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:** 4204 BROOKVALLEY **Project:** PINE VALLEY PH 2

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.

May 2, 2022
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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Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

SITE NAME: PINE VALLEY PH 2 — BROOKVALLEY — DATE: May-22 — WINTER NATURAL AIR CHANGE RATE 0.370 — HEAT LOSS ΔT °F. 76 — CSA-F280-12

BUILDER: GOLD PARK HOMES — TYPE: 4204 — GFA: 3646 — LO# 96510 — SUMMER NATURAL AIR CHANGE RATE 0.124 — HEAT GAIN ΔT °F. 13 — SB-12 PACKAGE A1

ROOM USE			MBR			ENS			WIC			BED-2			BED-3			BED-4			ENS-2/3					BTH-2				
EXP. WALL			37			36			7			32			44			28			5					0				
CLG. HT.			10			9			9			9			9			9			9					9				
	FACTORS																													
GRS.WALL AREA	LOSS	GAIN	370			324			63			288			396			252			45					0				
GLAZING			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN				LOSS	GAIN			
NORTH	21.3	16.0	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	41.6	0	0	0	0	0	0	0	0	0	49	1043	2036	62	1319	2576	0	0	0	10	213	416			0	0	0		
SOUTH	21.3	24.9	0	0	0	45	958	1120	0	0	0	0	0	0	45	958	1120	62	1319	1544	0	0	0			0	0	0		
WEST	21.3	41.6	55	1170	2285	13	277	540	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0		
SKYLT.	37.2	101.5	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	20.1	3.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0		
NET EXPOSED WALL	4.5	0.8	315	1406	237	266	1187	200	63	281	47	239	1067	180	289	1290	217	190	848	143	35	156	26			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			0	0	0		
EXPOSED CLG	1.3	0.6	337	432	198	350	449	206	63	81	37	200	257	118	200	257	118	393	504	231	80	103	47			127	163	75		
NO ATTIC EXPOSED CLG	2.7	1.3	0	0	0	0	0	0	0	0	0	30	82	38	60	165	76	30	82	38	0	0	0			0	0	0		
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	0	0	0	230	587	99	0	0	0	0	0	0	80	204	34			0	0	0		
BASEMENT/CRAWL HEAT LOSS			0			0			0			0			0			0			0					0				
SLAB ON GRADE HEAT LOSS			0			0			0			0			0			0			0					0				
SUBTOTAL HT LOSS			3009			2870			362			3035			3988			2754			676					163				
SUB TOTAL HT GAIN				2720			2066			84			2470			4107			1955			523					75			
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			
AIR CHANGE HEAT LOSS			932			890			112			941			1236			853			209					51				
AIR CHANGE HEAT GAIN				157			119			5			142			237			113			30					4			
DUCT LOSS			0			0			0			398			0			0			89					0				
DUCT GAIN				0			0			0			405			0			0			55					0			
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	1		240	0		0			0		0		
HEAT GAIN APPLIANCES/LIGHTS					1198			0			0			1198			1198			1198			0					0		
TOTAL HT LOSS BTU/H			3941			3760			474			4373			5224			3608			974					213				
TOTAL HT GAIN x 1.3 BTU/H				5922			2841			116			5792			7517			4558			791					103			

