


## 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@hvacdsgns.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> 4203- THE FORESTCREST  OPT. 5 BED  <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.				
September 10, 2018				
Date		Signature of Designer		

**NOTE:**

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

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

SITE NAME: PINE VALLEY & TESTON OPT. 5 BED TYPE: 4203 - THE FORESTCREST DATE: Sep-18 WINTER NATURAL AIR CHANGE RATE 0.340 HEAT LOSS AT "F. 76 CSA-F280-12  
BUILDER: GOLD PARK HOMES TYPE: 4203 - THE FORESTCREST LO# 77468 SUMMER NATURAL AIR CHANGE RATE 0.124 HEAT GAIN AT "F. 16 SB-12 PACKAGE A1

ROOM USE EXP. WALL CLG. HT.	MBR	ENS	HIS	BED-2	BED-3	BED-4	ENS-5	BED-5	ENS-3	ENS-4	HERS
GRS.WALL AREA GLAZING	342	333	63	144	297	432	54	108	81	72	54
NORTH	21.3 16.8	0 0 0	0 0 0	18 383 303	0 0 0	0 0 0	0 0 0	0 0 0	8 170 135	0 0 0	0 0 0
EAST	21.3 42.4	0 0 0	0 0 0	0 0 0	61 1298 2686	61 1298 2686	0 0 0	0 0 0	0 0 0	14 238 593	0 0 0
SOUTH	21.3 25.7	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	8 170 206	18 393 453	0 0 0	0 0 0	0 0 0
WEST	21.3 42.4	44 936 1856	21 447 890	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	0 0 0	0 0 0	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 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	4.6 0.9	312 1392 289	63 281 58	126 562 117	236 1063 219	371 1656 344	46 205 43	90 402 83	73 326 68	58 299 54	54 241 50
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	357 458 228	280 369 179	91 117 58	252 323 161	204 262 130	160 244 121	72 92 46	100 128 64	100 128 64	132 169 84
NO ATTIC EXPOSED CLG	2.7 1.4	0 0 0	0 0 0	0 0 0	0 0 0	0 30 82	41 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	204 520 108	0 0 0	0 0 0	0 0 0	50 128 27	100 255 53	0 0 0
BASEMENT/CRAWL HEAT LOSS											
SLAB ON GRADE HEAT LOSS											
SUBTOTAL HT LOSS	2724	2199	1368	1269	3133	3280	468	1000	752	940	410
SUB TOTAL HT GAIN											
LEVEL FACTOR / MUL TIPLIER	0.20 0.30	0.20 0.30	0.20 0.30	0.20 0.30	0.20 0.30	0.20 0.30	0.20 0.30	0.20 0.30	0.20 0.30	0.20 0.30	0.20 0.30
AIR CHANGE HEAT LOSS	823	665	143	383	947	991	141	302	227	284	124
AIR CHANGE HEAT T GAIN											
DUCT LOSS											
DUCT GAIN											
HEAT T GAIN PEOPLE	2	480	0	1	240	1	0	1	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	588	0	0	588	588	4271	609	588	0	0	0
TOTAL HT LOSS BTU/H	3548	2863	518	1652	4488	5594	609	1303	1077	1347	534
TOTAL HT GAIN x 1.3 BTU/H	4793	1952	167	1652	5894	5894	423	2016	462	1208	193

