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 ALT 5 BED **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 29, 2020
Date

Michael O'Rourke
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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Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

SITE NAME: PINE VALLEY & TESTON | ALT 5 BED | 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			S-BATH			ENS-2			HALL			ENS-3			BED-5		
EXP. WALL			38			39			7			11			30			12			6			0			28			7			10		
CLG. HT.			9			9			9			9			9			9			9			9			9			9			9		
	FACTORS																																	
GRS.WALL AREA	LOSS	GAIN	342			351			63			99			270			108			54			0			252			63			90		
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	14.3	0	0	0	0	0	0	0	0	0	18	383	258	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	192	129	0	0	0
EAST	21.3	36.5	0	0	0	0	0	0	28	596	1022	0	0	0	43	915	1569	0	0	0	0	0	0	0	0	0	63	1341	2299	0	0	0	0	0	0
SOUTH	21.3	22.1	0	0	0	18	383	397	0	0	0	0	0	0	0	0	0	18	383	397	9	192	199	0	0	0	28	596	618	0	0	0	19	404	419
WEST	21.3	36.5	37	787	1350	37	787	1350	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	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	16	596	913	0	0	0	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	0	0	0	0	0	0
NET EXPOSED WALL	4.5	0.8	305	1361	229	296	1321	222	35	156	26	81	361	61	227	1013	171	90	402	68	45	201	34	0	0	0	161	718	121	54	241	41	71	317	53
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	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	361	463	212	255	327	150	32	41	19	220	282	129	197	253	116	156	200	92	102	131	60	79	101	46	223	286	131	55	71	32	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	0	0	0	27	74	34	0	0	0	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	0	0	0	77	196	33	0	0	0
BASEMENT/CRAWL HEAT LOSS				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	
SUBTOTAL HT LOSS				2612			2819			922			1027			2731			985			523			101			3611			699			901	
SUB TOTAL HT GAIN					1791			2119			1096			448			1955			556			292			46			4116			235			555
LEVEL FACTOR / MULTIPLIER			0.20	0.31		0.20	0.31		0.20	0.31		0.20	0.31		0.20	0.31		0.20	0.31		0.20	0.31		0.20	0.31		0.20	0.31		0.20	0.31		0.20	0.31	
AIR CHANGE HEAT LOSS				804			867			284			316			840			303			161			31			1111			215			277	
AIR CHANGE HEAT GAIN					144			170			88			36			157			45			23			4			330			19			45
DUCT LOSS				0			0			121			0			357			0			0			0			0			91			0	
DUCT GAIN					0			0			118			0			293			0			0			0			0			25			0
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	1		240	0		0	0		0	0		0	0		0	1		240
HEAT GAIN APPLIANCES/LIGHTS					573			0			0			573			573			573			0			0			0			0			573
TOTAL HT LOSS BTU/H				3415			3686			1327			1343			3928			1288			684			133			4722			1006			1178	
TOTAL HT GAIN x 1.3 BTU/H					3885			2977			1693			1686			4183			1838			410			65			5780			363			1836

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	14.3	0	0	0	0	0	0	14	298	201	20	426	286	9	192	129	0	0	0	0	0	0							3	64	43
EAST	21.3	36.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	660	1131							0	0	0
SOUTH	21.3	22.1	0	0	0	34	724	750	0	0	0	0	0	0	0	0	0	9	192	199	15	319	331							3	64	66
WEST	21.3	36.5	48	1021	1752	0	0	0	52	1107	1897	0	0	0	0	0	0	0	0	0	0	0	0							9	192	328
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					1997			840			2515			362			553			266			1840									875
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					160			67			202			29			44			21			148										70
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
HEAT GAIN APPLIANCES/LIGHTS					573			573			573			573			573			0			0									573
TOTAL HT LOSS BTU/H				3765			1914			5902			1332			4119			902			4903								22584		
TOTAL HT GAIN x 1.3 BTU/H					3549			1925			4277			1254			1521			374			2585									1974

TOTAL HEAT GAIN BTU/H: 42504 TONS: 3.54 LOSS DUE TO VENTILATION LOAD BTU/H: 1958 STRUCTURAL HEAT LOSS: 68130 TOTAL COMBINED HEAT LOSS BTU/H: 70088

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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SITE NAME: PINE VALLEY & TESTON — ALT 5 BED
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	68,130		TOTAL HEAT GAIN	42,174			furnace filter	0.05																
AIR FLOW RATE CFM	19.67		AIR FLOW RATE CFM	31.77			a/c coil pressure	0.2																
							available pressure																	
							for s/a & r/a	0.35																
							plenum pressure s/a	0.18			r/a pressure	0.17												
							max s/a dif press. loss	0.02			r/a grille press. Loss	0.02												
							min adjusted pressure s/a	0.16			adjusted pressure r/a	0.15												

LENNOX
EL196UH090XE48C **90**

AFUE = 96 %
INPUT (BTU/H) = 88,000
OUTPUT (BTU/H) = **85,600**

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

DESIGN CFM = **1340** CFM @ .6 " E.S.P.

