	4	6	4	5	5	5	5	5	5	5	6	4	5	5	5	5
HEATING VELOCITY (ft/min)	189	493	264	286	298	301	92	321	161	189	470	235	323	514	514	543	132	514	454	539	580	580	580	580
COOLING VELOCITY (ft/min)	479	539	573	571	631	485	46	103	138	479	344	463	587	631	631	624	580	631	168	688	73	73	73	73
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10
TRUNK	B	C	D	F	F	E	F	D	E	B	F	E	F	C	C	A	D	B	E	D	A	A	C	C

RUN #	25	26	27	28	29	30	31	32	33	34	35	36	37	38
ROOM NAME	BAS	BAS	BAS	BAS	ENS	ENS	BED-3	BED-3	BED-4	BED-4	LIBR	KIT	GREAT	GREAT
RM LOSS MBH	3.39	3.39	3.39	3.39	1.85	0.35	1.12	1.12	1.76	1.76	1.36	3.00	3.17	3.17
CFM PER RUN HEAT	79	79	79	79	43	8	26	26	41	41	32	70	74	74
RM GAIN MBH	0.32	0.32	0.32	0.32	1.47	0.27	1.71	1.71	2.04	2.04	1.96	2.66	2.62	2.62
CFM PER RUN COOLING	10	10	10	10	47	9	55	55	66	66	63	86	85	85
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16
ACTUAL DUCT LGH	37	23	17	31	34	33	42	46	47	40	35	28	39	64
EQUIVALENT LENGTH	120	80	120	150	140	140	130	140	150	130	140	150	150	150
TOTAL EFFECTIVE LENGTH	157	103	137	181	174	173	172	186	197	170	175	178	189	214
ADJUSTED PRESSURE	0.11	0.17	0.13	0.1	0.1	0.1	0.09	0.09	0.1	0.1	0.09	0.09	0.09	0.08
ROUND DUCT SIZE	5	5	5	5	4	4	4	5	5	5	5	5	5	6
HEATING VELOCITY (ft/min)	580	580	580	580	493	92	298	191	301	301	235	514	543	377
COOLING VELOCITY (ft/min)	73	73	73	73	539	103	631	404	485	485	463	631	624	433
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10
TRUNK	B	D	F	E	D	D	F	F	E	E	E	B	A	A

**SUPPLY AIR TRUNK SIZE**

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	380	0.08	9.8	12	x 8
TRUNK B	673	0.07	12.5	18	x 8
TRUNK C	341	0.09	9.1	10	x 8
TRUNK D	1273	0.07	15.9	30	x 8
TRUNK E	369	0.07	10	12	x 8
TRUNK F	675	0.07	12.5	20	x 8

**RETURN AIR TRUNK SIZE**

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK O	0	0.06	0	0	x 8
TRUNK P	0	0.06	0	0	x 8
TRUNK Q	0	0.06	0	0	x 8
TRUNK R	0	0.06	0	0	x 8
TRUNK S	0	0.06	0	0	x 8
TRUNK T	0	0.06	0	0	x 8
TRUNK U	0	0.06	0	0	x 8
TRUNK V	0	0.06	0	0	x 8
TRUNK W	0	0.06	0	0	x 8

RETURN AIR #	1	2	3	4	5	6	7	8	9	BR
AIR VOLUME	120	120	120	120	305	85	300	300	185	0
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH	38	37	37	45	43	59	27	25	34	1
EQUIVALENT LENGTH	195	185	165	205	145	175	190	185	150	0
TOTAL EFFECTIVE LH	233	222	202	250	188	234	217	210	184	1
ADJUSTED PRESSURE	0.06	0.07	0.07	0.06	0.08	0.06	0.07	0.07	0.08	14.80
ROUND DUCT SIZE	6.8	6.6	6.6	6.8	9	6	9.2	9.2	7.5	0
INLET GRILL SIZE	8	8	8	8	8	8	8	8	8	0
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	30	14	30	30	14	0

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK X	1465	0.06	17.4	32	x 10
TRUNK Y	805	0.06	13.9	22	x 8
TRUNK Z	490	0.06	11.5	16	x 8
DROP	1955	0.06	19.4	24	x 18

TYPE: 5004 THE BEAUMONT  
SITE NAME: PINE VALLEY & TESTON

LO # 80139  
CORNER

**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	<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>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Table 9.32.3.A. TOTAL		<u>201.4</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>201.4</u>	cfm
Less Principal Ventil. Capacity	<u>155</u>	cfm
Required Supplemental Capacity	<u>46.4</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY			
Model:	VANEE 65H		
Location:	BSMT		
<u>155.0</u> cfm	<u>3.0</u> sones		
<input checked="" type="checkbox"/> HVI Approved			
PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	$\Delta T$ °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	<input checked="" type="checkbox"/>
ENS-2	QTXEN050C	50	<input checked="" type="checkbox"/>
ENS-3	QTXEN050C	50	<input checked="" type="checkbox"/>
ENS-4	QTXEN050C	50	<input checked="" type="checkbox"/>

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)	<input checked="" type="checkbox"/> 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:	June-20

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 80139	Model: 5004 THE BEAUMONT	Builder: GOLD PARK HOMES	Date: 6/4/2020																																																									
<b>Volume Calculation</b>			<b>Air Change &amp; Delta T Data</b>																																																									
<b>House Volume</b> <table border="1" style="width:100%; border-collapse: collapse; margin-top: 5px;"> <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>2078</td><td>10</td><td>20780</td></tr> <tr><td>First</td><td>2078</td><td>11</td><td>22858</td></tr> <tr><td>Second</td><td>2301</td><td>9</td><td>20709</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="3" style="text-align: right;">Total:</td><td>64,347.0 ft³</td></tr> <tr><td colspan="3" style="text-align: right;">Total:</td><td>1822.1 m³</td></tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	2078	10	20780	First	2078	11	22858	Second	2301	9	20709	Third	0	9	0	Fourth	0	9	0	Total:			64,347.0 ft³	Total:			1822.1 m³	<table border="1" style="width:100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td style="width: 70%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 30%; text-align: center;">0.340</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.118</td> </tr> </table> <table border="1" style="width:100%; border-collapse: collapse; margin-top: 5px;"> <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;">23</td> <td style="text-align: center;">31</td> <td style="text-align: center;">8</td> <td style="text-align: center;">14</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.340	SUMMER NATURAL AIR CHANGE RATE	0.118	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-20	42	76	Summer DTDc	23	31	8	14
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<b>5.2.3.1 Heat Loss due to Air Leakage</b>			<b>6.2.6 Sensible Gain due to Air Leakage</b>																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ <p>0.340      x      506.14      x      42 °C      x      1.2      =      8720 W</p> <p style="text-align: right;">=      29754 Btu/h</p>			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ <p>=      0.118      x      506.14      x      8 °C      x      1.2      =      547 W</p> <p style="text-align: right;">=      1868 Btu/h</p>																																																									
<b>5.2.3.2 Heat Loss due to Mechanical Ventilation</b>			<b>6.2.7 Sensible heat Gain due to Ventilation</b>																																																									
$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>155 CFM      x      76 °F      x      1.08      x      0.25      =      3181 Btu/h</p>			$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>155 CFM      x      14 °F      x      1.08      x      0.25      =      578 Btu/h</p>																																																									
<b>5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)</b>																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{ (HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel}) \}$																																																												
Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL <sub>level</sub> )	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)																																																								
1	0.5	29,754	12,277	1.212																																																								
2	0.3		23,016	0.388																																																								
3	0.2		17,146	0.347																																																								
4	0		0	0.000																																																								
5	0		0	0.000																																																								
<p>*HLairbv = Air leakage heat loss + ventilation heat loss</p> <p>*For a balanced or supply only ventilation system HLairve = 0</p>																																																												



**HEAT LOSS AND GAIN SUMMARY SHEET**

<b>MODEL:</b> 5004 THE BEAUMONT	<b>CORNER</b>	<b>BUILDER:</b> GOLD PARK HOMES
<b>SFQT:</b> 4294	<b>LO#</b> 80139	<b>SITE:</b> 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 (ft <sup>3</sup> ):	64347.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft <sup>2</sup> ):	1.95	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 74.0 ft	WIDTH: 46.0 ft	EXPOSED PERIMETER:	240.0 ft

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

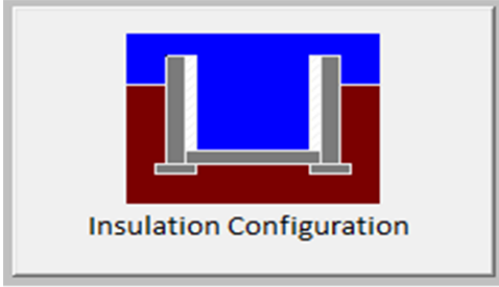
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	21.12
Below Grade Slab Entire surface > 600 mm below 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):	22.6	 Insulation Configuration
Floor Width (m):	14.0	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m <sup>2</sup> ):	3.8	
Door Area (m <sup>2</sup> ):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		2465

TYPE: 5004 THE BEAUMONT  
LO# 80139

CORNER



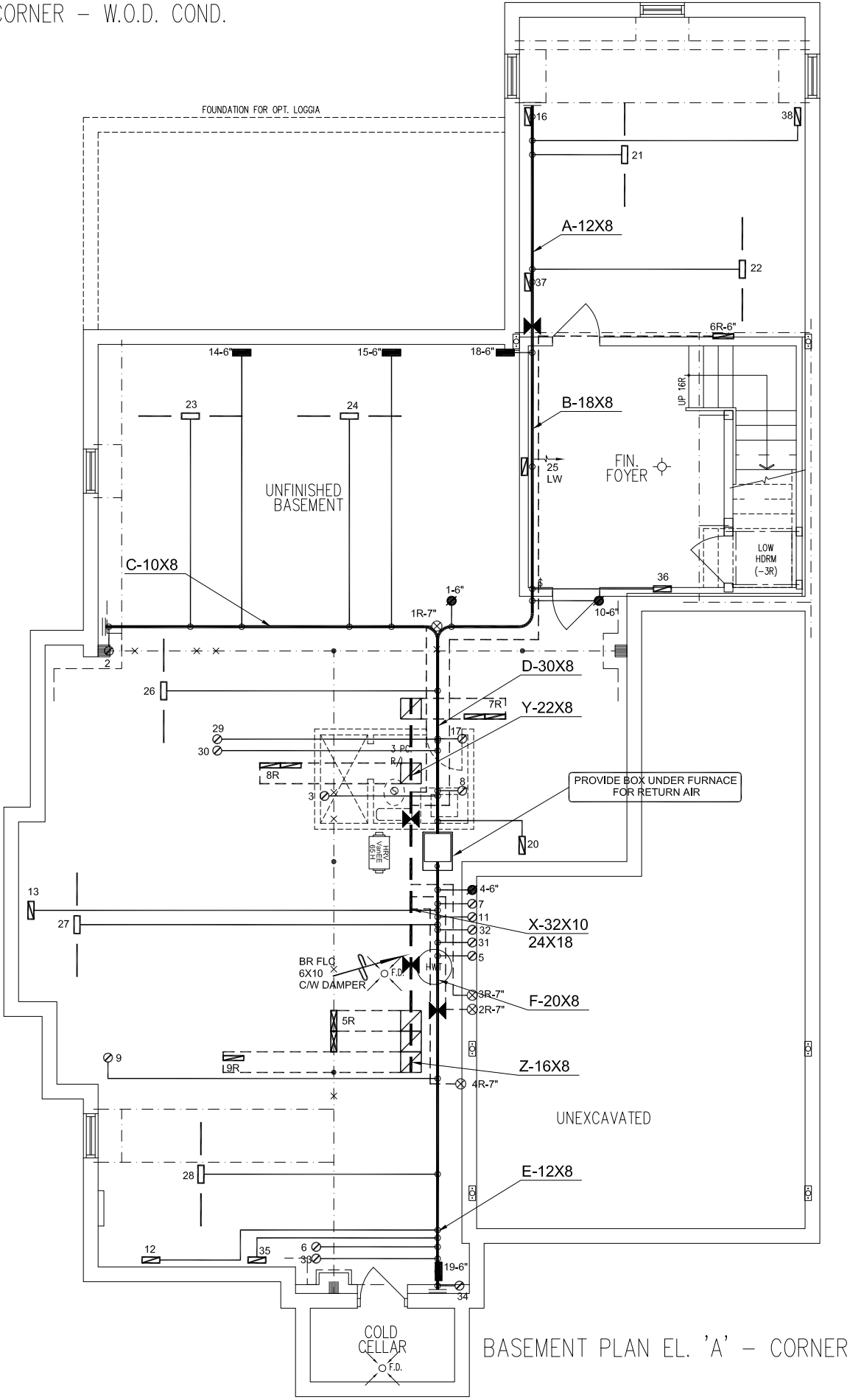
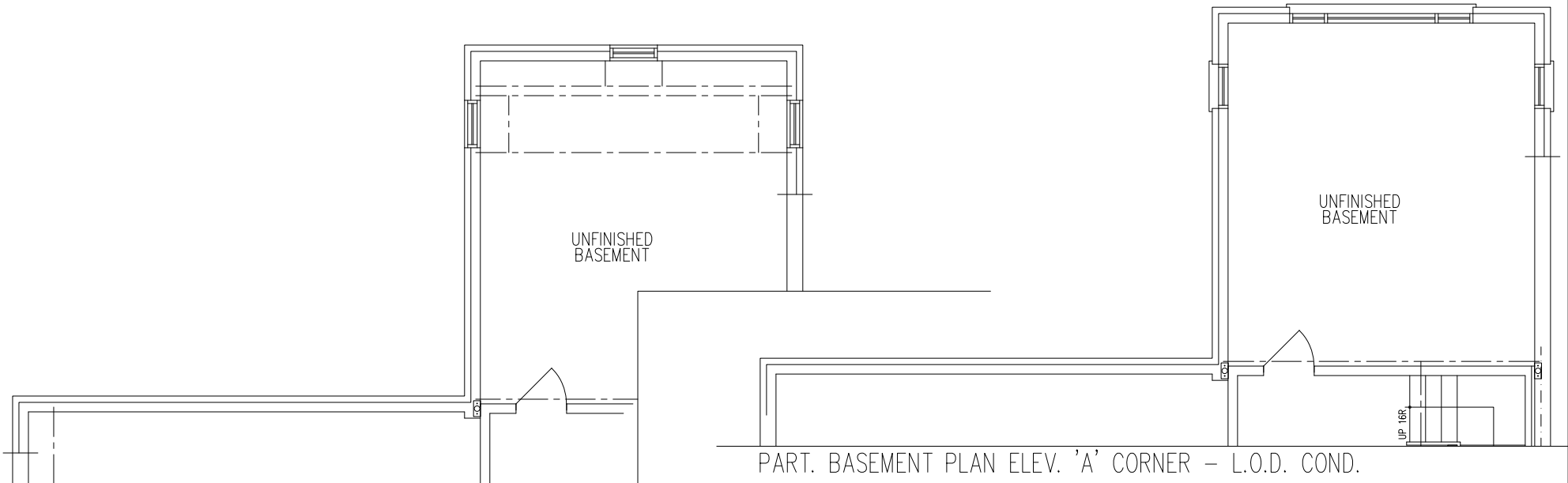
# Air Infiltration Residential Load Calculator

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 <sup>3</sup> ):	1822.1			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2428.9 cm <sup>2</sup>		
	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):	0.118			

