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	**Postal code**	**Plan number/ other description**		
VAUGHAN (WOODBRIDGE)				

B. Individual who reviews and takes responsibility for design activities

Name		Firm		
MICHAEL O'ROURKE		**HVAC DESIGNS LTD.**		
Street address			**Unit no.**	**Lot/con.**
375 FINLEY AVE			**202**	**N/A**
Municipality	**Postal code**	**Province**	**E-mail**	
AJAX	**L1S 2E2**	**ONTARIO**	**info@hvacdesigns.ca**	
Telephone number	**Fax number**		**Cell number**	
(905) 619-2300	**(905) 619-2375**		( )	

C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]

☐ House	☒ HVAC – House	☐ Building Structural
☐ Small Buildings	☐ Building Services	☐ Plumbing – House
☐ Large Buildings	☐ Detection, Lighting and Power	☐ Plumbing – All Buildings
☐ Complex Buildings	☐ Fire Protection	☐ 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:** 4205 **Project:** PINE VALLEY & TESTON

D. Declaration of Designer

I **MICHAEL O'ROURKE** 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 Di vision C, of the Building Code.

Individual BCIN: 19669
Basis for exemption from registration and qualification: O.B.C SENTENCE 3.2.4.1 (4)

☐ The design work is exempt from the registration and qualification requirements of the Building Code.
Basis for exemption from registration and qualification: _____

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. I have submitted this application with the knowledge and consent of the firm.

June 26, 2020
Date

Signature of Designer

NOTE:

1. 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.
2. 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.

HVAC DESIGNS LTD.

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Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

SITE NAME: PINE VALLEY & TESTON | DATE: Jun-20 | WINTER NATURAL AIR CHANGE RATE 0.389 | HEAT LOSS ΔT °F. 76 | CSA-F280-12
BUILDER: GOLD PARK HOMES | TYPE: 4205 | GFA: 3416 | LO# 86412 | SUMMER NATURAL AIR CHANGE RATE 0.130 | HEAT GAIN ΔT °F. 13 | SB-12 PACKAGE A1

ROOM USE			MBR			ENS			WIC-3			BED-2			BED-3			BED-4			ENS-4			HALL			S-BATH		
EXP. WALL			49			34			7			11			30			12			10			28			7		
CLG. HT.			9			9			9			9			9			9			9			9			9		
	FACTORS																												
GRS.WALL AREA	LOSS	GAIN	441			306			63			99			270			108			90			252			63		
GLAZING			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN	
NORTH	21.3	15.6	0	0	0	0	0	0	0	0	0	18	383	280	0	0	0	0	0	0	0	0	0	0	0	0	9	192	140
EAST	21.3	40.3	0	0	0	0	0	0	28	596	1128	0	0	0	43	915	1732	0	0	0	0	0	0	63	1341	2538	0	0	0
SOUTH	21.3	24.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	383	435	9	192	218	28	596	677	0	0	0
WEST	21.3	40.3	37	787	1491	37	787	1491	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SKYLT.	37.2	57.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	596	913	0	0	0
DOORS	25.2	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	4.5	0.8	404	1803	304	269	1200	202	35	156	26	81	361	61	227	1013	171	90	402	68	81	361	61	161	718	121	54	241	41
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	471	604	277	258	331	152	32	41	19	220	282	129	197	253	116	156	200	92	130	167	76	223	286	131	140	180	82
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0	0	0	0	9	25	11	0	0	0	9	25	11	0	0	0	0	0	0	27	74	34	0	0	0
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	41	105	18	0	0	0	206	525	88	0	0	0	0	0	0	0	0	0	77	196	33
BASEMENT/CRAWL HEAT LOSS			0			0			0			0			0			0			0			0			0		
SLAB ON GRADE HEAT LOSS			0			0			0			0			0			0			0			0			0		
SUBTOTAL HT LOSS			3195			2319			922			1027			2731			985			720			3611			809		
SUB TOTAL HT GAIN				2071			1844			1202			470			2119			595			355			4415			296	
LEVEL FACTOR / MULTIPLIER			0.20	0.32		0.20	0.32		0.20	0.32		0.20	0.32		0.20	0.32		0.20	0.32		0.20	0.32		0.20	0.32		0.20	0.32	
AIR CHANGE HEAT LOSS				1020			740			294			328			872			314			230			1153			258	
AIR CHANGE HEAT GAIN					155			138			90			35			159			45			27			331			22
DUCT LOSS				0			0			122			0			360			0			0			0			107	
DUCT GAIN					0			0			129			0			315			0			0			0			32
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	1		240	0		0	0		0	0		0	
HEAT GAIN APPLIANCES/LIGHTS					630			0			0			630			630			630			0			0			0
TOTAL HT LOSS BTU/H				4215			3059			1339			1355			3963			1299			950			4764			1173	
TOTAL HT GAIN x 1.3 BTU/H					4337			2577			1848			1789			4501			1962			496			6169			455

