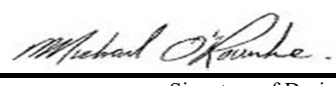


Schedule 1: Designer Information

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: 4203- THE FORESTCREST OPT. 5 BED 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.			
February 24, 2020		 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										OPT. 5 BED										DATE: Feb-20										WINTER NATURAL AIR CHANGE RATE 0.340										HEAT LOSS ΔT °F. 76										CSA-F280-12																			
BUILDER: GOLD PARK HOMES										TYPE: 4203- THE FORESTCREST										GFA: 3688										LO# 77468										SUMMER NATURAL AIR CHANGE RATE 0.124										HEAT GAIN ΔT °F. 16										SB-12 PACKAGE A1									
ROOM USE				MBR				ENS				HIS				BED-2				BED-3				BED-4				ENS-5				BED-5				ENS-3				ENS-4				HERS																									
EXP. WALL				38				37				7				12				33				48				6				12				9				8				6																									
CLG. HT.				9				9				9				12				9				9				9				9				9				9				9																									
FACTORS																																																																					
GRS.WALL AREA				342				333				63				144				297				432				54				108				81				72				54																									
GLAZING				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN																									
NORTH				21.3	16.8	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	0	0																															
EAST				21.3	42.4	0	0	0	0	0	0	0	0	0	0	0	0	61	1298	2586	61	1298	2586	0	0	0	0	0	0	0	0	0	0	0	0	14	298	593	0	0	0																												
SOUTH				21.3	25.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	170	206	18	383	463	0	0	0	0	0	0	0	0	0	0	0	0																												
WEST				21.3	42.4	44	936	1865	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	0	0	0	0	0	0	0																											
SKYLT.				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	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	0	0	0	0	0	0	0																											
NET EXPOSED WALL				4.5	0.9	298	1330	276	312	1392	289	63	281	58	126	562	117	236	1053	219	371	1656	344	46	205	43	90	402	83	73	326	68	58	259	54	54	241	50	0	0	0																												
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	0	0	0	0	0	0	0	0																										
EXPOSED CLG				1.3	0.6	357	458	228	280	359	179	91	117	58	252	323	161	204	262	130	190	244	121	72	92	46	168	216	107	100	128	64	100	128	64	132	169	84	0	0	0																												
NO ATTIC EXPOSED CLG				2.7	1.4	0	0	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	0	0	0	0	0																											
EXPOSED FLOOR				2.6	0.5	0	0	0	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	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				0																	
SUBTOTAL HT LOSS				2724				2199				398				1269				3133				3280				468				1000				752				940				410																									
SUB TOTAL HT GAIN				2370				1358				117				580				3043				3092				295				654				293				764				134																									
LEVEL FACTOR / MULTIPLIER				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				120				383				947				991				141				302				227				284				124																									
AIR CHANGE HEAT GAIN				249				143				12				61				320				325				31				69				31				80				14																									
DUCT LOSS				0				0				0				0				408				0				0				0				98				122				0				0																					
DUCT GAIN				0				0				0				0				425				0				0				0				32				84				0				0																					
HEAT GAIN PEOPLE				240	2	480	0	0	0	0	0	0	1	240	1	240	1	240	0	0	0	0	0	0	1	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																											
HEAT GAIN APPLIANCES/LIGHTS				642				0				0				642				642				642				0				642				0				0				0				0																					
TOTAL HT LOSS BTU/H				3548				2863				518				1652				4488				4271				609				1303				1077				1347				534																									
TOTAL HT GAIN x 1.3 BTU/H				4863				1952				167				1980				6071				5589				423				2086				462				1208				193																									

