


## 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> 4204 THE BROOKVALLEY  OPT. 5 BED - 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.			
October 5, 2018		 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: Oct-18		WINTER NATURAL AIR CHANGE RATE 0.407		HEAT LOSS AT °F. 76		CSA-F280-12									
BUILDER: GOLD PARK HOMES										LO# 80236		SUMMER NATURAL AIR CHANGE RATE 0.137		HEAT GAIN AT °F. 13		SB-12 PACKAGE A1									
TYPE: 4204 THE BROOKVALEY										GFA: 3646															
OPT. 5 BED - WOB																									
ROOM USE										WIC		BED-2		BED-3		BED-4		ENS-2/3		BED-5		BTH-3		BTH-2	
MBR										ENS		BED-2		BED-3		BED-4		ENS-2/3		BED-5		BTH-3		BTH-2	
EXP. WALL										26		13		27		41		7		12		4		7	
CLG. HT.										9		9		9		9		9		9		9		9	
FACTORS										234		117		243		369		63		108		36		63	
GRS.WALL AREA										234		117		243		369		63		108		36		63	
GLAZING										0		16		0		0		8		0		0		0	
NORTH										0		340		0		0		170		0		0		0	
EAST										0		0		0		0		0		0		0		0	
SOUTH										0		0		0		0		0		0		0		0	
WEST										0		0		0		0		0		0		0		0	
SKYLT.										10		0		0		0		0		0		0		0	
DOORS										22		0		0		0		0		0		0		0	
NET EXPOSED WALL										224		101		198		279		55		63		36		161	
NET EXPOSED BSMT WALL ABOVE GR										1000		451		884		1245		245		281		47		27	
EXPOSED CLG										171		273		154		207		77		330		56		72	
NO ATTIC EXPOSED CLG										0		0		76		165		76		30		82		33	
EXPOSED FLOOR										0		0		180		0		36		0		0		0	
BASEMENT/CRAWL HEAT LOSS										0		0		0		0		0		0		0		0	
SLAB ON GRADE HEAT LOSS										0		0		0		0		0		0		0		0	
SUBTOTAL HT LOSS										1383		1142		2619		3591		606		1745		233		1063	
SUB TOTAL HT GAIN										2157		481		2144		3245		224		1345		60		596	
LEVEL FACTOR / MULTIPLIER										0.20		0.20		0.20		0.20		0.20		0.20		0.20		0.20	
AIR CHANGE HEAT LOSS										492		406		932		1278		216		621		83		378	
AIR CHANGE HEAT GAIN										53		40		178		269		19		111		5		49	
DUCT LOSS										0		0		355		0		82		0		0		144	
DUCT GAIN										0		0		318		0		24		0		0		65	
HEAT GAIN PEOPLE										0		1		240		1		0		1		0		0	
HEAT GAIN APPLIANCES/LIGHTS										623		623		623		623		623		623		623		0	
TOTAL HT LOSS BTU/H										3238		1548		3906		4869		904		2366		315		1585	
TOTAL HT GAIN x 1.3 BTU/H										3036		1798		4554		5689		347		3014		84		924	

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	DIN	KT/GT	LIB	LAUN	PWD	FOY	MUD	WOB	BAS				
GRS.WALL AREA	286	286	286	286	286	286	286	286	286	286	286	286				
GLAZING	0	0	0	0	0	0	0	0	0	0	0	0				
NORTH	21.3	15.3	0	0	0	0	0	0	0	0	0	0				
EAST	21.3	39.4	0	0	0	0	0	0	0	0	0	0				
SOUTH	21.3	23.7	0	0	0	0	0	0	0	0	0	0				
WEST	21.3	39.4	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				
DOORS	25.2	4.3	0	0	0	0	0	0	0	0	0	0				
NET EXPOSED WALL	4.5	0.8	244	1089	183	40	1010	170	516	470	2097	353				
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.6	0	0	0	0	0	0	0	0	0	0				
EXPOSED CLG	1.3	0.6	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				
EXPOSED FLOOR	2.6	0.4	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	0				
SLAB ON GRADE HEAT LOSS	0	0	0	0	0	0	0	0	0	0	0	0				
SUBTOTAL HT LOSS	1983	1983	1983	1983	1983	1983	1983	1983	1983	1983	1983	1983				
SUB TOTAL HT GAIN	0.30	0.46	0.30	0.46	0.30	0.46	0.20	0.36	0.30	0.46	0.30	0.46				
LEVEL FACTOR / MULTIPLIER	904	904	3138	433	236	4	68	0	0	0	0	0				
AIR CHANGE HEAT LOSS	0	0	0	0	0	0	0	0	0	0	0	0				
AIR CHANGE HEAT GAIN	0	0	0	0	0	0	0	0	0	0	0	0				
DUCT LOSS	0	0	0	0	0	0	0	0	0	0	0	0				
DUCT GAIN	0	0	0	0	0	0	0	0	0	0	0	0				
HEAT GAIN PEOPLE	240	240	0	0	0	0	0	0	0	0	0	0				
HEAT GAIN APPLIANCES/LIGHTS	623	623	0	0	0	0	0	0	0	0	0	0				
TOTAL HT LOSS BTU/H	2887	2468	10018	8164	4813	5533	240	1144	6194	2728	5105	19737				
TOTAL HT GAIN x 1.3 BTU/H	4259	4259	10018	8164	4813	5533	240	1144	6194	2728	5105	19737				

