


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@hvacdsgns.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]				
<input type="checkbox"/> House <input type="checkbox"/> Small Buildings <input type="checkbox"/> Large Buildings <input type="checkbox"/> Complex Buildings <input checked="" type="checkbox"/> HVAC – House <input type="checkbox"/> Building Services <input type="checkbox"/> Detection, Lighting and Power <input type="checkbox"/> Fire Protection <input type="checkbox"/> Building Structural <input type="checkbox"/> Plumbing – House <input type="checkbox"/> Plumbing – All Buildings <input type="checkbox"/> On-site Sewage Systems				
Description of designer's work HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12		Model: 4203- THE FORESTCREST WOB Project: PINE VALLEY & TESTON		
D. Declaration of Designer				
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.				
September 11, 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 WOB DATE: Sep-18 WINTER NATURAL AIR CHANGE RATE 0.407 HEAT LOSS AT °F. 76 CSA-F280-12
BUILDER: GOLD PARK HOMES TYPE: 4203- THE FORESTOREST LO# 78976 SUMMER NATURAL AIR CHANGE RATE 0.137 HEAT GAIN AT °F. 13 SB-12 PACKAGE A1

ROOM USE	EXP. WALL	CLG. HT.	MR	ENS	HERS	BED-2	BED-3	BED-4	ENS-2	LOFT	ENS-3	ENS-4	
GRS.WALL AREA	342		333	333	63	144	297	432	54	63	81	72	
GLAZING	0	0	0	0	0	18	383	288	8	170	128	0	0
NORTH	21.3	16.0	0	0	0	0	0	0	0	0	0	0	0
EAST	21.3	41.6	0	0	0	0	61	1298	2635	0	0	14	288
SOUTH	21.3	24.9	0	0	0	0	0	0	0	16	383	448	0
WEST	21.3	41.6	44	936	1828	21	447	873	0	0	0	0	0
SKYL.T.	37.2	101.5	0	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	0
NET EXPOSED WALL	4.6	0.8	298	1330	224	312	1392	235	63	281	47	126	862
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.6	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	367	458	210	280	369	165	91	117	63	262	323
NO ATTIC EXPOSED CLG	2.7	1.3	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
BASEMENT/CRAWL HEAT LOSS	0	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	0
SUBTOTAL HT LOSS	2724		2199	1272	388	1269	3133	3306	530	712	762	840	727
SUB TOTAL HT GAIN	2262		0.20	0.38	101	0.20	0.38	0.20	0.38	0.20	0.38	0.20	0.38
LEVEL FACTOR / MUL TIPLIER	1022		826	111	149	476	1176	1240	199	267	282	363	63
AIR CHANGE HEAT LOSS	0	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	0
DUCT LOSS	0	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	0
HEAT GAIN PEOPLE	240		480	0	0	1	240	1	240	0	0	0	0
HEAT GAIN APPLANCES/LIGHTS	688		0	0	0	0	688	0	688	0	0	0	0
TOTAL HT LOSS BTU/H	3747		3024	1797	547	1745	4740	4546	728	979	1137	1422	1130
TOTAL HT GAIN x 1.3 BTU/H	4586												