ROOM USE			DIN				KT/GT			LIB			LAUN			PWD			FOY			MUD					LOD			BAS		
EXP. WALL			26				78			50			8			16			22			28					45			194		
CLG. HT.			11				11			11			9			11			20			11					10			10		
	FACTORS																															
GRS.WALL AREA	LOSS	GAIN	286				858			550			72			176			440			308					450			1493		
GLAZING			LOSS	GAIN			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN				LOSS	GAIN		LOSS	GAIN	
NORTH	21.3	16.0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			5	106	80	0	0	0
EAST	21.3	41.6	0	0	0		0	0	0	75	1596	3116	0	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0
SOUTH	21.3	24.9	62	1319	1544		49	1043	1220	54	1149	1345	0	0	0	0	0	0	57	1213	1419	0	0	0			0	0	0	0	0	0
WEST	21.3	41.6	0	0	0		118	2511	4903	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			24	511	997	0	0	0
SKYLT.	37.2	101.5	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	20.1	3.4	0	0	0		20	401	68	0	0	0	0	0	0	0	0	0	40	802	135	20	401	68			0	0	0	20	401	68
NET EXPOSED WALL	4.5	0.8	224	1000	168		671	2994	504	421	1879	316	72	321	54	176	785	132	343	1531	258	288	1285	216			0	0	0	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			241	867	146	447	1609	271
EXPOSED CLG	1.3	0.6	0	0	0		0	0	0	0	0	0	120	154	71	0	0	0	120	154	71	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	0	0	0
EXPOSED FLOOR	2.6	0.4	0	0	0		0	0	0	0	0	0	15	38	6	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								6586		
SLAB ON GRADE HEAT LOSS			0				0			0			0			0			0			0					0					
SUBTOTAL HT LOSS			2319				6949			4624			514			785			3700			1686					1484			8595		
SUB TOTAL HT GAIN				1712				6695			4777			131			132			1883			284					1223			338	
LEVEL FACTOR / MULTIPLIER			0.30	0.40			0.30	0.40		0.30	0.40		0.20	0.31		0.30	0.40		0.30	0.40		0.30	0.40							0.50	1.34	
AIR CHANGE HEAT LOSS			933				2797			1861			159			316			1489			679								13458		
AIR CHANGE HEAT GAIN				99				386			276			8			8			109			16								90	
DUCT LOSS			0				0			0			67			0			0			0								0		
DUCT GAIN				0				0			0			134			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		0
HEAT GAIN APPLIANCES/LIGHTS					1198				1198			1198			1198			0			0			0					0			1198
TOTAL HT LOSS BTU/H			3252				9746			6485			740			1102			5189			2365					1484			22053		
TOTAL HT GAIN x 1.3 BTU/H				3912				10764			8127			1912			182			2589			391					1590			2115	

TOTAL HEAT GAIN BTU/H: 59497 — TONS: 4.96 — LOSS DUE TO VENTILATION LOAD BTU/H: 1631 — STRUCTURAL HEAT LOSS: 74983 — TOTAL COMBINED HEAT LOSS BTU/H: 76615

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 PH 2
BUILDER: GOLD PARK HOMES

BROOKVALLEY
TYPE: 4204

DATE: May-22

GFA: 3646 LO# 96510

HEATING CFM	1995	COOLING CFM	1995
TOTAL HEAT LOSS	74,983	TOTAL HEAT GAIN	59,222
AIR FLOW RATE CFM	26.61	AIR FLOW RATE CFM	33.69

furnace pressure	0.6
furnace filter	0.05
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
ML196UH110XE60C 110
FAN SPEED
LOW 0
MEDLOW 1420
MEDIUM 1550
MEDIUM HIGH 1725
HIGH 1995

AFUE = 96 %
INPUT (BTU/H) = 110,000
OUTPUT (BTU/H) = **107,200**
DESIGN CFM = **1995**
CFM @ .6 " E.S.P.
TEMPERATURE RISE 50 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	16	13	6
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	ENS	BED-2	BED-3	BED-4	ENS-2/3	BED-2	BED-3	MBR	BTH-2	DIN	KT/GT	KT/GT	KT/GT	LIB	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.97	1.88	1.88	2.19	1.74	1.80	0.49	2.19	1.74	1.97	0.21	1.63	2.44	2.44	2.44	2.16	0.74	1.10	2.59	2.36	3.92	3.92	3.92	3.92
CFM PER RUN HEAT	52	50	50	58	46	48	13	58	46	52	6	43	65	65	65	58	20	29	69	63	104	104	104	104
RM GAIN MBH.	2.96	1.42	1.42	2.90	2.51	2.28	0.40	2.90	2.51	2.96	0.10	1.96	2.69	2.69	2.69	2.71	1.91	0.18	1.29	0.39	0.62	0.62	0.62	0.62
CFM PER RUN COOLING	100	48	48	98	84	77	13	98	84	100	3	66	91	91	91	91	64	6	44	13	21	21	21	21
ADJUSTED PRESSURE	0.16	0.17	0.17	0.16	0.16	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	51	47	47	52	72	45	50	56	63	43	35	29	26	26	43	53	50	34	36	10	41	21	16	52
EQUIVALENT LENGTH	160	200	120	150	200	160	140	160	190	160	150	100	110	110	150	110	170	100	150	140	130	100	100	100
TOTAL EFFECTIVE LENGTH	211	247	167	202	272	205	190	216	253	203	185	129	136	136	193	163	220	134	186	150	171	121	116	152
ADJUSTED PRESSURE	0.08	0.07	0.1	0.08	0.06	0.08	0.09	0.08	0.06	0.08	0.09	0.13	0.12	0.12	0.08	0.1	0.08	0.13	0.09	0.11	0.09	0.13	0.14	0.11
ROUND DUCT SIZE	**6**	5	5	**6**	**6**	**6**	4	**6**	**6**	**6**	4	5	**6**	**6**	**6**	**6**	5	4	5	5	**6**	**6**	**6**	**6**
HEATING VELOCITY (ft/min)	265	367	367	296	235	245	149	296	235	265	69	316	331	331	331	296	147	333	507	463	530	530	530	530
COOLING VELOCITY (ft/min)	510	352	352	500	428	393	149	500	428	510	34	485	464	464	464	464	470	69	323	95	107	107	107	107
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	4X10	4X10	3X10	4X10	4X10	4X10	3X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	E	A	D	C	B	A	C	C	B	E	D	A	D	E	A	B	C	C	C	E	A	E	D	B