TEMPERATURE RISE 59 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	15	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	ENS	MBR	WIC-3	BED-2	BED-3	BED-4	BED-5	MBR	ENS-3	ENS	ENS-2	GRT	DIN	KT/BF	KT/BF	LIB	L/M	W/R	FOY	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.84	1.71	1.33	1.34	1.96	1.29	1.18	1.71	1.01	1.84	0.13	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	36	34	26	26	39	25	23	34	20	36	3	37	38	58	58	26	81	18	48	48	89	89	89	89
RM GAIN MBH.	1.49	1.94	1.69	1.69	2.09	1.84	1.84	1.94	0.36	1.49	0.07	1.77	1.92	2.14	2.14	1.25	1.52	0.37	1.29	1.29	0.39	0.39	0.39	0.39
CFM PER RUN COOLING	47	62	54	54	66	58	58	62	12	47	2	56	61	68	68	40	48	12	41	41	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	48	44	52	61	44	50	31	48	59	6	13	31	50	48	50	24	37	33
EQUIVALENT LENGTH	200	150	170	130	120	180	200	90	140	170	140	110	160	110	110	190	140	150	120	120	110	100	130	140
TOTAL EFFECTIVE LENGTH	269	185	222	157	179	223	248	134	192	231	184	160	191	158	169	196	153	181	170	168	160	124	167	173
ADJUSTED PRESSURE	0.06	0.09	0.08	0.11	0.1	0.08	0.07	0.13	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	5	5	5	**6**	5	**6**	5	5	4	5	4	5	5	5	5	4	**6**	4	5	4	**6**	**6**	**6**	**6**
HEATING VELOCITY (ft/min)	264	250	191	133	286	127	169	250	229	264	34	272	279	426	426	298	413	207	352	551	454	454	454	454
COOLING VELOCITY (ft/min)	345	455	396	275	485	296	426	455	138	345	23	411	448	499	499	459	245	138	301	470	66	66	66	66
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	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	30
ROOM NAME	BAS	BED-3	GRT	HALL	HALL	S-BATH
RM LOSS MBH.	4.52	1.96	1.88	2.36	2.36	0.68
CFM PER RUN HEAT	89	39	37	46	46	13
RM GAIN MBH.	0.39	2.09	1.77	2.89	2.89	0.41
CFM PER RUN COOLING	13	66	56	92	92	13
ADJUSTED PRESSURE	0.16	0.17	0.17	0.16	0.16	0.17
ACTUAL DUCT LGH.	59	61	26	54	46	46
EQUIVALENT LENGTH	120	130	110	140	170	220
TOTAL EFFECTIVE LENGTH	179	191	136	194	216	266
ADJUSTED PRESSURE	0.09	0.09	0.13	0.08	0.08	0.06
ROUND DUCT SIZE	**6**	5	5	**6**	**6**	4
HEATING VELOCITY (ft/min)	454	286	272	235	235	149
COOLING VELOCITY (ft/min)	66	485	411	469	469	149
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	4X10	3X10
TRUNK	A	B	D	A	A	B

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	303	0.08	9	10	x	8	545	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	549	0.06	12	16	x	8	618	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	427	0.06	11	14	x	8	549	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	1340	0.06	16.8	32	x	8	754	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	715	0.05	13.9	22	x	8	585
TRUNK Z	240	0.05	9.2	10	x	8	432
DROP	1340	0.05	17.6	24	x	12	670

RETURN AIR #	1	2	3	4	5	6	7	8	9							BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	85	165	85	75	75	155	280	155	75	0	0	0	0	0	0	190
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	49	1	1	1	1	1	1	16
EQUIVALENT LENGTH	200	165	215	250	245	210	225	185	265	0	0	0	0	0	0	145
TOTAL EFFECTIVE LH	265	213	259	323	314	251	251	209	314	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	0.05	14.80	14.80	14.80	14.80	14.80	14.80	0.09
ROUND DUCT SIZE	6	7.4	6	6	6	7.5	9.4	7.2	6	0	0	0	0	0	0	7.3
INLET GRILL SIZE	8	8	8	8	8	8	8	8	8	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	14	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.
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

TYPE: 4205 LO # 86412
SITE NAME: PINE VALLEY & TESTON ALT 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	2	@ 21.2 cfm	42.4	cfm
Other Bedrooms	4	@ 10.6 cfm	42.4	cfm
Kitchen & Bathrooms	6	@ 10.6 cfm	63.6	cfm
Other Rooms	5	@ 10.6 cfm	53.0	cfm
Table 9.32.3.A.		TOTAL	201.4	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	201.4	cfm
Less Principal Ventil. Capacity	95.4	cfm
Required Supplemental Capacity	106.0	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE 65H Location: BSMT