TOTAL HEAT GAIN BTU/H: 49485 TONS: 4.12 LOSS DUE TO VENTILATION LOAD BTU/H: 3181 STRUCTURAL HEAT LOSS: 76408 TOTAL COMBINED HEAT LOSS BTU/H: 75589

*Michael O'Rourke*

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

OPT. 5 BED - WOB

TYPE: 4204 THE BROOKVALEY DATE: Oct-18

GFA: 3646 LO# 80236

HEATING CFM 1525  
TOTAL HEAT GAIN 48,949  
AIR FLOW RATE CFM 31.15

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

EL296UH090XE48C  
FAN SPEED 90  
LOW 0  
MEDIUM 1105  
HIGH 1525

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	5	3	1

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

All S/A runs 5'9" unless noted otherwise on layout.

ROOM #	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	1.17	3.24	1.88	1.95	2.43	1.18	1.58	1.95	2.43	1.17	0.32	2.89	2.50	2.50	2.50	2.50	2.77	0.24	1.14	2.61	4.14	4.14	4.14	4.14
CFM PER RUN HEAT	23	65	37	39	49	24	32	39	49	23	6	58	50	50	50	55	5	23	124	52	83	83	83	83
RM GAIN MBH	2.13	3.04	0.90	2.28	2.84	1.51	0.92	2.28	2.84	2.13	0.08	2.47	2.04	2.04	2.04	2.41	0.97	0.19	2.73	1.23	0.63	0.63	0.63	0.63
CFM PER RUN COOLING	66	95	28	71	89	47	29	71	89	66	3	77	64	64	64	75	30	6	85	38	20	20	20	20
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
EQUVALENT LENGTH	58	47	55	52	74	45	50	56	63	56	35	26	26	26	43	53	42	34	36	10	53	36	16	52
TOTAL EFFECTIVE 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
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	4	4	5	6	5	4	5	4	4	5	5	4	4	6	4	6	5	5	5
HEATING VELOCITY (ft/min)	169	331	424	286	250	275	367	286	250	169	69	426	574	574	367	404	57	264	632	597	423	609	609	609
COOLING VELOCITY (ft/min)	485	484	321	521	454	539	333	521	454	485	34	565	734	734	470	551	344	69	433	436	102	147	147	147
OUTLET GRILL SIZE	3X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	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

ROOM #	25	26	27	28	29	30	31
ROOM NAME	BED-5	LIB	KT/GT	ENS-2/3	BED-2	BAS	BAS
RM LOSS MBH	1.18	2.77	2.50	0.90	1.55	4.14	4.14
CFM PER RUN HEAT	24	55	50	18	31	83	83
RM GAIN MBH	1.51	2.41	2.04	0.35	1.80	0.63	0.63
CFM PER RUN COOLING	47	75	64	11	56	20	20
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.16	0.16
EQUVALENT LENGTH	51	52	37	45	22	30	34
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	4	5	5	4	5	5	6
HEATING VELOCITY (ft/min)	275	404	367	207	228	609	423
COOLING VELOCITY (ft/min)	539	551	470	126	411	147	102
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	4X10
TRUNK	A	B	A	C	E	D	C