TYPE: 5004 THE BEAUMONT  
LO# 80139

CORNER



WOD/LOD  
CSA-F280-12  
PACKAGE A1

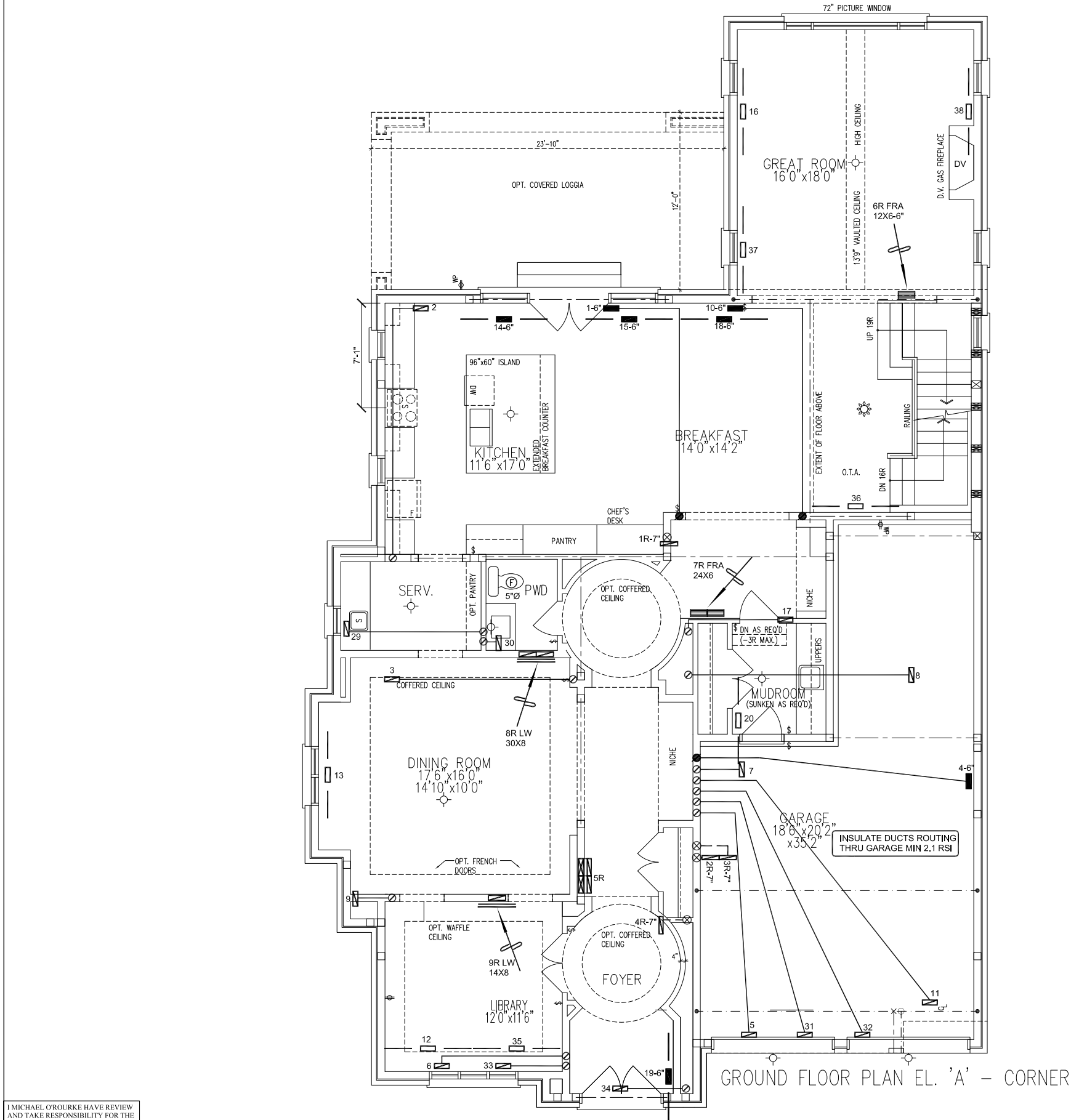
I MICHAEL O'ROURKE HAVE REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

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

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	REVISED AS PER ARCHITECTURALS	JUNE/2020
	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><p>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.</p></div>	HEAT LOSS 86749 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	EL296110XE60C		2ND FLOOR		18	5	6								
PINE VALLEY & TESTON VAUGHAN, ONTARIO		INPUT	110	MBTU/H	1ST FLOOR		12	4	2								
THE BEAUMONT 5004 - CORNER 4294 sqft		OUTPUT	106	MBTU/H	BASEMENT						8	1	0	Date	SEPT/2018		
	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.	Scale	1/8" = 1'-0"		
															BCIN# 19669		
															LO#	80139	



GROUND FLOOR PLAN EL. 'A' – CORNER

WOD/LOD  
CSA-F280-12  
PACKAGE A1

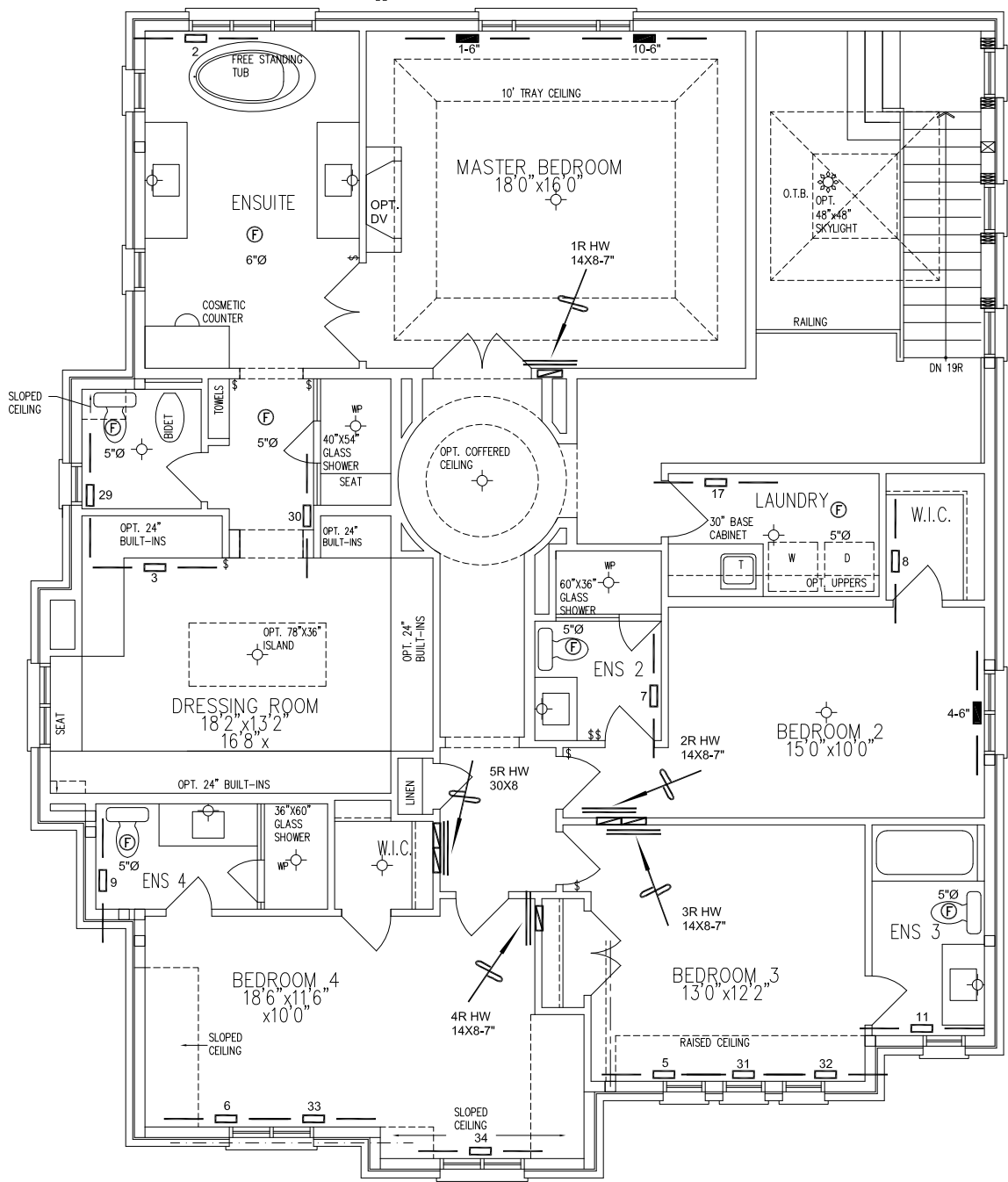
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*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	REVISED AS PER ARCHITECTURALS	JUNE/2020
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
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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	
GOLD PARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	SEPT/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	1/8" = 1'-0"
THE BEAUMONT			BCIN# 19669	
5004 - CORNER	4294 sqft		LO#	80139



SECOND FLOOR PLAN EL. 'A' - CORNER

WOD/LOD  
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.

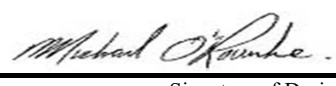
HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	REVISED AS PER ARCHITECTURALS	JUNE/2020
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		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	
GOLD PARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	SEPT/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	1/8" = 1'-0"
THE BEAUMONT			BCIN# 19669	
5004 - CORNER	4294 sqft		LO#	80139

## Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

<b>A. Project Information</b>			
Building number, street name		Unit no.	Lot/con.
Municipality VAUGHAN (WOODBIDGE)	Postal code	Plan number/ other description	
<b>B. Individual who reviews and takes responsibility for design activities</b>			
Name <b>MICHAEL O'ROURKE</b>		Firm <b>HVAC DESIGNS LTD.</b>	
Street address <b>375 FINLEY AVE</b>		Unit no. <b>202</b>	Lot/con. <b>N/A</b>
Municipality <b>AJAX</b>	Postal code <b>L1S 2E2</b>	Province <b>ONTARIO</b>	E-mail <b>info@hvacdesigns.ca</b>
Telephone number <b>(905) 619-2300</b>	Fax number <b>(905) 619-2375</b>	Cell number ( )	
<b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]</b>			
<input type="checkbox"/> House <input type="checkbox"/> Small Buildings <input type="checkbox"/> Large Buildings <input type="checkbox"/> Complex Buildings <input checked="" type="checkbox"/> HVAC – House <input type="checkbox"/> Building Services <input type="checkbox"/> Detection, Lighting and Power <input type="checkbox"/> Fire Protection <input type="checkbox"/> Building Structural <input type="checkbox"/> Plumbing – House <input type="checkbox"/> Plumbing – All Buildings <input type="checkbox"/> On-site Sewage Systems			
Description of designer's work <b>HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12</b>		<b>Model:</b> 5004 THE BEAUMONT OPT 5 BED CORNER <b>Project:</b> PINE VALLEY & TESTON	
<b>D. Declaration of Designer</b>			
I, <u><b>MICHAEL O'ROURKE</b></u> declare that (choose one as appropriate): (print name)			
<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.			
June 4, 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 5 BED CORNER				DATE: Jun-20				WINTER NATURAL AIR CHANGE RATE 0.340				HEAT LOSS ΔT °F. 76				CSA-F280-12			
BUILDER: GOLD PARK HOMES				TYPE: 5004 THE BEAUMONT				LO# 80141				SUMMER NATURAL AIR CHANGE RATE 0.118				HEAT GAIN ΔT °F. 14				SB-12 PACKAGE A1			
ROOM USE				MBR				ENS				WIC				BED-2				BED-3			
EXP. WALL				19				41				7				11				18			
CLG. HT.				10				9				9				9				9			
FACTORS																							
GRS.WALL AREA				190				369				63				99				162			
GLAZING				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN			
NORTH				21.3 15.8				0 0 0				0 0 0				19 404 301				0 0 0			
EAST				21.3 39.9				0 0 0				0 0 0				42 894 1677				50 1064 1997			
SOUTH				21.3 24.5				0 0 0				20 426 489				10 213 245				0 0 0			
WEST				21.3 40.6				35 745 1420				28 596 1136				0 0 0				0 0 0			
SKYLT.				37.2 102.0				8 298 816				0 0 0				4 149 408				0 0 0			
DOORS				25.2 4.6				0 0 0				0 0 0				0 0 0				0 0 0			
NET EXPOSED WALL				4.5 0.8				155 692 126				321 1433 260				53 237 43				120 536 97			
NET EXPOSED BSMT WALL ABOVE GR				3.6 0.7				0 0 0				0 0 0				0 0 0				0 0 0			
EXPOSED CLG				1.3 0.6				460 590 278				312 400 189				147 189 89				183 235 111			
NO ATTIC EXPOSED CLG				2.7 1.3				0 0 0				0 0 0				0 0 0				60 165 78			
EXPOSED FLOOR				2.6 0.5				0 0 0				0 0 0				187 477 87				196 500 91			
BASEMENT/CRAWL HEAT LOSS				0				0				0				0				0			
SLAB ON GRADE HEAT LOSS				0				0				0				0				0			
SUBTOTAL HT LOSS				2325				2854				638				1622				2269			
SUB TOTAL HT GAIN				2640				2074				376				971				2025			
LEVEL FACTOR / MULTIPLIER				0.20 0.33				0.20 0.33				0.20 0.33				0.20 0.33				0.20 0.33			
AIR CHANGE HEAT LOSS				771				946				212				538				752			
AIR CHANGE HEAT GAIN				219				172				31				81				168			
DUCT LOSS				0				0				0				216				302			
DUCT GAIN				0				0				0				241				355			
HEAT GAIN PEOPLE				240				480				0				1				240			
HEAT GAIN APPLIANCES/LIGHTS				1115				0				0				1115				1115			
TOTAL HT LOSS BTU/H				3096				3801				850				2376				3323			
TOTAL HT GAIN x 1.3 BTU/H				5791				2920				530				3442				5074			

ROOM USE				LIBR			DIN			KIT			GREAT			LAUN			ENS-4			FOY			MUD									LOD			BAS		
EXP. WALL				27			20			113			56			0			6			37			18									71			240		
CLG. HT.				11			11			11			16			9			9			11			13									10			10		
FACTORS																																							
GRS.WALL AREA	LOSS GAIN			297			220			1243			896			0			54			407			234						710			2106					
GLAZING				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	15.8		0	0	0	0	0	0	39	830	618	28	596	444	0	0	0	0	0	0	0	0	0	0	0	0	4	85	63	12	255	190						
EAST	21.3	39.9	38	809	1517		0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	128	240	0	0	0	25	532	998	0	0	0							
SOUTH	21.3	24.5	0	0	0		22	468	538	20	426	489	28	596	685	0	0	0	8	170	196	0	0	0	0	0	0	0	0	0	0	0							
WEST	21.3	40.6	0	0	0		0	0	0	110	2341	4462	58	1234	2353	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
SKYLT.	37.2	102.0	0	0	0		0	0	0	0	0	0	0	0	0	4	149	408	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	40	1010	183	20	505	92	0	0	0	20	505	92							
NET EXPOSED WALL	4.5	0.8	259	1156	210		198	884	160	1074	4793	870	782	3490	634	0	0	0	46	205	37	361	1611	293	214	955	173	0	0	0	0	0							
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	397	1429	259	294	1058	192								
EXPOSED CLG	1.3	0.6	0	0	0		0	0	0	192	246	116	0	0	0	139	178	84	60	77	36	0	0	0	0	0	0	0	0	0	0	0							
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0		0	0	0	0	0	0	342	940	443	0	0	0	0	0	0	0	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	0	0	75	191	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
BASEMENT/CRAWL HEAT LOSS				0			0			0			0			0			0			0			0									8413					
SLAB ON GRADE HEAT LOSS				0			0			0			0			0			0			0			0									0					
SUBTOTAL HT LOSS				1964			1352			8636			6856			519			453			2749			1460						2046			10232					
SUB TOTAL HT GAIN				1727			699			6556			4558			527			269			716			265						1321			474					
LEVEL FACTOR / MULTIPLIER	0.30			0.39			0.30			0.39			0.30			0.39			0.20			0.33			0.30			0.39						0.50			1.21		
AIR CHANGE HEAT LOSS				762			524			3349			2659			172			150			1066			566									14877					
AIR CHANGE HEAT GAIN				143			58			544			378			44			22			59			22									149					
DUCT LOSS				0			0			0			0			69			0			0			0									0					
DUCT GAIN				0			0			0			0			169			0			0			0									0					
HEAT GAIN PEOPLE	240	0		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
HEAT GAIN APPLIANCES/LIGHTS				1115			1115			1115			1115			1115			1115			0			1115									0					
TOTAL HT LOSS BTU/H				2726			1876			11985			9515			760			603			3815			2026						2046			25109					
TOTAL HT GAIN x 1.3 BTU/H				3882			2434			10680			7867			2411			379			1007			1823						1717			810					

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

OPT 5 BED CORNER  
TYPE: 5004 THE BEAUMONT

DATE: Jun-20

GFA: 4294

LO# 80141

HEATING CFM 1955 COOLING CFM 1955  
TOTAL HEAT LOSS 84,354 TOTAL HEAT GAIN 60,645  
AIR FLOW RATE CFM 23.18 AIR FLOW RATE CFM 32.24

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

^LENNOX  
EL296UH110XE60C 110  
FAN SPEED LOW 0  
MEDLOW 1380  
MEDIUM 1505  
MEDIUM HIGH 1685  
HIGH 1955

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

DESIGN CFM = 1955  
CFM @ .6" E.S.P.