ROOM USE			DIN		LIV		KT/GT		STUDY		LAUN		PWD		FOY		MUD						LOD		BAS			
EXP. WALL			12		21		75		10		0		6		51		26						43		198			
CLG. HT.			11		20		11		11		9		11		11		12						10		10			
FACTORS																												
GRS.WALL AREA	LOSS	GAIN	132		420		825		110		0		66		561		312						430		1644			
GLAZING	LOSS	GAIN	LOSS		GAIN		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN		LOSS		GAIN			
NORTH	21.3	16.8	32	681	538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	85	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	
SOUTH	21.3	25.7	0	0	0	74	1575	1905	0	0	0	20	426	515	0	0	0	0	0	0	0	0	0	0	4	85	103	
WEST	21.3	42.4	0	0	0	0	0	0	98	2085	4154	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SKYLT.	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	
DOORS	25.2	5.2	0	0	0	0	0	0	20	505	105	0	0	0	0	0	0	52	1313	273	20	505	105	0	0	20	505	105
NET EXPOSED WALL	4.5	0.9	100	446	93	346	1544	321	707	3155	656	90	402	83	0	0	0	66	295	61	509	2272	472	292	1303	271	0	0
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	
EXPOSED CLG	1.3	0.6	0	0	0	231	296	147	0	0	0	0	0	0	130	167	83	0	0	0	0	0	0	0	0	0	0	
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	
EXPOSED FLOOR	2.6	0.5	0	0	0	0	0	0	0	0	0	60	153	32	0	0	0	0	0	0	0	0	0	0	0	0	0	
BASEMENT/CRAWL HEAT LOSS					0		0			0			0			0			0									
SLAB ON GRADE HEAT LOSS					0		0			0			0			0			0									
SUBTOTAL HT LOSS				1127			3415			5746			827			320			295				1808					
SUB TOTAL HT GAIN					631			2373			4915			598			115			61			745			376		
LEVEL FACTOR / MULTIPLIER			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			0.50	1.27	
AIR CHANGE HEAT LOSS				514			1557			2619			377			97			134			1634			824			
AIR CHANGE HEAT GAIN					66			250			517			63			12			6			78			40		
DUCT LOSS				0			0			0			0			42			0			0			0			
DUCT GAIN					0		0			0			0			77			0			0			0			
HEAT GAIN PEOPLE	240		0		0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
HEAT GAIN APPLIANCES/LIGHTS					642		642			642			642			642			0			0			0		642	
TOTAL HT LOSS BTU/H				1641			4972			8365			1204			458			429			5218			2632			
TOTAL HT GAIN x 1.3 BTU/H					1741		4244			7896			1694			1099			88			1071			540			

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

OPT. 5 BED
TYPE: 4203- THE FORESTCREST

DATE: Feb-20

GFA: 3688

LO# 77468

HEATING CFM 1525 COOLING CFM 1525
TOTAL HEAT LOSS 69,988 TOTAL HEAT GAIN 47,329
AIR FLOW RATE CFM 21.79 AIR FLOW RATE CFM 32.22

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

^LENNOX

AFUE = 96 %

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

EL296UH090XE48C
FAN SPEED 90
LOW 0
MEDLOW 0
MEDIUM 1105
MEDIUM HIGH 1255
HIGH 1525

DESIGN CFM = 1525
CFM @ .6" E.S.P.

TEMPERATURE RISE 52 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	16	10	6
R/A	0	0	6	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	HERS	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	1.65	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	3.81	3.81	3.81	3.81
CFM PER RUN HEAT	39	31	31	36	49	47	12	13	23	39	29	36	54	61	61	26	10	9	114	57	83	83	83	83
RM GAIN MBH	2.43	0.98	0.98	1.98	3.04	2.79	0.19	0.42	0.46	2.43	1.21	1.74	2.12	2.63	2.63	1.69	1.10	0.09	1.07	0.54	0.66	0.66	0.66	0.66
CFM PER RUN COOLING	78	31	31	64	98	90	6	14	15	78	39	56	68	85	85	55	35	3	34	17	21	21	21	21
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	0.16	0.16	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	35	53	42	41	42	8	28	57	49	35	32	43	55	8	48	33	24	46
EQUIVALENT LENGTH	130	160	140	160	150	170	140	180	190	130	120	90	150	130	120	140	110	140	120	130	130	90	160	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	184	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	5	5	5	5	5	4	4	6	4	5	5	5	5
HEATING VELOCITY (ft/min)	286	356	356	264	250	240	138	149	264	286	333	264	396	448	448	191	115	103	581	654	609	609	609	609
COOLING VELOCITY (ft/min)	573	356	356	470	500	459	69	161	172	573	447	411	499	624	624	404	402	34	173	195	154	154	154	154
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10
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	32
ROOM NAME	BED-3	BED-4	KT/GT	LIV	HIS	BAS	BED-5	BAS
RM LOSS MBH	2.24	2.14	2.79	2.49	0.52	3.81	1.30	3.81
CFM PER RUN HEAT	49	47	61	54	11	83	28	83
RM GAIN MBH	3.04	2.79	2.63	2.12	0.17	0.66	2.09	0.66
CFM PER RUN COOLING	98	90	85	68	5	21	67	21
ADJUSTED PRESSURE	0.16	0.16	0.16	0.17	0.17	0.16	0.17	0.16
ACTUAL DUCT LGH	49	66	41	31	73	12	60	37
EQUIVALENT LENGTH	170	130	90	130	180	120	180	160
TOTAL EFFECTIVE LENGTH	219	196	131	161	253	132	240	197
ADJUSTED PRESSURE	0.07	0.08	0.12	0.11	0.07	0.12	0.07	0.08
ROUND DUCT SIZE	6	6	5	5	4	5	5	6
HEATING VELOCITY (ft/min)	250	240	448	396	126	609	206	423
COOLING VELOCITY (ft/min)	500	459	624	499	57	154	492	107
OUTLET GRILL SIZE	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10
TRUNK	C	B	C	B	A	D	A	B