ROOM USE EXP. WALL CLG. HT.	DIN	LIV	KTGT	STUDY	LAUN	PWD	FOY	MUD	LOD	BAS
GRS.WALL AREA GLAZING	132	420	825	110	0	66	561	312	430	1644
NORTH	32 581	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	86 67
EAST	21.3 42.4	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
SOUTH	21.3 25.7	0 0 0	0 0 0	20 426 515	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	86 103
WEST	21.3 42.4	0 0 0	98 2085 4154	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	35 745 1484	0 0 0
SKYL.T.	37.2 103.0	0 0 0	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 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
NET EXPOSED WALL	4.6 0.9	346 1544 321	707 3155 555	90 402 83	0 0 0	66 295 61	509 2272 472	292 1303 271	0 0 0	20 605 105
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
EXPOSED CLG	1.3 0.6	0 0 0	0 0 0	0 0 0	130 167 83	0 0 0	0 0 0	0 0 0	223 802 167	336 1209 251
NO ATTIC EXPOSED CLG	2.7 1.4	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
EXPOSED FLOOR	2.6 0.5	0 0 0	0 0 0	0 0 0	60 163 32	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	1127	3415	5746	327	320	295	3584	1808	1547	8543
SUB TOTAL HT GAIN										
LEVEL FACTOR / MUL TIPLIER	0.30 0.46	0.30 0.46	0.30 0.46	0.30 0.46	0.20 0.30	0.30 0.46	0.30 0.46	0.30 0.46	0.60 1.27	0.60 1.27
AIR CHANGE HEAT LOSS	514	1557	2619	377	97	134	1634	824	12766	12766
AIR CHANGE HEAT T GAIN										
DUCT LOSS										
DUCT GAIN										
HEAT T GAIN PEOPLE	0	0	0	0	42	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	588	588	588	588	588	429	5218	588	0	588
TOTAL HT LOSS BTU/H	1641	4972	8365	1204	458	429	5218	2632	1647	21309
TOTAL HT GAIN x 1.3 BTU/H	1671	4174	7827	1624	1023	5894	1071	1306	2146	1747

TOTAL HEAT GAIN BTU/H: 47977 TONS: 4.00 LOSS DUE TO VENTILATION LOAD BTU/H: 3181 STRUCTURAL HEAT LOSS: 8988 TOTAL COMBINED HEAT LOSS BTU/H: 73188

*Michael O'Rourke*

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

OPT. 5 BED

TYPE: 4203- THE FORESTREST

DATE: Sep-18

GFA: 3688

LO# 77468

HEATING CFM 1525 COOLING CFM 1525  
TOTAL HEAT LOSS 69,988 TOTAL HEAT GAIN 47,315  
AIR FLOW RATE CFM 21.79 AIR FLOW RATE CFM 32.23

EL286UH090XE48C  
FAN SPEED 90

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

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	16	10	5
R/A	0	0	5	4	1

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

All S/A fans 5'X0 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	ENS	BED-2	BED-3	BED-4	HRS	ENS-5	ENS-3	MBR	ENS-4	DIN	LIV	KT/GT	KT/GT	STUDY	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.77	1.43	1.43	1.43	2.24	2.14	0.53	0.61	1.08	1.77	1.35	1.64	2.49	2.79	2.79	1.20	0.46	0.43	5.22	2.63	4.57	4.57	4.57	4.57
CFM PER RUN HEAT	39	31	31	31	36	49	12	13	23	39	29	36	54	61	61	26	10	9	114	57	100	100	100	100
RM GAIN MBH	2.40	0.98	0.98	0.98	1.91	3.00	0.76	0.42	0.46	2.40	1.21	1.67	2.09	2.81	2.61	1.82	1.02	0.09	1.07	1.30	0.78	0.78	0.78	0.78
CFM PER RUN COOLING	77	31	31	31	62	97	89	14	15	77	39	54	67	84	84	52	33	3	35	42	25	25	25	25
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.15	0.17	0.16	0.16	0.16	0.16
EQUIVALENT LENGTH	130	160	140	160	150	170	140	180	190	130	120	90	150	130	120	140	110	140	120	130	130	90	150	110
TOTAL EFFECTIVE LENGTH	176	222	212	189	197	234	175	233	232	171	162	98	178	187	169	175	142	183	175	138	178	123	174	156
ADJUSTED PRESSURE	0.1	0.08	0.08	0.09	0.08	0.07	0.1	0.07	0.07	0.1	0.11	0.18	0.1	0.09	0.1	0.1	0.12	0.09	0.09	0.12	0.09	0.13	0.09	0.1
ROUND DUCT SIZE	5	4	4	5	6	6	4	4	4	5	4	4	5	5	5	4	4	4	6	4	6	6	6	6
HEATING VELOCITY (ft/min)	286	356	356	264	250	240	138	149	264	286	333	413	396	448	448	298	115	103	581	654	510	510	510	510
COOLING VELOCITY (ft/min)	565	356	356	455	495	454	69	161	172	565	447	620	492	617	617	597	379	34	178	482	127	127	127	127
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	4X10	4X10	4X10	4X10
TRUNK	C	A	A	D	C	B	E	A	C	E	C	D	B	A	A	A	C	B	B	E	A	E	B	B