95.4 cfm 3.0 sones [✓] HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM		ΔT °F		FACTOR		% LOSS
95.4 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
S-BATH	FV-05-11VK1	50	✓	0.3
ENS-3	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

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: 29/06/2020

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1547	10	15470
First	1547	11	17017
Second	1869	9	16821
Third	0	9	0
Fourth	0	9	0
		Total:	49,308.0 ft³
		Total:	1396.2 m³

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

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

95 CFM x 76 °F x 1.08 x 0.25 = **1958 Btu/h**

6.2.7 Sensible heat Gain due to Ventilation

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

95 CFM x 13 °F x 1.08 x 0.25 = **330 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		16,932	0.308
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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Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 4205 ALT 5 BED **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:	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: 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

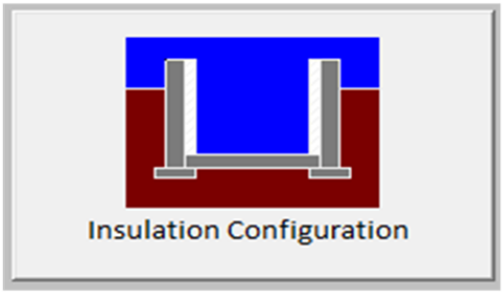
Michael O'Rourke

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 ALT 5 BED
LO# 86412

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

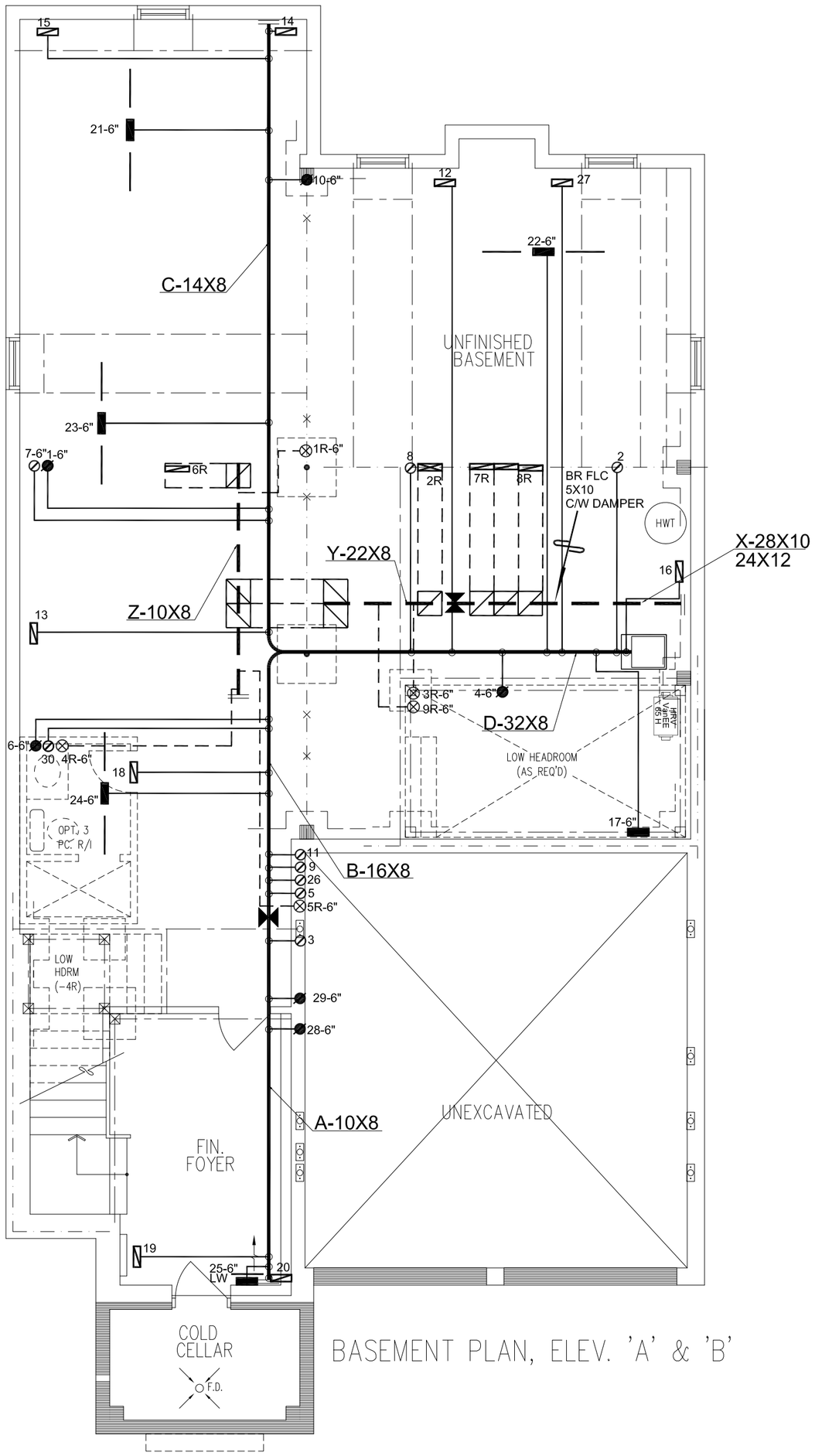
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