TEMPERATURE RISE 50 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	18	12	8
R/A	0	0	6	4	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	BED-5	BED-2	BED-3	BED-4	ENS-2	WIC-2	ENS-4	MBR	ENS-3	LIBR	DIN	KIT	KIT	GREAT	LAUN	KIT	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.55	2.40	1.96	2.38	1.11	1.74	0.33	1.20	0.60	1.55	1.74	1.36	1.88	3.00	3.00	3.17	0.76	3.00	3.81	2.03	3.39	3.39	3.39	3.39
CFM PER RUN HEAT	36	56	45	55	26	40	8	28	14	36	40	32	43	69	69	74	18	69	88	47	79	79	79	79
RM GAIN MBH	2.90	1.86	2.48	3.44	1.69	2.02	0.11	0.28	0.38	2.90	0.94	1.94	2.43	2.67	2.67	2.62	2.41	2.67	1.01	1.82	0.32	0.32	0.32	0.32
CFM PER RUN COOLING	93	60	80	111	55	65	4	9	12	93	30	63	78	86	86	85	78	86	32	59	10	10	10	10
ADJUSTED PRESSURE	0.16	0.17	0.17	0.15	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH	46	62	29	34	38	50	28	31	43	54	41	41	27	40	32	49	26	36	24	16	50	50	39	35
EQUIVALENT LENGTH	190	140	180	180	120	150	160	150	190	180	160	180	80	140	150	130	150	140	150	130	140	100	100	102
TOTAL EFFECTIVE LENGTH	236	202	209	214	158	200	188	181	233	234	201	221	107	180	182	179	176	176	174	146	180	190	139	137
ADJUSTED PRESSURE	0.07	0.09	0.08	0.07	0.11	0.09	0.09	0.1	0.07	0.07	0.09	0.08	0.16	0.09	0.09	0.09	0.1	0.09	0.09	0.12	0.1	0.09	0.12	0.13
ROUND DUCT SIZE	6	5	5	6	4	5	4	4	4	6	4	5	5	5	5	5	5	5	5	4	5	5	5	5
HEATING VELOCITY (ft/min)	184	411	330	280	298	294	92	321	161	184	459	235	316	507	507	543	132	507	646	539	580	580	580	580
COOLING VELOCITY (ft/min)	474	441	587	566	631	477	46	103	138	474	344	463	573	631	631	624	573	631	235	677	73	73	73	73
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	B	C	D	F	F	E	F	D	E	B	F	E	F	C	C	A	D	B	E	D	A	A	C	C

RUN #	25	26	27	28	29	30	31	32	33	34	35	36	37	38
ROOM NAME	BAS	BAS	BAS	BAS	WIC	ENS	BED-3	BED-3	BED-4	BED-4	LIBR	KIT	GREAT	GREAT
RM LOSS MBH	3.39	3.39	3.39	3.39	1.35	0.90	1.11	1.11	1.74	1.74	1.36	3.00	3.17	3.17
CFM PER RUN HEAT	79	79	79	79	31	21	26	26	40	40	32	69	74	74
RM GAIN MBH	0.32	0.32	0.32	0.32	0.93	0.66	1.69	1.69	2.02	2.02	1.94	2.67	2.62	2.62
CFM PER RUN COOLING	10	10	10	10	30	21	55	55	65	65	63	86	85	85
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	37	23	17	31	34	33	42	46	47	40	35	28	39	64
EQUIVALENT LENGTH	120	80	120	150	140	140	130	140	150	130	140	150	150	150
TOTAL EFFECTIVE LENGTH	157	103	137	181	174	173	172	186	197	170	175	178	189	214
ADJUSTED PRESSURE	0.11	0.17	0.13	0.1	0.1	0.1	0.09	0.09	0.1	0.1	0.09	0.09	0.08	0.08
ROUND DUCT SIZE	5	5	5	5	4	4	4	5	5	5	5	5	5	6
HEATING VELOCITY (ft/min)	580	580	580	580	356	241	298	191	294	294	235	507	543	377
COOLING VELOCITY (ft/min)	73	73	73	73	344	241	631	404	477	477	463	631	624	433
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10
TRUNK	B	D	F	E	D	D	F	F	E	E	E	B	A	A

**SUPPLY AIR TRUNK SIZE**

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	380	0.08	9.8	12	x 8 570
TRUNK B	669	0.07	12.5	18	x 8 669
TRUNK C	352	0.09	9.2	10	x 8 634
TRUNK D	1290	0.07	15.9	30	x 8 774
TRUNK E	365	0.07	9.9	12	x 8 548
TRUNK F	668	0.07	12.5	20	x 8 601

**RETURN AIR TRUNK SIZE**

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK O	0	0.05	0	0	x 8 0
TRUNK P	0	0.05	0	0	x 8 0
TRUNK Q	0	0.05	0	0	x 8 0
TRUNK R	0	0.05	0	0	x 8 0
TRUNK S	0	0.05	0	0	x 8 0
TRUNK T	0	0.05	0	0	x 8 0
TRUNK U	0	0.05	0	0	x 8 0
TRUNK V	0	0.05	0	0	x 8 0
TRUNK W	0	0.05	0	0	x 8 0

**RETURN AIR #**

	1	2	3	4	5	6	7	8	9	10	BR
AIR VOLUME	110	110	110	110	305	85	300	300	185	40	0 300
PLENUM PRESSURE	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	38	37	37	45	43	59	27	25	34	43	1 18
EQUIVALENT LENGTH	195	185	165	205	145	175	190	185	150	285	0 195
TOTAL EFFECTIVE LH	233	222	202	250	188	234	217	210	184	328	1 213
ADJUSTED PRESSURE	0.06	0.07	0.07	0.06	0.08	0.06	0.07	0.07	0.08	0.05	14.80 14.80 14.80 14.80 14.80 0.07
ROUND DUCT SIZE	6.6	6.3	6.3	6.6	9	6	9.2	9.2	7.5	4.7	0 9.2
INLET GRILL SIZE	8	8	8	8	8	8	8	8	8	8	0 8
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X	0 30

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK X	1465	0.05	18.2	32	x 10 659
TRUNK Y	795	0.05	14.5	24	x 8 596
TRUNK Z	490	0.05	12.1	18	x 8 490
DROP	1955	0.05	20.3	24	x 18 652



TYPE: 5004 THE BEAUMONT  
SITE NAME: PINE VALLEY & TESTON

LO # 80141  
OPT 5 BED CORNER

**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	<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>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Table 9.32.3.A. TOTAL		<u>201.4</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>201.4</u>	cfm
Less Principal Ventil. Capacity	<u>155</u>	cfm
Required Supplemental Capacity	<u>46.4</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY			
Model:	VANEE 65H		
Location:	BSMT		
<u>155.0</u> cfm	<u>3.0</u> sones		
<input checked="" type="checkbox"/> HVI Approved			
PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	$\Delta T$ °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	<input checked="" type="checkbox"/>	0.3
ENS-2	QTXEN050C	50	<input checked="" type="checkbox"/>	0.3
ENS-3	QTXEN050C	50	<input checked="" type="checkbox"/>	0.3
ENS-4	QTXEN050C	50	<input checked="" type="checkbox"/>	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)	<input checked="" type="checkbox"/> 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:	June-20

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 80141	Model: 5004 THE BEAUMONT	Builder: GOLD PARK HOMES	Date: 6/4/2020																																																									
<b>Volume Calculation</b>			<b>Air Change &amp; Delta T Data</b>																																																									
<b>House Volume</b> <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>2078</td> <td>10</td> <td>20780</td> </tr> <tr> <td>First</td> <td>2078</td> <td>11</td> <td>22858</td> </tr> <tr> <td>Second</td> <td>2301</td> <td>9</td> <td>20709</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="3" style="text-align: right;">Total:</td> <td>64,347.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>1822.1 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	2078	10	20780	First	2078	11	22858	Second	2301	9	20709	Third	0	9	0	Fourth	0	9	0	Total:			64,347.0 ft³	Total:			1822.1 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 30%; text-align: center;">0.340</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.118</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;">23</td> <td style="text-align: center;">31</td> <td style="text-align: center;">8</td> <td style="text-align: center;">14</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.340	SUMMER NATURAL AIR CHANGE RATE	0.118	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-20	42	76	Summer DTDc	23	31	8	14
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<b>5.2.3.1 Heat Loss due to Air Leakage</b>			<b>6.2.6 Sensible Gain due to Air Leakage</b>																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ <p>0.340 x 506.14 x 42 °C x 1.2 = 8720 W</p> <p>= 29754 Btu/h</p>			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ <p>= 0.118 x 506.14 x 8 °C x 1.2 = 547 W</p> <p>= 1868 Btu/h</p>																																																									
<b>5.2.3.2 Heat Loss due to Mechanical Ventilation</b>			<b>6.2.7 Sensible heat Gain due to Ventilation</b>																																																									
$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>155 CFM x 76 °F x 1.08 x 0.25 = 3181 Btu/h</p>			$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>155 CFM x 14 °F x 1.08 x 0.25 = 578 Btu/h</p>																																																									
<b>5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)</b>																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairve Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL<sub>level</sub>)</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" style="text-align: center; vertical-align: middle;">29,754</td> <td style="text-align: center;">12,277</td> <td style="text-align: center;">1.212</td> </tr> <tr> <td>2</td> <td>0.3</td> <td style="text-align: center;">23,016</td> <td style="text-align: center;">0.388</td> </tr> <tr> <td>3</td> <td>0.2</td> <td style="text-align: center;">17,947</td> <td style="text-align: center;">0.332</td> </tr> <tr> <td>4</td> <td>0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0.000</td> </tr> </tbody> </table> <p>*HLairbv = Air leakage heat loss + ventilation heat loss  *For a balanced or supply only ventilation system HLairve = 0</p>					Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL <sub>level</sub> )	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)	1	0.5	29,754	12,277	1.212	2	0.3	23,016	0.388	3	0.2	17,947	0.332	4	0	0	0.000	5	0	0	0.000																														
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**HEAT LOSS AND GAIN SUMMARY SHEET**

<b>MODEL:</b> 5004 THE BEAUMONT	<b>OPT 5 BED CORNER</b>	<b>BUILDER:</b> GOLD PARK HOMES
<b>SFQT:</b> 4294	<b>LO#</b> 80141	<b>SITE:</b> 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 (ft <sup>3</sup> ):	64347.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft <sup>2</sup> ):	1.90	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 74.0 ft	WIDTH: 46.0 ft	EXPOSED PERIMETER:	240.0 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

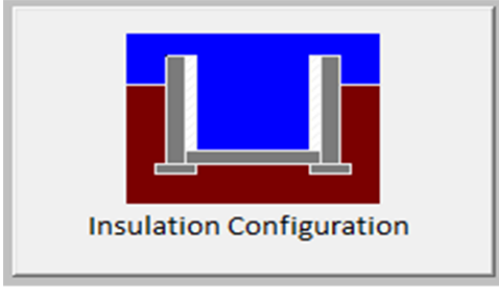
MICHAEL O'ROURKE





## 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):	22.6	 <p>Insulation Configuration</p>
Floor Width (m):	14.0	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m <sup>2</sup> ):	3.8	
Door Area (m <sup>2</sup> ):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		2465

TYPE: 5004 THE BEAUMONT  
LO# 80141

OPT 5 BED CORNER

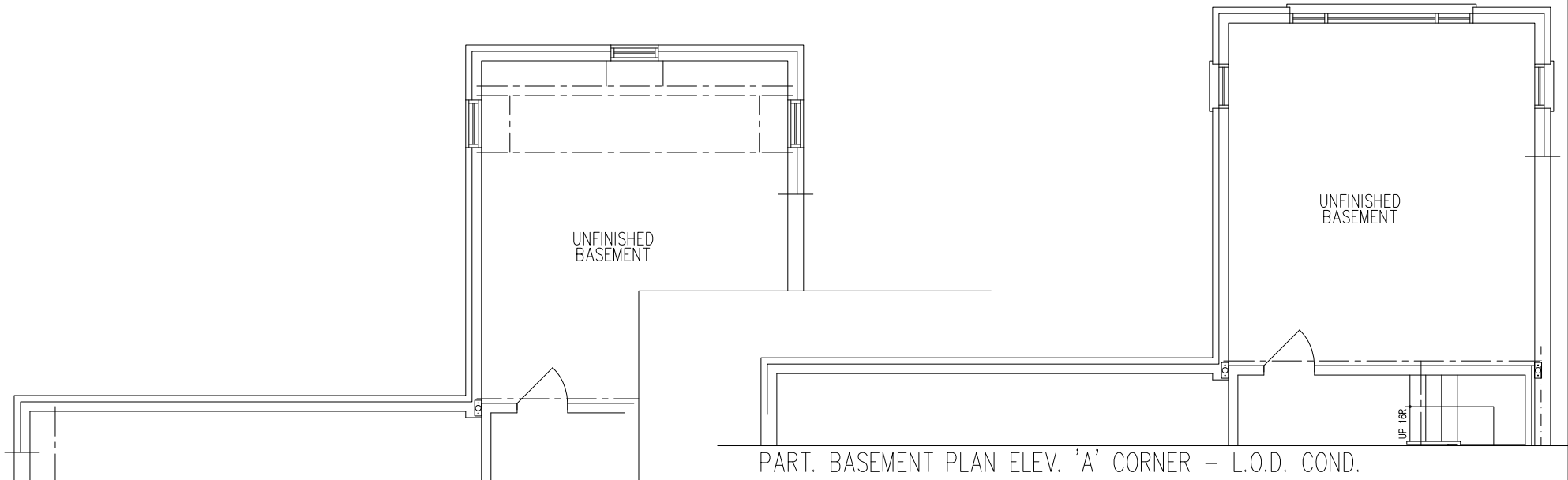
# Air Infiltration Residential Load Calculator