RUN #	25	26	27	28	29	30	31
ROOM NAME	BED-3	BED-4	KT/GT	LIV	HIS	BAS	BED-5
RM LOSS MBH	2.24	2.14	2.79	2.49	0.52	4.57	1.30
CFM PER RUN HEAT	49	47	61	54	11	100	28
CFM PER RUN COOLING	97	89	261	209	5	25	65
ADJUSTED PRESSURE	0.16	0.16	0.16	0.17	0.17	0.16	0.17
EQUIVALENT LENGTH	170	130	90	130	180	120	180
TOTAL EFFECTIVE LENGTH	219	196	131	161	253	132	240
ADJUSTED PRESSURE	0.07	0.08	0.12	0.11	0.07	0.12	0.07
ROUND DUCT SIZE	6	5	5	5	4	5	5
HEATING VELOCITY (ft/min)	250	240	448	396	126	734	206
COOLING VELOCITY (ft/min)	495	454	617	492	57	184	477
OUTLET GRILL SIZE	4X10	4X10	3X10	3X10	3X10	3X10	3X10
TRUNK	C	B	C	B	A	D	A

TRUNK	CFM	STATIC PRESS	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	362	0.07	9.9	12	8
TRUNK B	525	0.07	11.4	16	8
TRUNK C	1147	0.07	15	26	8
TRUNK D	172	0.09	7	8	8
TRUNK E	1355	0.07	16.2	30	8
TRUNK F	0	0.00	0	0	0

TRUNK	CFM	STATIC PRESS	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK G	0	0.00	0	0	0
TRUNK H	0	0.00	0	0	0
TRUNK I	0	0.00	0	0	0
TRUNK J	0	0.00	0	0	0
TRUNK K	0	0.00	0	0	0
TRUNK L	0	0.00	0	0	0
TRUNK M	0	0.00	0	0	0
TRUNK N	0	0.00	0	0	0
TRUNK O	0	0.06	0	0	0
TRUNK P	0	0.06	0	0	0
TRUNK Q	0	0.06	0	0	0
TRUNK R	0	0.06	0	0	0
TRUNK S	0	0.06	0	0	0
TRUNK T	0	0.06	0	0	0
TRUNK U	0	0.06	0	0	0
TRUNK V	0	0.06	0	0	0
TRUNK W	0	0.06	0	0	0
TRUNK X	1525	0.06	17.7	32	8
TRUNK Y	485	0.06	11.5	16	8
TRUNK Z	915	0.06	14.6	24	8
DROP	1525	0.06	17.7	24	14

TYPE: 4203- THE FORESTCREST  
SITE NAME: PINE VALLEY & TESTON

LO # 77468  
OPT. 5 BED

**RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY**

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

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

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

SYSTEM DESIGN OPTIONS		O.N.H.W.P.
<input type="checkbox"/>	1 Exhaust only/Forced Air System	
<input type="checkbox"/>	2 HRV with Ducting/Forced Air System	
<input checked="" type="checkbox"/>	3 HRV Simplified/connected to forced air system	
<input type="checkbox"/>	4 HRV with Ducting/non forced air system	
<input type="checkbox"/>	Part 6 Design	

TOTAL VENTILATION CAPACITY		9.32.3.3(1)
Basement + Master Bedroom	2 @ 21.2 cfm	42.4 cfm
Other Bedrooms	4 @ 10.6 cfm	42.4 cfm
Kitchen & Bathrooms	7 @ 10.6 cfm	74.2 cfm
Other Rooms	7 @ 10.6 cfm	74.2 cfm
Table 9.32.3.A.	TOTAL	233.2 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	233.2	cfm
Less Principal Ventil. Capacity	155	cfm
Required Supplemental Capacity	78.2	cfm

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

PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
155.0 CFM	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-5	QTXEN050C	50	<input checked="" type="checkbox"/>	0.3
ENS-4	QTXEN050C	50	<input checked="" type="checkbox"/>	0.3
PWD	QTXEN050C	50	<input checked="" type="checkbox"/>	0.3

