

Schedule 1: Designer Information

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

A. Project Information			
Building number, street name		Unit no.	Lot/con.
Municipality VAUGHAN (WOODBIDGE)	Postal code	Plan number/ other description	
B. Individual who reviews and takes responsibility for design activities			
Name MICHAEL O'ROURKE		Firm HVAC DESIGNS LTD.	
Street address 375 FINLEY AVE		Unit no. 202	Lot/con. N/A
Municipality AJAX	Postal code L1S 2E2	Province ONTARIO	E-mail info@hvacdesigns.ca
Telephone number (905) 619-2300	Fax number (905) 619-2375	Cell number ()	
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]			
☐ House ☐ Small Buildings ☐ Large Buildings ☐ Complex Buildings ☒ HVAC – House ☐ Building Services ☐ Detection, Lighting and Power ☐ Fire Protection ☐ Building Structural ☐ Plumbing – House ☐ Plumbing – All Buildings ☐ On-site Sewage Systems			
Description of designer's work HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12		Model: 5008 OPT SECOND Project: PINE VALLEY & TESTON	
D. Declaration of Designer			
I, <u>MICHAEL O'ROURKE</u> declare that (choose one as appropriate): (print name)			
☐ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: _____ Firm BCIN: _____			
☒ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code. Individual BCIN: <u>19669</u> Basis for exemption from registration and qualification: <u>O.B.C SENTENCE 3.2.4.1 (4)</u>			
☐ The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification: _____			
I certify that:			
1. The information contained in this schedule is true to the best of my knowledge. 2. I have submitted this application with the knowledge and consent of the firm.			
June 29, 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 SECOND				DATE: Jun-20				WINTER NATURAL AIR CHANGE RATE 0.434				HEAT LOSS ΔT °F. 76				CSA-F280-12							
BUILDER: GOLD PARK HOMES				TYPE: 5008				GFA: 3452				LO# 86417				SUMMER NATURAL AIR CHANGE RATE 0.145				HEAT GAIN ΔT °F. 13				SB-12 PACKAGE A1			
ROOM USE				MBR		ENS		WIC		BED-2		BED-3		BED-4		ENS-2		WIC-3		BED-5		S-BATH					
EXP. WALL				36		36		12		35		24		13		6		14		12		7					
CLG. HT.				9		9		9		9		9		9		9		9		9		9					
FACTORS																											
GRS.WALL AREA		LOSS GAIN		324		324		108		315		216		117		54		126		108		63					
GLAZING				LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN					
NORTH		21.3	16.0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	192	144	0	0	0	0	0	0		
EAST		21.3	41.6	0	0	0	0	0	0	0	42	894	1745	45	958	1870	0	0	0	34	724	1413	0	0	0		
SOUTH		21.3	24.9	0	0	0	9	192	224	0	0	0	0	0	0	0	19	404	473	0	0	0	19	404	473		
WEST		21.3	41.6	57	1213	2368	22	468	914	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
SKYLT.		37.2	57.1	4	149	228	0	0	0	0	4	149	228	4	149	228	4	149	228	0	0	0	0	0	0		
DOORS		25.2	4.3	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	267	1192	201	293	1308	220	108	482	81	273	1218	205	171	763	129	98	437	74	45	201	34	92		
NET EXPOSED BSMT WALL ABOVE GR		3.6	0.6	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	474	608	279	215	276	126	89	114	52	179	230	105	139	178	82	204	262	120	95	122	56	100		
NO ATTIC EXPOSED CLG		2.7	1.3	0	0	0	0	0	0	0	0	0	30	82	38	0	0	0	0	0	0	0	21	58	26		
EXPOSED FLOOR		2.6	0.4	0	0	0	0	0	0	0	0	0	213	543	91	0	0	0	0	0	0	95	242	41	0		
BASEMENT/CRAWL HEAT LOSS				0		0		0		0		0		0		0		0		0		0		0			
SLAB ON GRADE HEAT LOSS				0		0		0		0		0		0		0		0		0		0		0			
SUBTOTAL HT LOSS				3162		2243		596		3116		2048		1252		757		1320		1048		583					
SUB TOTAL HT GAIN				3076		1485		133		2413		2308		895		274		1567		653		333					
LEVEL FACTOR / MULTIPLIER		0.20	0.37			0.20	0.37			0.20	0.37			0.20	0.37			0.20	0.37			0.20	0.37				
AIR CHANGE HEAT LOSS				1157		821		218		1140		749		458		277		483		383		213					
AIR CHANGE HEAT GAIN				251		121		11		197		189		73		22		128		53		27					
DUCT LOSS				0		0		0		426		0		0		103		0		0		0					
DUCT GAIN				0		0		0		365		0		0		30		0		0		0					
HEAT GAIN PEOPLE		240		2	480	0	0	0	0	1	240	1	240	1	240	1	240	0	0	0	1	240	0	0			
HEAT GAIN APPLIANCES/LIGHTS				801		0		0		801		801		801		801		801		801		801		0			
TOTAL HT LOSS BTU/H				4319		3064		814		4682		2797		1711		1137		1803		1431		796					
TOTAL HT GAIN x 1.3 BTU/H				5990		2088		188		5221		4599		2611		424		2204		2271		469					