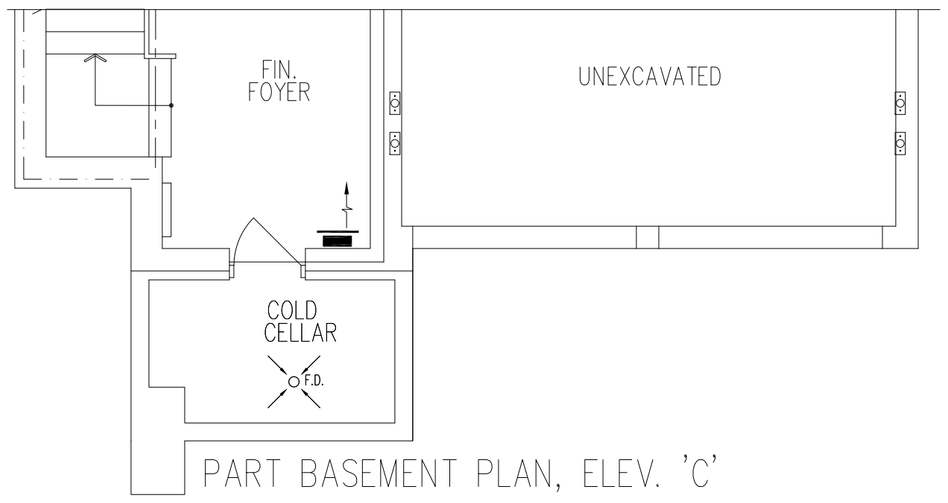
Weather Station Description	
Province:	Ontario
Region:	Vaughan (Woodbridge)
Weather Station Location:	Open flat terrain, grass
Anemometer height (m):	10
Local Shielding	
Building Site:	Suburban, forest
Walls:	Heavy
Flue:	Heavy
Highest Ceiling Height (m):	8.53
Building Configuration	
Type:	Detached
Number 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 45.0 / Total Exhaust 45.0
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 ALT 5 BED

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 70088 BTU/H	
UNIT DATA	
MAKE	LENNOX
MODEL	EL196UH090XE48C
INPUT	88 MBTU/H
OUTPUT	85.6 MBTU/H
COOLING	3.5 TONS
FAN SPEED	1340 cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	15	5	5
1ST FLOOR	10	3	2
BASEMENT	5	1	0

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

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

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# 19669
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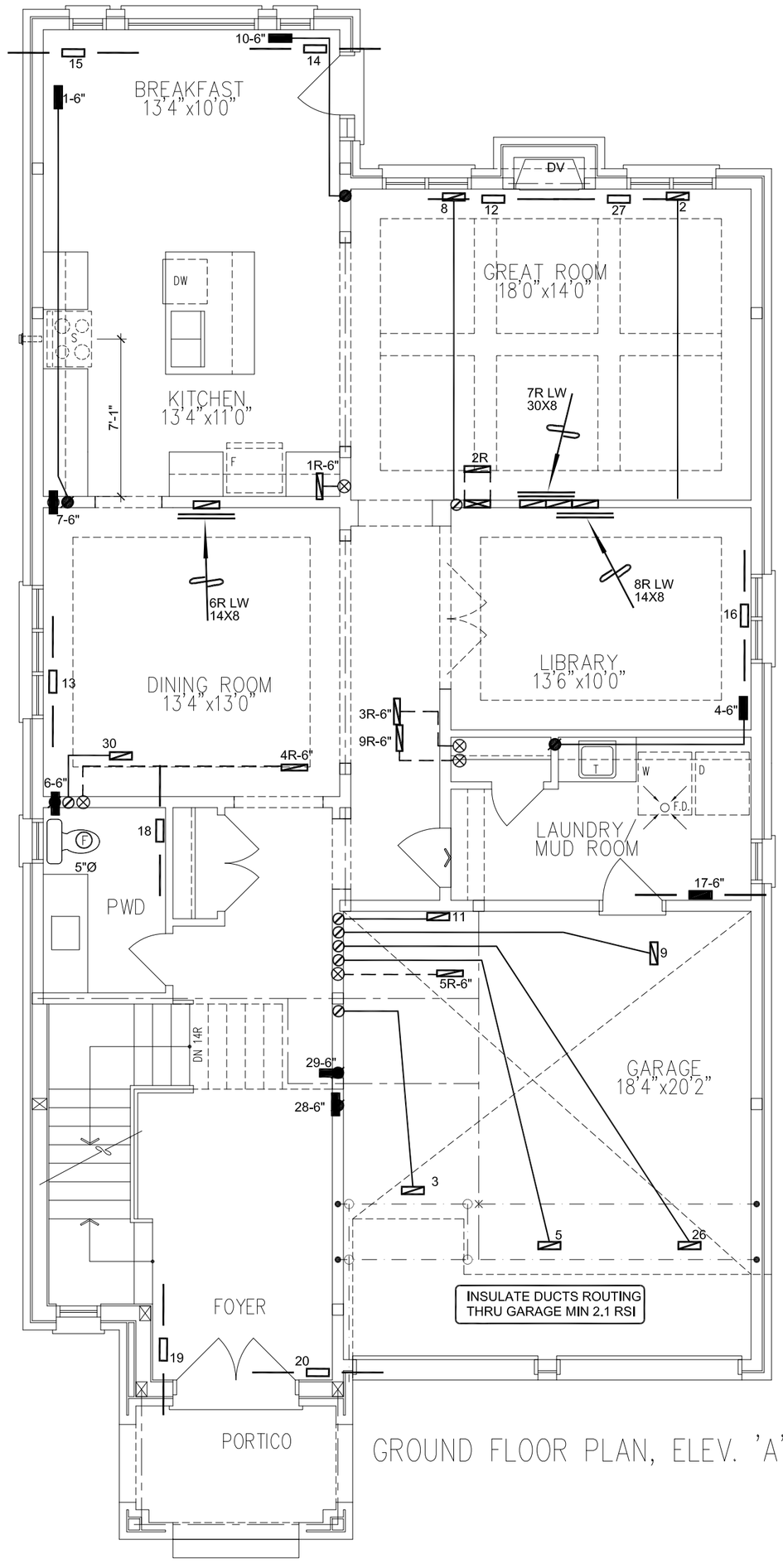
Specializing in Residential Mechanical Design Services