ROOM USE			GRT			DIN			KT/BF			LIB			L/M			W/R			FOY			BAS		
EXP. WALL			34			14			48			11			40			9			33			194		
CLG. HT.			11			11			11			11			12			11			11			10		
	FACTORS																									
GRS.WALL AREA	LOSS	GAIN	374			154			528			121			480			99			363			1358		
GLAZING			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN	
NORTH	21.3	15.6	0	0	0	0	0	0	14	298	218	20	426	311	9	192	140	0	0	0	0	0	0	3	64	47
EAST	21.3	40.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	660	1249	0	0	0
SOUTH	21.3	24.2	0	0	0	34	724	822	0	0	0	0	0	0	0	0	0	9	192	218	15	319	363	3	64	73
WEST	21.3	40.3	48	1021	1934	0	0	0	52	1107	2095	0	0	0	0	0	0	0	0	0	0	0	0	9	192	363
SKYLT.	37.2	57.1	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	4.3	0	0	0	0	0	0	20	505	85	0	0	0	20	505	85	0	0	0	40	1010	170	20	505	85
NET EXPOSED WALL	4.5	0.8	326	1455	245	120	536	90	442	1973	332	101	451	76	451	2013	339	90	402	68	277	1236	208	0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.6	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	582	2094	353
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0			0			0			0			0			0			0			6641		
SLAB ON GRADE HEAT LOSS			0			0			0			0			0			0			0					
SUBTOTAL HT LOSS			2476			1259			3882			876			2709			593			3225			9559		
SUB TOTAL HT GAIN				2179			913			2730			387			564			285			1990			920	
LEVEL FACTOR / MULTIPLIER			0.30	0.52		0.30	0.52		0.30	0.52		0.30	0.52		0.30	0.52		0.30	0.52		0.30	0.52		0.50	1.36	
AIR CHANGE HEAT LOSS				1288			655			2020			456			1409			309			1678			13025	
AIR CHANGE HEAT GAIN					163			68			205			29			42			21			149			69
DUCT LOSS				0			0			0			0			0			0			0			0	
DUCT GAIN					0			0			0			0			0			0			0			0
HEAT GAIN PEOPLE	240		0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0
HEAT GAIN APPLIANCES/LIGHTS					630			630			630			630			630			0			0			630
TOTAL HT LOSS BTU/H				3765			1914			5902			1332			4119			902			4903			22584	
TOTAL HT GAIN x 1.3 BTU/H					3864			2095			4634			1360			1608			399			2781			2104

TOTAL HEAT GAIN BTU/H: 43254 TONS: 3.60 LOSS DUE TO VENTILATION LOAD BTU/H: 1631 STRUCTURAL HEAT LOSS: 67537 TOTAL COMBINED HEAT LOSS BTU/H: 69168

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.

Michael O'Rourke

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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

TYPE: 4205 DATE: Jun-20 GFA: 3416 LO# 86412

HEATING CFM	1340	COOLING CFM	1340	furnace pressure	0.6
TOTAL HEAT LOSS	67,537	TOTAL HEAT GAIN	42,980	furnace filter	0.05
AIR FLOW RATE CFM	19.84	AIR FLOW RATE CFM	31.18	a/c coil pressure	0.2
				available pressure for s/a & r/a	0.35
				plenum pressure s/a	0.18
				max s/a dif press. loss	0.02
				min adjusted pressure s/a	0.16

				r/a pressure	0.17
				r/a grille press. Loss	0.02
				adjusted pressure r/a	0.15

LENNOX
EL196UH090XE48C 90

FAN SPEED	
LOW	0
MEDLOW	1080
MEDIUM	1190
MEDIUM HIGH	1340
HIGH	1575

AFUE = 96 %
INPUT (BTU/H) = 88,000
OUTPUT (BTU/H) = **85,600**
DESIGN CFM = **1340**
CFM @ .6 " E.S.P.
TEMPERATURE RISE 59 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	14	10	5
R/A	0	0	5	3	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	WIC-3	BED-2	BED-3	BED-4	ENS-4	ENS	S-BATH	MBR	S-BATH	GRT	DIN	KT/BF	KT/BF	LIB	L/M	W/R	FOY	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH.	2.11	1.53	1.34	1.35	1.98	1.30	0.95	1.53	0.59	2.11	0.59	1.88	1.91	2.95	2.95	1.33	4.12	0.90	2.45	2.45	4.52	4.52	4.52	4.52
CFM PER RUN HEAT	42	30	27	27	39	26	19	30	12	42	12	37	38	59	59	26	82	18	49	49	90	90	90	90
RM GAIN MBH.	2.17	1.29	1.85	1.79	2.25	1.96	0.50	1.29	0.23	2.17	0.23	1.93	2.09	2.32	2.32	1.36	1.61	0.40	1.39	1.39	0.42	0.42	0.42	0.42
CFM PER RUN COOLING	68	40	58	56	70	61	15	40	7	68	7	60	65	72	72	42	50	12	43	43	13	13	13	13
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	69	35	52	27	59	43	58	24	52	61	50	50	31	48	59	6	13	31	50	48	50	24	37	33
EQUIVALENT LENGTH	200	200	170	130	120	180	200	160	140	170	140	110	160	110	110	190	140	150	120	120	110	100	130	140
TOTAL EFFECTIVE LENGTH	269	235	222	157	179	223	258	184	192	231	190	160	191	158	169	196	153	181	170	168	160	124	167	173
ADJUSTED PRESSURE	0.06	0.07	0.08	0.11	0.1	0.08	0.07	0.09	0.09	0.07	0.09	0.11	0.09	0.11	0.1	0.09	0.11	0.1	0.1	0.1	0.1	0.13	0.1	0.09
ROUND DUCT SIZE	**6**	5	5	**6**	5	**6**	4	4	4	**6**	4	5	5	5	5	4	**6**	4	5	4	**6**	**6**	**6**	**6**
HEATING VELOCITY (ft/min)	214	220	198	138	286	133	218	344	138	214	138	272	279	433	433	298	418	207	360	562	459	459	459	459
COOLING VELOCITY (ft/min)	347	294	426	286	514	311	172	459	80	347	80	441	477	529	529	482	255	138	316	493	66	66	66	66
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	C	D	A	D	B	B	C	D	B	C	B	D	C	C	C	D	D	B	A	A	C	D	C	B

