

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: 4204 THE BROOKVALLEY OPT. 5 BED - WOB 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 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. 5 BED - WOB										DATE: Jun-20				WINTER NATURAL AIR CHANGE RATE 0.407										HEAT LOSS ΔT °F. 76				CSA-F280-12							
BUILDER: GOLD PARK HOMES										TYPE: 4204 THE BROOKVALLEY										GFA: 3646				LO# 80236				SUMMER NATURAL AIR CHANGE RATE 0.137										HEAT GAIN ΔT °F. 13				SB-12 PACKAGE A1			
ROOM USE			MBR			ENS			WIC			BED-2			BED-3			BED-4			ENS-2/3			BED-5			BTH-3			BTH-2															
EXP. WALL			15			26			26			13			27			41			7			12			4			7															
CLG. HT.			9			9			9			9			9			9			9			9			9			9															
FACTORS																																													
GRS.WALL AREA			135			234			234			117			243			369			63			108			36			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	14.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	170	114	0	0	0	0	0	0	0	0	0	0	0											
EAST			21.3	36.4	0	0	0	0	0	0	0	0	0	0	0	45	958	1638	45	958	1638	0	0	0	0	0	0	0	0	0	0	0	10	213	364										
SOUTH			21.3	22.0	0	0	0	45	958	990	0	0	0	0	0	0	0	0	45	958	990	0	0	0	45	958	990	0	0	0	0	0	0	0	0										
WEST			21.3	36.4	45	958	1638	22	468	801	10	213	364	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	101.5	0	0	0	0	0	0	0	0	0	0	0	4	149	406	4	149	406	0	0	0	4	149	406	0	0	0	0	0	4	149	406										
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	0	0	0	0	0	0	0	0	0										
NET EXPOSED WALL			4.5	0.8	90	402	68	167	745	126	224	1000	168	101	451	76	198	884	149	279	1245	210	55	245	41	63	281	47	36	161	27	53	237	40	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	0	0	0	0	0	0	0	0	0	0										
EXPOSED CLG			1.3	0.6	285	366	167	169	217	99	133	171	78	273	350	160	116	149	68	273	350	160	77	99	45	326	418	192	56	72	33	156	200	92	0										
NO ATTIC EXPOSED CLG			2.7	1.3	0	0	0	0	0	0	0	0	0	0	0	0	60	165	76	60	165	76	0	0	0	30	82	38	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	180	459	77	0	0	0	36	92	15	0	0	0	0	0	0	160	408	69	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						1725			2388			1383			1142			2763			3825			606			1889			233			1207												
SUB TOTAL HT GAIN						1873			2016			611			465			2414			3480			216			1673			60			970												
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			0.20 0.34			0.20 0.34						
AIR CHANGE HEAT LOSS						590			817			473			391			945			1309			207			646			80			413												
AIR CHANGE HEAT GAIN						157			169			51			39			202			292			18			140			5			81												
DUCT LOSS						0			0			0			0			371			0			81			0			0			162												
DUCT GAIN						0			0			0			0			354			0			23			0			0			105												
HEAT GAIN PEOPLE			240			2			480			0			0			240			1			240			0			1			240			0			0			0			
HEAT GAIN APPLIANCES/LIGHTS									685			0			0			685			685			685			0			685			0			0			0			0			
TOTAL HT LOSS BTU/H						2315			3205			1856			1532			4079			5133			895			2535			312			1781												
TOTAL HT GAIN x 1.3 BTU/H						4153			2840			860			1858			5064			6106			335			3560			84			1504												

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	DIN	KT/GT	LIB	LAUN	PWD	FOY	MUD					WOB	BAS
GRS.WALL AREA	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN
NORTH	21.3	14.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST	21.3	36.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH	21.3	22.0	42	894	924	42	894	924	48	1021	1056	0	0	0	0	0
WEST	21.3	36.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SKYLT.	37.2	101.5	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	64	1616	272	20	505	85	20	505
NET EXPOSED WALL	4.5	0.8	244	1089	183	686	3061	516	470	2097	353	0	0	0	341	1522
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.6	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	80	103	47	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
EXPOSED FLOOR	2.6	0.4	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
SLAB ON GRADE HEAT LOSS			0		0	0		0	0		0	0		0	0	0
SUBTOTAL HT LOSS			1983		6900	3800	161	785	4106		1790			592	4513	
SUB TOTAL HT GAIN			1108		4725	2661	53	132	1605		302			1475		527
LEVEL FACTOR / MULTIPLIER	0.30	0.46			0.30	0.46		0.30	0.46		0.30	0.46		0.30	0.46	
AIR CHANGE HEAT LOSS			910		3168	1744		55	361		1885		822		0.50	1.57
AIR CHANGE HEAT GAIN			93		396	223		4	11		135		25		14815	
DUCT LOSS			0		0	0		22	0		0		0		0	
DUCT GAIN			0		0	0		74	0		0		0		0	
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS			685		685	685		685	0		0		0		0	685
TOTAL HT LOSS BTU/H			2893		10068	5544	238	1146	5990		2612			5105	19737	
TOTAL HT GAIN x 1.3 BTU/H			2451		7548	4639	1062	186	2262		425			1918	1794	