ROOM USE		GRT	DIN	KT/BF	LIB	L/M	W/R	FOY						BAS
EXP. WALL		36	13	45	23	28	6	33						186
CLG. HT.		11	11	11	11	11	11	11						10
FACTORS														
GRS.WALL AREA	LOSS GAIN	396	143	495	253	308	66	363						1302
GLAZING		LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN						LOSS GAIN
NORTH	21.3 16.0	0 0 0	0 0 0	5 106 80	0 0 0	9 192 144	0 0 0	0 0 0						6 128 96
EAST	21.3 41.6	0 0 0	0 0 0	0 0 0	51 1085 2119	0 0 0	0 0 0	16 340 665						0 0 0
SOUTH	21.3 24.9	0 0 0	32 681 797	0 0 0	0 0 0	0 0 0	9 192 224	0 0 0						9 192 224
WEST	21.3 41.6	63 1341 2618	0 0 0	51 1085 2119	0 0 0	0 0 0	0 0 0	0 0 0						3 64 125
SKYLT.	37.2 57.1	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 4.3	0 0 0	0 0 0	20 505 85	0 0 0	20 505 85	0 0 0	40 1010 170						20 505 85
NET EXPOSED WALL	4.5 0.8	333 1486 250	111 495 83	419 1870 315	202 901 152	279 1245 210	57 254 43	307 1370 231						0 0 0
NET EXPOSED BSMT WALL ABOVE GR	3.6 0.6	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0						558 2008 338
EXPOSED CLG	1.3 0.6	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0						0 0 0
NO ATTIC EXPOSED CLG	2.7 1.3	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0						0 0 0
EXPOSED FLOOR	2.6 0.4	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						6328
SLAB ON GRADE HEAT LOSS		0	0	0	0	0	0	0						
SUBTOTAL HT LOSS		2827	1176	3567	1987	1942	446	2720						9224
SUB TOTAL HT GAIN		2868	880	2599	2271	439	267	1066						868
LEVEL FACTOR / MULTIPLIER	0.30 0.60		0.30 0.60	0.30 0.60	0.30 0.60	0.30 0.60	0.30 0.60	0.30 0.60						0.50 1.60
AIR CHANGE HEAT LOSS		1706	710	2152	1199	1172	269	1642						14749
AIR CHANGE HEAT GAIN		234	72	212	186	36	22	87						71
DUCT LOSS		0	0	0	0	0	0	0						0
DUCT GAIN		0	0	0	0	0	0	0						0
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0						0
HEAT GAIN APPLIANCES/LIGHTS		801	801	801	801	801	801	0						801
TOTAL HT LOSS BTU/H		4533	1886	5719	3186	3113	715	4362						23973
TOTAL HT GAIN x 1.3 BTU/H		5074	2279	4696	4234	1658	375	1499						2261