SUPPLY AIR TRUNK SIZE

	TRUNK	STATIC	ROUND	RECT	VELOCITY
	CFM	PRESS.	DUCT	DUCT	(ft/min)
TRUNK A	345	0.07	9.7	12	x 8 518
TRUNK B	574	0.07	11.8	16	x 8 646
TRUNK C	1179	0.07	15.4	28	x 8 758
TRUNK D	155	0.09	6.8	8	x 8 349
TRUNK E	1370	0.07	16.3	30	x 8 822
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	0.06	0	0	x 8 0
TRUNK P	0	0.06	0	0	x 8 0
TRUNK Q	0	0.06	0	0	x 8 0
TRUNK R	0	0.06	0	0	x 8 0
TRUNK S	0	0.06	0	0	x 8 0
TRUNK T	0	0.06	0	0	x 8 0
TRUNK U	0	0.06	0	0	x 8 0
TRUNK V	0	0.06	0	0	x 8 0
TRUNK W	0	0.06	0	0	x 8 0

RETURN AIR #	1	2	3	4	5	6	7	8	9	10	BR
AIR VOLUME	145	120	120	120	155	155	155	155	120	50	230
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH	48	46	47	56	47	32	23	33	48	65	14
EQUIVALENT LENGTH	165	185	205	145	200	195	205	195	190	195	145
TOTAL EFFECTIVE LH	213	231	252	201	247	227	228	228	238	260	159
ADJUSTED PRESSURE	0.07	0.06	0.06	0.07	0.06	0.07	0.06	0.06	0.06	0.06	0.09
ROUND DUCT SIZE	7	6.8	6.8	6.6	7.5	7.2	7.5	7.5	6.8	4.9	7.9
INLET GRILL SIZE	8	8	8	8	8	8	8	8	8	8	8
	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	14	14	14	14	14	14	24

TRUNK X	1525	0.06	17.7	32	x 10 686
TRUNK Y	465	0.06	11.3	14	x 8 598
TRUNK Z	900	0.06	14.5	24	x 8 675
DROP	1525	0.06	17.7	24	x 14 654

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)	☒ 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>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	95.4 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 ☒ 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-5	QTXEN050C	50	☒
ENS-4	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:	February-20

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: 2/24/2020																																																									
Volume Calculation			Air Change & Delta T Data																																																									
House Volume <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> </thead> <tbody> <tr> <td>Bsmt</td> <td>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="3" style="text-align: right;">Total:</td> <td>55,215.0 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</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;"> <tr> <td style="width: 80%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 20%; text-align: center;">0.340</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.124</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="5" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTDh</td> <td style="text-align: center;">22</td> <td style="text-align: center;">-20</td> <td style="text-align: center;">42</td> <td style="text-align: center;">76</td> </tr> <tr> <td>Summer DTDc</td> <td style="text-align: center;">22</td> <td style="text-align: center;">31</td> <td style="text-align: center;">9</td> <td style="text-align: center;">16</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.340	SUMMER NATURAL AIR CHANGE RATE	0.124	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-20	42	76	Summer DTDc	22	31	9	16
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5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.340 x 434.31 x 42 °C x 1.2 = 7483 W = 25532 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.124 x 434.31 x 9 °C x 1.2 = 567 W = 1936 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 16 °F x 1.08 x 0.25 = 661 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	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																																																								
*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: 4203- THE FORESTCREST	OPT. 5 BED	BUILDER: GOLD PARK HOMES
SFQT: 3688	LO# 77468	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)	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 (ft ³):	55215.0	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: 66.0 ft	WIDTH: 33.0 ft	EXPOSED PERIMETER:	198.0 ft