TOTAL HEAT GAIN BTU/H:

49186

TONS: 4.10

LOSS DUE TO VENTILATION LOAD BTU/H: 3181

STRUCTURAL HEAT LOSS: 76978

TOTAL COMBINED HEAT LOSS BTU/H: 80158

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

OPT. 5 BED - WOB
TYPE: 4204 THE BROOKVALEY

DATE: Jun-20

GFA: 3646 LO# 80236

HEATING CFM 1525 COOLING CFM 1525
TOTAL HEAT LOSS 76,978 TOTAL HEAT GAIN 48,650
AIR FLOW RATE CFM 19.81 AIR FLOW RATE CFM 31.35

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

*LENNOX
EL296UH090XE48C

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

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	15	10	6
R/A	0	0	6	3	1

plenium pressure s/a 0.18 r/a pressure 0.17
max s/a dif press. loss 0.03 r/a grille press. Loss 0.02
min adjusted pressure s/a 0.15 adjusted pressure r/a 0.15

FAN SPEED 90
LOW 0
MEDLOW 0
MEDIUM 1105
MEDIUM HIGH 1255
HIGH 1525

DESIGN CFM = 1525
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-3	BED-4	BED-5	BTH-2	BED-3	BED-4	MBR	BTH-3	DIN	KT/GT	KT/GT	KT/GT	LIB	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.16	3.20	1.86	2.04	2.57	1.27	1.78	2.04	2.57	1.16	0.31	2.89	2.52	2.52	2.77	0.24	1.15	5.99	2.61	4.14	4.14	4.14	4.14	4.14
CFM PER RUN HEAT	23	63	37	40	51	25	35	40	51	23	6	57	50	50	50	55	5	23	119	52	82	82	82	82
RM GAIN MBH	2.08	2.84	0.86	2.53	3.05	1.78	1.50	2.53	3.05	2.08	0.08	2.45	1.89	1.89	2.32	1.06	0.19	2.26	0.42	0.62	0.62	0.62	0.62	0.62
CFM PER RUN COOLING	65	89	27	79	96	56	47	79	96	65	3	77	59	59	73	33	6	71	13	19	19	19	19	19
ADJUSTED PRESSURE	0.17	0.16	0.17	0.17	0.16	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	0.15	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	58	47	55	52	74	45	50	56	63	56	35	26	26	26	43	53	42	34	36	10	53	36	16	52
EQUIVALENT LENGTH	200	200	140	150	200	160	140	160	190	180	150	100	110	110	150	110	190	100	150	140	170	120	100	100
TOTAL EFFECTIVE LENGTH	258	247	195	202	274	205	190	216	253	236	185	126	136	136	193	163	232	134	186	150	223	156	116	152
ADJUSTED PRESSURE	0.07	0.07	0.09	0.09	0.06	0.08	0.09	0.08	0.06	0.07	0.09	0.14	0.13	0.13	0.09	0.11	0.07	0.13	0.08	0.11	0.07	0.1	0.14	0.11
ROUND DUCT SIZE	5	6	4	5	6	5	4	5	6	5	4	6	5	5	5	5	4	4	6	4	6	5	5	5
HEATING VELOCITY (ft/min)	169	321	424	294	260	184	402	294	260	169	69	291	367	367	367	404	57	264	607	597	418	602	602	602
COOLING VELOCITY (ft/min)	477	454	310	580	489	411	539	580	489	477	34	393	433	433	433	536	379	69	362	149	97	140	140	140
OUTLET GRILL SIZE	3X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10
TRUNK	E	A	E	C	B	A	C	C	B	E	D	A	D	E	A	B	C	C	C	E	A	E	D	B