RUN #	25	26	27	28	29
ROOM NAME	BAS	BED-3	GRT	HALL	HALL
RM LOSS MBH.	4.52	1.98	1.88	2.38	2.38
CFM PER RUN HEAT	90	39	37	47	47
RM GAIN MBH.	0.42	2.25	1.93	3.08	3.08
CFM PER RUN COOLING	13	70	60	96	96
ADJUSTED PRESSURE	0.16	0.17	0.17	0.16	0.16
ACTUAL DUCT LGH.	59	61	26	54	46
EQUIVALENT LENGTH	120	130	110	140	170
TOTAL EFFECTIVE LENGTH	179	191	136	194	216
ADJUSTED PRESSURE	0.09	0.09	0.13	0.08	0.08
ROUND DUCT SIZE	**6**	5	5	**6**	**6**
HEATING VELOCITY (ft/min)	459	286	272	240	240
COOLING VELOCITY (ft/min)	66	514	441	489	489
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	4X10
TRUNK	A	B	D	A	A

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 A	309	0.08	9	10	x	8	556	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	545	0.08	11.2	14	x	8	701	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	439	0.06	11.1	14	x	8	564	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	1343	0.06	16.8	32	x	8	755	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	0	0.00	0	0	x	8	0	TRUNK K	0	0.00	0	0	x	8	0
TRUNK F	0	0.00	0	0	x	8	0	TRUNK L	0	0.00	0	0	x	8	0

RETURN AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK O	0	0.05	0	0	x	8	0
TRUNK P	0	0.05	0	0	x	8	0
TRUNK Q	0	0.05	0	0	x	8	0
TRUNK R	0	0.05	0	0	x	8	0
TRUNK S	0	0.05	0	0	x	8	0
TRUNK T	0	0.05	0	0	x	8	0
TRUNK U	0	0.05	0	0	x	8	0
TRUNK V	0	0.05	0	0	x	8	0
TRUNK W	0	0.05	0	0	x	8	0
TRUNK X	1340	0.05	17.6	28	x	10	689
TRUNK Y	640	0.05	13.3	20	x	8	576
TRUNK Z	310	0.05	10.2	12	x	8	465
DROP	1340	0.05	17.6	24	x	12	670

RETURN AIR #	1	2	3	4	5	6	7	8								BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	155	95	85	75	75	155	340	175	0	0	0	0	0	0	0	185
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
ACTUAL DUCT LGH.	65	48	44	73	69	41	26	24	1	1	1	1	1	1	1	16
EQUIVALENT LENGTH	200	165	215	250	245	210	225	185	0	0	0	0	0	0	0	145
TOTAL EFFECTIVE LH	265	213	259	323	314	251	251	209	1	1	1	1	1	1	1	161
ADJUSTED PRESSURE	0.06	0.07	0.06	0.05	0.05	0.06	0.06	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.09
ROUND DUCT SIZE	7.5	6	6	6	6	7.5	10.1	7.5	0	0	0	0	0	0	0	7.2
INLET GRILL SIZE	8	8	8	8	8	8	8	8	0	0	0	0	0	0	0	8
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	14	14	30	14	0	0	0	0	0	0	0	14

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.

Michael O'Rourke. INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

HVAC DESIGNS LTD.

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Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

TYPE: 4205 LO # 86412
SITE NAME: PINE VALLEY & TESTON

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	2	@ 21.2 cfm	42.4	cfm
Other Bedrooms	3	@ 10.6 cfm	31.8	cfm
Kitchen & Bathrooms	5	@ 10.6 cfm	53	cfm
Other Rooms	5	@ 10.6 cfm	53.0	cfm
Table 9.32.3.A.		TOTAL	180.2	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	**79.5**	**cfm**

SUPPLEMENTAL VENTILATION CAPACITY 9.32.3.5.

Total Ventilation Capacity	180.2	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	100.7	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE 65H Location: BSMT

79.5 cfm 3.0 sones [✓] HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM		ΔT °F		FACTOR		% LOSS
79.5 CFM	X	76 F	X	1.08	X	0.25

SUPPLEMENTAL FANS PANASONIC

Location	Model	cfm	HVI	Sones
ENS	FV-05-11VK1	50	✓	0.3
ENS-4	FV-05-11VK1	50	✓	0.3
S-BATH	FV-05-11VK1	50	✓	0.3
W/R	FV-05-11VK1	50	✓	0.3

HEAT RECOVERY VENTILATOR 9.32.3.11.

Model: VANEE 65H

155 cfm high 64 cfm low

75 % 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: Michael O'Rourke.

HRAI # 001820

Date: June-20

I REVIEW AND TAKE RESPONIBILITY 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

HVAC DESIGNS LTD.