**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	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	354	0.07	9.8	12	531	TRUNK G	0	0.00	0	0	8	TRUNK O	0	0.05	0	0	8
TRUNK B	291	0.06	9.5	10	524	TRUNK H	0	0.00	0	0	8	TRUNK P	0	0.05	0	0	8
TRUNK C	654	0.06	12.9	20	589	TRUNK I	0	0.00	0	0	8	TRUNK Q	0	0.05	0	0	8
TRUNK D	1230	0.06	16.3	30	738	TRUNK J	0	0.00	0	0	8	TRUNK R	0	0.05	0	0	8
TRUNK E	299	0.07	9.2	10	538	TRUNK K	0	0.00	0	0	8	TRUNK S	0	0.05	0	0	8
TRUNK F	0	0.00	0	0	0	TRUNK L	0	0.00	0	0	8	TRUNK T	0	0.05	0	0	8
												TRUNK U	0	0.05	0	0	8
												TRUNK V	0	0.05	0	0	8
												TRUNK W	0	0.05	0	0	8
												TRUNK X	1360	0.05	17.7	28	8
												TRUNK Y	515	0.05	12.3	18	10
												TRUNK Z	1000	0.05	15.8	28	8
												DROP	1525	0.05	18.5	24	14

**RETURN AIR #**

AIR VOLUME	130	125	125	125	135	165	130	BR
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
EQUVALENT LENGTH	35	59	61	54	47	26	60	1
TOTAL EFFECTIVE LENGTH	185	175	195	185	265	205	155	0
ADJUSTED PRESSURE	0.07	0.06	0.06	0.06	0.05	0.06	0.09	0.09
ROUND DUCT SIZE	8	8	8	8	8	8	8	8
INLET GRILL SIZE	14	14	14	14	14	14	14	24

*Michael O'Rourke*

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)	<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>6</u> @ 10.6 cfm <u>63.6</u> cfm	
Table 9.32.3.A.	TOTAL <u>212.0</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>212</u> cfm	
Less Principal Ventil. Capacity	<u>155</u> cfm	
Required Supplemental Capacity	<u>57.0</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	$\Delta T \cdot F$
155.0 CFM X	76 F X
	FACTOR 1.08 X
	% LOSS 0.25

SUPPLEMENTAL FANS		NUTONE	
Location	Model	cfm	HVI
ENS	QTXEN050C	50	<input checked="" type="checkbox"/>
ENS-2/3	QTXEN050C	50	<input checked="" type="checkbox"/>
BTH-2	QTXEN050C	50	<input checked="" type="checkbox"/>
PWD	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	<input checked="" type="checkbox"/> HVI Approved	
@ 32 deg F ( 0 deg C)		

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

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

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

DESIGNER CERTIFICATION	
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.	
Name:	HVAC Designs Ltd.
Signature:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	October-18

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																											
Formula Sheet (For Air Leakage / Ventilation Calculation)																											
LO#: 80236	Model: 4204 THE BROOKVALEY																										
Builder: GOLD PARK HOMES																											
Date: 10/5/2018																											
Air Change & Delta T Data																											
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width:50%;">0.407</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.137</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.407	SUMMER NATURAL AIR CHANGE RATE	0.137																						
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SUMMER NATURAL AIR CHANGE RATE	0.137																										
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="4">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> </tr> <tr> <td>Winter DTDh</td> <td>22</td> <td>-20</td> <td>42</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>31</td> <td>7</td> </tr> <tr> <td></td> <td></td> <td></td> <td>13</td> </tr> </table>		Design Temperature Difference					Tin °C	Tout °C	ΔT °C	Winter DTDh	22	-20	42	Summer DTDc	24	31	7				13						
Design Temperature Difference																											
	Tin °C	Tout °C	ΔT °C																								
Winter DTDh	22	-20	42																								
Summer DTDc	24	31	7																								
			13																								
6.2.6 Sensible Gain due to Air Leakage																											
$HG_{satb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ <p>= 0.137 x 421.26 x 7 °C x 1.2 = 491 W</p> <p>= 1674 Btu/h</p>																											
6.2.7 Sensible heat Gain due to Ventilation																											
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>155 CFM x 13 °F x 1.08 x 0.25 = 536 Btu/h</p>																											
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																											
$HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{aglevel} + HL_{bglevel})\}$ <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HLlevel)</th> <th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)</th> </tr> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">29,631</td> <td>9,435</td> <td>1.570</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>19,493</td> <td>0.456</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>16,655</td> <td>0.356</td> </tr> <tr> <td>4</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> </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)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HLlevel)	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)	1	0.5	29,631	9,435	1.570	2	0.3	19,493	0.456	3	0.2	16,655	0.356	4	0	0	0.000	5	0	0	0.000
Level	Level Factor (LF)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HLlevel)	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)																							
1	0.5	29,631	9,435	1.570																							
2	0.3		19,493	0.456																							
3	0.2		16,655	0.356																							
4	0		0	0.000																							
5	0		0	0.000																							