ROOM USE	EXP. WALL	CLG. HT.	DIN	LIV	KT/IGT	STUDY	LAUN	PWD	FOY	MUD	WOB	BAS	
GRS.WALL AREA	132		681	420	825	110	0	66	661	312	430	1085	
GLAZING	32	511	0	0	0	0	0	0	0	0	0	0	0
NORTH	21.3	16.0	0	0	0	0	0	0	0	0	0	0	0
EAST	21.3	41.6	0	0	0	0	0	0	0	0	0	0	0
SOUTH	21.3	24.9	0	74	1675	1843	0	0	0	0	0	0	0
WEST	21.3	41.6	0	0	0	0	0	0	0	0	0	0	0
SKYL.T.	37.2	101.5	0	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	0
NET EXPOSED WALL	4.6	0.8	100	346	1644	260	707	3165	531	90	402	88	0
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.6	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	0	0
NO ATTIC EXPOSED CLG	2.7	1.3	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
BASEMENT/CRAWL HEAT LOSS	0	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	0
SUBTOTAL HT LOSS	1127		586	3415	5746	827	320	295	3584	1808	552	4858	530
SUB TOTAL HT GAIN	0.30	0.55	0.30	0.55	0.30	0.55	0.20	0.30	0.55	0.30	0.55	0.50	1.65
LEVEL FACTOR / MUL TIPLIER	615		1863	195	3134	451	120	161	1955	986	4477	16274	438
AIR CHANGE HEAT LOSS	0	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	0
DUCT LOSS	0	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	0
HEAT GAIN PEOPLE	240		480	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLANCES/LIGHTS	688		0	0	0	0	0	0	0	0	0	0	0
TOTAL HT LOSS BTU/H	1742		5278	3528	8879	1278	484	455	5540	2794	4829	20132	588
TOTAL HT GAIN x 1.3 BTU/H	1593												

TOTAL HEAT GAIN BTU/H: 48727 TONS: 4.06 LOSS DUE TO VENTILATION LOAD BTU/H: 3181 STRUCTURAL HEAT LOSS: 74127 TOTAL COMBINED HEAT LOSS BTU/H: 77308

Michael O'Rourke

SITE NAME: PINE VALLEY & TESTON
BUILDER: GOLD PARK HOMESWOB
TYPE: 4203- THE FORESTCREST DATE: Sep-18

GFA: 3688 LO# 79978

HEATING CFM 1525 COOLING CFM 1525
TOTAL HEAT LOSS 74,127 TOTAL HEAT GAIN 48,192
AIR FLOW/RATE CFM 20.57 AIR FLOW/RATE CFM 31.84furnace pressure 0.6
furnace filler 0.05
a/c coil pressure 0.2
available pressure for s/a & r/a 0.35AFUE = 96 %
INPUT (BTU/H) = 88,000
OUTPUT (BTU/H) = 85,000
DESIGN CFM = 1525
CFM @ 8" E.S.P.

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	15	10	5
R/A	0	0	5	4	1

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

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

RUN #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	ENS	BED-2	BED-3	BED-4	ENS-2	LOFT	ENS-3	MBR	ENS-4	DIN	LIV	KT/GT	KT/GT	STUDY	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.87	1.51	1.51	1.74	2.37	2.27	0.73	0.98	1.14	1.87	1.42	1.74	2.64	2.96	2.96	1.28	0.48	0.46	5.54	2.79	5.01	5.01	5.01	5.01
CFM PER RUN HEAT	39	31	31	36	49	47	15	20	23	39	29	36	54	61	61	26	10	9	114	57	103	103	103	103
RM GAIN MBH	2.29	0.90	0.90	1.83	2.86	2.64	0.33	1.53	0.41	2.29	1.13	1.59	1.96	2.46	2.46	1.56	1.00	0.07	0.85	1.20	1.57	1.57	1.57	1.57
CFM PER RUN COOLING	73	28	28	58	91	84	10	48	13	73	36	50	62	78	78	49	32	2	27	38	50	50	50	50
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	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	46	62	72	29	47	64	21	53	42	41	42	8	28	57	49	35	32	43	55	8	63	43	24	46
EQUIVALENT LENGTH	130	160	140	160	150	170	140	180	190	130	120	90	150	130	120	140	110	140	120	130	180	150	150	110
TOTAL EFFECTIVE LENGTH	176	222	212	189	197	234	161	233	232	171	182	98	178	187	169	175	142	183	175	138	243	193	174	166
ADJUSTED PRESSURE	0.1	0.08	0.08	0.09	0.08	0.07	0.11	0.07	0.07	0.1	0.11	0.18	0.17	0.1	0.1	0.1	0.12	0.09	0.09	0.12	0.07	0.08	0.09	0.1
ROUND DUCT SIZE	5	4	4	5	6	6	4	5	4	5	4	4	5	5	5	4	4	4	6	4	6	6	6	6
HEATING VELOCITY (ft/min)	286	356	356	356	250	240	172	147	264	286	333	413	396	448	448	298	115	103	581	654	525	525	525	525
COOLING VELOCITY (ft/min)	536	321	321	321	426	428	115	352	149	536	413	574	455	573	573	562	367	23	138	436	255	255	255	255
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	4X10
TRUNK	C	A	A	D	C	B	D	A	E	E	C	D	B	A	A	A	C	B	B	E	A	D	B	B