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANE 65H		
155 cfm high	64 cfm low	
75 % Sensible Efficiency	<input checked="" type="checkbox"/>	HVI Approved
@ 32 deg F ( 0 deg C)		

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

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

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

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

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																					
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																																					
LO#: 77468		Model: 4203- THE FORESTCREST		Builder: GOLD PARK HOMES		Date: 9/10/2018																																																															
Volume Calculation				Air Change & Delta T Data																																																																	
<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>1728</td> <td>10</td> <td>17280</td> </tr> <tr> <td>First</td> <td>1728</td> <td>11</td> <td>19008</td> </tr> <tr> <td>Second</td> <td>2103</td> <td>9</td> <td>18927</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="2" style="text-align: right;">Total:</td> <td></td> <td>55,215.0 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>1563.5 m³</td> </tr> </tbody> </table>				Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1728	10	17280	First	1728	11	19008	Second	2103	9	18927	Third	0	9	0	Fourth	0	9	0	Total:			55,215.0 ft³	Total:			1563.5 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> </tr> </thead> <tbody> <tr> <td>Winter DTDh</td> <td>22</td> <td>-20</td> <td>42</td> </tr> <tr> <td>Summer DTDc</td> <td>22</td> <td>31</td> <td>9</td> </tr> <tr> <td></td> <td></td> <td></td> <td>ΔT °F</td> </tr> <tr> <td></td> <td></td> <td></td> <td>76</td> </tr> <tr> <td></td> <td></td> <td></td> <td>16</td> </tr> </tbody> </table>						Design Temperature Difference					Tin °C	Tout °C	ΔT °C	Winter DTDh	22	-20	42	Summer DTDc	22	31	9				ΔT °F				76				16
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																																		
Bsmt	1728	10	17280																																																																		
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6.2.6 Sensible Gain due to Air Leakage																																																																					
$HG_{satb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$																																																																					
$= 0.124 \times 434.31 \times 9^\circ\text{C} \times 1.2 = 567 \text{ W}$																																																																					
$= 25532 \text{ Btu/h}$																																																																					
6.2.7 Sensible heat Gain due to Ventilation																																																																					
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																																																					
$155 \text{ CFM} \times 76^\circ\text{F} \times 1.08 \times 0.25 = 3181 \text{ Btu/h}$																																																																					
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																																					
$HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{qgr} + HL_{pgr}) \div (HL_{aqlevel} + HL_{bqlevel})\}$																																																																					
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLaivr Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL<sub>clevel</sub>)</th> <th>Air Leakage Heat Loss Multiplier (LF x HLaivr / HL<sub>clevel</sub>)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="4" style="text-align: center;">25,532</td> <td>10,090</td> <td>1.265</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>16,802</td> <td>0.456</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>16,893</td> <td>0.302</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></td> <td>0</td> <td>0.000</td> </tr> </tbody> </table>										Level	Level Factor (LF)	HLaivr Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL <sub>clevel</sub> )	Air Leakage Heat Loss Multiplier (LF x HLaivr / HL <sub>clevel</sub> )	1	0.5	25,532	10,090	1.265	2	0.3	16,802	0.456	3	0.2	16,893	0.302	4	0	0	0.000	5	0		0	0.000																																	
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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> 4203- THE FORESTCREST	<b>OPT.</b> 5 BED	<b>BUILDER:</b> GOLD PARK HOMES
<b>SFQT:</b> 3688	<b>LO#</b> 77468	<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 (ft³):	55215.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 66.0 ft	WIDTH: 33.0 ft	EXPOSED PERIMETER:	198.0 ft

2012 OBC - COMPLIANCE PACKAGE		Compliance Package A1	
Component		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	-

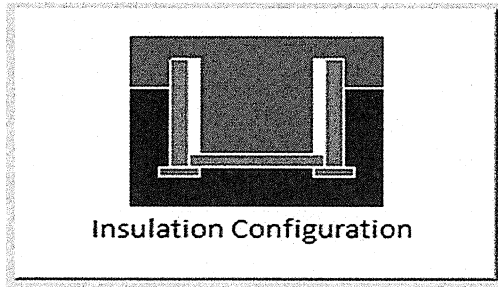
INDIVIDUAL BCIN: 19669

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):	20.1	 Insulation Configuration
Floor Width (m):	10.1	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m <sup>2</sup> ):	4.0	
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):		1951