2012 OBC - COMPLIANCE PACKAGE

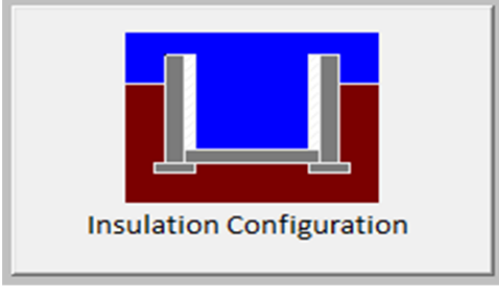
Component	Compliance Package A1	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 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):	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 ²):	4.0	
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):		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 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):	0.340			
Cooling Air Leakage Rate (ACH/H):	0.124			

TYPE: 4203- THE FORESTCREST
LO# 77468

OPT. 5 BED

CSA-F280-12

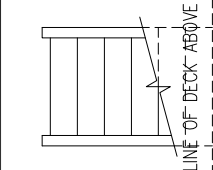
PACKAGE A1

WOD

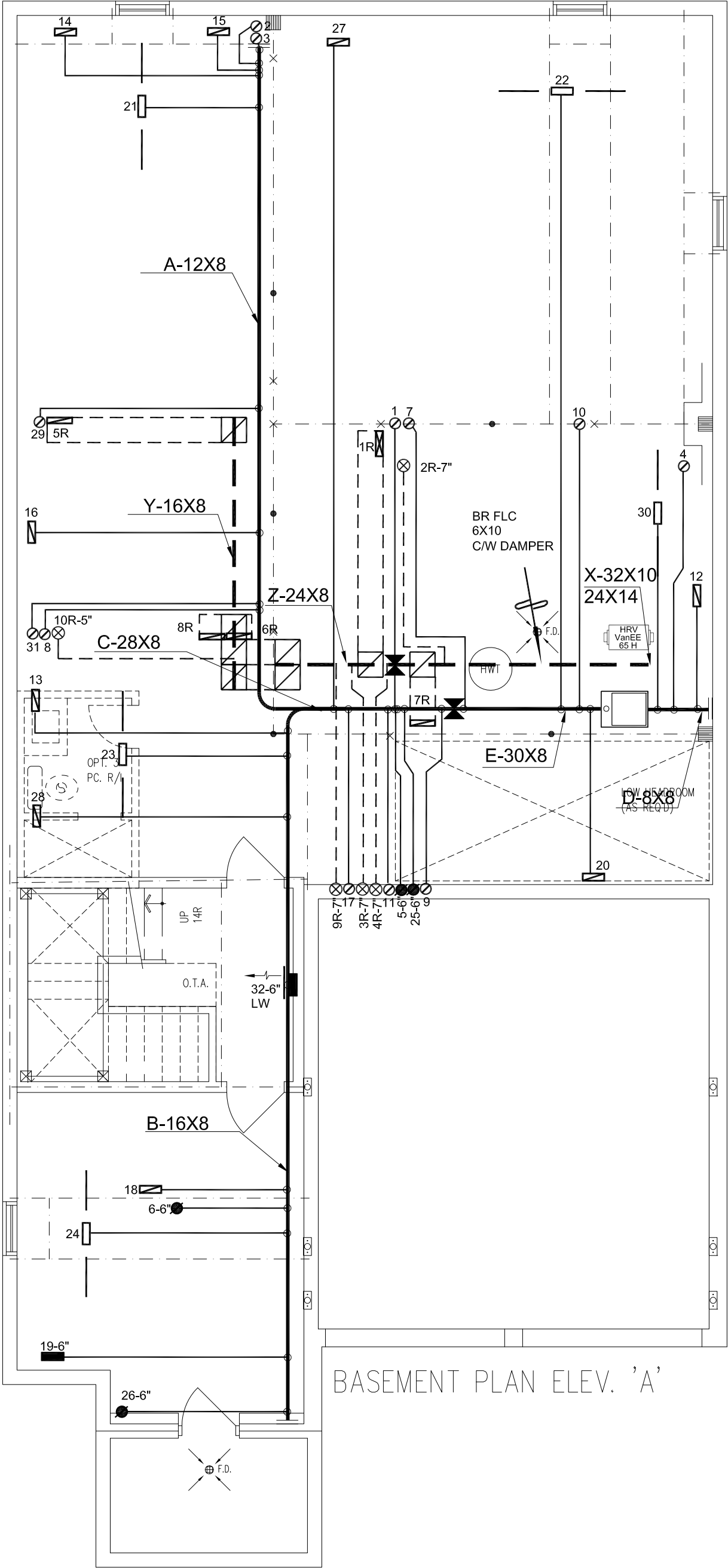
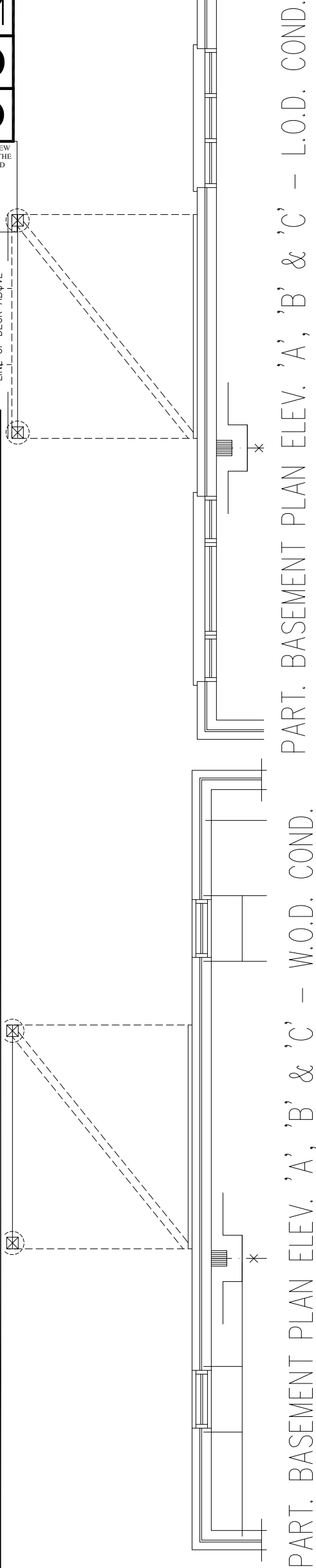
LOD