RUN #	25	26	27	28	29	30
ROOM NAME	BED-3	BED-4	KT/GT	LIV	HERS	BAS
RM LOSS MBH	2.37	2.27	2.96	2.84	0.55	5.01
CFM PER RUN HEAT	49	47	61	54	11	103
RM GAIN MBH	2.86	2.64	2.46	1.96	0.14	1.57
CFM PER RUN COOLING	91	84	78	62	5	50
ADJUSTED PRESSURE	0.16	0.16	0.17	0.17	0.17	0.16
ACTUAL DUCT LGH	49	66	41	31	73	12
EQUIVALENT LENGTH	170	130	90	130	180	120
TOTAL EFFECTIVE LENGTH	219	196	131	161	253	132
ADJUSTED PRESSURE	0.07	0.08	0.13	0.11	0.07	0.12
ROUND DUCT SIZE	6	6	5	5	4	5
HEATING VELOCITY (ft/min)	250	240	448	396	126	756
COOLING VELOCITY (ft/min)	464	428	573	455	57	367
OUTLET GRILL SIZE	4X10	4X10	3X10	3X10	3X10	3X10
TRUNK	C	B	C	B	A	D

SUPPLY AIR TRUNK SIZE												RETURN AIR TRUNK SIZE											
TRUNK	STATIC	ROUND	RECT	VELOCITY	TRUNK	STATIC	ROUND	RECT	VELOCITY	TRUNK	STATIC	ROUND	RECT	VELOCITY	TRUNK	STATIC	ROUND	RECT	VELOCITY				
CFM	PRESS.	DUCT	DUCT	(ft/min)	CFM	PRESS.	DUCT	DUCT	(ft/min)	CFM	PRESS.	DUCT	DUCT	(ft/min)	CFM	PRESS.	DUCT	DUCT	(ft/min)				
TRUNK A	344	0.07	9.7	12	8	516	0	0	0	8	0.06	0	0	8	TRUNK O	0.06	0	0	8				
TRUNK B	531	0.07	11.4	16	8	597	0	0	0	8	0.00	0	0	8	TRUNK P	0.06	0	0	8				
TRUNK C	1112	0.07	15.1	26	8	770	0	0	0	8	0.00	0	0	8	TRUNK Q	0.06	0	0	8				
TRUNK D	293	0.08	8.9	10	8	527	0	0	0	8	0.00	0	0	8	TRUNK R	0.06	0	0	8				
TRUNK E	1231	0.07	15.7	28	8	791	0	0	0	8	0.00	0	0	8	TRUNK S	0.06	0	0	8				
TRUNK F	0	0.00	0	0	0	0	0	0	0	8	0.00	0	0	8	TRUNK T	0.06	0	0	8				
															TRUNK U	0.06	0	0	8				
															TRUNK V	0.06	0	0	8				
															TRUNK W	0.06	0	0	8				
															TRUNK X	1525	17.7	32	10				
															TRUNK Y	485	11.5	16	8				
															TRUNK Z	915	14.6	24	8				
															DROP	1525	17.7	24	14				
RETURN AIR #	1	2	3	4	5	6	7	8	9	BR													
AIR VOLUME	175	125	125	130	155	175	155	155	125	0	0	0	0	0	0	0	0	0	0				
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15				
ACTUAL DUCT LGH.	48	46	47	56	47	32	23	33	48	1	1	1	1	1	1	1	1	1	1				
EQUIVALENT LENGTH	165	185	205	145	200	195	205	195	190	0	0	0	0	0	0	0	0	0	0				
TOTAL EFFECTIVE LH	213	231	252	201	247	227	228	228	238	1	1	1	1	1	1	1	1	1	1				
ADJUSTED PRESSURE	0.07	0.06	0.06	0.07	0.06	0.07	0.06	0.06	0.06	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.09				
ROUND DUCT SIZE	7.5	6.9	6.9	6.8	7.5	7.5	7.5	7.5	6.9	0	0	0	0	0	0	0	0	0	7.5				
INLET GRILL SIZE	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8				
INLET GRILL SIZE	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14				