RUN #	25	26	27	28	29	30	31	32	33	34	35
ROOM NAME	BED-4	LIB	KT/GT	ENS-2/3	WIC	BAS	BED-3	LIB	FOY	BAS	DIN
RM LOSS MBH.	1.80	2.16	2.44	0.49	0.47	3.92	1.74	2.16	2.59	3.92	1.63
CFM PER RUN HEAT	48	58	65	13	13	104	46	58	69	104	43
RM GAIN MBH.	2.28	2.71	2.69	0.40	0.12	0.62	2.51	2.71	1.29	0.62	1.96
CFM PER RUN COOLING	77	91	91	13	4	21	84	91	44	21	66
ADJUSTED PRESSURE	0.17	0.16	0.16	0.17	0.17	0.16	0.16	0.16	0.17	0.16	0.17
ACTUAL DUCT LGH.	50	50	37	45	22	30	76	54	43	38	29
EQUIVALENT LENGTH	150	150	150	160	160	120	160	140	130	180	120
TOTAL EFFECTIVE LENGTH	200	200	187	205	182	150	236	194	173	218	149
ADJUSTED PRESSURE	0.09	0.08	0.09	0.08	0.09	0.11	0.07	0.08	0.1	0.07	0.12
ROUND DUCT SIZE	**6**	**6**	**6**	4	4	**6**	**6**	**6**	5	**6**	5
HEATING VELOCITY (ft/min)	245	296	331	149	149	530	235	296	507	530	316
COOLING VELOCITY (ft/min)	393	464	464	149	46	107	428	464	323	107	485
OUTLET GRILL SIZE	4X10	4X10	4X10	3X10	3X10	4X10	4X10	4X10	3X10	4X10	3X10
TRUNK	A	B	A	C	E	D	B	B	C	C	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	466	0.07	10.9	16	x	8	524	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	416	0.06	10.9	16	x	8	468	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	849	0.06	14.2	26	x	8	588	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	1644	0.06	18.2	30	x	10	789	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	349	0.08	9.5	10	x	8	628	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	0.06	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
TRUNK X	1625	0.06	18.1	30	x	10	**780**
TRUNK Y	680	0.06	13	20	x	8	612
TRUNK Z	1170	0.06	16	30	x	8	**702**
DROP	1995	0.06	19.5	24	x	14	**855**

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	130	130	130	160	360	370	260	0	0	0	0	0	0	0	300
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.	35	59	61	54	47	26	26	60	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	145	175	195	185	160	205	130	155	0	0	0	0	0	0	0	145
TOTAL EFFECTIVE LH	180	234	256	239	207	231	156	215	1	1	1	1	1	1	1	159
ADJUSTED PRESSURE	0.08	0.06	0.06	0.06	0.07	0.06	0.09	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.09
ROUND DUCT SIZE	7	7	7	7	7.3	10.3	9.4	8.8	0	0	0	0	0	0	0	8.7
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	30	30	30	0	0	0	0	0	0	0	30

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

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: 4204 LO # 96510
SITE NAME: PINE VALLEY PH 2 BROOKVALLEY

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	4	@ 10.6 cfm	42.4	cfm
Table 9.32.3.A.		TOTAL	169.6	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	169.6	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	90.1	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE V150H Location: BSMT

79.5 cfm [✓] 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 BY INSTALLING CONTRACTOR

Location	Model	cfm	HVI	Sones
ENS	BY INSTALLING CONTRACTOR	50	✓	3.5
ENS-2/3	BY INSTALLING CONTRACTOR	50	✓	3.5
BTH-2	BY INSTALLING CONTRACTOR	50	✓	3.5
PWD	BY INSTALLING CONTRACTOR	50	✓	3.5

HEAT RECOVERY VENTILATOR 9.32.3.11.