Client: GOLD PARK HOMES

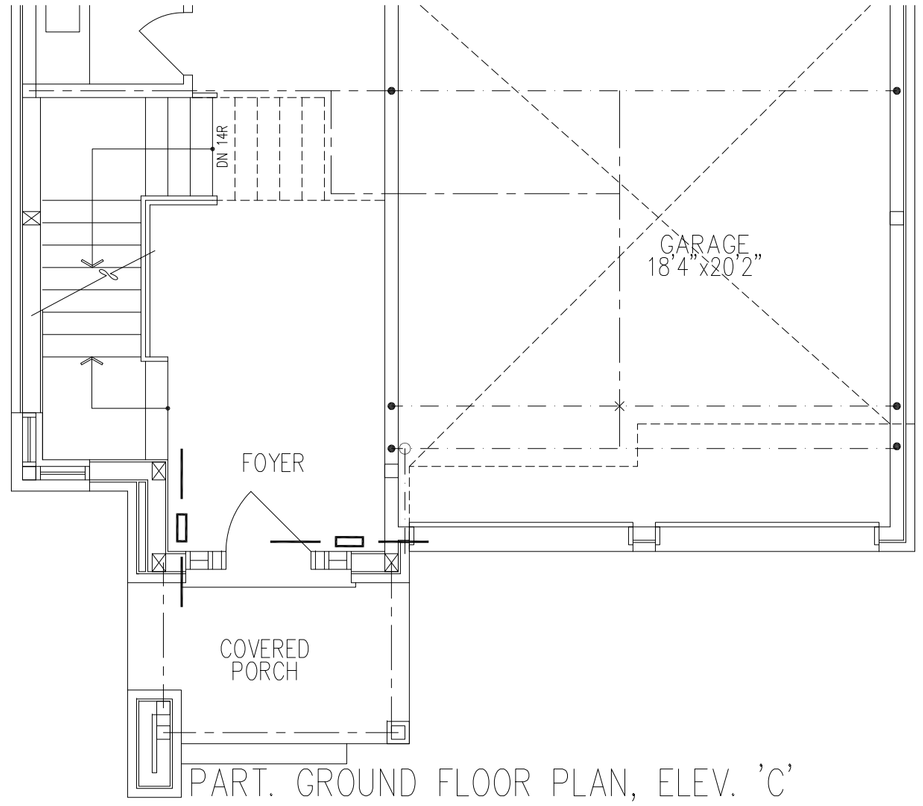
Project Name: PINE VALLEY & TESTON
VAUGHAN, ONTARIO