**HEAT LOSS AND GAIN SUMMARY SHEET**

<b>MODEL:</b> 4204 THE BROOKVALLEY	<b>OPT.</b> 5 BED - WOB	<b>BUILDER:</b> GOLD PARK HOMES
<b>SFQT:</b> 3646	<b>LO#</b> 80236	<b>SITE:</b> PINE VALLEY & TESTON

**DESIGN ASSUMPTIONS**

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

**BUILDING DATA**

<b>ATTACHMENT:</b>	DETACHED	<b># OF STORIES (+BASEMENT):</b>	3
<b>FRONT FACES:</b>	EAST	<b>ASSUMED (Y/N):</b>	Y
<b>AIR CHANGES PER HOUR:</b>	3.57	<b>ASSUMED (Y/N):</b>	Y
<b>AIR TIGHTNESS CATEGORY:</b>	AVERAGE	<b>ASSUMED (Y/N):</b>	Y
<b>WIND EXPOSURE:</b>	SHELTERED	<b>ASSUMED (Y/N):</b>	Y
<b>HOUSE VOLUME (ft³):</b>	53556.0	<b>ASSUMED (Y/N):</b>	Y
<b>INTERNAL SHADING:</b>	BLINDS/CURTAINS	<b>ASSUMED OCCUPANTS:</b>	6
<b>INTERIOR LIGHTING LOAD (Btu/h/ft²):</b>	1.27	<b>DC BRUSHLESS MOTOR (Y/N):</b>	Y
<b>FOUNDATION CONFIGURATION</b>	BCIN_1	<b>DEPTH BELOW GRADE:</b>	7.0 ft
<b>LENGTH:</b> 62.0 ft <b>WIDTH:</b> 35.0 ft		<b>EXPOSED PERIMETER:</b>	149.0 ft
<b>WOB INSULATION CONFIGURATION</b>	SCB_9	<b>WOB EXPOSED PERIMETER</b>	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	-

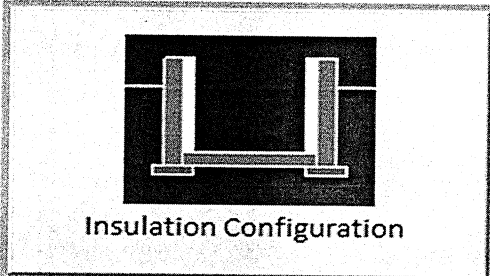
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



## Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

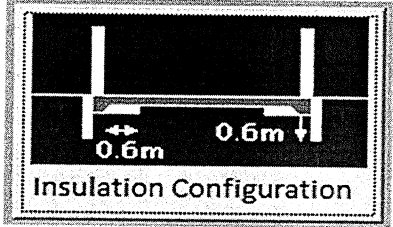
Weather Station Description		
Province:	Ontario	
Region:	Vaughan (Woodbridge)	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	 Insulation Configuration
Floor Width (m):	10.7	
Exposed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

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):		<b>174</b>

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 <sup>3</sup> ):	1516.5			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2021.6 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):	0.137			

TYPE: 4204 THE BROOKVALLEY  
LO# 80236

OPT. 5 BED - 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, BCIN# 19669  
HVAC DESIGNS LTD.