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 <sup>3</sup> ):	1822.1			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2428.9 cm <sup>2</sup>		
	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):	0.118			

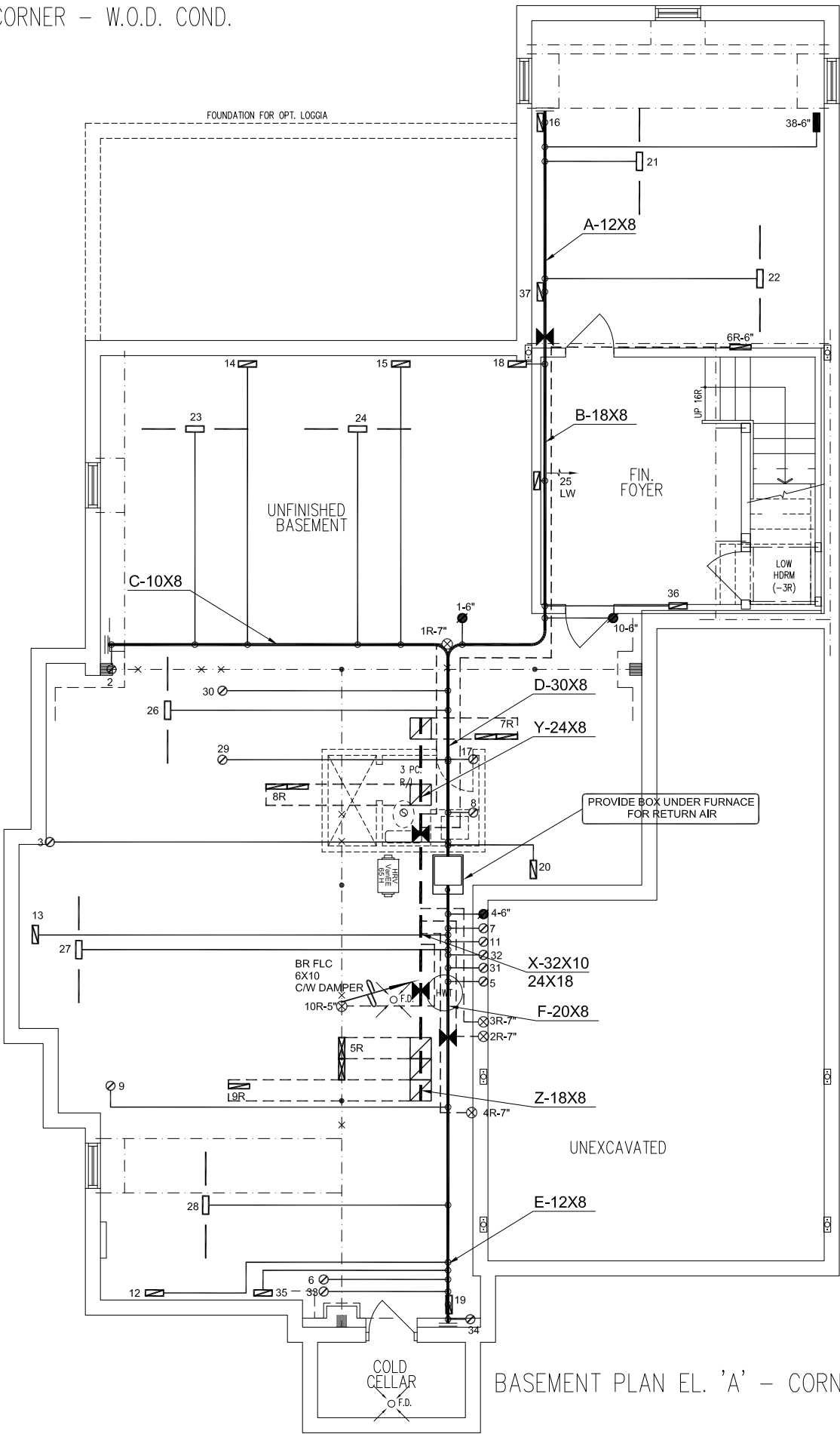
TYPE: 5004 THE BEAUMONT  
LO# 80141

OPT 5 BED CORNER



PART. BASEMENT PLAN ELEV. 'A' CORNER - W.O.D. COND.

PART. BASEMENT PLAN ELEV. 'A' CORNER - L.O.D. COND.



BASEMENT PLAN EL. 'A' - CORNER

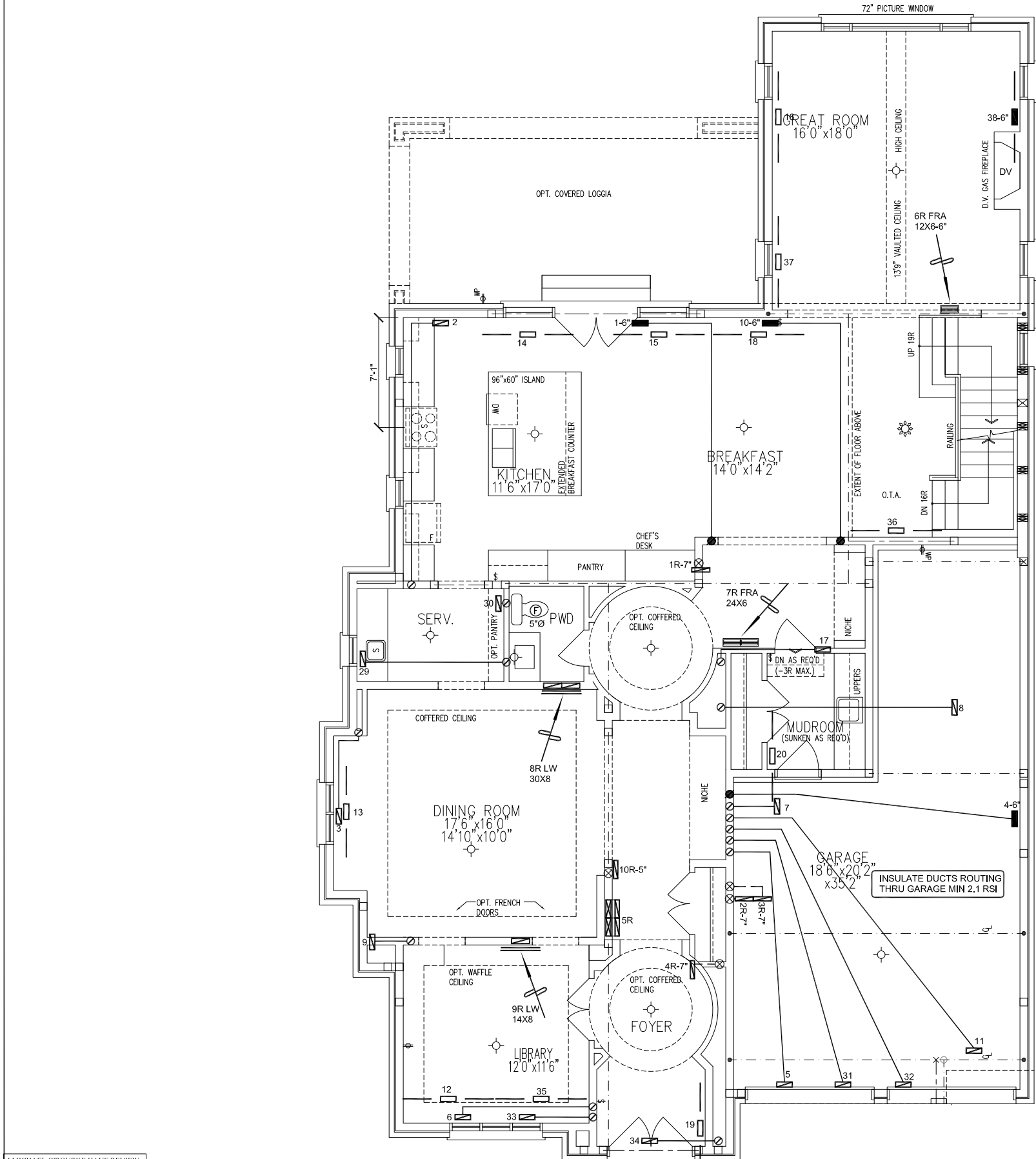
WOD/LOD  
CSA-F280-12  
PACKAGE A1

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.	REVISED AS PER ARCHITECTURALS	JUNE/2020
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	ADDED RETURN # 10	NOV/2018
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

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	<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><p>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.</p></div>	HEAT LOSS 87534 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 EL296110XE60C		2ND FLOOR	18	6	6	
PINE VALLEY & TESTON VAUGHAN, ONTARIO THE BEAUMONT OPT 5 BED 5004 - CORNER 4294 sqft		INPUT 110 MBTU/H		1ST FLOOR	12	4	2	Date SEPT/2018
		OUTPUT 106 MBTU/H		BASEMENT	8	1	0	Scale 1/8" = 1'-0"
	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		
	FAN SPEED 1955 cfm @ 0.6" w.c.					LO#	80141	



GROUND FLOOR PLAN EL. 'A' – CORNER

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.

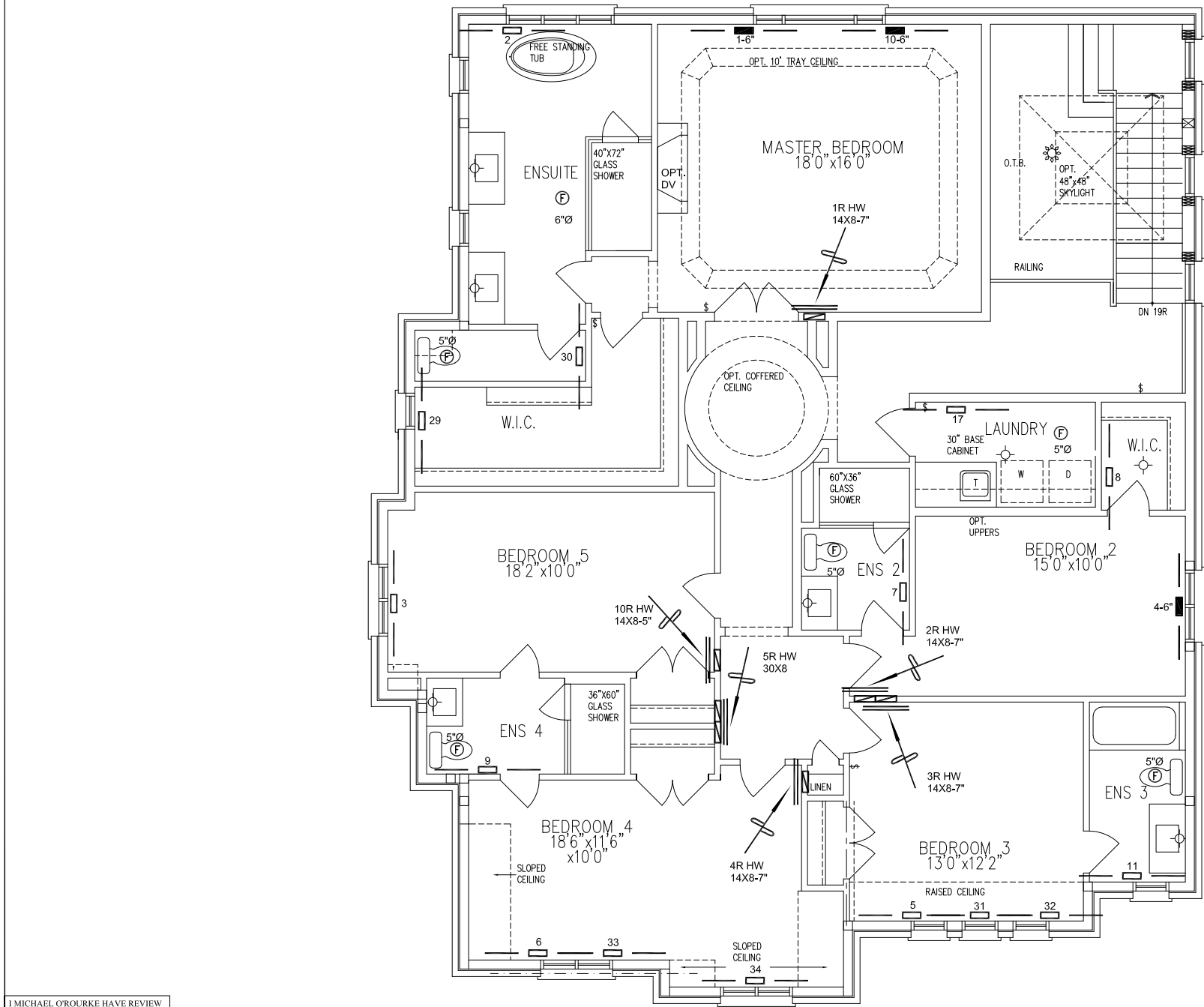
*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

WOD/LOD  
CSA-F280-12  
PACKAGE A1

HVAC LEGEND								3.		
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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	
GOLD PARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	SEPT/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	1/8" = 1'-0"
THE BEAUMONT			BCIN# 19669	
OPT 5 BED			LO#	80141
5004 - CORNER 4294 sqft				



OPT. 5 BED. SECOND FLOOR PLAN EL. 'A' – CORNER

WOD/LOD  
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  
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*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

HVAC LEGEND								3.		
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	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		

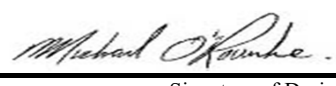
ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS 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		<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>	Sheet Title	
GOLD PARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name		<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>	Date	SEPT/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO THE BEAUMONT OPT 5 BED 5004 - CORNER 4294 sqft			Scale	1/8" = 1'-0"
			BCIN# 19669	
			LO#	80141



## Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

<b>A. Project Information</b>			
Building number, street name		Unit no.	Lot/con.
Municipality VAUGHAN (WOODBIDGE)	Postal code	Plan number/ other description	
<b>B. Individual who reviews and takes responsibility for design activities</b>			
Name <b>MICHAEL O'ROURKE</b>		Firm <b>HVAC DESIGNS LTD.</b>	
Street address <b>375 FINLEY AVE</b>		Unit no. <b>202</b>	Lot/con. <b>N/A</b>
Municipality <b>AJAX</b>	Postal code <b>L1S 2E2</b>	Province <b>ONTARIO</b>	E-mail <b>info@hvacdesigns.ca</b>
Telephone number <b>(905) 619-2300</b>	Fax number <b>(905) 619-2375</b>	Cell number ( )	
<b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]</b>			
<input type="checkbox"/> House <input type="checkbox"/> Small Buildings <input type="checkbox"/> Large Buildings <input type="checkbox"/> Complex Buildings <input checked="" type="checkbox"/> HVAC – House <input type="checkbox"/> Building Services <input type="checkbox"/> Detection, Lighting and Power <input type="checkbox"/> Fire Protection <input type="checkbox"/> Building Structural <input type="checkbox"/> Plumbing – House <input type="checkbox"/> Plumbing – All Buildings <input type="checkbox"/> On-site Sewage Systems			
Description of designer's work <b>HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12</b>		<b>Model:</b> 5004 THE BEAUMONT OPT 5 BED CORNER WOB <b>Project:</b> PINE VALLEY & TESTON	
<b>D. Declaration of Designer</b>			
I, <u><b>MICHAEL O'ROURKE</b></u> declare that (choose one as appropriate): (print name)			
<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.			
June 4, 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**