375 Finley Ave. Suite 202 Ajax, ON L1S 2E2
Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventiliation Calculation)

LO#: 86412 Model: 4205 Builder: GOLD PARK HOMES Date: 26/06/2020

Volume Calculation

House Volume

Level	Floor Area (ft^2)	Floor Height (ft)	Volume (ft^3)
Bsmt	1547	10	15470
First	1547	11	17017
Second	1869	9	16821
Third	0	9	0
Fourth	0	9	0
		Total:	49,308.0 ft^3
		Total:	1396.2 m^3

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.389
SUMMER NATURAL AIR CHANGE RATE	0.130

Design Temperature Difference

	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-20	42	76
Summer DTDc	24	31	7	13

5.2.3.1 Heat Loss due to Air Leakage

$$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$$

0.389 x 387.85 x 42 °C x 1.2 = 7635 W

= **26049 Btu/h**

6.2.6 Sensible Gain due to Air Leakage

$$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$$

= 0.130 x 387.85 x 7 °C x 1.2 = 432 W

= **1474 Btu/h**

5.2.3.2 Heat Loss due to Mechanical Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

80 CFM x 76 °F x 1.08 x 0.25 = **1631 Btu/h**

6.2.7 Sensible heat Gain due to Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

80 CFM x 13 °F x 1.08 x 0.25 = **275 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_{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)
1	0.5	26,049	9,559	1.362
2	0.3		15,021	0.520
3	0.2		16,318	0.319
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

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 4205 **BUILDER:** GOLD PARK HOMES
SFQT: 3416 **LO#** 86412 **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):	49308.0	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: 63.0 ft	WIDTH: 34.0 ft	EXPOSED PERIMETER:	194.0 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

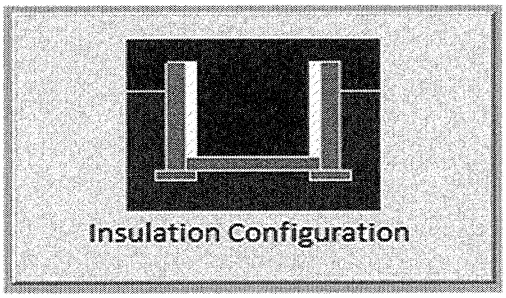
Michael O'Rourke

HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

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):	**19.2**	 Insulation Configuration
Floor Width (m):	**10.4**	
Exposed Perimeter (m):	**0.0**	
Wall Height (m):	**3.0**	
Depth Below Grade (m):	**2.13**	
Window Area (m^2):	**1.4**	
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):		**1946**

TYPE: 4205
LO# 86412

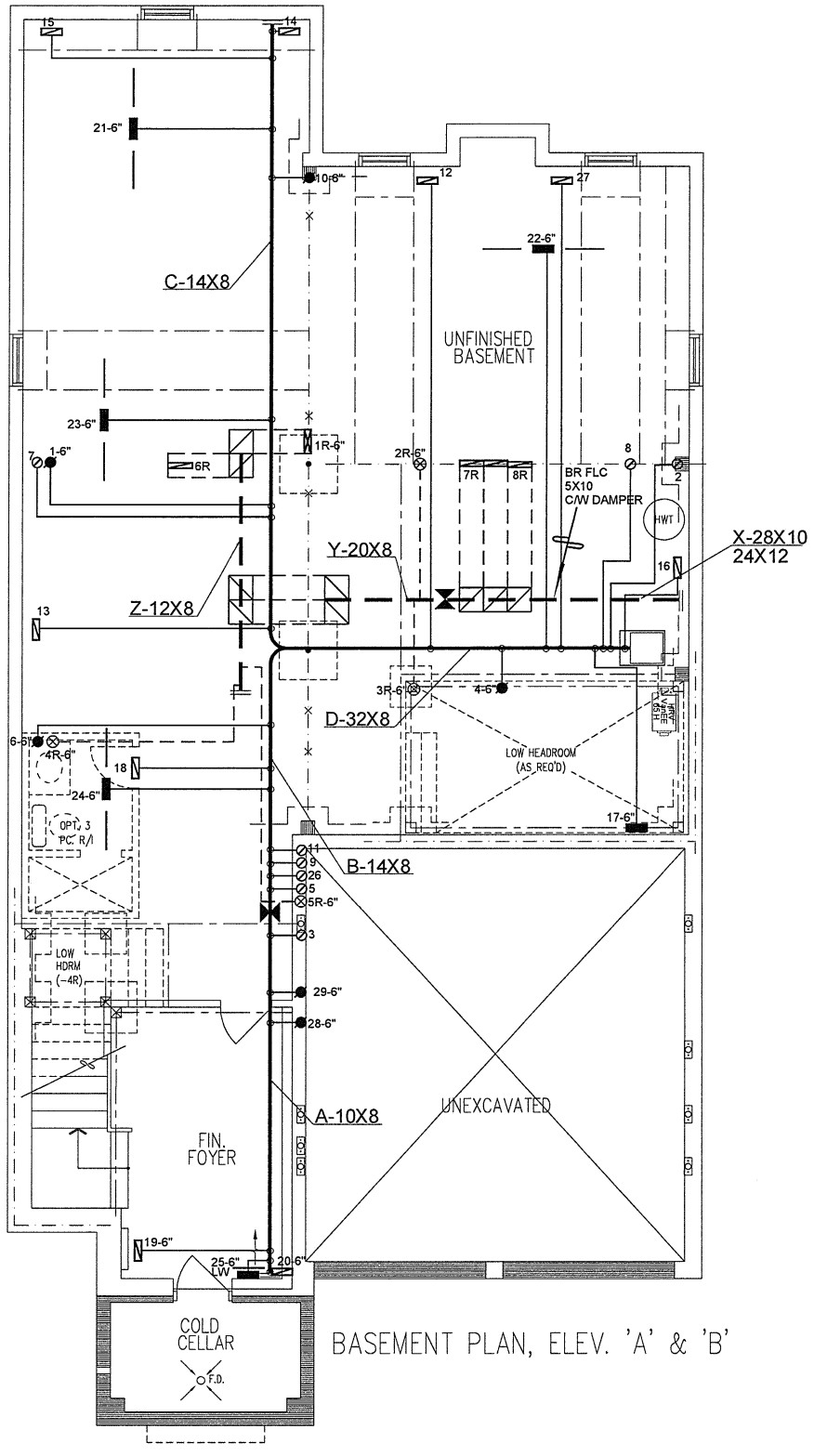
HVAC Designs Ltd.
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