4205 ALT 5 BED
3416 ft²

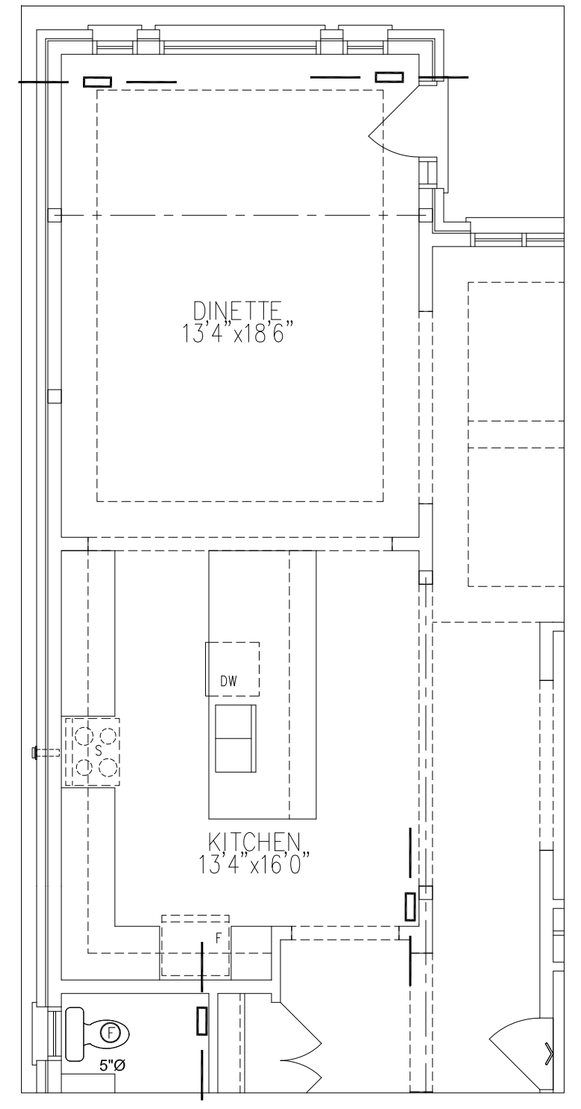
Sheet Title	BASEMENT
Drawn By	PS
Checked By	AS
Scale	3/16"=1'-0"
Sheet No.	1
Date	JUNE 2020
LO #	86413



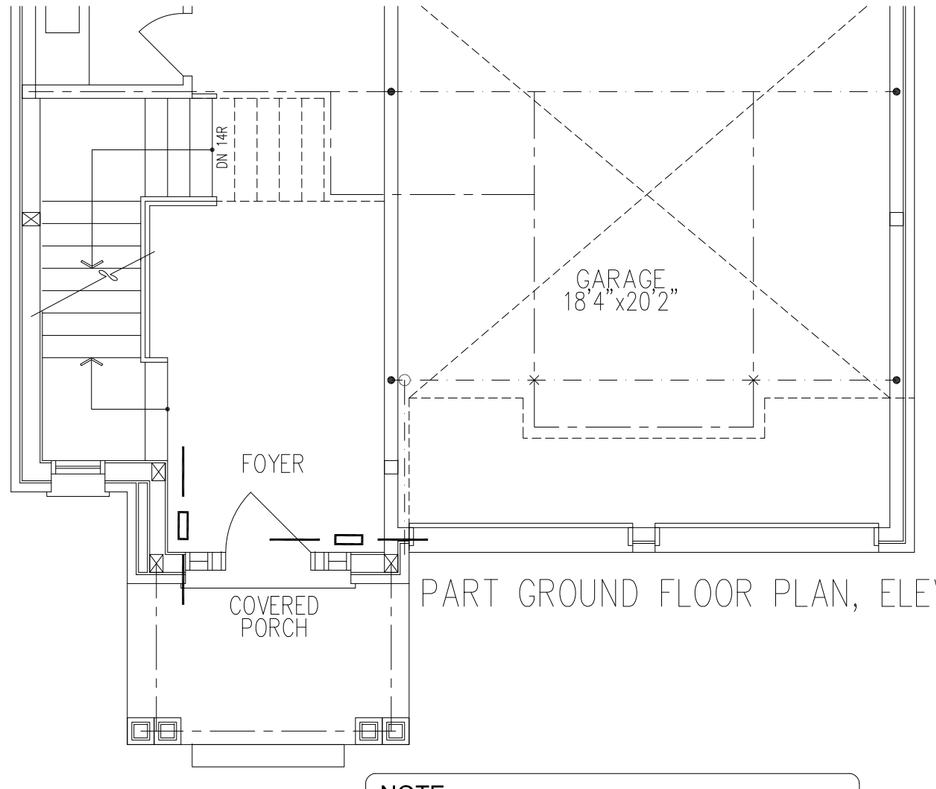
GROUND FLOOR PLAN, ELEV. 'A'



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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2			
1	ISSUED FOR PERMIT	JUNE 22/20	PS