TOTAL HEAT GAIN BTU/H: 48470

TONS: 4.04

LOSS DUE TO VENTILATION LOAD BTU/H: 1958

STRUCTURAL HEAT LOSS: 70040

TOTAL COMBINED HEAT LOSS BTU/H: 71998

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

OPT SECOND
TYPE: 5008

DATE: Jun-20

GFA: 3452 LO# 86417

HEATING CFM 1575 COOLING CFM 1575
TOTAL HEAT LOSS 70,040 TOTAL HEAT GAIN 48,140
AIR FLOW RATE CFM 22.49 AIR FLOW RATE CFM 32.72

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

LENNOX
EL196UH090XE48C
FAN SPEED 90

AFUE = 96 %
INPUT (BTU/H) = 88,000
OUTPUT (BTU/H) = 85,600

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	16	10	6
R/A	0	0	6	3	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

MEDLOW 1080
MEDIUM 1190
MEDIUM HIGH 1340
HIGH 1575

DESIGN CFM = 1575
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	WIC	BED-2	BED-3	BED-5	ENS-2	WIC-3	MBR	MBR	BED-4	GRT	DIN	KT/BF	KT/BF	LIB	L/M	W/R	FOY	LIB	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.44	1.53	0.81	2.34	1.40	1.43	0.57	1.80	1.44	1.44	1.71	2.27	1.89	2.86	2.86	1.59	3.11	0.71	4.36	1.59	4.00	4.00	4.00	4.00
CFM PER RUN HEAT	32	34	18	53	31	32	13	41	32	32	38	51	42	64	64	36	70	16	98	36	90	90	90	90
RM GAIN MBH.	2.00	1.04	0.19	2.61	2.30	2.27	0.21	2.20	2.00	2.61	2.54	2.28	2.35	2.35	2.12	2.12	1.66	0.38	1.50	2.12	0.38	0.38	0.38	0.38
CFM PER RUN COOLING	65	34	6	85	75	74	7	72	65	65	85	83	75	77	77	69	54	12	49	69	12	12	12	12
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	56	73	75	50	36	47	44	39	78	69	18	45	27	54	45	21	50	12	32	25	51	49	25	25
EQUIVALENT LENGTH	220	170	160	140	150	150	130	180	190	160	190	200	100	130	150	130	170	190	110	170	140	160	120	130
TOTAL EFFECTIVE LENGTH	276	243	235	190	186	197	174	219	268	229	208	245	127	184	195	151	220	202	142	195	191	209	145	155
ADJUSTED PRESSURE	0.06	0.07	0.07	0.09	0.09	0.09	0.1	0.08	0.06	0.08	0.08	0.07	0.14	0.09	0.09	0.11	0.08	0.09	0.11	0.09	0.08	0.08	0.11	0.1
ROUND DUCT SIZE	6	4	4	6	5	5	4	5	6	5	6	6	5	6	5	5	6	4	6	5	6	6	6	6
HEATING VELOCITY (ft/min)	163	390	207	270	228	235	149	301	163	235	194	260	308	326	470	264	357	184	500	264	459	459	459	459
COOLING VELOCITY (ft/min)	331	390	69	433	551	543	80	529	331	477	433	423	551	393	565	507	275	138	250	507	61	61	61	61
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	4X10	3X10	4X10	4X10	3X10	4X10	3X10	3X10	4X10	3X10	4X10	3X10	4X10	4X10	4X10	4X10
TRUNK	A	B	A	D	E	C	D	E	A	A	D	A	D	B	B	E	A	E	E	E	B	A	C	C

RUN #	25	26	27	28	29	30	31	32
ROOM NAME	BAS	BED-2	BED-3	GRT	ENS	BAS	S-BATH	ENS-2
RM LOSS MBH.	4.00	2.34	1.40	2.27	1.53	4.00	0.80	0.57
CFM PER RUN HEAT	90	53	31	51	34	90	18	13
RM GAIN MBH.	0.38	2.61	2.30	2.54	1.04	0.38	0.47	0.21
CFM PER RUN COOLING	12	85	75	83	34	12	15	7
ADJUSTED PRESSURE	0.16	0.16	0.17	0.16	0.17	0.16	0.17	0.17
ACTUAL DUCT LGH.	24	45	35	56	54	40	26	33
EQUIVALENT LENGTH	100	150	200	140	140	160	210	150
TOTAL EFFECTIVE LENGTH	124	195	235	196	194	200	236	183
ADJUSTED PRESSURE	0.13	0.08	0.07	0.08	0.09	0.08	0.07	0.09
ROUND DUCT SIZE	6	6	6	6	4	6	4	4
HEATING VELOCITY (ft/min)	459	270	158	260	390	459	207	149
COOLING VELOCITY (ft/min)	61	433	382	423	390	61	172	80
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	3X10	4X10	3X10	3X10
TRUNK	E	D	E	A	C	B	D	D