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

LO # 79976
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	2 @ 21.2 cfm	42.4 cfm
Other Bedrooms	3 @ 10.6 cfm	31.8 cfm
Kitchen & Bathrooms	6 @ 10.6 cfm	63.6 cfm
Other Rooms	8 @ 10.6 cfm	84.8 cfm
Table 9.32.3.A.	TOTAL	222.6 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		79.5 cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	222.6	cfm
Less Principal Ventil. Capacity	155	cfm
Required Supplemental Capacity	67.6	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model:	VANEE 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
ENS	QTXEN050C	50	✓
ENS-2	QTXEN050C	50	✓
ENS-4	QTXEN050C	50	✓
PWD	QTXEN050C	50	✓

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model:	VANEE 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

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C.3.2.5 OF THE BUILDING CODE.
INDIVIDUAL BCIN: 19669 *Michael O'Rourke* MICHAEL O'ROURKE

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																									
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																									
LO#: 79976		Model: 4203- THE FORESTCREST		Builder: GOLD PARK HOMES		Date: 9/11/2018																																																			
Air Change & Delta T Data																																																									
House Volume		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> <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">Total:</td> <td colspan="2">55,215.0 ft³</td> </tr> <tr> <td colspan="2">Total:</td> <td colspan="2">1563.5 m³</td> </tr> </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;"> <tr> <th colspan="4">WINTER NATURAL AIR CHANGE RATE</th> </tr> <tr> <td colspan="2"></td> <td colspan="2">0.407</td> </tr> <tr> <th colspan="4">SUMMER NATURAL AIR CHANGE RATE</th> </tr> <tr> <td colspan="2"></td> <td colspan="2">0.137</td> </tr> </table>				WINTER NATURAL AIR CHANGE RATE						0.407		SUMMER NATURAL AIR CHANGE RATE						0.137	
						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																																																							
WINTER NATURAL AIR CHANGE RATE																																																									
		0.407																																																							
SUMMER NATURAL AIR CHANGE RATE																																																									
		0.137																																																							
Design Temperature Difference		<table border="1" style="width:100%; border-collapse: collapse;"> <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>22</td> <td>-20</td> <td>42</td> <td>76</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>31</td> <td>7</td> <td>13</td> </tr> </table>					Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-20	42	76	Summer DTDc	24	31	7	13																																					
			Tin °C	Tout °C	ΔT °C	ΔT °F																																																			
Winter DTDh	22	-20	42	76																																																					
Summer DTDc	24	31	7	13																																																					
6.2.6 Sensible Gain due to Air Leakage																																																									
$HG_{sdlb} = LR_{atrc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$																																																									
0.407		x		434.31		x		1.2		=		506 W																																													
										=		1726 Btu/h																																													
6.2.7 Sensible heat Gain due to Ventilation																																																									
$HL_{natrb} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																																									
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)																																																									
$HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{qgr} + HL_{bgcr}) \div (HL_{qglevel} + HL_{bglevel})\}$																																																									
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		30,549		9,234		1.654																																																	
2		0.3				16,802		0.545																																																	
3		0.2				16,282		0.375																																																	
4		0				0		0.000																																																	
5		0				0		0.000																																																	
<p>*HLairbv = Air leakage heat loss + ventilation heat loss</p> <p>*For a balanced or supply only ventilation system HLairve = 0</p>																																																									