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.



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
	FRA-FLOOR RETURN AIR GRILLE		14"x8" RETURN AIR GRILLE
	30"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	RETURN AIR STACK 2nd FLOOR		REDUCER
REVISIONS		1.	2.
		REVISED AS PER CAD	DECK CONDITIONS ADDED
			NOV/2018
			FEB/2020



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Client	GOLD PARK HOMES
Project Name	PINE VALLEY & TESTON VAUGHAN, ONTARIO OPT. 5 BED THE FORESTCREST 4203 3688 sqft

HVAC

DESIGNS LTD.

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 73168 BTU/H UNIT DATA		# OF RUNS	S/A	R/A	FANS
MAKE	LENNOX	3RD FLOOR			
MODEL	EL296UH090XE48C	2ND FLOOR	16	6	6
INPUT	88 MBTU/H	1ST FLOOR	10	4	2
OUTPUT	85 MBTU/H	BASEMENT	6	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	JAN/2018
Scale	3/16" = 1'-0"
BCIN# 19669	
LO#	77468

CSA-F280-12

PACKAGE A1

WOD

LOD

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.

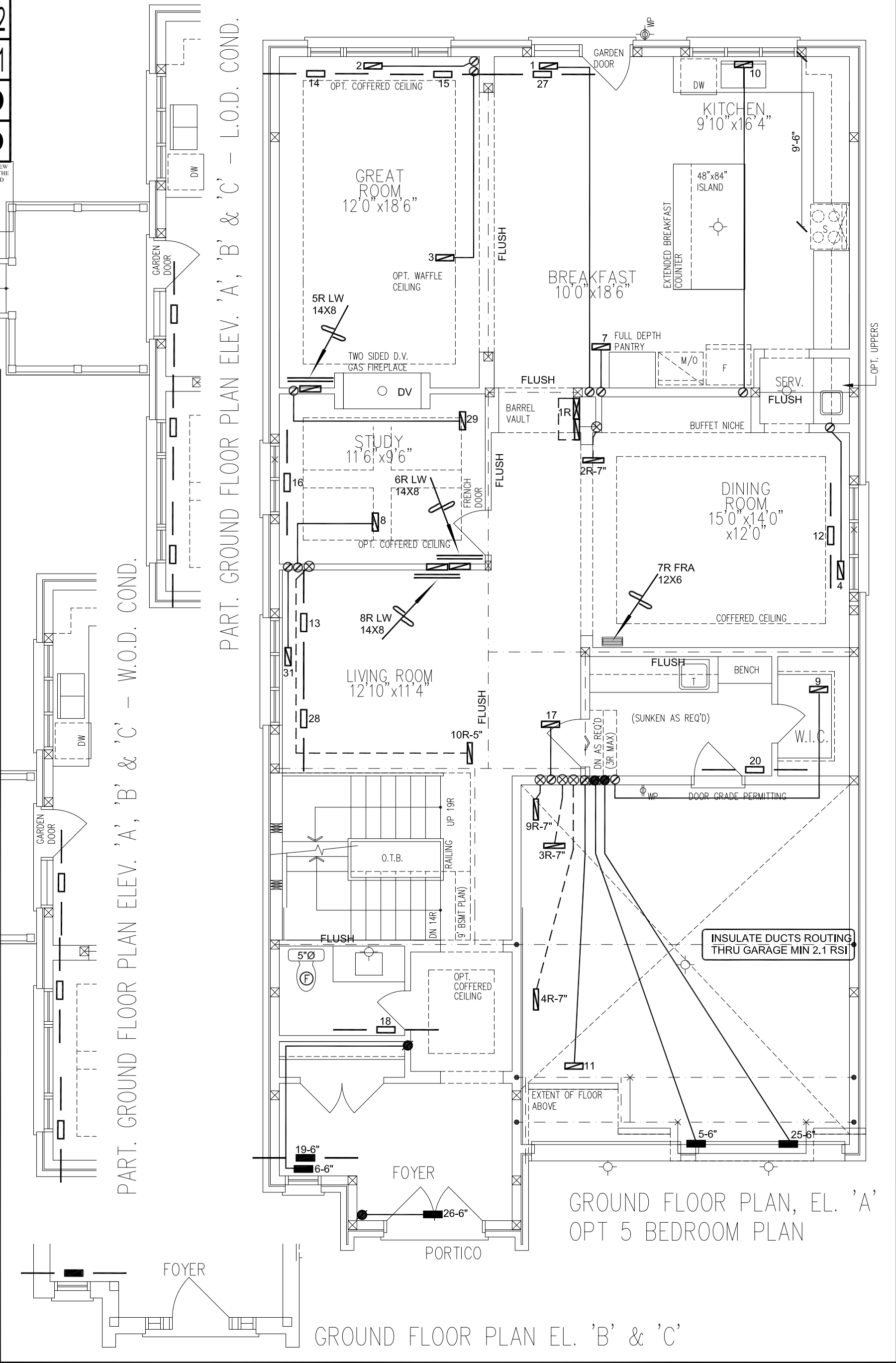
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
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HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	14"x8" RETURN AIR GRILLE		30"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2ND FLOOR		REDUCER

REVISIONS

1.	2.	3.	4.
REVISED AS PER CAD	DECK CONDITIONS ADDED	ADDED RETURN #10 TO BED-5	REVISED AS PER ARCHITECTURALS
JUL Y/2018	SEPT/2018	NOV/2018	FEB/2020



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Client

GOLD PARK HOMES

Project Name

PINE VALLEY & TESTON
VAUGHAN, ONTARIO
OPT. 5 BED
THE FORESTCREST
4203 3688 sqft

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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		FIRST FLOOR HEATING LAYOUT
Date	JAN/2018	
Scale	3/16" = 1'-0"	
BCIN# 19669		
LO#	77468	