SUPPLY AIR TRUNK SIZE

TRUNK A							TRUNK G								
	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)		
TRUNK A	376	0.06	10.4	12	x	8	564	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	342	0.07	9.7	12	x	8	513	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	964	0.06	14.9	26	x	8	667	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	1194	0.06	16.1	30	x	8	716	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	379	0.07	10.1	12	x	8	569	TRUNK K	0	0.00	0	0	x	8	0
TRUNK F	0	0.00	0	0	x	8	0	TRUNK L	0	0.00	0	0	x	8	0

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

RETURN AIR #	1	2	3	4	5	6	7	8	9		BR
AIR VOLUME	75	95	95	95	75	395	155	185	135	0	270
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.	84	44	50	49	46	53	28	31	44	1	18
EQUIVALENT LENGTH	225	175	165	165	255	210	230	160	265	0	185
TOTAL EFFECTIVE LH	309	219	215	214	301	263	258	191	309	1	203
ADJUSTED PRESSURE	0.05	0.07	0.07	0.07	0.05	0.06	0.06	0.08	0.05	14.80	0.07
ROUND DUCT SIZE	6	6	6	6	6	10.6	7.5	7.5	7.5	0	8.9
INLET GRILL SIZE	8	8	8	8	8	8	8	8	8	0	8
	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	14	30	14	14	14	0	30

TRUNK W	550	0.05	12.6	18	x	8	550
TRUNK X	1025	0.05	15.9	30	x	8	615
TRUNK Y	565	0.05	12.7	18	x	8	565
TRUNK Z	470	0.05	11.9	16	x	8	529
DROP	1575	0.05	18.7	24	x	14	675

TYPE: 5008
SITE NAME: PINE VALLEY & TESTON

LO # 86417
OPT SECOND

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES		9.32.3.1(1)
a)	☒ Direct vent (sealed combustion) only	
b)	☐ Positive venting induced draft (except fireplaces)	
c)	☐ Natural draft, B-vent or induced draft gas fireplace	
d)	☐ Solid Fuel (including fireplaces)	
e)	☐ No Combustion Appliances	

HEATING SYSTEM	
☒ Forced Air	☐ Non Forced Air
☐ Electric Space Heat	

HOUSE TYPE		9.32.1(2)
☒ I	Type a) or b) appliance only, no solid fuel	
☐ II	Type I except with solid fuel (including fireplaces)	
☐ III	Any Type c) appliance	
☐ IV	Type I, or II with electric space heat	
☐	Other: Type I, II or IV no forced air	

SYSTEM DESIGN OPTIONS		O.N.H.W.P.
☐ 1	Exhaust only/Forced Air System	
☐ 2	HRV with Ducting/Forced Air System	
☒ 3	HRV Simplified/connected to forced air system	
☐ 4	HRV with Ducting/non forced air system	
☐	Part 6 Design	

TOTAL VENTILATION CAPACITY		9.32.3.3(1)
Basement + Master Bedroom	<u>2</u> @ 21.2 cfm	<u>42.4</u> cfm
Other Bedrooms	<u>4</u> @ 10.6 cfm	<u>42.4</u> cfm
Kitchen & Bathrooms	<u>5</u> @ 10.6 cfm	<u>53</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	95.4	cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>201.4</u>	cfm
Less Principal Ventil. Capacity	<u>95.4</u>	cfm
Required Supplemental Capacity	<u>106.0</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 65H	Location: BSMT
<u>95.4</u> cfm	<u>3.0</u> sones
☒	HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION					
CFM	ΔT °F	FACTOR			% LOSS
95.4 CFM	X 76 F	X 1.08	X		0.25