SB-12 PACKAGE

A1

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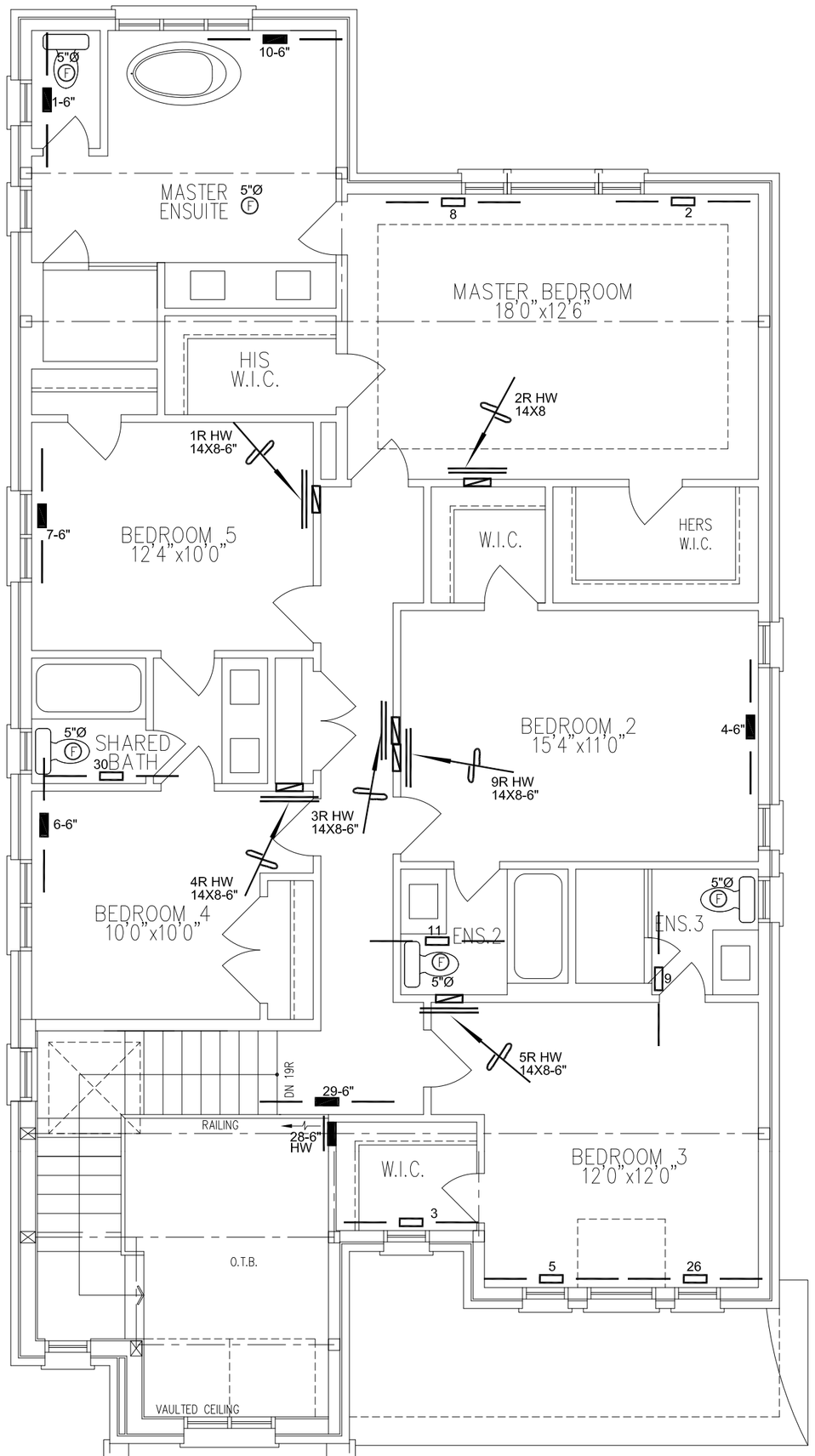
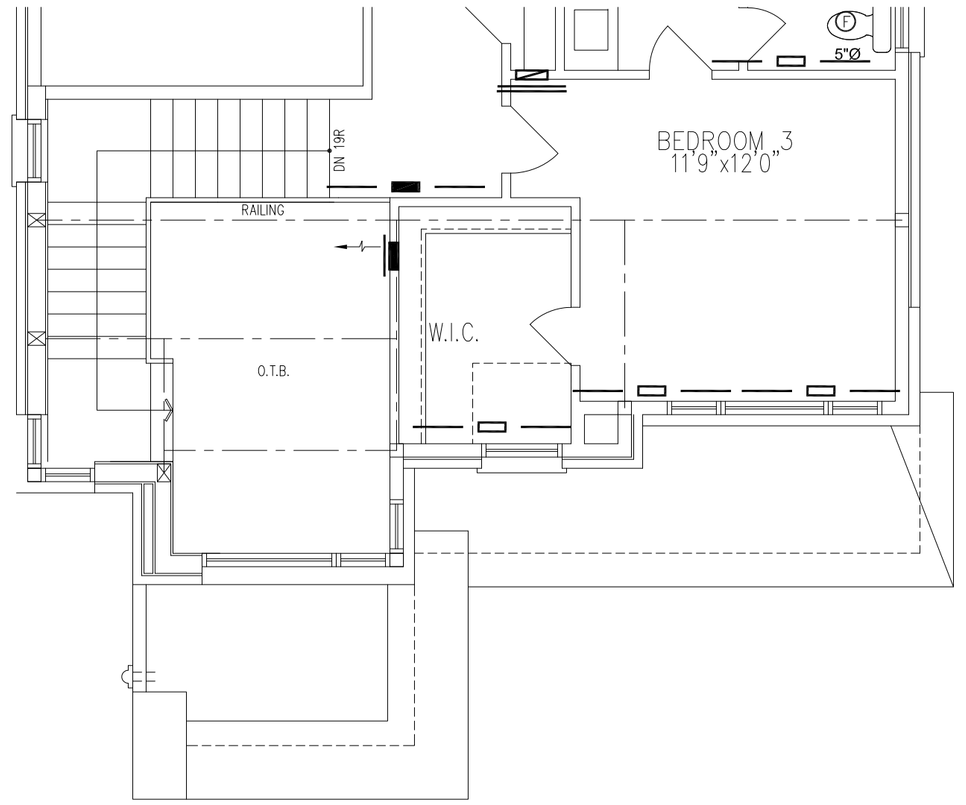
Client: GOLD PARK HOMES