Model: VANEE V150H

150 cfm high 35 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: May-22

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
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CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventiliation Calculation)

LO#: 96510 Model: 4204 Builder: GOLD PARK HOMES Date: 2022-05-02

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1673	10	16730
First	1673	11	18403
Second	2047	9	18423
Third	0	9	0
Fourth	0	9	0
		Total:	53,556.0 ft³
		Total:	1516.5 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.370
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	24	31	7	13

5.2.3.1 Heat Loss due to Air Leakage

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

0.370 x 421.26 x 42 °C x 1.2 = 7889 W

= **26916 Btu/h**

6.2.6 Sensible Gain due to Air Leakage

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

= 0.124 x 421.26 x 7 °C x 1.2 = 447 W

= **1524 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	26,916	10,080	1.335
2	0.3		20,064	0.402
3	0.2		17,371	0.310
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

Michael O'Rourke
BCIN# 19669

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL:	4204		BROOKVALLEY	**BUILDER:**	GOLD PARK HOMES
SFQT:	3646	**LO#**	96510	**SITE:**	PINE VALLEY PH 2

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
		WINDOW SHGC	0.50

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):	53556.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD ($Btu/h/ft^2$):	2.00	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 62.0 ft	WIDTH: 35.0 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	96%	-
HRV/ERV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE

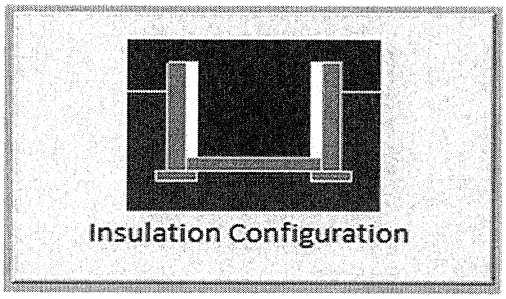
Michael O'Rourke

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):	**18.9**	 Insulation Configuration
Floor Width (m):	**10.7**	
Exposed Perimeter (m):	**0.0**	
Wall Height (m):	**3.0**	
Depth Below Grade (m):	**2.13**	
Window Area (m^2):	**2.7**	
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):	**1930**	

TYPE: 4204
LO# 96510

BROOKVALLEY

Michael O'Rourke BCIN #19669

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

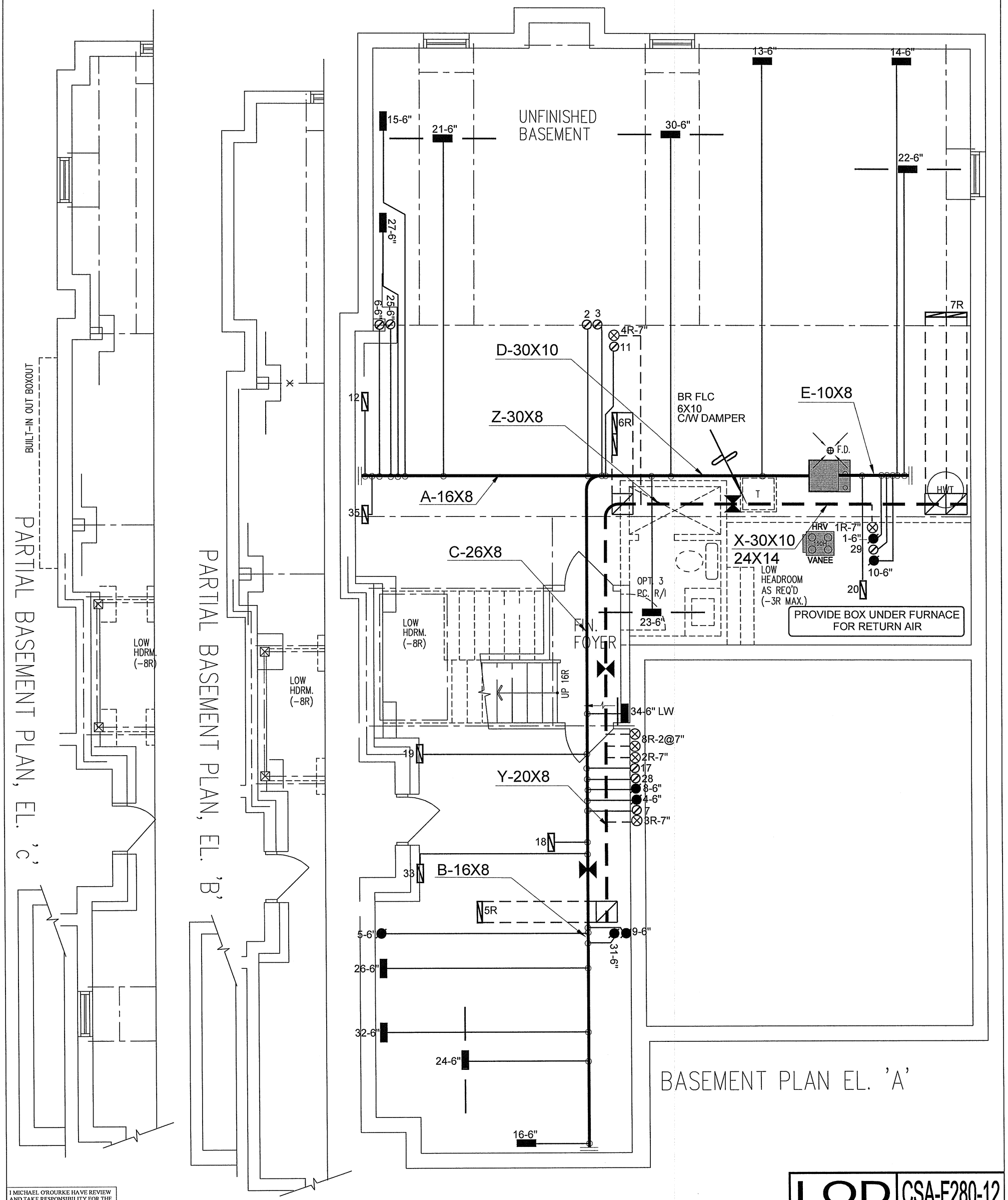
Air Infiltration Residential Load Calculator