SUPPLEMENTAL FANS		PANASONIC		
Location	Model	cfm	HVI	Sones
ENS	FV-05-11VK1	50	☒	0.3
ENS-2	FV-05-11VK1	50	☒	0.3
S-BATH	FV-05-11VK1	50	☒	0.3
W/R	FV-05-11VK1	50	☒	0.3

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE 65H		
<u>155</u> cfm high	<u>64</u> cfm low	
<u>75</u> % Sensible Efficiency @ 32 deg F (0 deg C)	☒	HVI Approved

LOCATION OF INSTALLATION	
Lot:	Concession
Township	Plan:
Address	
Roll #	Building Permit #

BUILDER:	
GOLD PARK HOMES	
Name:	
Address:	
City:	
Telephone #:	Fax #:

INSTALLING CONTRACTOR	
Name:	
Address:	
City:	
Telephone #:	Fax #:

DESIGNER CERTIFICATION	
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.	
Name:	HVAC Designs Ltd.
Signature:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	June-20

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 86417	Model: 5008	Builder: GOLD PARK HOMES	Date: 29/06/2020																																																									
Volume Calculation			Air Change & Delta T Data																																																									
House Volume <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> </thead> <tbody> <tr> <td>Bsmt</td> <td>1581</td> <td>10</td> <td>15810</td> </tr> <tr> <td>First</td> <td>1581</td> <td>11</td> <td>17391</td> </tr> <tr> <td>Second</td> <td>1871</td> <td>9</td> <td>16839</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>50,040.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>1417.0 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1581	10	15810	First	1581	11	17391	Second	1871	9	16839	Third	0	9	0	Fourth	0	9	0	Total:			50,040.0 ft³	Total:			1417.0 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;">0.434</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.145</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;">24</td> <td style="text-align: center;">31</td> <td style="text-align: center;">7</td> <td style="text-align: center;">13</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.434	SUMMER NATURAL AIR CHANGE RATE	0.145	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-20	42	76	Summer DTDc	24	31	7	13
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5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.434 x 393.60 x 42 °C x 1.2 = 8645 W = 29498 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.145 x 393.60 x 7 °C x 1.2 = 487 W = 1663 Btu/h																																																									
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to Ventilation																																																									
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 95 CFM x 76 °F x 1.08 x 0.25 = 1958 Btu/h			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 95 CFM x 13 °F x 1.08 x 0.25 = 330 Btu/h																																																									
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																												
Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)																																																								
1	0.5	29,498	9,224	1.599																																																								
2	0.3		14,664	0.603																																																								
3	0.2		16,125	0.366																																																								
4	0		0	0.000																																																								
5	0		0	0.000																																																								
*HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0																																																												

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 5008	OPT SECOND	BUILDER: GOLD PARK HOMES
SFQT: 3452	LO# 86417	SITE: PINE VALLEY & TESTON

DESIGN ASSUMPTIONS

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

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft ³):	50040.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.75	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 54.0 ft	WIDTH: 39.0 ft	EXPOSED PERIMETER:	186.0 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	-

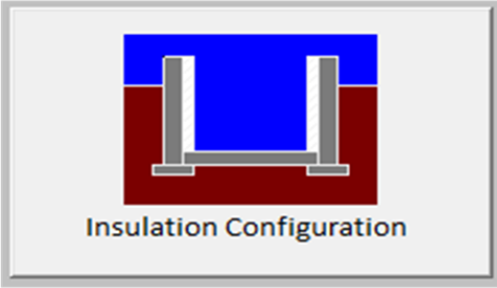
INDIVIDUAL BCIN: 19669

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):	16.5	 Insulation Configuration
Floor Width (m):	11.9	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m ²):	1.7	
Door Area (m ²):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1854