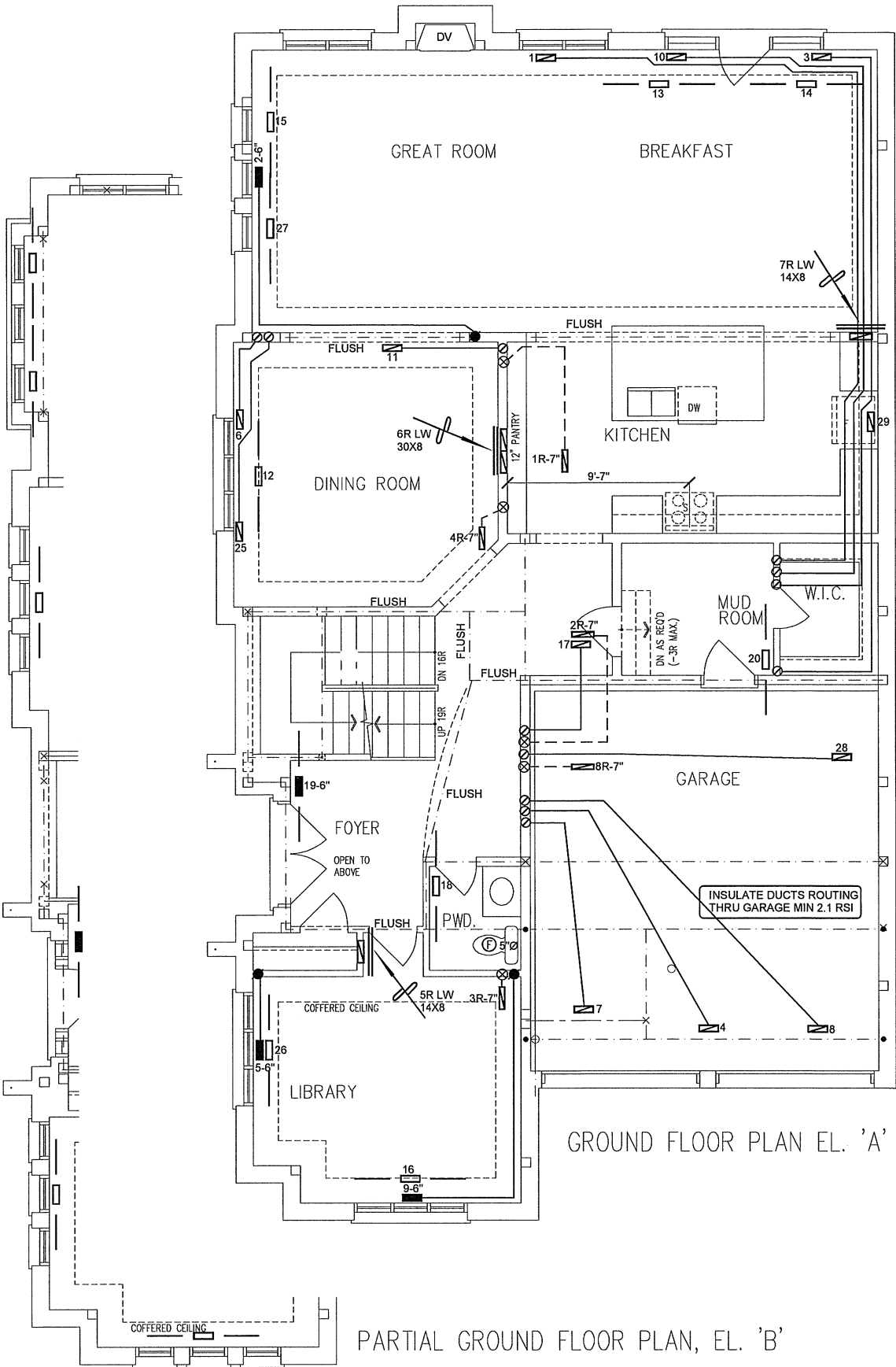


	CSA-F280-12
WOB	PACKAGE A1

HVAC LEGEND					
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE
	RETURN AIR GRILLE		RETURN AIR STACK ABOVE		RETURN AIR STACK 2nd FLOOR
	REDUCER				
REVISIONS			No.	Description	
				Date	