Air Infiltration Residential Load Calculator

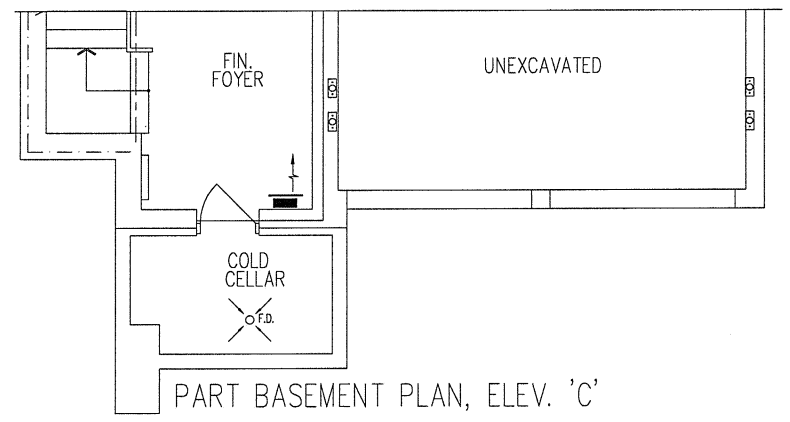
Supplemental tool for CAN/CSA-F280

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):	8.53				
Building Configuration					
Type:	Detached				
Number of Stories:	Two				
Foundation:	Full				
House Volume (m^3):	1396.2				
Air Leakage/Ventilation					
Air Tightness Type:	Present (1961-) (3.57 ACH)				
Custom BDT Data:	ELA @ 10 Pa.				1861.2 cm^2
	3.57				ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply			Total Exhaust	
	37.5			37.5	
Flue Size					
Flue #:	#1	#2	#3	#4	
Diameter (mm):	0	0	0	0	
Natural Infiltration Rates					
Heating Air Leakage Rate (ACH/H):	**0.389**				
Cooling Air Leakage Rate (ACH/H):	**0.130**				

TYPE: 4205
LO# 86412



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



PART BASEMENT PLAN, ELEV. 'C'

NOTE:

INSTALLATION OF THE DUCT WORK & MECHANICAL SYSTEM TO MAINTAIN FIRE RATING PER OBC, LOCAL BYLAWS AND THE SPECIFIED RATINGS INDICATED ON THE ARCHITECTURAL DRAWINGS

HEAT LOSS 69168 BTU/H		# OF RUNS	S/A	R/A	FANS
UNIT DATA		3RD FLOOR			
MAKE	LENNOX	2ND FLOOR	14	5	4
MODEL	EL196UH090XE48C	1ST FLOOR	10	3	2
INPUT	88 MBTU/H	BASEMENT	5	1	0
OUTPUT	85.6 MBTU/H	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			
COOLING	3.5 TONS				
FAN SPEED	1340 cfm @ 0.6" w.c.				

HVAC LEGEND

— ▭ —	4X10 SUPPLY GRILLE
▭	14X8 RETURN GRILLE
— ▬ —	4X10 SUPPLY GRILLE 6"Ø BOOT
▭	30X8 RETURN GRILLE
———	SUPPLY DUCTWORK
— — —	RETURN DUCTWORK
Ⓕ	EXHAUST FAN
LW	LOW WALL
HW	HIGH WALL

INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE. ALL SUPPLY BRANCH OUTLETS SHALL BE EQUIPPED WITH MANUAL BALANCING DAMPER. DUCTWORK WHICH PASSES THROUGH THE GARAGE OR UNHEATED SPACES SHALL BE ADEQUATELY INSULATED AND GAS-PROOFED

No.	Revision	Date	By
2			
1	ISSUED FOR PERMIT	JUNE 22/20	PS

SB-12 PACKAGE

A1

ALL S/A DIFFUSERS "4x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5'Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