ROOM USE			LIBR			DIN			KIT			GREAT			LAUN			ENS-4			FOY			MUD									WOB			BAS								
EXP. WALL			27			20			113			56			0			6			37			18									72			168								
CLG. HT.			11			11			11			16			9			9			11			13									10			10								
FACTORS																																												
GRS.WALL AREA			LOSS GAIN			297			220			1243			896			0			54			407			234						720			1176								
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	15.4	0	0	0	0	0	0	39	830	602	28	596	432	0	0	0	0	0	0	0	0	0	0	0	0	0	4	85	62	12	255	185									
EAST			21.3	38.7	38	809	1469	0	0	0	0	0	0	0	0	0	0	0	0	0	6	128	232	0	0	0	0	0	92	1958	3557	0	0	0										
SOUTH			21.3	23.8	0	0	0	22	468	523	20	426	475	28	596	665	0	0	0	8	170	190	0	0	0	0	0	0	0	0	0	0	0	0										
WEST			21.3	38.7	0	0	0	0	0	0	110	2341	4253	58	1234	2243	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0										
SKYLT.			37.2	102.0	0	0	0	0	0	0	0	0	0	0	0	0	4	149	408	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	40	1010	183	20	505	92	0	0	0	20	505	92										
NET EXPOSED WALL			4.5	0.8	259	1156	210	198	884	160	1074	4793	870	782	3490	634	0	0	0	46	205	37	361	1611	293	214	955	173	624	2785	506	0	0	0										
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	504	1814	329										
EXPOSED CLG			1.3	0.6	0	0	0	0	0	0	192	246	116	0	0	0	139	178	84	60	77	36	0	0	0	0	0	0	0	0	0	0	0	0										
NO ATTIC EXPOSED CLG			2.7	1.3	0	0	0	0	0	0	0	0	0	342	940	443	0	0	0	0	0	0	0	0	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	0	0	75	191	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0										
BASEMENT/CRAWL HEAT LOSS																																												
SLAB ON GRADE HEAT LOSS																																												
SUBTOTAL HT LOSS						1964			1352			8636			6856			519			453			2749			1460						1146			3419								
SUB TOTAL HT GAIN																																	5974			5993								
LEVEL FACTOR / MULTIPLIER			0.30 0.46			1679			683			6317			4416			527			264			708			265						4125			606								
AIR CHANGE HEAT LOSS			912						627			4007			3181			206			180			1275			677									17801								
AIR CHANGE HEAT GAIN						149			61			561			392			47			23			63			24									420								
DUCT LOSS			0						0			0			0			72			0			0			0									0								
DUCT GAIN						0			0			0			0			145			0			0			0									0								
HEAT GAIN PEOPLE			240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0										
HEAT GAIN APPLIANCES/LIGHTS						881			881			881			881			881			0			0			881									0								
TOTAL HT LOSS BTU/H			2876			1979			12643			10037			797			632			4024			2137			1520			7120			23794											
TOTAL HT GAIN x 1.3 BTU/H			3521			2112			10085			7396			2079			373			1002			1520			5362			133														

**TOTAL COMBINED HEAT LOSS BTU/H: 94284**

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

OPT 5 BED CORNER WOB  
TYPE: 5004 THE BEAUMONT

DATE: Jun-20

GFA: 4294

LO# 80142

HEATING CFM 1955  
TOTAL HEAT LOSS 91,103  
AIR FLOW RATE CFM 21.46  
COOLING CFM 1955  
TOTAL HEAT GAIN 60,467  
AIR FLOW RATE CFM 32.33

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

^LENNOX  
EL296UH110XE60C  
FAN SPEED 110  
LOW 0  
MEDLOW 1380  
MEDIUM 1505  
MEDIUM HIGH 1685  
HIGH 1955

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

DESIGN CFM = 1955  
CFM @ .6" E.S.P.

TEMPERATURE RISE 50 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	18	12	8
R/A	0	0	6	4	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	BED-5	BED-2	BED-3	BED-4	ENS-2	WIC-2	ENS-4	MBR	ENS-3	LIBR	DIN	KIT	KIT	GREAT	LAUN	KIT	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.62	2.49	2.06	2.49	1.16	1.83	0.34	1.26	0.63	1.62	1.82	1.44	1.98	3.16	3.16	3.35	0.80	3.16	4.02	2.14	3.86	3.86	3.86	3.86
CFM PER RUN HEAT	35	54	44	53	25	39	7	27	14	35	39	31	42	68	68	72	17	68	86	46	83	83	83	83
RM GAIN MBH	2.71	1.82	2.16	3.10	1.56	1.89	0.11	0.28	0.37	2.71	0.92	1.76	2.11	2.52	2.52	2.47	2.08	2.52	1.00	1.52	0.84	0.84	0.84	0.84
CFM PER RUN COOLING	87	59	70	100	50	61	4	9	12	87	30	57	68	82	82	80	67	82	32	49	27	27	27	27
ADJUSTED PRESSURE	0.16	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.16	0.16	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	46	62	29	34	38	50	28	31	43	54	41	41	27	40	32	49	26	36	24	16	75	50	47	42
EQUIVALENT LENGTH	190	140	180	180	120	150	160	150	190	180	160	180	80	140	150	130	150	140	150	130	140	140	100	102
TOTAL EFFECTIVE LENGTH	236	202	209	214	158	200	188	181	233	234	201	221	107	180	182	179	176	176	174	146	215	190	147	144
ADJUSTED PRESSURE	0.07	0.09	0.08	0.08	0.11	0.09	0.09	0.1	0.07	0.07	0.09	0.08	0.16	0.09	0.09	0.1	0.1	0.09	0.09	0.12	0.08	0.09	0.11	0.11
ROUND DUCT SIZE	6	5	5	6	4	5	4	4	4	6	4	5	5	5	5	5	5	5	5	4	6	5	5	5
HEATING VELOCITY (ft/min)	178	396	323	270	287	286	80	310	161	178	447	228	308	499	499	529	125	499	631	528	423	609	609	609
COOLING VELOCITY (ft/min)	444	433	514	510	574	448	46	103	138	444	344	419	499	602	602	587	492	602	235	562	138	198	198	198
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10
TRUNK	B	C	D	F	F	E	F	D	E	B	F	E	F	C	C	A	D	B	E	D	A	A	C	C

RUN #	25	26	27	28	29	30	31	32	33	34	35	36	37	38
ROOM NAME	BAS	BAS	BAS	BAS	WIC	ENS	BED-3	BED-3	BED-4	LIBR	KIT	GREAT	GREAT	GREAT
RM LOSS MBH	3.86	3.86	3.86	3.86	1.39	0.99	1.16	1.16	1.83	1.83	1.44	3.16	3.35	3.35
CFM PER RUN HEAT	83	83	83	83	30	21	25	25	39	39	31	68	72	72
RM GAIN MBH	0.84	0.84	0.84	0.84	0.92	0.62	1.56	1.56	1.89	1.89	1.76	2.52	2.47	2.47
CFM PER RUN COOLING	27	27	27	27	30	20	50	50	61	61	57	82	80	80
ADJUSTED PRESSURE	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17
ACTUAL DUCT LGH	37	23	17	31	34	33	42	46	47	40	35	28	39	64
EQUIVALENT LENGTH	120	80	120	150	140	140	130	140	150	130	140	150	150	150
TOTAL EFFECTIVE LENGTH	157	103	137	181	174	173	172	186	197	170	175	178	189	214
ADJUSTED PRESSURE	0.1	0.16	0.12	0.09	0.1	0.1	0.1	0.09	0.09	0.1	0.1	0.09	0.09	0.08
ROUND DUCT SIZE	5	5	5	5	4	4	4	4	5	5	5	5	5	5
HEATING VELOCITY (ft/min)	609	609	609	609	344	241	287	287	286	286	228	499	529	529
COOLING VELOCITY (ft/min)	198	198	198	198	344	229	574	574	448	448	419	602	587	587
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	B	D	F	E	D	D	F	F	E	E	E	B	A	A

**SUPPLY AIR TRUNK SIZE**

	TRUNK	STATIC	ROUND	RECT	VELOCITY		TRUNK	STATIC	ROUND	RECT	VELOCITY
	CFM	PRESS.	DUCT	DUCT	(ft/min)		CFM	PRESS.	DUCT	DUCT	(ft/min)
TRUNK A	382	0.08	9.8	12	x 8	573	TRUNK G	0	0.00	0	0
TRUNK B	671	0.07	12.5	18	x 8	671	TRUNK H	0	0.00	0	0
TRUNK C	356	0.09	9.2	10	x 8	641	TRUNK I	0	0.00	0	0
TRUNK D	1295	0.07	16	30	x 8	777	TRUNK J	0	0.00	0	0
TRUNK E	362	0.07	9.9	12	x 8	543	TRUNK K	0	0.00	0	0
TRUNK F	661	0.07	12.4	20	x 8	595	TRUNK L	0	0.00	0	0

**RETURN AIR TRUNK SIZE**

	TRUNK	STATIC	ROUND	RECT	VELOCITY
	CFM	PRESS.	DUCT	DUCT	(ft/min)
TRUNK O	0	0.05	0	0	x 8
TRUNK P	0	0.05	0	0	x 8
TRUNK Q	0	0.05	0	0	x 8
TRUNK R	0	0.05	0	0	x 8
TRUNK S	0	0.05	0	0	x 8
TRUNK T	0	0.05	0	0	x 8
TRUNK U	0	0.05	0	0	x 8
TRUNK V	0	0.05	0	0	x 8
TRUNK W	0	0.05	0	0	x 8
TRUNK X	1465	0.05	18.2	32	x 10
TRUNK Y	795	0.05	14.5	24	x 8
TRUNK Z	490	0.05	12.1	18	x 8
DROP	1955	0.05	20.3	24	x 18

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	BR
AIR VOLUME	110	110	110	110	305	85	300	300	185	40	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
ACTUAL DUCT LGH	38	37	37	45	43	59	27	25	34	43	1
EQUIVALENT LENGTH	195	185	165	205	145	175	190	185	150	285	0
TOTAL EFFECTIVE LH	233	222	202	250	188	234	217	210	184	328	1
ADJUSTED PRESSURE	0.06	0.07	0.07	0.06	0.08	0.06	0.07	0.07	0.08	0.05	14.80
ROUND DUCT SIZE	6.6	6.3	6.3	6.6	9	6	9.2	9.2	7.5	4.7	0
INLET GRILL SIZE	8	8	8	8	8	8	8	8	8	8	0
INLET GRILL SIZE	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	30	14	30	30	14	14	0



TYPE: 5004 THE BEAUMONT  
SITE NAME: PINE VALLEY & TESTON

LO # 80142  
OPT 5 BED CORNER WOB

### 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	<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>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Table 9.32.3.A.	TOTAL	<u>201.4</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>201.4</u>	cfm
Less Principal Ventil. Capacity	<u>155</u>	cfm
Required Supplemental Capacity	<u>46.4</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 65H	Location: BSMT
<u>155.0</u> cfm	<u>3.0</u> sones <input checked="" type="checkbox"/> HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION				
CFM	$\Delta T$ °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	<input checked="" type="checkbox"/>	0.3
ENS-2	QTXEN050C	50	<input checked="" type="checkbox"/>	0.3
ENS-3	QTXEN050C	50	<input checked="" type="checkbox"/>	0.3
ENS-4	QTXEN050C	50	<input checked="" type="checkbox"/>	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)	<input checked="" type="checkbox"/> 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:	June-20

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 80142	Model: 5004 THE BEAUMONT	Builder: GOLD PARK HOMES	Date: 6/4/2020																																																									
<b>Volume Calculation</b>			<b>Air Change &amp; Delta T Data</b>																																																									
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<b>5.2.3.1 Heat Loss due to Air Leakage</b>			<b>6.2.6 Sensible Gain due to Air Leakage</b>																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ <p>0.407 x 506.14 x 42 °C x 1.2 = 10434 W</p> <p>= 35601 Btu/h</p>			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ <p>= 0.140 x 506.14 x 8 °C x 1.2 = 654 W</p> <p>= 2231 Btu/h</p>																																																									
<b>5.2.3.2 Heat Loss due to Mechanical Ventilation</b>			<b>6.2.7 Sensible heat Gain due to Ventilation</b>																																																									
$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>155 CFM x 76 °F x 1.08 x 0.25 = 3181 Btu/h</p>			$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>155 CFM x 14 °F x 1.08 x 0.25 = 578 Btu/h</p>																																																									
<b>5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)</b>																																																												
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<p>*HLairbv = Air leakage heat loss + ventilation heat loss</p> <p>*For a balanced or supply only ventilation system HLairve = 0</p>																																																												



**HEAT LOSS AND GAIN SUMMARY SHEET**

<b>MODEL:</b> 5004 THE BEAUMONT	<b>OPT 5 BED CORNER WOB</b>	<b>BUILDER:</b> GOLD PARK HOMES
<b>SFQT:</b> 4294	<b>LO#</b> 80142	<b>SITE:</b> 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 (ft <sup>3</sup> ):	64347.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft <sup>2</sup> ):	1.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 74.0 ft	WIDTH: 46.0 ft	EXPOSED PERIMETER:	168.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	72.0 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	-

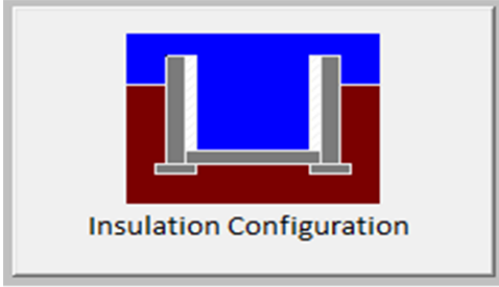
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



# Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

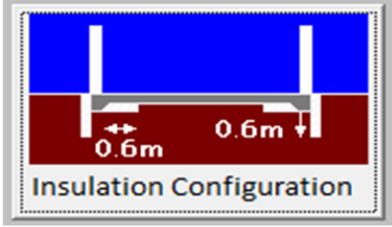
Weather Station Description		
Province:	Ontario	
Region:	Vaughan (Woodbridge)	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	7.6	 Insulation Configuration
Floor Width (m):	14.0	
Exposed Perimeter (m):	51.2	
Wall Height (m):	3.0	
Depth Below Grade (m):	1.90	
Window Area (m <sup>2</sup> ):	1.1	
Door Area (m <sup>2</sup> ):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1002

TYPE: 5004 THE BEAUMONT  
LO# 80142

OPT 5 BED CORNER WOB

## 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		
Length (m):	4.6	
Width (m):	12.8	
Exposed Perimeter (m):	21.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		<b>336</b>