Project Name: PINE VALLEY & TESTON
VAUGHAN, ONTARIO
4205 ALT 5 BED
3416 ft²

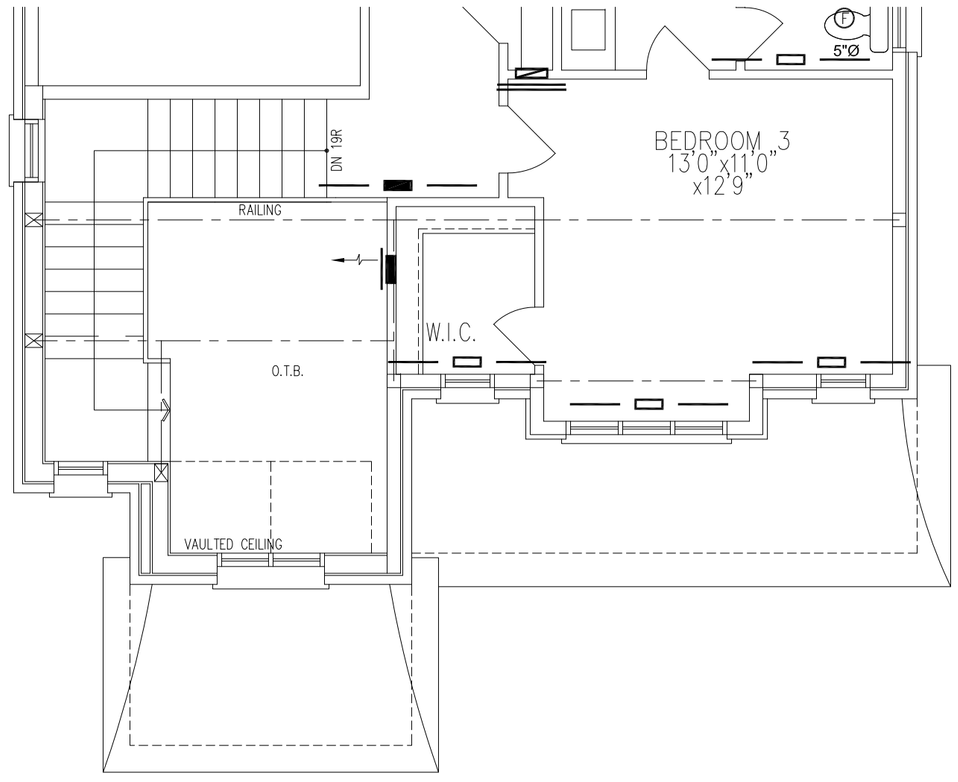
Sheet Title	FIRST FLOOR		
Drawn By	PS	Checked By	AS
Scale	3/16"=1'-0"	Sheet No.	2
Date	JUNE 2020		
LO #	86413		



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



PART. SECOND FLOOR PLAN, ELEV. 'C'



PART SECOND FLOOR PLAN, ELEV. 'B'

NOTE:

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	14X8 RETURN GRILLE
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Client: GOLD PARK HOMES

Project Name: PINE VALLEY & TESTON
VAUGHAN, ONTARIO
4205 ALT 5 BED
3416 ft²

Sheet Title	SECOND FLOOR		
Drawn By	PS	Checked By	AS
Scale	3/16"=1'-0"	Sheet No.	3
Date	JUNE 2020		
LO #	86413		