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 4203- THE FORESTCREST	WOB	BUILDER: GOLD PARK HOMES
SFQT: 3688	LO# 79976	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):	55215.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
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: 66.0 ft	WIDTH: 33.0 ft	EXPOSED PERIMETER:	155.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	43.0 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	-

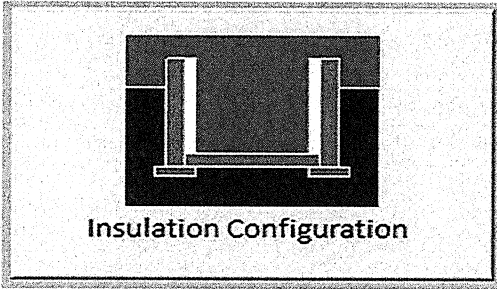
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

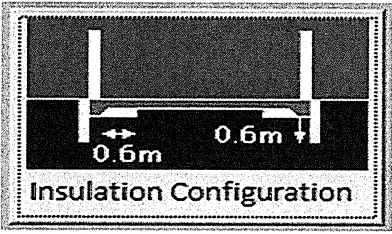
Weather Station Description		
Province:	Ontario	
Region:	Vaughan (Woodbridge)	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	4.6	 Insulation Configuration
Floor Width (m):	10.1	
Exposed Perimeter (m):	47.2	
Wall Height (m):	3.0	
Depth Below Grade (m):	1.79	
Window Area (m ²):	0.7	
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):		735

TYPE: 4203- THE FORESTCREST
LO# 79976

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	 Insulation Configuration
Width (m):	10.1	
Exposed Perimeter (m):	13.1	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		162

TYPE: 4203- THE FORESTCREST
LO# 79976

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):	1563.5			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	2084.2 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: 4203- THE FORESTCREST
LO# 79976