TYPE: 5004 THE BEAUMONT  
LO# 80142

OPT 5 BED CORNER WOB

# Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

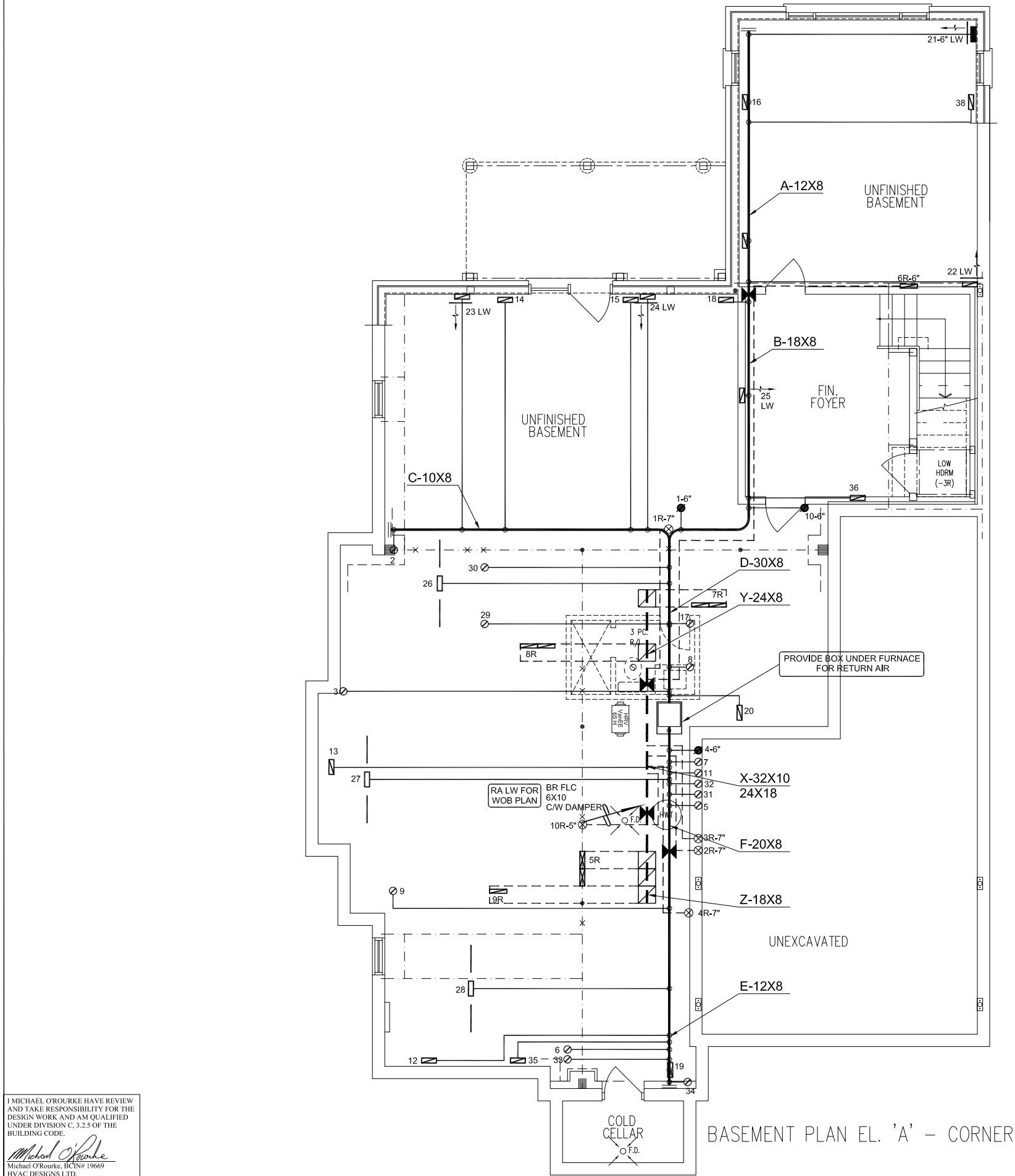
Weather Station Description				
Province:	Ontario			
Region:	Vaughan (Woodbridge)			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	9.14			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m <sup>3</sup> ):	1822.1			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2428.9 cm <sup>2</sup>		
	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):	0.407			
Cooling Air Leakage Rate (ACH/H):	0.140			

TYPE: 5004 THE BEAUMONT  
LO# 80142

OPT 5 BED CORNER WOB

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.



BASEMENT PLAN EL. 'A' - CORNER

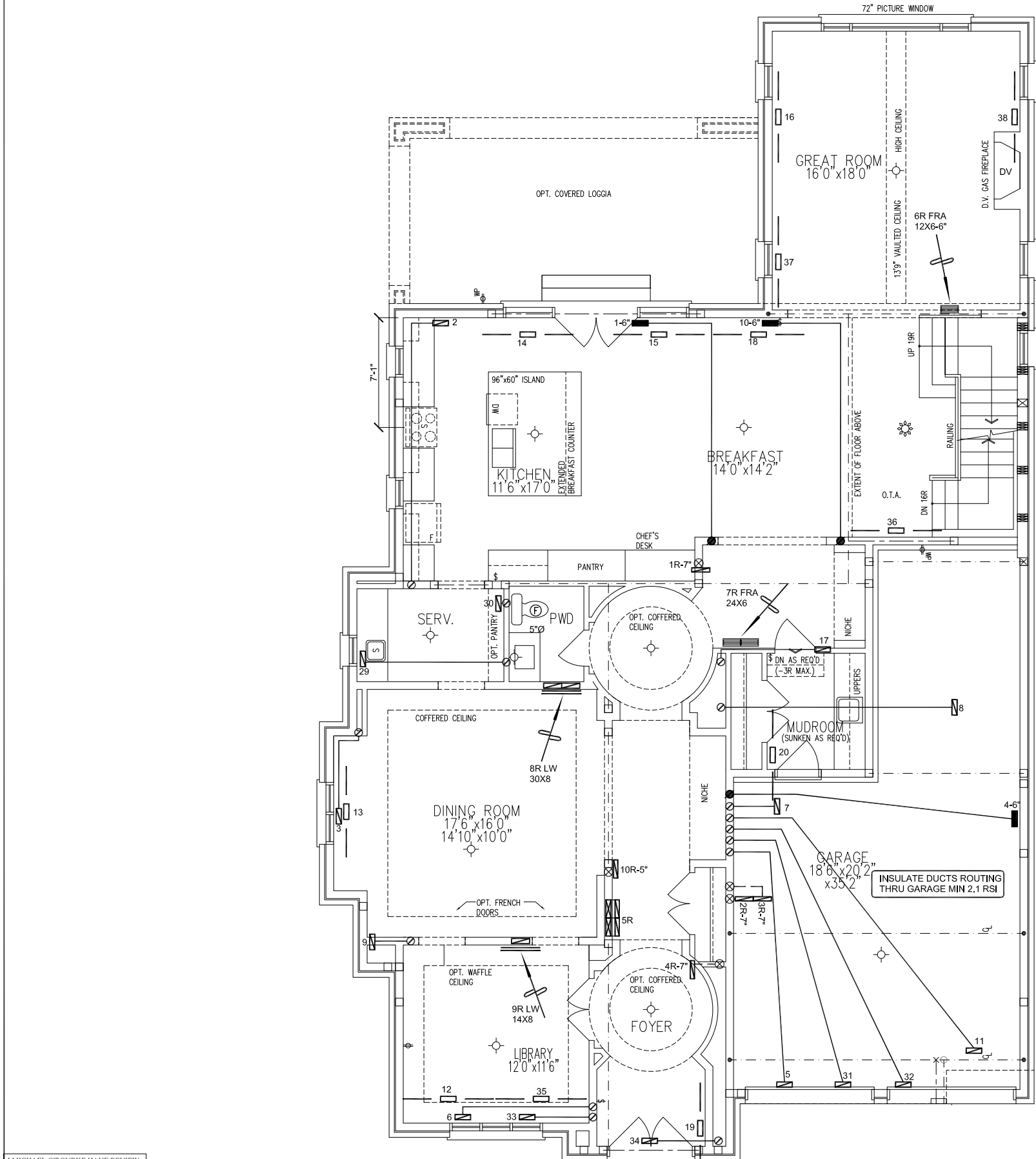
**WOB**  
**CSA-F280-12**  
**PACKAGE A1**

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	REVISED AS PER ARCHITECTURALS	JUNE/2020
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	ADDED RETURN # 10	NOV/2018
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

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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>	HEAT LOSS 94284 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 PINE VALLEY & TESTON VAUGHAN, ONTARIO THE BEAUMONT OPT 5 BED WOB 5004 - CORNER 4294 sqft		MODEL EL296110XE60C		2ND FLOOR	18	6			6
		INPUT 110 MBTU/H		1ST FLOOR	12	4			2
		OUTPUT 106 MBTU/H		BASEMENT	8	1	0		
	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.	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			Date SEPT/2018			
		FAN SPEED 1955 cfm @ 0.6" w.c.				Scale 1/8" = 1'-0"			
						BCIN# 19669			
						LO#	80142		





GROUND FLOOR PLAN EL. 'A' – CORNER

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.

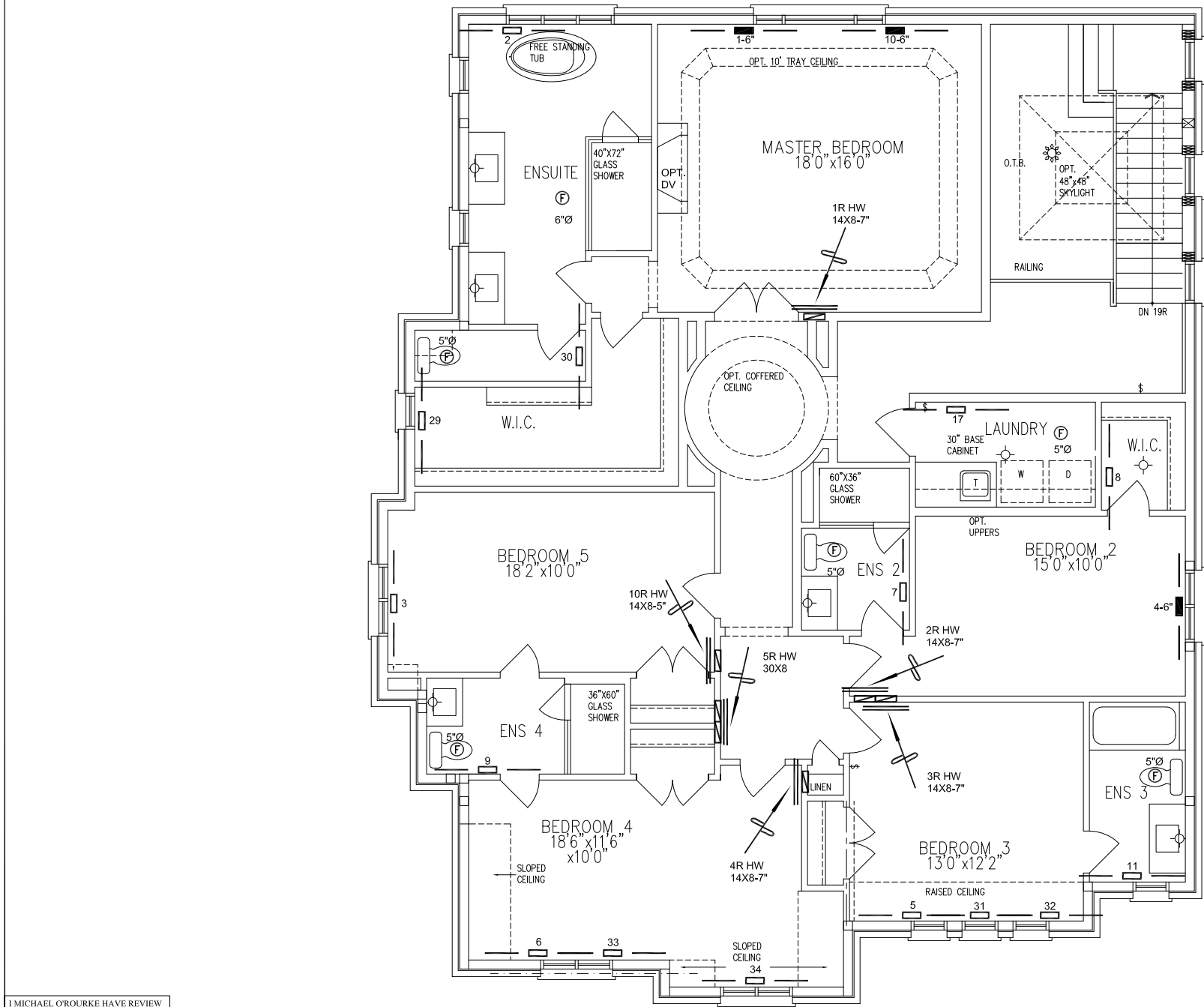
*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

WOB  
CSA-F280-12  
PACKAGE A1

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	REVISED AS PER ARCHITECTURALS	JUNE/2020
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	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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GOLD PARK HOMES			FIRST FLOOR HEATING LAYOUT	
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	SEPT/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	1/8" = 1'-0"
THE BEAUMONT			BCIN# 19669	
OPT 5 BED WOB			LO#	80142
5004 - CORNER      4294 sqft				



OPT. 5 BED. SECOND FLOOR PLAN EL. 'A' – CORNER

WOB  
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.

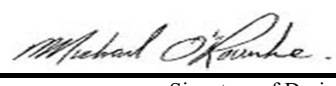
HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	REVISED AS PER ARCHITECTURALS	JUNE/2020
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	ADDED RETURN # 10	NOV/2018
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GOLD PARK HOMES			SECOND FLOOR HEATING LAYOUT	
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	SEPT/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	1/8" = 1'-0"
THE BEAUMONT			BCIN# 19669	
OPT 5 BED WOB			LO#	80142
5004 - CORNER 4294 sqft				

## Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

<b>A. Project Information</b>			
Building number, street name		Unit no.	Lot/con.
Municipality VAUGHAN (WOODBIDGE)	Postal code	Plan number/ other description	
<b>B. Individual who reviews and takes responsibility for design activities</b>			
Name <b>MICHAEL O'ROURKE</b>		Firm <b>HVAC DESIGNS LTD.</b>	
Street address <b>375 FINLEY AVE</b>		Unit no. <b>202</b>	Lot/con. <b>N/A</b>
Municipality <b>AJAX</b>	Postal code <b>L1S 2E2</b>	Province <b>ONTARIO</b>	E-mail <b>info@hvacdesigns.ca</b>
Telephone number <b>(905) 619-2300</b>	Fax number <b>(905) 619-2375</b>	Cell number ( )	
<b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]</b>			
<input type="checkbox"/> House <input type="checkbox"/> Small Buildings <input type="checkbox"/> Large Buildings <input type="checkbox"/> Complex Buildings <input checked="" type="checkbox"/> HVAC – House <input type="checkbox"/> Building Services <input type="checkbox"/> Detection, Lighting and Power <input type="checkbox"/> Fire Protection <input type="checkbox"/> Building Structural <input type="checkbox"/> Plumbing – House <input type="checkbox"/> Plumbing – All Buildings <input type="checkbox"/> On-site Sewage Systems			
Description of designer's work <b>HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12</b>		<b>Model:</b> 5004 THE BEAUMONT CORNER WOB <b>Project:</b> PINE VALLEY & TESTON	
<b>D. Declaration of Designer</b>			
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.			
June 4, 2020 Date		 Signature of Designer	

**NOTE:**

- For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) d) of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
- Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of authorization, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