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# 19469
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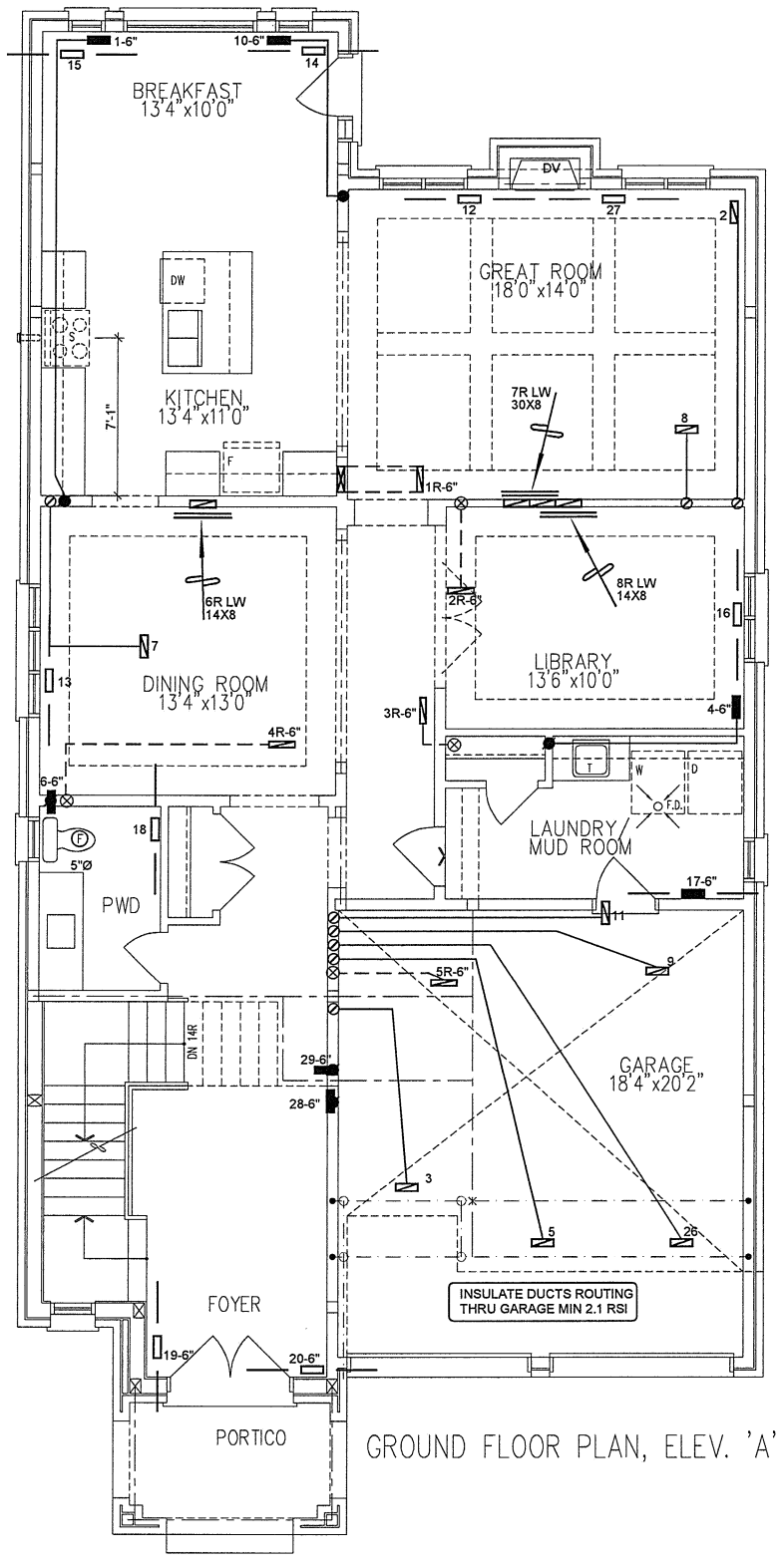
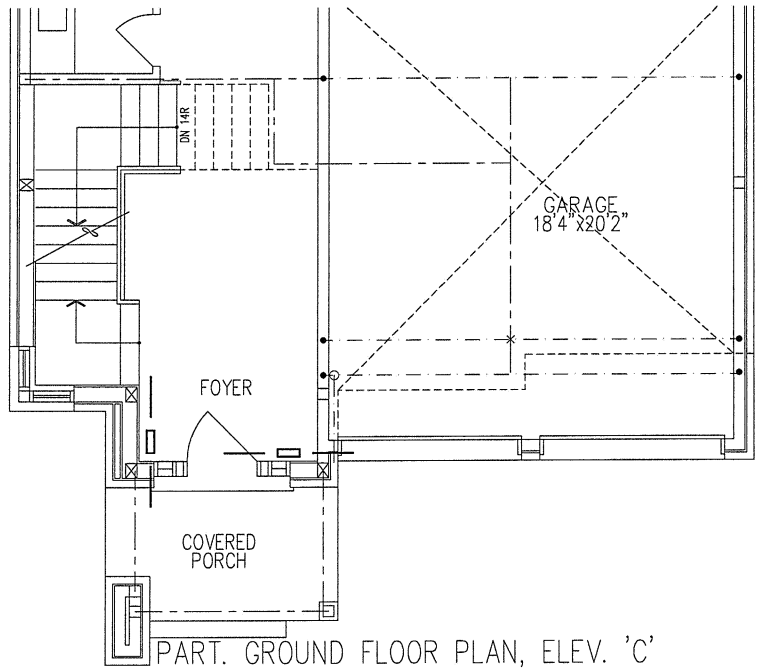
Client: GOLD PARK HOMES

Project Name: PINE VALLEY & TESTON
VAUGHAN, ONTARIO
4205
3416 ft²

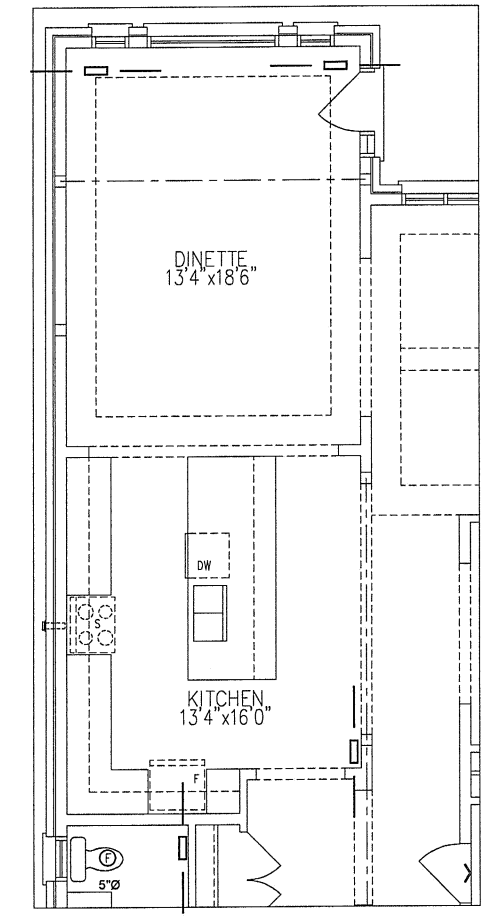
Sheet Title	BASEMENT		
Drawn By	PS	Checked By	AS
Scale	3/16"=1'-0"	Sheet No.	1
Date	JUNE 2020		
LO #	86412		