WOB

























CSA-F280-12

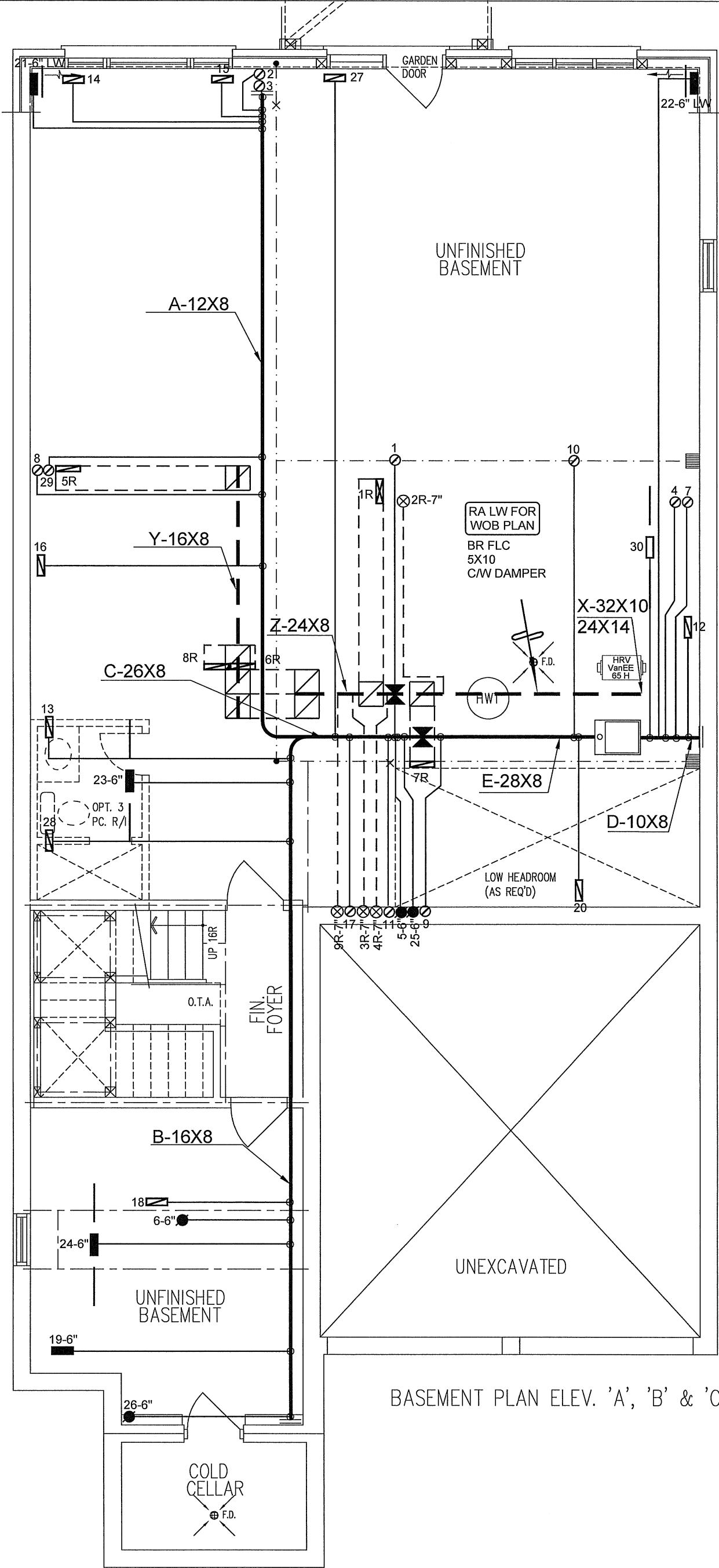
PACKAGE A1

WOB

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

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

HVAC LEGEND			REVISIONS	
SYMBOL	DESCRIPTION	SYMBOL	No.	Date
	SUPPLY AIR GRILLE		1.	
	SUPPLY AIR GRILLE 6" BOOT			
	SUPPLY AIR BOOT ABOVE			
	6" SUPPLY AIR STACK ABOVE			
	SUPPLY AIR STACK FROM 2nd FLOOR			
	6" SUPPLY AIR STACK 2nd FLOOR			
	14"x8" RETURN AIR GRILLE			
	30"x8" RETURN AIR GRILLE			
	FRA- FLOOR RETURN AIR GRILLE			
	REDUCER			
	RETURN AIR STACK ABOVE			
	RETURN AIR STACK 2nd FLOOR			



BASEMENT PLAN ELEV. 'A', 'B' & 'C'

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Client
GOLD PARK HOMES

Project Name
**PINE VALLEY & TESTON
VAUGHAN, ONTARIO**

**THE FORESTCREST - WOB
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.

HEAT LOSS 77308 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS		
MAKE	LENNOX	3RD FLOOR		
MODEL	EL296UH090XE48C	2ND FLOOR	15	5 6
INPUT	88 MBTU/H	1ST FLOOR	10	4 2
OUTPUT	85 MBTU/H	BASEMENT	5	1 0
COOLING	4.0 TONS	ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A		
FAN SPEED	1525 cfm @ 0.6" w.c.			

Sheet Title	
BASEMENT HEATING LAYOUT	
Date	SEPT/2018
Scale	3/16" = 1'-0"
BCIN# 19669	
LO#	79976

Michael O'Rourke, BCIN# 19669
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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	SEPT/2018
Scale	3/16" = 1'-0"
BCIN# 19669	
LO#	79976