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

SITE NAME: PINE VALLEY & TESTON										CORNER WOB										DATE: Jun-20				WINTER NATURAL AIR CHANGE RATE 0.407								HEAT LOSS ΔT °F. 76				CSA-F280-12							
BUILDER: GOLD PARK HOMES										TYPE: 5004 THE BEAUMONT										GFA: 4294				LO# 80140				SUMMER NATURAL AIR CHANGE RATE 0.140								HEAT GAIN ΔT °F. 14				SB-12 PACKAGE A1			
ROOM USE			MBR			ENS			DRESS			BED-2			BED-3			BED-4			ENS-2			WIC-2			ENS-3																
EXP. WALL			19			41			14			11			18			43			0			13			18																
CLG. HT.			10			9			9			9			9			10			9			9			9																
FACTORS																																											
GRS.WALL AREA			LOSS			GAIN			190			369			126			99			162			430			0			117			162										
GLAZING			LOSS			GAIN			LOSS			GAIN			LOSS			GAIN			LOSS			GAIN			LOSS			GAIN			LOSS			GAIN							
NORTH			21.3	16.3	0	0	0	0	0	0	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	41.8	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									
SOUTH			21.3	25.2	0	0	0	0	29	617	730	18	383	453	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
WEST			21.3	41.8	35	745	1464	28	596	1171	0	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	102.0	0	0	0	0	0	0	0	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	4.6	0	0	0	0	0	0	0	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	0.8	155	692	126	312	1392	253	108	482	88	80	357	65	120	536	97	380	1696	308	0	0	0	117	522	95	152	678	123	0	0	0	0								
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	468	601	283	312	400	189	228	293	138	187	240	113	136	175	82	267	343	161	84	108	51	78	100	47	77	99	47	0	0	0	0								
NO ATTIC EXPOSED CLG			2.7	1.3	0	0	0	0	0	0	0	0	0	0	0	0	60	165	78	150	412	194	0	0	0	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	187	477	87	196	500	91	20	51	9	45	115	21	78	199	36	77	196	36	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						2037			3006			1158			1478			2269			3566			223			821			1186													
SUB TOTAL HT GAIN						1873			2343			679			573			2105			2764			72			178			624													
LEVEL FACTOR / MULTIPLIER			0.20			0.43			0.20			0.43			0.20			0.43			0.20			0.43			0.20			0.43			0.20			0.43							
AIR CHANGE HEAT LOSS						875			1292			497			635			975			1532			96			353			510													
AIR CHANGE HEAT GAIN						167			209			60			51			187			246			6			16			56													
DUCT LOSS						0			0			0			211			324			510			32			117			170													
DUCT GAIN						0			0			0			174			341			413			8			19			68													
HEAT GAIN PEOPLE			240		2		480	0	0	0	0	0	1	240	1	240	1	240	1	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
HEAT GAIN APPLIANCES/LIGHTS						881			0			881			881			881			881			0			0			0			0			0			0				
TOTAL HT LOSS BTU/H						2912			4297			1655			2325			3568			5608			350			1291			1866													
TOTAL HT GAIN x 1.3 BTU/H						4420			3317			2105			2495			4880			5908			112			277			971													

ROOM USE				LIBR			DIN			KIT			GREAT			LAUN			ENS-4			FOY			MUD									WOB			BAS		
EXP. WALL				27			20			113			56			0			6			37			18									71			168		
CLG. HT.				11			11						16			9			9			11			13									10			10		
FACTORS																																							
GRS.WALL AREA	LOSS	GAIN		297			220			1243			896			0			54			407			234									710			1176		
GLAZING	LOSS	GAIN		LOSS			GAIN			LOSS			GAIN			LOSS			GAIN			LOSS			GAIN			LOSS			GAIN			LOSS			GAIN		
NORTH	21.3	16.3	0	0	0	0	0	0	0	39	830	634	28	596	455	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	85	65	12	255	195			
EAST	21.3	41.8	38	809	1590	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	128	251	0	0	0	0	0	0	92	1958	3849	0	0	0			
SOUTH	21.3	25.2	0	0	0	0	22	468	554	20	426	504	28	596	705	0	0	0	8	170	201	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
WEST	21.3	41.8	0	0	0	0	0	0	0	110	2341	4602	58	1234	2426	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
SKYLT.	37.2	102.0	0	0	0	0	0	0	0	0	0	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	4.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	1010	183	20	505	92	0	0	0	0	0	0	20	505	92				
NET EXPOSED WALL	4.5	0.8	259	1156	210	198	884	160	1074	4793	870	782	3490	634	0	0	0	46	205	37	361	1611	293	214	955	173	0	0	0	614	2740	498	0	0	0				
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	504	1814	329					
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	192	246	116	0	0	0	143	184	86	60	77	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0	0	0	0	0	0	0	342	940	443	0	0	0	0	0	0	0	0	0	0	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	0	0	75	191	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
BASEMENT/CRAWL HEAT LOSS																																							
SLAB ON GRADE HEAT LOSS																																							
SUBTOTAL HT LOSS						1964			1352			8636			6856			375			453			2749			1460					1146			3419				
SUB TOTAL HT GAIN							1799			714			6725			4663			121			275			727			265				4411			616				
LEVEL FACTOR / MULTIPLIER			0.30	0.46				0.30	0.46			0.30	0.46			0.30	0.46			0.20	0.43			0.30	0.46			0.30	0.46				0.50	1.49					
AIR CHANGE HEAT LOSS						912			627			4007			3181			161			194			1275			677						17801						
AIR CHANGE HEAT GAIN							160			64			599			415			11			24			65			24						448					
DUCT LOSS						0			0			0			0			54			0			0			0						0						
DUCT GAIN							0		0			0			0				101			0			0		0							0					
HEAT GAIN PEOPLE	240			0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
HEAT GAIN APPLIANCES/LIGHTS						881			881			881			881			881			881			0			881						0		0				
TOTAL HT LOSS BTU/H						2876			1979			12643			10037			589			647			4024			2137					7076			23794				
TOTAL HT GAIN x 1.3 BTU/H							3692			2156			10666			7746			1448			389			1029			1520				5734			138				

TOTAL HEAT GAIN BTU/H: 60828

TONS: 5.07

LOSS DUE TO VENTILATION LOAD BTU/H: 3181

STRUCTURAL HEAT LOSS: 89675

TOTAL COMBINED HEAT LOSS BTU/H: 92855



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

CORNER WOB  
TYPE: 5004 THE BEAUMONT

DATE: Jun-20

GFA: 4294 LO# 80140

HEATING CFM 1955 COOLING CFM 1955  
TOTAL HEAT LOSS 89,675 TOTAL HEAT GAIN 60,251  
AIR FLOW RATE CFM 21.8 AIR FLOW RATE CFM 32.45

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

^LENNOX  
EL296UH110XE60C  
FAN SPEED 110  
LOW 0  
MEDLOW 1380  
MEDIUM 1505  
MEDIUM HIGH 1685  
HIGH 1955

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

DESIGN CFM = 1955  
CFM @ .6" E.S.P.

TEMPERATURE RISE 50 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	18	12	8
R/A	0	0	5	4	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	DRESS	BED-2	BED-3	BED-4	ENS-2	WIC-2	ENS-4	MBR	ENS-3	LIBR	DIN	KIT	KIT	GREAT	LAUN	KIT	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.46	1.93	1.66	2.32	1.19	1.87	0.35	1.29	0.65	1.46	1.87	1.44	1.98	3.16	3.16	3.35	0.59	3.16	4.02	2.14	3.86	3.86	3.86	3.86
CFM PER RUN HEAT	32	42	36	51	26	41	8	28	14	32	41	31	43	69	69	73	13	69	88	47	84	84	84	84
RM GAIN MBH	2.21	1.51	2.11	2.50	1.63	1.97	0.11	0.28	0.39	2.21	0.97	1.85	2.16	2.67	2.67	2.58	1.45	2.67	1.03	1.52	0.89	0.89	0.89	0.89
CFM PER RUN COOLING	72	49	68	81	53	64	4	9	13	72	32	60	70	87	87	84	47	87	33	49	29	29	29	29
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.17	0.16	0.16	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	46	62	29	34	38	50	28	31	43	54	41	41	27	40	32	49	26	36	24	16	50	50	48	35
EQUIVALENT LENGTH	190	140	180	180	120	150	160	150	190	180	160	180	80	140	150	130	150	140	150	130	140	100	100	102
TOTAL EFFECTIVE LENGTH	236	202	209	214	158	200	188	181	233	234	201	221	107	180	182	179	176	176	174	146	180	190	148	137
ADJUSTED PRESSURE	0.07	0.09	0.08	0.08	0.11	0.09	0.09	0.1	0.07	0.07	0.09	0.08	0.16	0.09	0.09	0.09	0.1	0.09	0.09	0.12	0.09	0.09	0.11	0.12
ROUND DUCT SIZE	5	4	5	6	4	5	4	4	4	5	4	5	5	5	5	5	4	5	5	4	5	5	5	5
HEATING VELOCITY (ft/min)	235	482	264	260	298	301	92	321	161	235	470	228	316	507	507	536	149	507	646	539	617	617	617	617
COOLING VELOCITY (ft/min)	529	562	499	413	608	470	46	103	149	529	367	441	514	639	639	617	539	639	242	562	213	213	213	213
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	B	C	D	F	F	E	F	D	E	B	F	E	F	C	C	A	D	B	E	D	A	A	C	C

RUN #	25	26	27	28	29	30	31	32	33	34	35	36	37	38
ROOM NAME	BAS	BAS	BAS	BAS	ENS	ENS	BED-3	BED-3	BED-4	BED-4	LIBR	KIT	GREAT	GREAT
RM LOSS MBH	3.86	3.86	3.86	3.86	1.93	0.43	1.19	1.19	1.87	1.87	1.44	3.16	3.35	3.35
CFM PER RUN HEAT	84	84	84	84	42	9	26	26	41	41	31	69	73	73
RM GAIN MBH	0.89	0.89	0.89	0.89	1.51	0.31	1.63	1.63	1.97	1.97	1.85	2.67	2.58	2.58
CFM PER RUN COOLING	29	29	29	29	49	10	53	53	64	64	60	87	84	84
ADJUSTED PRESSURE	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	37	23	17	31	34	33	42	46	47	40	35	28	39	64
EQUIVALENT LENGTH	120	80	120	150	140	140	130	140	150	130	140	150	150	150
TOTAL EFFECTIVE LENGTH	157	103	137	181	174	173	172	186	197	170	175	178	189	214
ADJUSTED PRESSURE	0.1	0.16	0.12	0.09	0.1	0.1	0.1	0.09	0.09	0.1	0.1	0.09	0.09	0.08
ROUND DUCT SIZE	5	5	5	5	4	4	4	5	5	5	5	5	5	6
HEATING VELOCITY (ft/min)	617	617	617	617	482	103	298	191	301	301	228	507	536	372
COOLING VELOCITY (ft/min)	213	213	213	213	562	115	608	389	470	470	441	639	617	428
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10
TRUNK	B	D	F	E	D	D	F	F	E	E	E	B	A	A

**SUPPLY AIR TRUNK SIZE**

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	387	0.08	9.8	12	x 8 581
TRUNK B	673	0.07	12.5	18	x 8 673
TRUNK C	348	0.09	9.2	10	x 8 626
TRUNK D	1280	0.07	15.9	30	x 8 768
TRUNK E	371	0.07	10	12	x 8 557
TRUNK F	676	0.07	12.5	20	x 8 608

**RETURN AIR TRUNK SIZE**

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK O	0	0.06	0	0	x 8 0
TRUNK P	0	0.06	0	0	x 8 0
TRUNK Q	0	0.06	0	0	x 8 0
TRUNK R	0	0.06	0	0	x 8 0
TRUNK S	0	0.06	0	0	x 8 0
TRUNK T	0	0.06	0	0	x 8 0
TRUNK U	0	0.06	0	0	x 8 0
TRUNK V	0	0.06	0	0	x 8 0
TRUNK W	0	0.06	0	0	x 8 0
TRUNK X	1465	0.06	17.4	32	x 10 659
TRUNK Y	805	0.06	13.9	22	x 8 659
TRUNK Z	490	0.06	11.5	16	x 8 551
DROP	1955	0.06	19.4	24	x 18 652

RETURN AIR #	1	2	3	4	5	6	7	8	9															BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	120	120	120	120	305	85	300	300	185	0	0	0	0	0	0	0	0	0	0	0	0	0	0	300
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	38	37	37	45	43	59	27	25	34	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18
EQUIVALENT LENGTH	195	185	165	205	145	175	190	185	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	195
TOTAL EFFECTIVE LH	233	222	202	250	188	234	217	210	184	1	1	1	1	1	1	1	1	1	1	1	1	1	1	213
ADJUSTED PRESSURE	0.06	0.07	0.07	0.06	0.08	0.06	0.07	0.07	0.08	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	0.07
ROUND DUCT SIZE	6.8	6.6	6.6	6.8	9	6	9.2	9.2	7.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9.2
INLET GRILL SIZE	8	8	8	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
	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	14	30	30	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30



TYPE: 5004 THE BEAUMONT  
SITE NAME: PINE VALLEY & TESTON

LO # 80140  
CORNER WOB

**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	<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>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Table 9.32.3.A. TOTAL		<u>201.4</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>201.4</u>	cfm
Less Principal Ventil. Capacity	<u>155</u>	cfm
Required Supplemental Capacity	<u>46.4</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY			
Model:	VANEE 65H		
Location:	BSMT		
<u>155.0</u> cfm	<u>3.0</u> sones		
<input checked="" type="checkbox"/> HVI Approved			
PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	$\Delta T$ °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	<input checked="" type="checkbox"/>	0.3
ENS-2	QTXEN050C	50	<input checked="" type="checkbox"/>	0.3
ENS-3	QTXEN050C	50	<input checked="" type="checkbox"/>	0.3
ENS-4	QTXEN050C	50	<input checked="" type="checkbox"/>	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)	<input checked="" type="checkbox"/> 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:	June-20

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 80140	Model: 5004 THE BEAUMONT	Builder: GOLD PARK HOMES	Date: 6/4/2020																																																									
<b>Volume Calculation</b>			<b>Air Change &amp; Delta T Data</b>																																																									
<b>House Volume</b> <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>2078</td> <td>10</td> <td>20780</td> </tr> <tr> <td>First</td> <td>2078</td> <td>11</td> <td>22858</td> </tr> <tr> <td>Second</td> <td>2301</td> <td>9</td> <td>20709</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="3" style="text-align: right;">Total:</td> <td>64,347.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>1822.1 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	2078	10	20780	First	2078	11	22858	Second	2301	9	20709	Third	0	9	0	Fourth	0	9	0	Total:			64,347.0 ft³	Total:			1822.1 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 30%; text-align: center;">0.407</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.140</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;">23</td> <td style="text-align: center;">31</td> <td style="text-align: center;">8</td> <td style="text-align: center;">14</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.407	SUMMER NATURAL AIR CHANGE RATE	0.140	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-20	42	76	Summer DTDc	23	31	8	14
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<b>5.2.3.1 Heat Loss due to Air Leakage</b>			<b>6.2.6 Sensible Gain due to Air Leakage</b>																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ <p>0.407 x 506.14 x 42 °C x 1.2 = 10434 W</p> <p>= 35601 Btu/h</p>			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ <p>= 0.140 x 506.14 x 8 °C x 1.2 = 654 W</p> <p>= 2231 Btu/h</p>																																																									
<b>5.2.3.2 Heat Loss due to Mechanical Ventilation</b>			<b>6.2.7 Sensible heat Gain due to Ventilation</b>																																																									
$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>155 CFM x 76 °F x 1.08 x 0.25 = 3181 Btu/h</p>			$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>155 CFM x 14 °F x 1.08 x 0.25 = 578 Btu/h</p>																																																									
<b>5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)</b>																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairve Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL<sub>level</sub>)</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" style="text-align: center; vertical-align: middle;">35,601</td> <td style="text-align: center;">11,922</td> <td style="text-align: center;">1.493</td> </tr> <tr> <td>2</td> <td>0.3</td> <td style="text-align: center;">23,016</td> <td style="text-align: center;">0.464</td> </tr> <tr> <td>3</td> <td>0.2</td> <td style="text-align: center;">16,570</td> <td style="text-align: center;">0.430</td> </tr> <tr> <td>4</td> <td>0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0.000</td> </tr> </tbody> </table> <p>*HLairbv = Air leakage heat loss + ventilation heat loss  *For a balanced or supply only ventilation system HLairve = 0</p>					Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL <sub>level</sub> )	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)	1	0.5	35,601	11,922	1.493	2	0.3	23,016	0.464	3	0.2	16,570	0.430	4	0	0	0.000	5	0	0	0.000																														
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**HEAT LOSS AND GAIN SUMMARY SHEET**