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):	7.92
Building Configuration	
Type:	Detached
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	1516.5
Air Leakage/Ventilation	
Air Tightness Type:	Present (1961-) (3.57 ACH)
Custom BDT Data:	ELA @ 10 Pa. 2021.6 cm^2
	3.57 ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply 37.5 / Total Exhaust 37.5
Flue Size	
Flue #:	#1 #2 #3 #4
Diameter (mm):	0 0 0 0
Natural Infiltration Rates	
Heating Air Leakage Rate (ACH/H):	**0.370**
Cooling Air Leakage Rate (ACH/H):	**0.124**

TYPE: 4204 BROOKVALLEY
LO# 96510

Michael O'Rourke BCIN# 19669



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
HVAC DESIGNS LTD.

LOD CSA-F280-12
WOD PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
— ▭ —	SUPPLY AIR GRILLE	▬	6" SUPPLY AIR BOOT ABOVE	▱	14"x8" RETURN AIR GRILLE	▰	RETURN AIR STACK ABOVE
— ▬ —	SUPPLY AIR GRILLE 6" BOOT	⊘	SUPPLY AIR STACK FROM 2nd FLOOR	▱▱	30"x8" RETURN AIR GRILLE	⊠	RETURN AIR STACK 2nd FLOOR
▨	SUPPLY AIR BOOT ABOVE	●	6" SUPPLY AIR STACK 2nd FLOOR	▤	FRA- FLOOR RETURN AIR GRILLE	⧗	REDUCER

No.	Description	Date
3.		
2.		
1.		

REVISIONS

Client
GOLD PARK HOMES

Project Name
PINE VALLEY PH 2
VAUGHAN, ONTARIO

BROOKVALLEY
4204 3646 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 76615 BTU/H