TYPE: 4203- THE FORESTCREST  
LO# 77468

OPT. 5 BED

## 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> ):	1563.5			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2084.2 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: 4203- THE FORESTCREST  
LO# 77468

OPT. 5 BED





CSA-F280-12  
PACKAGE A1

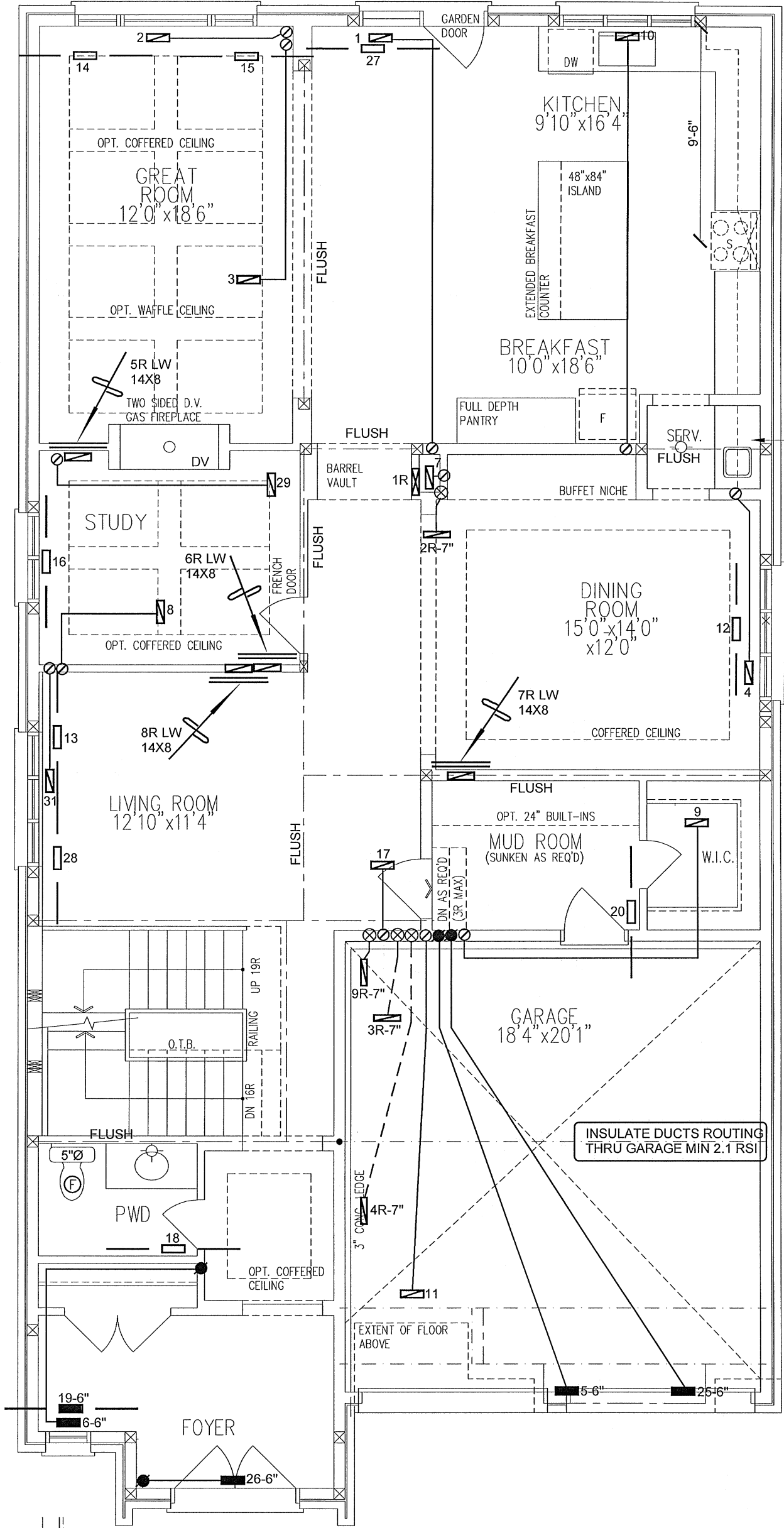
I MICHAEL O'ROURKE HAVE REVIEW  
AND TAKE RESPONSIBILITY FOR THE  
DESIGN WORK AND AM QUALIFIED  
UNDER DIVISION C, 3.2.5 OF THE  
BUILDING CODE.