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

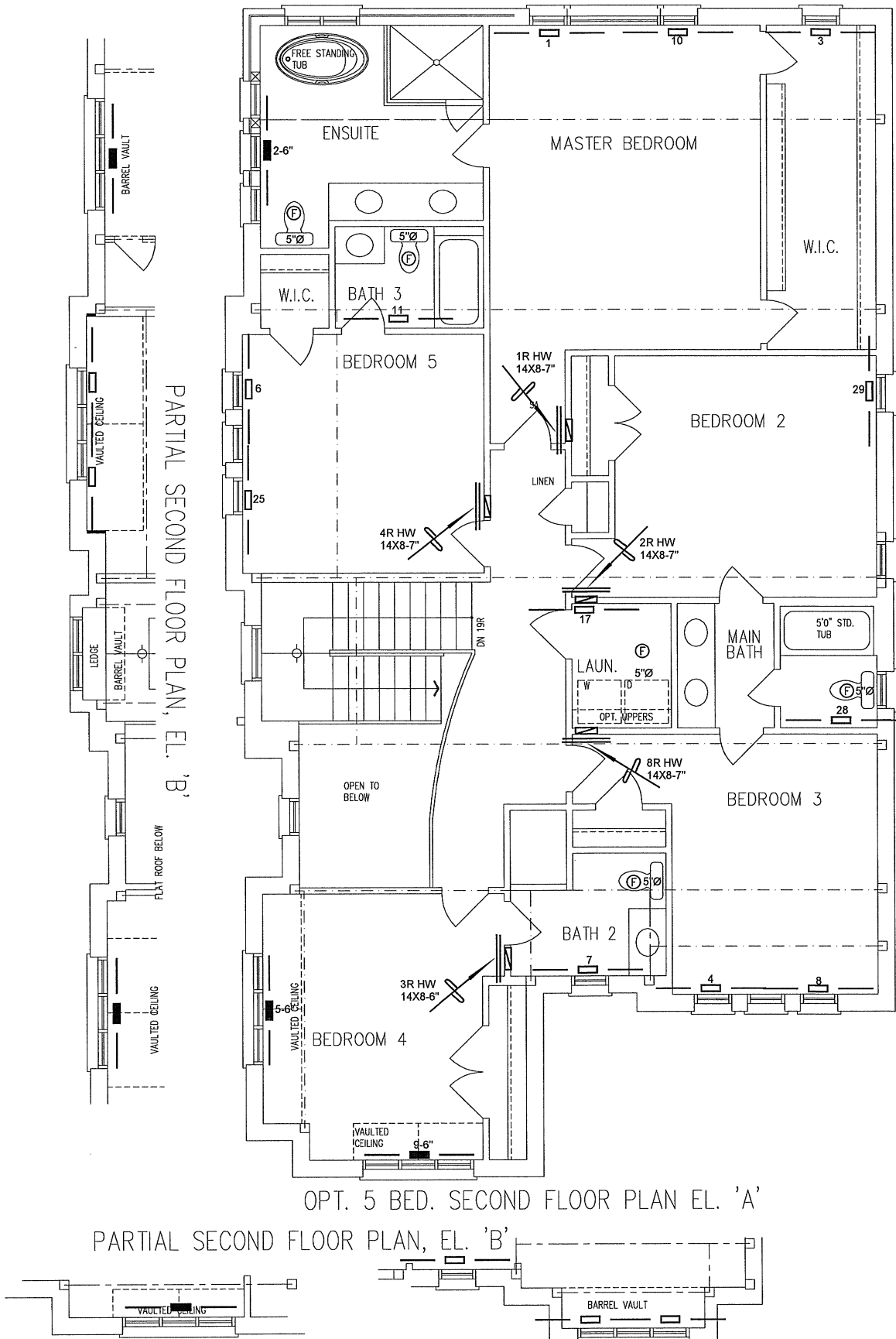
WOB

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> <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	OCT/2018
PINE VALLEY & TESTON VAUGHAN, ONTARIO			Scale	3/16" = 1'-0"
OPT. 5 BED - WOB			BCIN# 19669	
THE BROOKVALLEY		LO#	80236	
4204 CNR				
3646 sqft				

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
	RETURN AIR STACK ABOVE		REDUCER
	RETURN AIR STACK 2nd FLOOR		



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

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

CSA-F280-12

WOB

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**

**HVAC DESIGNS LTD.**  
375 Finley Ave. Suite 202 - Ajax, Ontario  
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375  
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Specializing in Residential Mechanical Design Services

Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

Sheet Title  
**SECOND FLOOR  
HEATING  
LAYOUT**

Date  
**OCT/2018**

Scale  
**3/16" = 1'-0"**

BCIN# 19669

LO# **80236**