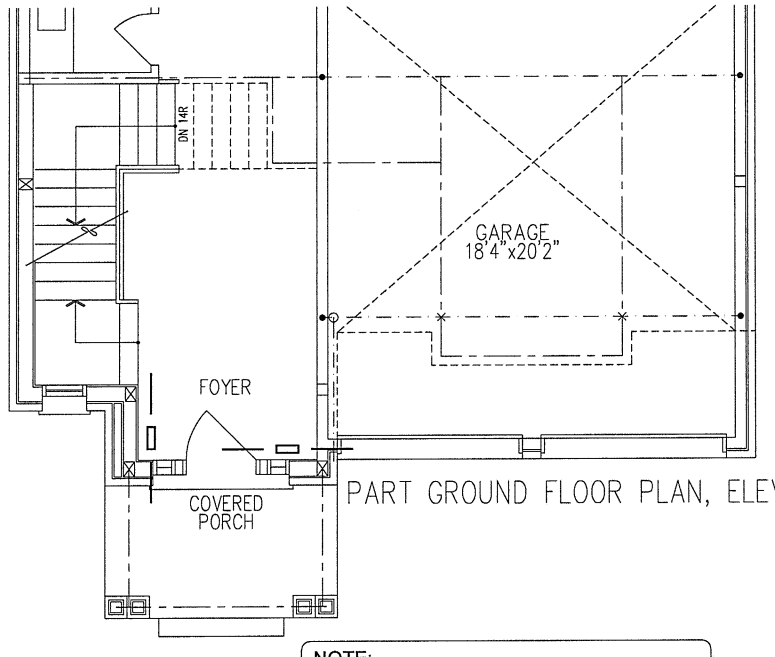
GROUND FLOOR PLAN, ELEV. 'A'



PART. GROUND FLOOR PLAN, ELEV. 'C'



OPT. GROUND FLOOR PLAN, ELEV. 'A'
('B' & 'C' SIMILAR)



PART GROUND FLOOR PLAN, ELEV. 'B'

NOTE:

INSTALLATION OF THE DUCT WORK & MECHANICAL SYSTEM TO MAINTAIN FIRE RATING PER OBC, LOCAL BYLAWS AND THE SPECIFIED RATINGS INDICATED ON THE ARCHITECTURAL DRAWINGS

HVAC LEGEND

	4X10 SUPPLY GRILLE
	14X8 RETURN GRILLE
	4X10 SUPPLY GRILLE 6"Ø BOOT
	30X8 RETURN GRILLE
	SUPPLY DUCTWORK
	RETURN DUCTWORK
F	EXHAUST FAN
LW	LOW WALL
HW	HIGH WALL

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SB-12 PACKAGE

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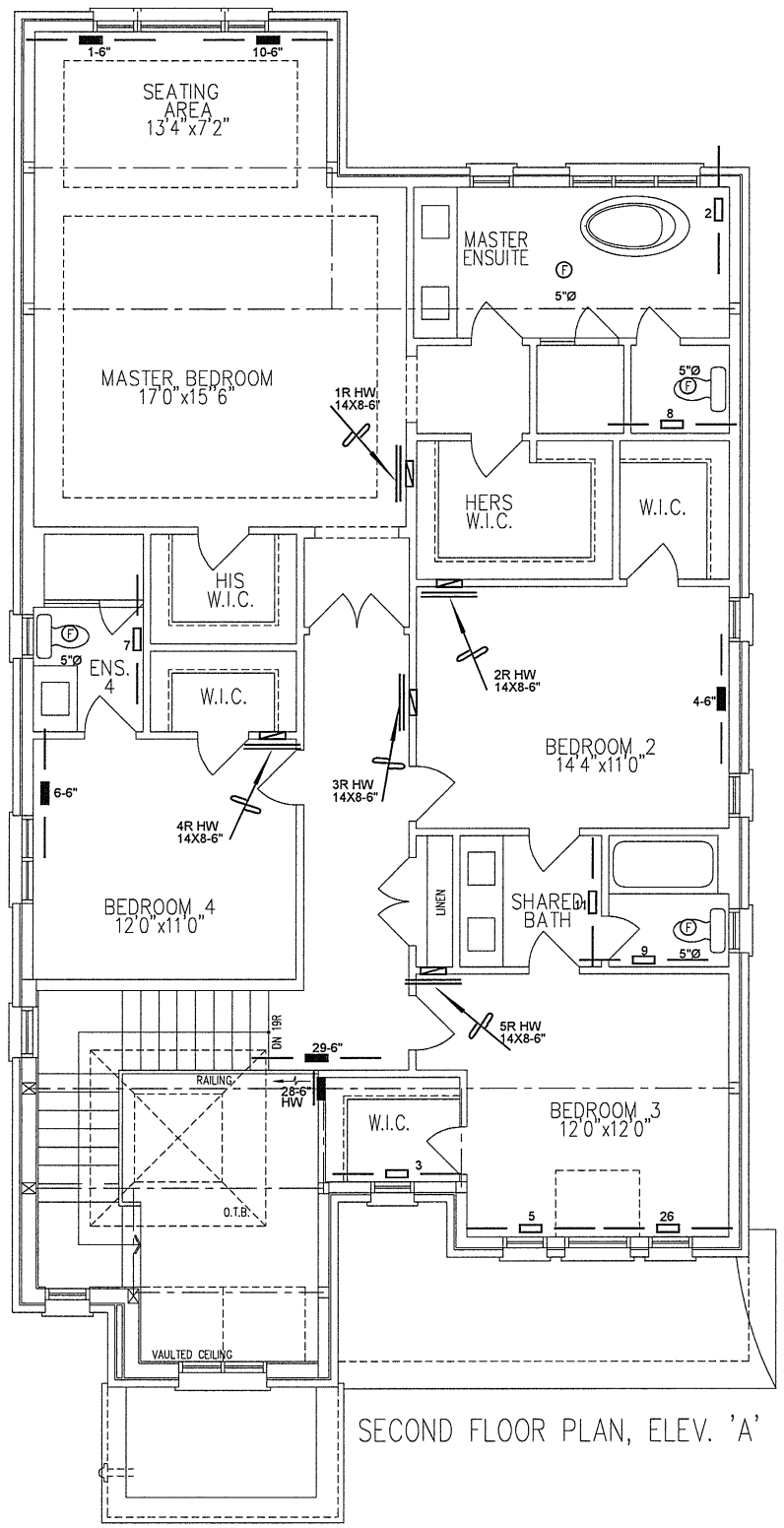
Client: GOLD PARK HOMES