RUN #	25	26	27	28	29	30	31
ROOM NAME	BED-5	LIB	KT/GT	ENS-2/3	BED-2	BAS	BAS
RM LOSS MBH	1.27	2.77	2.52	0.90	1.53	4.14	4.14
CFM PER RUN HEAT	25	55	50	18	30	82	82
RM GAIN MBH	1.78	2.32	1.89	0.34	1.86	0.62	0.62
CFM PER RUN COOLING	56	73	59	11	58	19	19
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.16	0.16
ACTUAL DUCT LGH	51	52	37	45	22	30	34
EQUIVALENT LENGTH	150	140	150	160	160	120	200
TOTAL EFFECTIVE LENGTH	201	192	187	205	182	150	234
ADJUSTED PRESSURE	0.09	0.09	0.09	0.08	0.09	0.11	0.07
ROUND DUCT SIZE	6	5	5	4	5	5	6
HEATING VELOCITY (ft/min)	127	404	367	207	220	602	418
COOLING VELOCITY (ft/min)	286	536	433	126	426	140	97
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	3X10	3X10	4X10
TRUNK	A	B	A	C	E	D	C

SUPPLY AIR TRUNK SIZE

	TRUNK	STATIC	ROUND	RECT	VELOCITY
	CFM	PRESS.	DUCT	DUCT	(ft/min)
TRUNK A	352	0.07	9.8	12	x 8 528
TRUNK B	294	0.06	9.5	10	x 8 529
TRUNK C	656	0.06	12.9	20	x 8 590
TRUNK D	1228	0.06	16.3	30	x 8 737
TRUNK E	297	0.07	9.2	10	x 8 535
TRUNK F	0	0.00	0	0	x 8 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 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	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
AIR VOLUME	120	120	120	120	135	320	200	120	45	0	0	0	0	0	0	0	225							
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							
ACTUAL DUCT LGH	35	59	61	54	47	26	26	60	70	1	1	1	1	1	1	1	14							
EQUIVALENT LENGTH	185	175	195	185	265	205	130	155	245	0	0	0	0	0	0	0	145							
TOTAL EFFECTIVE LH	220	234	256	239	312	231	156	215	315	1	1	1	1	1	1	1	159							
ADJUSTED PRESSURE	0.07	0.06	0.06	0.06	0.05	0.06	0.09	0.07	0.05	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.09							
ROUND DUCT SIZE	6.6	6.8	6.8	6.8	7.5	9.8	7.5	6.6	4.9	0	0	0	0	0	0	0	7.8							
INLET GRILL SIZE	8	8	8	8	8	8	8	8	8	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							
INLET GRILL SIZE	14	14	14	14	14	30	14	14	14	0	0	0	0	0	0	0	24							

TRUNK	CFM	STATIC	ROUND	RECT	VELOCITY
		PRESS.	DUCT	DUCT	(ft/min)
TRUNK W	255	0.05	9.5	10	x 8 459
TRUNK X	1325	0.05	17.5	28	x 10 681
TRUNK Y	540	0.05	12.5	18	x 8 540
TRUNK Z	980	0.05	15.7	28	x 8 630
DROP	1525	0.05	18.5	24	x 14 654

TYPE: 4204 THE BROOKVALLEY
SITE NAME: PINE VALLEY & TESTON

LO # 80236
OPT. 5 BED - WOB

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>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 ☒ HVI Approved		
PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
155.0 CFM	X 76 F	X 1.08	X 0.25

SUPPLEMENTAL FANS		NUTONE	
Location	Model	cfm	HVI
ENS	QTXEN050C	50	☒
ENS-2/3	QTXEN050C	50	☒
BTH-2	QTXEN050C	50	☒
PWD	QTXEN050C	50	☒

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE 65H		
<u>155</u> cfm high	<u>64</u> cfm low	
<u>75</u> % Sensible Efficiency @ 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#: 80236	Model: 4204 THE BROOKVALLEY	Builder: GOLD PARK HOMES	Date: 6/4/2020																																																									
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5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.407 x 421.26 x 42 °C x 1.2 = 8684 W = 29631 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.137 x 421.26 x 7 °C x 1.2 = 491 W = 1674 Btu/h																																																									
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to Ventilation																																																									
$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 155 CFM x 76 °F x 1.08 x 0.25 = 3181 Btu/h			$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 155 CFM x 13 °F x 1.08 x 0.25 = 536 Btu/h																																																									
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																												
Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)																																																								
1	0.5	29,631	9,435	1.570																																																								
2	0.3		19,364	0.459																																																								
3	0.2		17,320	0.342																																																								
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: 4204 THE BROOKVALLEY	OPT. 5 BED - WOB	BUILDER: GOLD PARK HOMES
SFQT: 3646	LO# 80236	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):	53556.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 62.0 ft	WIDTH: 35.0 ft	EXPOSED PERIMETER:	149.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	45.0 ft