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

HVAC LEGEND		
SYMBOL	DESCRIPTION	SYMBOL
	SUPPLY AIR GRILLE	
	SUPPLY AIR GRILLE 6" BOOT	
	SUPPLY AIR BOOT ABOVE	
	6" SUPPLY AIR STACK FROM 2nd FLOOR	
	6" SUPPLY AIR STACK 2nd FLOOR	
	FRA- FLOOR RETURN AIR GRILLE	
	30"x6" RETURN AIR GRILLE	
	RETURN AIR STACK ABOVE	
	RETURN AIR STACK 2nd FLOOR	
	REDUCER	
REVISIONS		
No.	Description	Date
1.	DECK CONDITIONS ADDED	SEPT/2018
2.	REVISED AS PER CAD	JULY/2018

PART. GROUND FLOOR PLAN ELEV. 'A', 'B' & 'C' - W.O.D. COND.

PART. GROUND FLOOR PLAN ELEV. 'A', 'B' & 'C' - L.O.D. COND.



PART. GROUND FLOOR PLAN ELEV. 'A' - OPT. 5 BEDROOM PLAN  
(ELEV. 'B' & 'C' SIMILAR)

GROUND FLOOR PLAN EL. 'B' & 'C'

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Client  
**GOLD PARK HOMES**

Project Name  
**PINE VALLEY & TESTON  
VAUGHAN, ONTARIO  
OPT. 5 BED  
THE FORESTCREST  
4203**

3688 sqft

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  
**FIRST FLOOR  
HEATING  
LAYOUT**