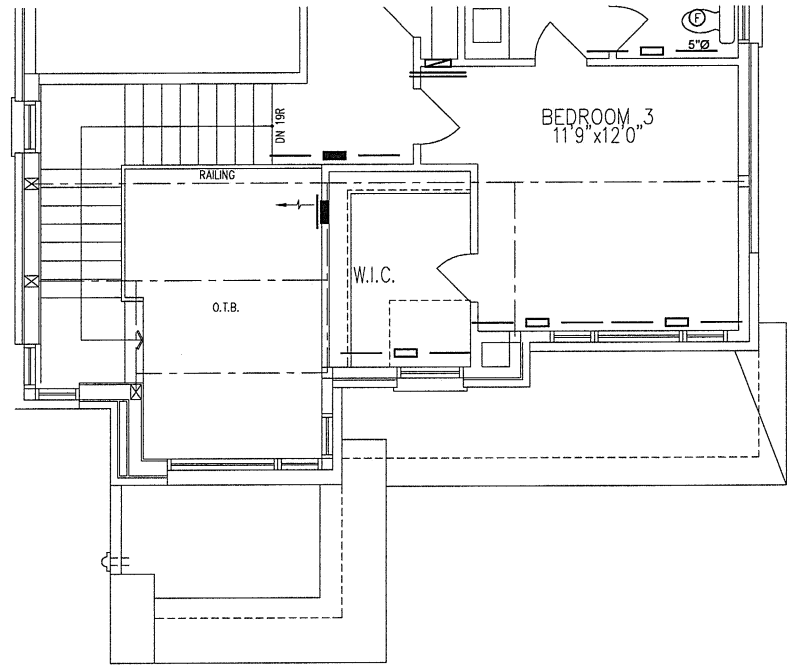
Project Name: PINE VALLEY & TESTON
VAUGHAN, ONTARIO

4205
3416 ft²

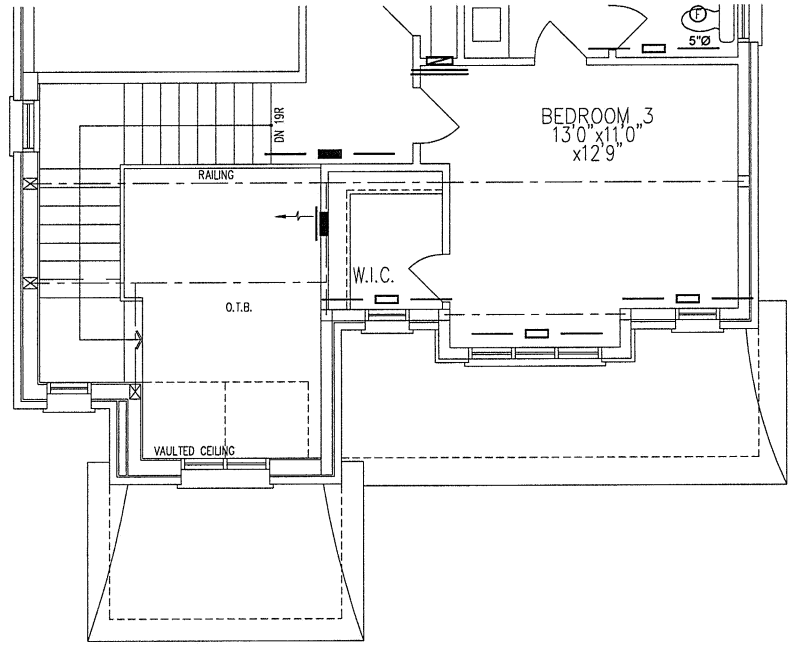
Sheet Title	FIRST FLOOR		
Drawn By	PS	Checked By	AS
Scale	3/16"=1'-0"	Sheet No.	2
Date	JUNE 2020		
LO #	86412		



SECOND FLOOR PLAN, ELEV. 'A'



PART. SECOND FLOOR PLAN, ELEV. 'C'



PART SECOND FLOOR PLAN, ELEV. 'B'

NOTE:

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Client: GOLD PARK HOMES

Project Name: PINE VALLEY & TESTON
VAUGHAN, ONTARIO
4205
3416 ft²

Sheet Title: SECOND FLOOR

Drawn By: PS | Checked By: AS

Scale: 3/16"=1'-0" | Sheet No.: 3

Date: JUNE 2020

LO #: 86412