TYPE: 5008
LO# 86417

OPT SECOND

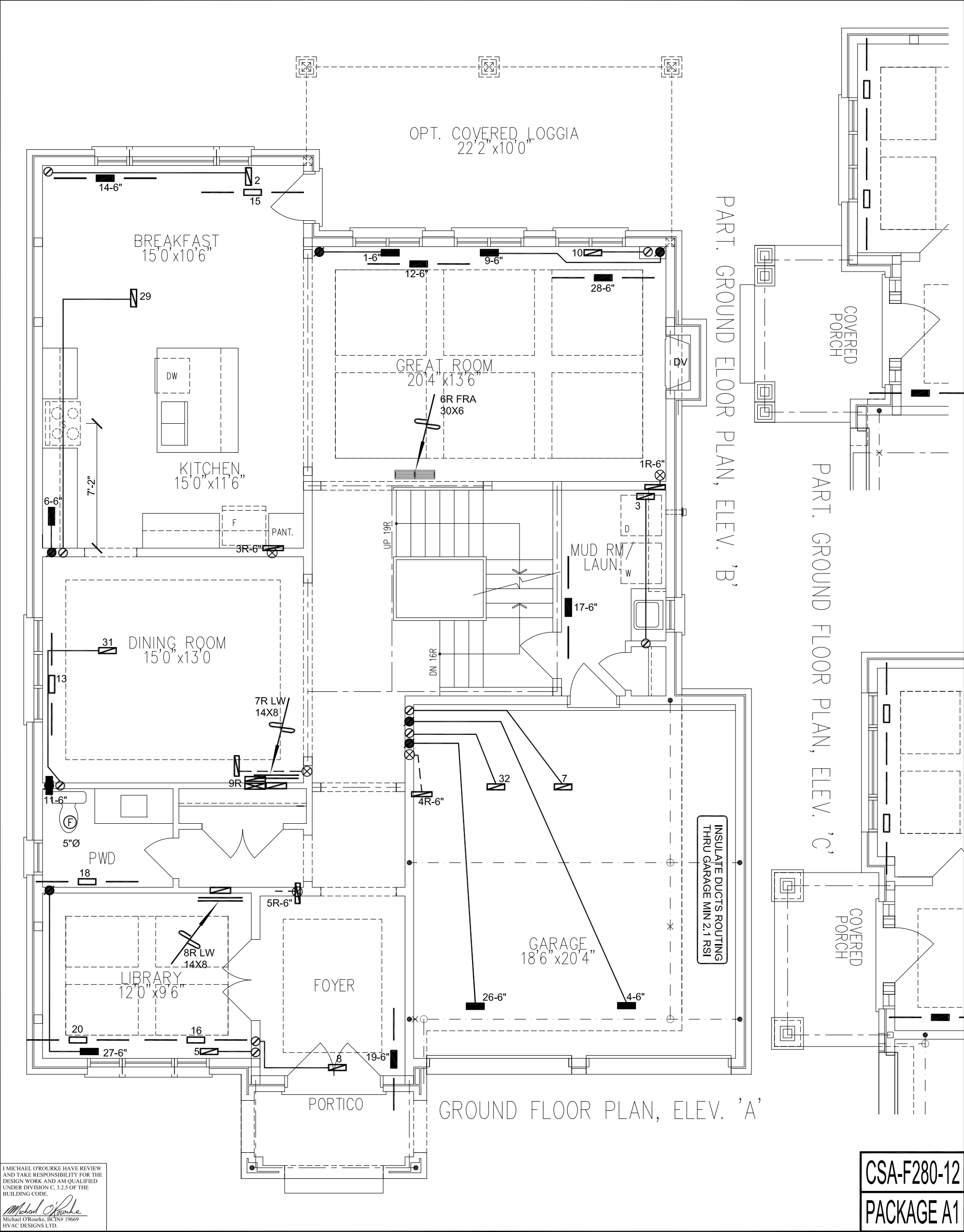
Air Infiltration Residential Load Calculator

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):	10.06			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1417.0			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1888.9 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	45.0	45.0		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.434			
Cooling Air Leakage Rate (ACH/H):	0.145			

TYPE: 5008
LO# 86417

OPT SECOND



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.