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

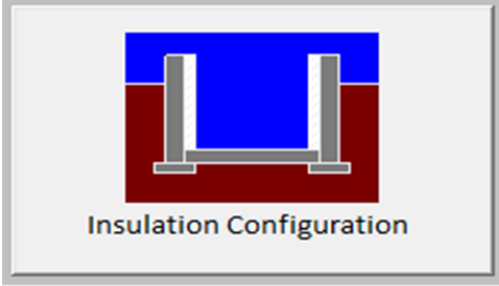
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	21.12
Below Grade Slab Entire surface > 600 mm below 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

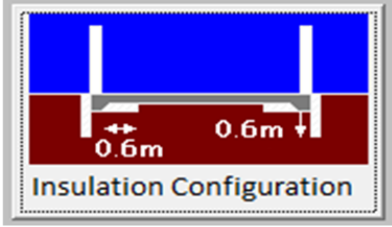
Weather Station Description		
Province:	Ontario	
Region:	Vaughan (Woodbridge)	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	 Insulation Configuration
Floor Width (m):	10.7	
Exposed Perimeter (m):	45.4	
Wall Height (m):	3.0	
Depth Below Grade (m):	1.81	
Window Area (m ²):	1.1	
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):		748

TYPE: 4204 THE BROOKVALLEY
LO# 80236

OPT. 5 BED - 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):	1.5	
Width (m):	10.7	
Exposed Perimeter (m):	13.7	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		174

TYPE: 4204 THE BROOKVALLEY
LO# 80236

OPT. 5 BED - WOB

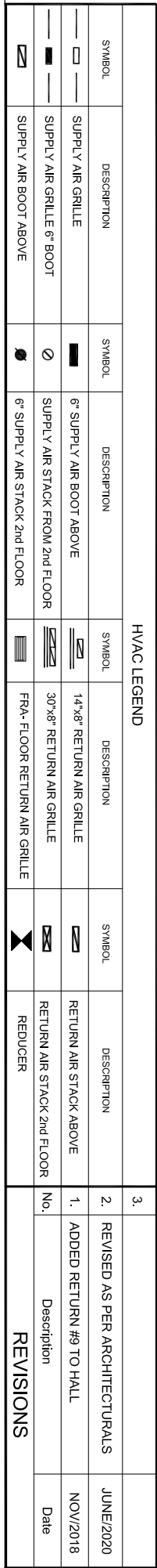
Air Infiltration Residential Load Calculator

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 ³):	1516.5			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2021.6 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	73.2	73.2		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.407			
Cooling Air Leakage Rate (ACH/H):	0.137			

TYPE: 4204 THE BROOKVALLEY
LO# 80236

OPT. 5 BED - WOB



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.

PACKAGE A1

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Client

GOLD PARK HOMES

Project Name

**PINE VALLEY & TESTON
VAUGHAN, ONTARIO
OPT. 5 BED - WOB
THE BROOKVALLEY
4204 CNR 3646 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.