<b>MODEL:</b> 5004 THE BEAUMONT	<b>CORNER WOB</b>	<b>BUILDER:</b> GOLD PARK HOMES
<b>SFQT:</b> 4294	<b>LO#</b> 80140	<b>SITE:</b> 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):	64347.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 74.0 ft	WIDTH: 46.0 ft	EXPOSED PERIMETER:	168.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	72.0 ft

**2012 OBC - COMPLIANCE PACKAGE**

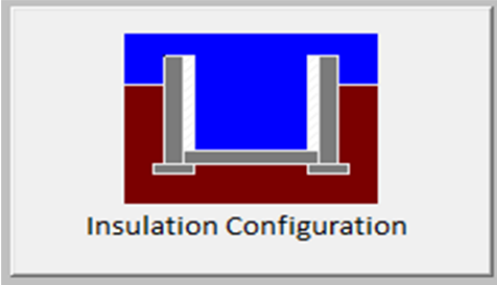
Component	Compliance Package A1	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20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

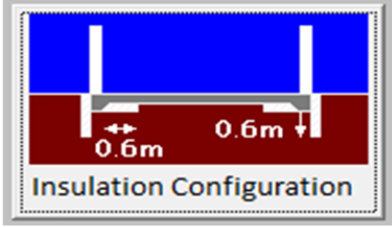
Weather Station Description		
Province:	Ontario	
Region:	Vaughan (Woodbridge)	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	7.6	 <p>Insulation Configuration</p>
Floor Width (m):	14.0	
Exposed Perimeter (m):	51.2	
Wall Height (m):	3.0	
Depth Below Grade (m):	1.90	
Window Area (m <sup>2</sup> ):	1.1	
Door Area (m <sup>2</sup> ):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1002

TYPE: 5004 THE BEAUMONT  
LO# 80140

CORNER WOB

## 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		
Length (m):	4.6	
Width (m):	12.8	
Exposed Perimeter (m):	21.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		<b>336</b>

TYPE: 5004 THE BEAUMONT  
LO# 80140

CORNER WOB



# Air Infiltration Residential Load Calculator

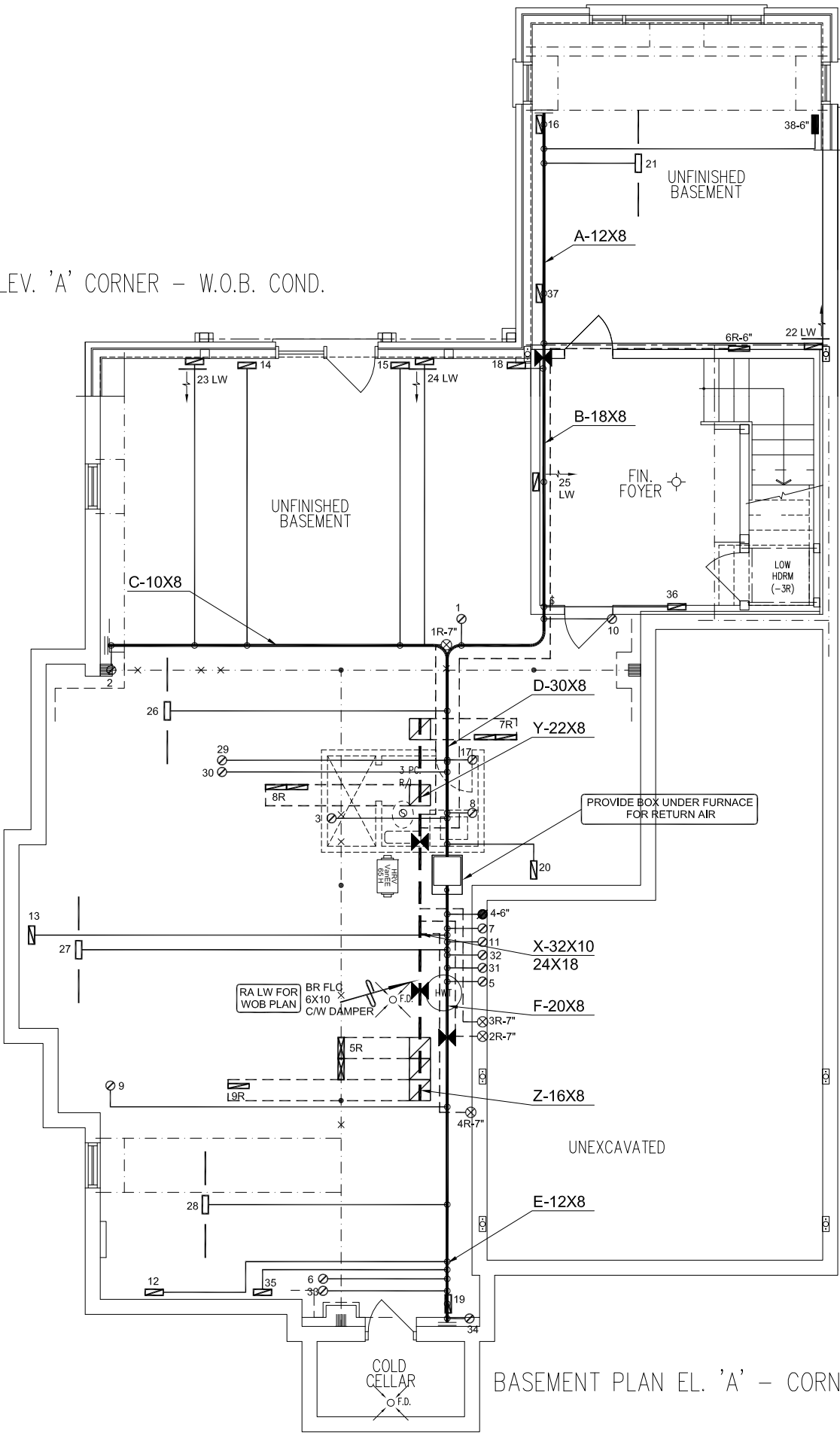
Supplemental tool for CAN/CSA-F280

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):	9.14			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m <sup>3</sup> ):	1822.1			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2428.9 cm <sup>2</sup>		
	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):	0.407			
Cooling Air Leakage Rate (ACH/H):	0.140			

TYPE: 5004 THE BEAUMONT  
LO# 80140

CORNER WOB

PART. BASEMENT PLAN ELEV. 'A' CORNER – W.O.B. COND.



BASEMENT PLAN EL. 'A' – CORNER

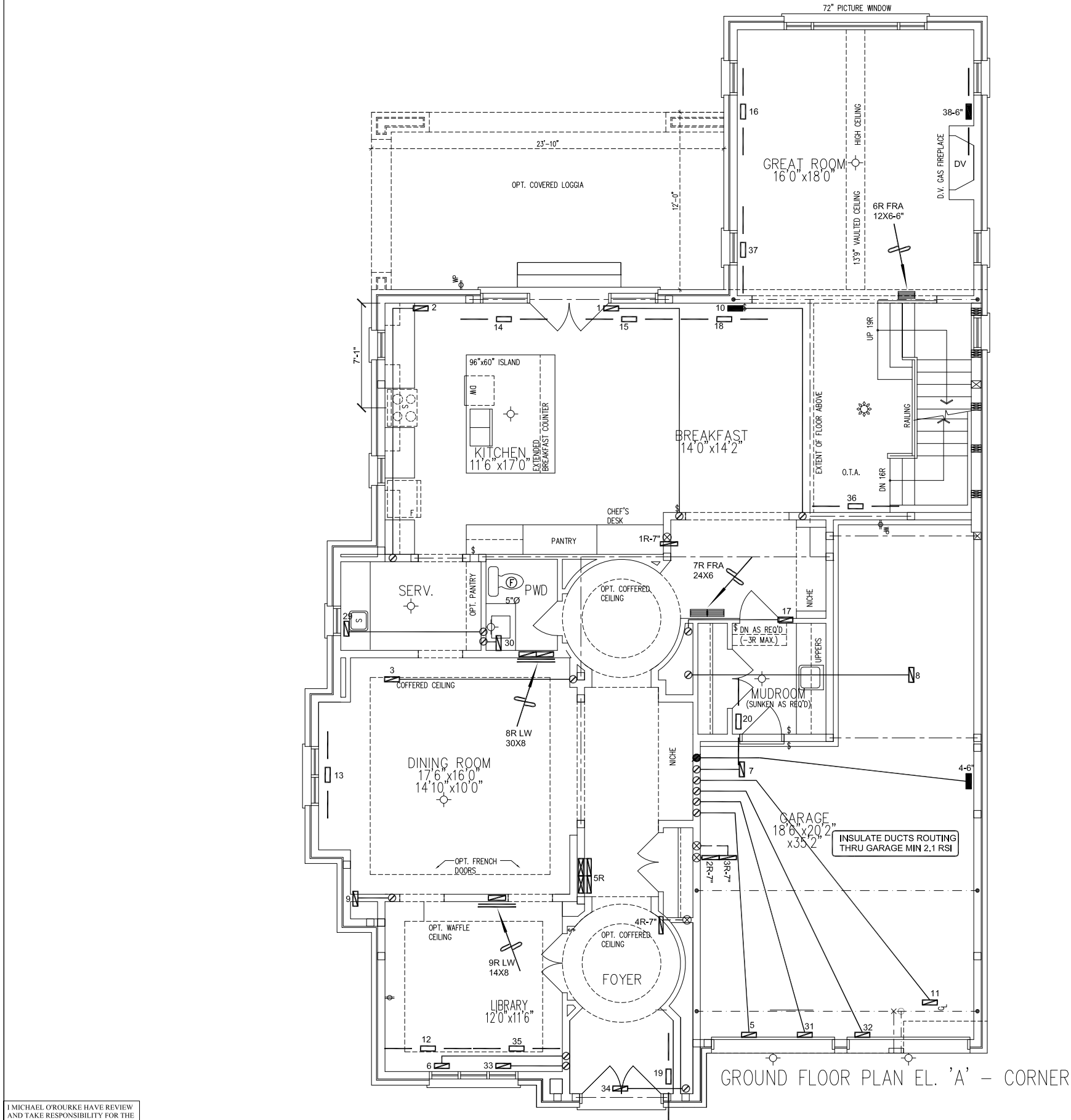
WOB  
CSA-F280-12  
PACKAGE A1

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.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	REVISED AS PER ARCHITECTURALS	JUNE/2020
	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>	HEAT LOSS 92855 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 PINE VALLEY & TESTON VAUGHAN, ONTARIO		MODEL EL296110XE60C	2ND FLOOR			18	5			6
		INPUT 110 MBTU/H	1ST FLOOR			12	4			2
		OUTPUT 106 MBTU/H	BASEMENT			8	1	0		
THE BEAUMONT WOB 5004 - CORNER 4294 sqft	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						Date SEPT/2018		
	FAN SPEED 1955 cfm @ 0.6" w.c.							Scale 1/8" = 1'-0"		
								BCIN# 19669		
								LO#	80140	



GROUND FLOOR PLAN EL. 'A' – CORNER

WOB  
CSA-F280-12  
PACKAGE A1

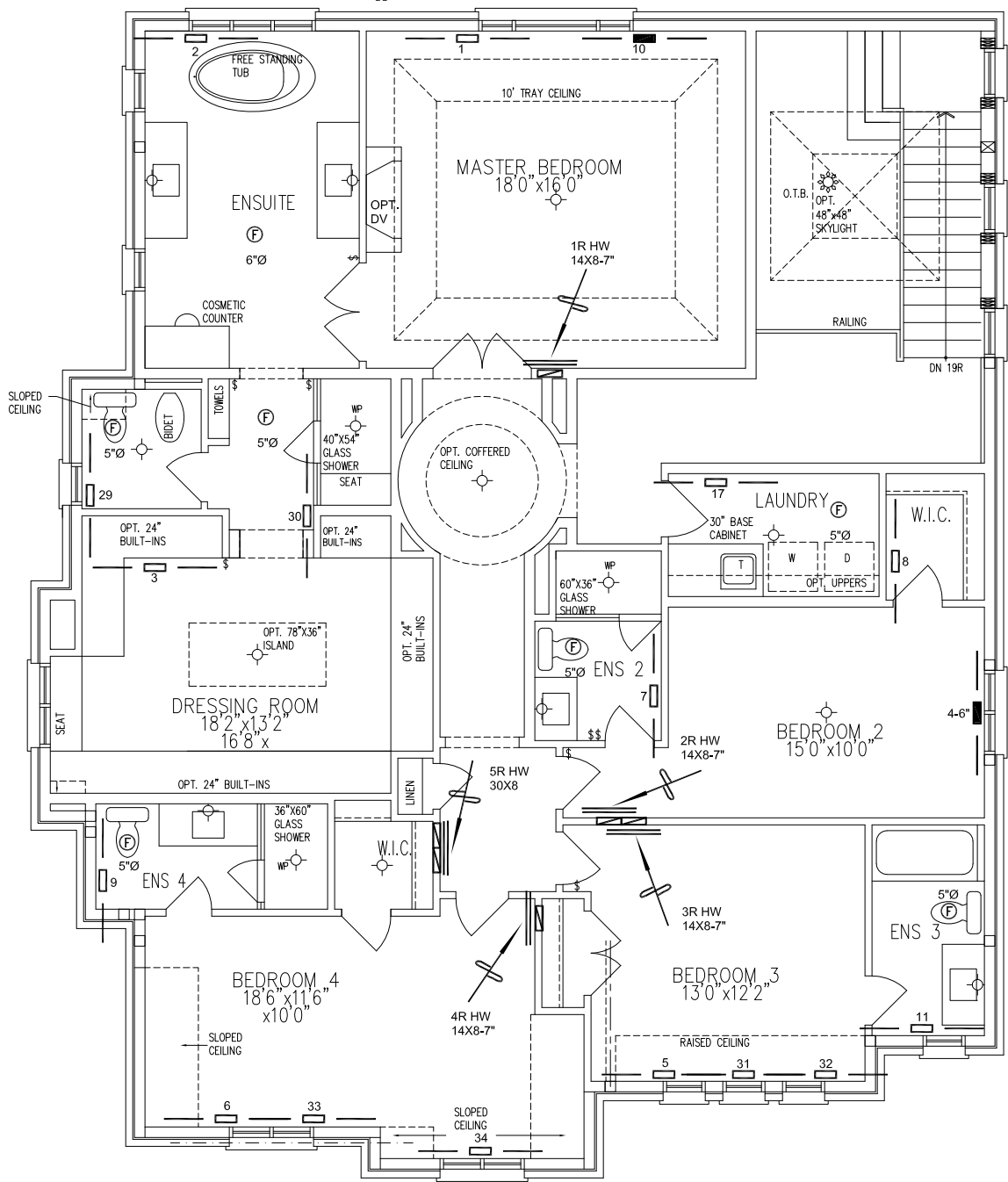
I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

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

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	REVISED AS PER ARCHITECTURALS	JUNE/2020
	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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GOLD PARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	SEPT/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	1/8" = 1'-0"
THE BEAUMONT WOB			BCIN# 19669	
5004 - CORNER 4294 sqft			LO#	80140



SECOND FLOOR PLAN EL. 'A' - CORNER

WOB  
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			Date	SEPT/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	1/8" = 1'-0"
THE BEAUMONT WOB			BCIN# 19669	
5004 - CORNER	4294 sqft		LO#	80140