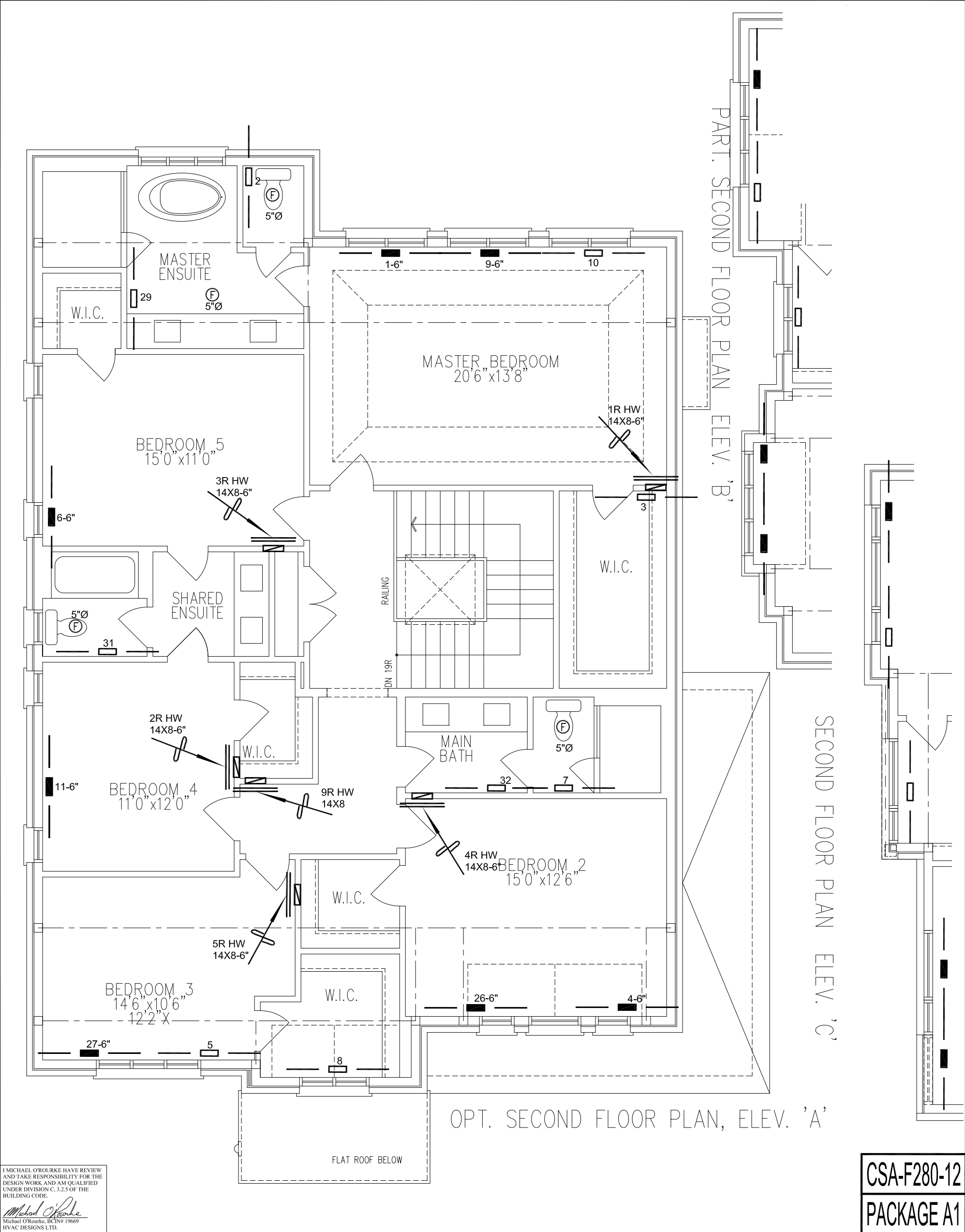
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	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		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.	Sheet Title	
GOLD PARK HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	JUNE/2020
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	3/16" = 1'-0"
OPT SECOND 5008			BCIN# 19669	
3452 sqft			LO#	86417



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

CSA-F280-12
PACKAGE A1

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GOLD PARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	JUNE/2020
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	3/16" = 1'-0"
OPT SECOND 5008			BCIN# 19669	
3452 sqft			LO#	86417