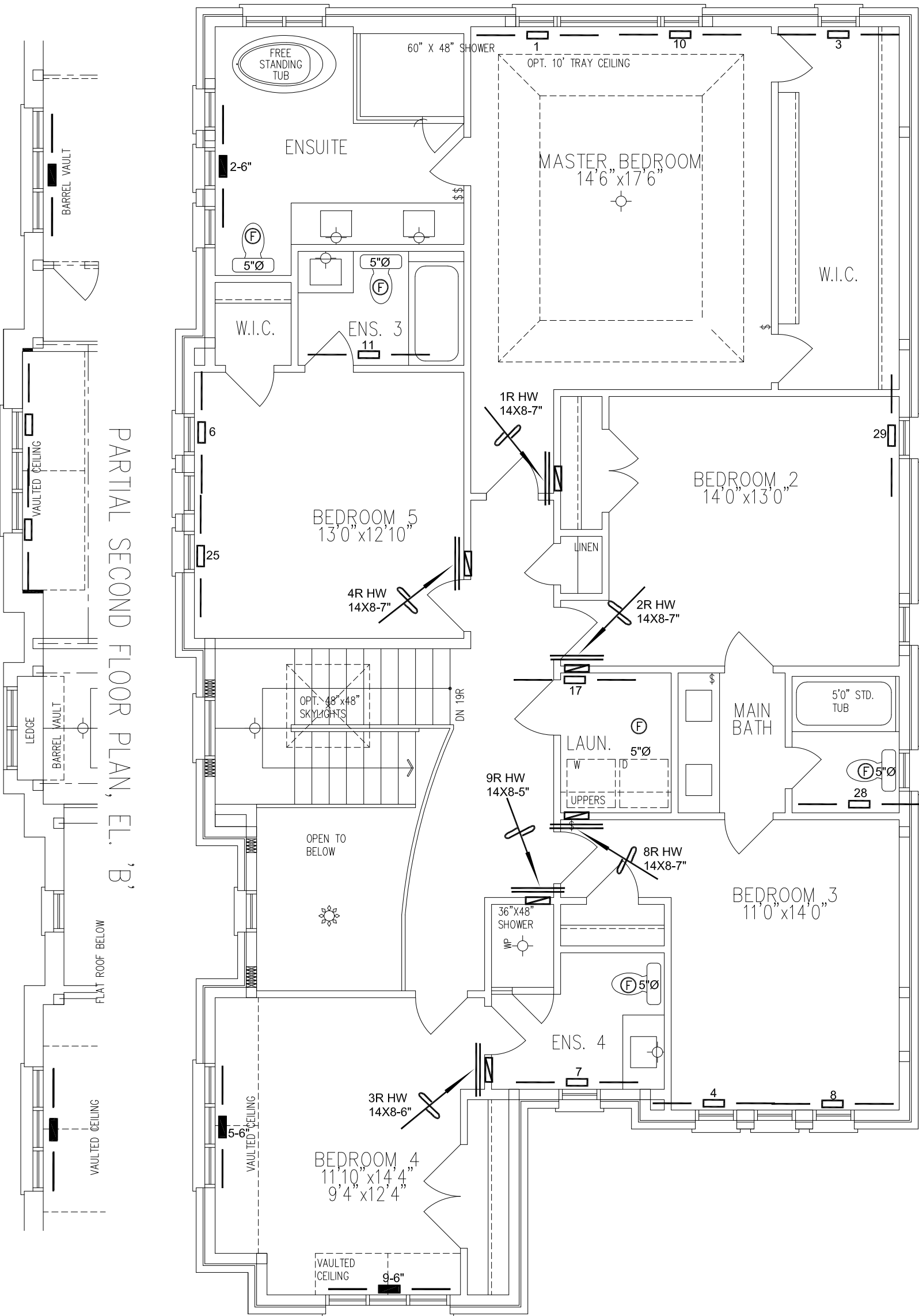
Sheet Title	
FIRST FLOOR HEATING LAYOUT	
Date	OCT/2018
Scale	3/16" = 1'-0"
BCIN# 19669	
LO#	80236

HVAC LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR
	SUPPLY AIR STACK 2nd FLOOR		FRA-FLOOR RETURN AIR GRILLE
	RETURN AIR STACK ABOVE		RETURN AIR STACK 2nd FLOOR
	REDUCER		
REVISIONS		No.	Description
		1.	ADDED RETURN #9 TO HALL
		2.	REVISED AS PER ARCHITECTURALS
		3.	
			NOV/2018
			JUNE/2020

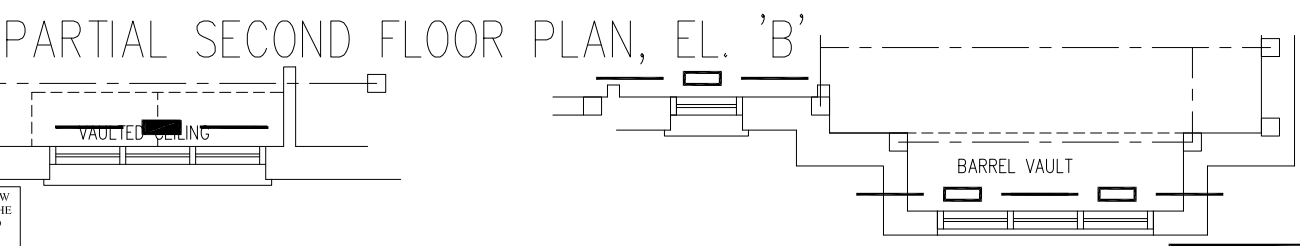
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Michael O'Rourke

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



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



CSA-F280-12

WOB PACKAGE A1

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Client			Sheet Title	
GOLD PARK HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name		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	Date	OCT/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	3/16" = 1'-0"
OPT. 5 BED - WOB THE BROOKVALLEY		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.	BCIN# 19669	
4204 CNR			LO#	80236
3646 sqft				