Date  
**JAN/2018**

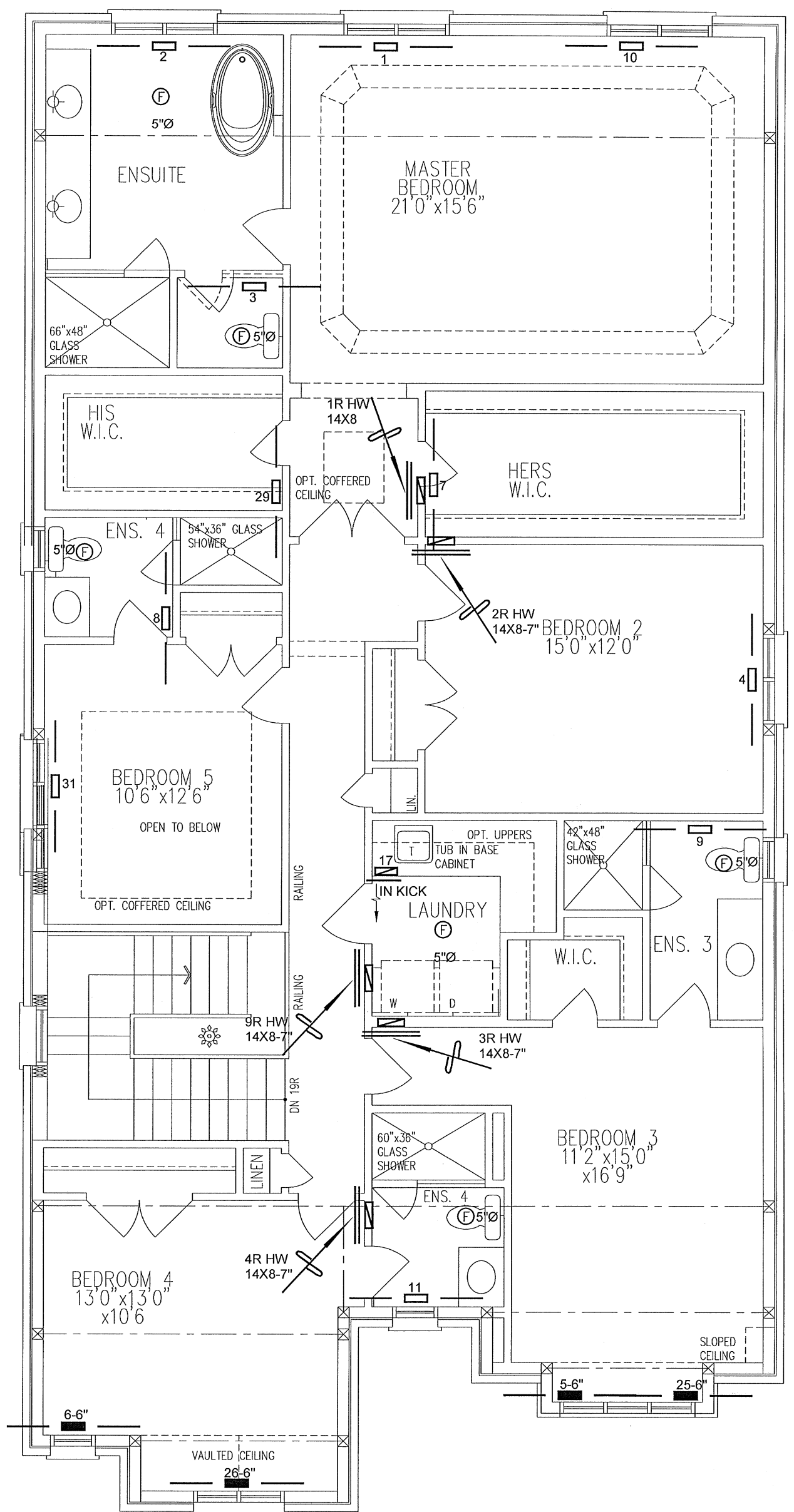
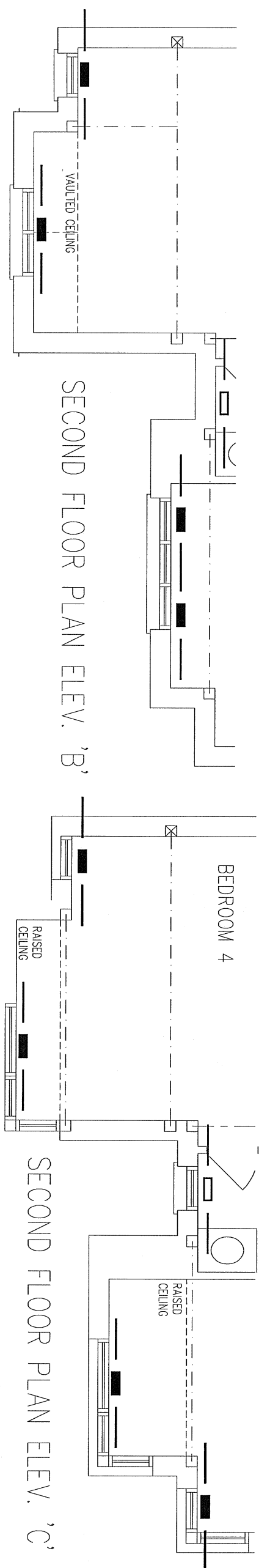
Scale  
**3/16" = 1'-0"**

BCIN# 19669











LO# **77468**

# PACKAGE A1

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



PART. SECOND FLOOR PLAN ELEV. 'A' – OPT. 5 BEDROOM PLAN  
(ELEV. 'B' & 'C' SIMILAR)

HVAC LEGEND									
								3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION			2.	DECK CONDITIONS ADDED
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		RETURN AIR STACK ABOVE			1.	REVISED AS PER CAD
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		RETURN AIR STACK 2nd FLOOR				
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER		
									REVISIONS
								Description	Date

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Client	 <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>	Sheet Title	SECOND FLOOR HEATING LAYOUT	
GOLD PARK HOMES		Date	JAN/2018	
Project Name		Scale	3/16" = 1'-0"	
PINE VALLEY & TESTON VAUGHAN, ONTARIO OPT. 5 BED THE FORESTCREST 4203		BCIN# 19669 LO# 77468		
3688 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.		