UNIT DATA

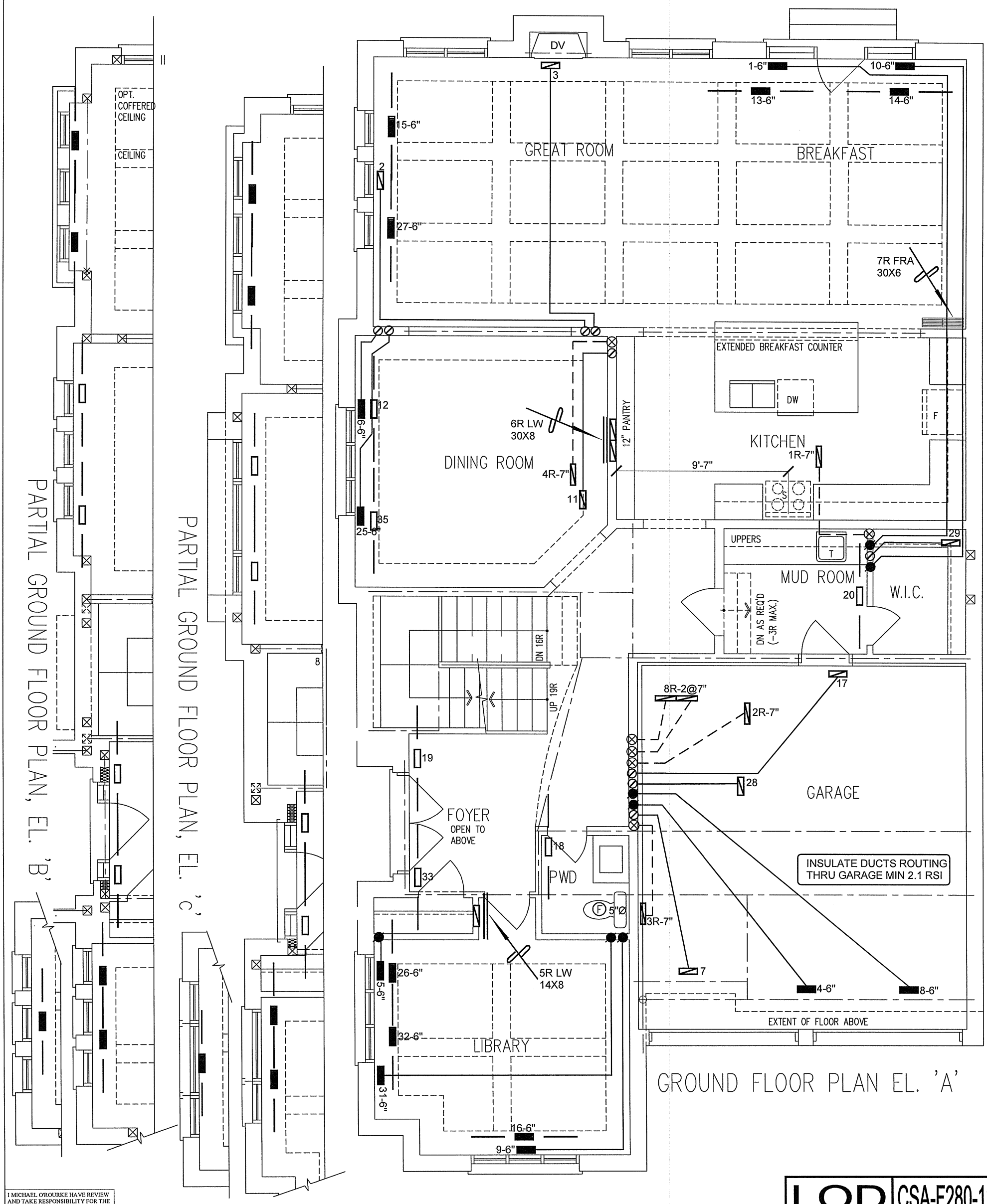
MAKE	LENNOX	
MODEL	ML196UH110XE60C	
INPUT	110	MBTU/H
OUTPUT	107.2	MBTU/H
COOLING	5.0	TONS
FAN SPEED	1995	cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	16	5	5
1ST FLOOR	13	3	2
BASEMENT	6	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

Sheet Title
BASEMENT HEATING LAYOUT

Date MAY/2022
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 96510



GROUND FLOOR PLAN EL. '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
HVAC DESIGNS LTD.

LOD	CSA-F280-12
WOD	PACKAGE A1

HVAC LEGEND

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— ▬ —	SUPPLY AIR GRILLE 6" BOOT	⊘	SUPPLY AIR STACK FROM 2nd FLOOR	▭	30"x8" RETURN AIR GRILLE	▭	RETURN AIR STACK 2nd FLOOR
▭	SUPPLY AIR BOOT ABOVE	●	6" SUPPLY AIR STACK 2nd FLOOR	▭	FRA- FLOOR RETURN AIR GRILLE	⧗	REDUCER

No.	Description	Date
3.		
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1.		
REVISIONS		

Client
GOLD PARK HOMES

Project Name
PINE VALLEY PH 2
VAUGHAN, ONTARIO

BROOKVALLEY
4204 3646 sqft

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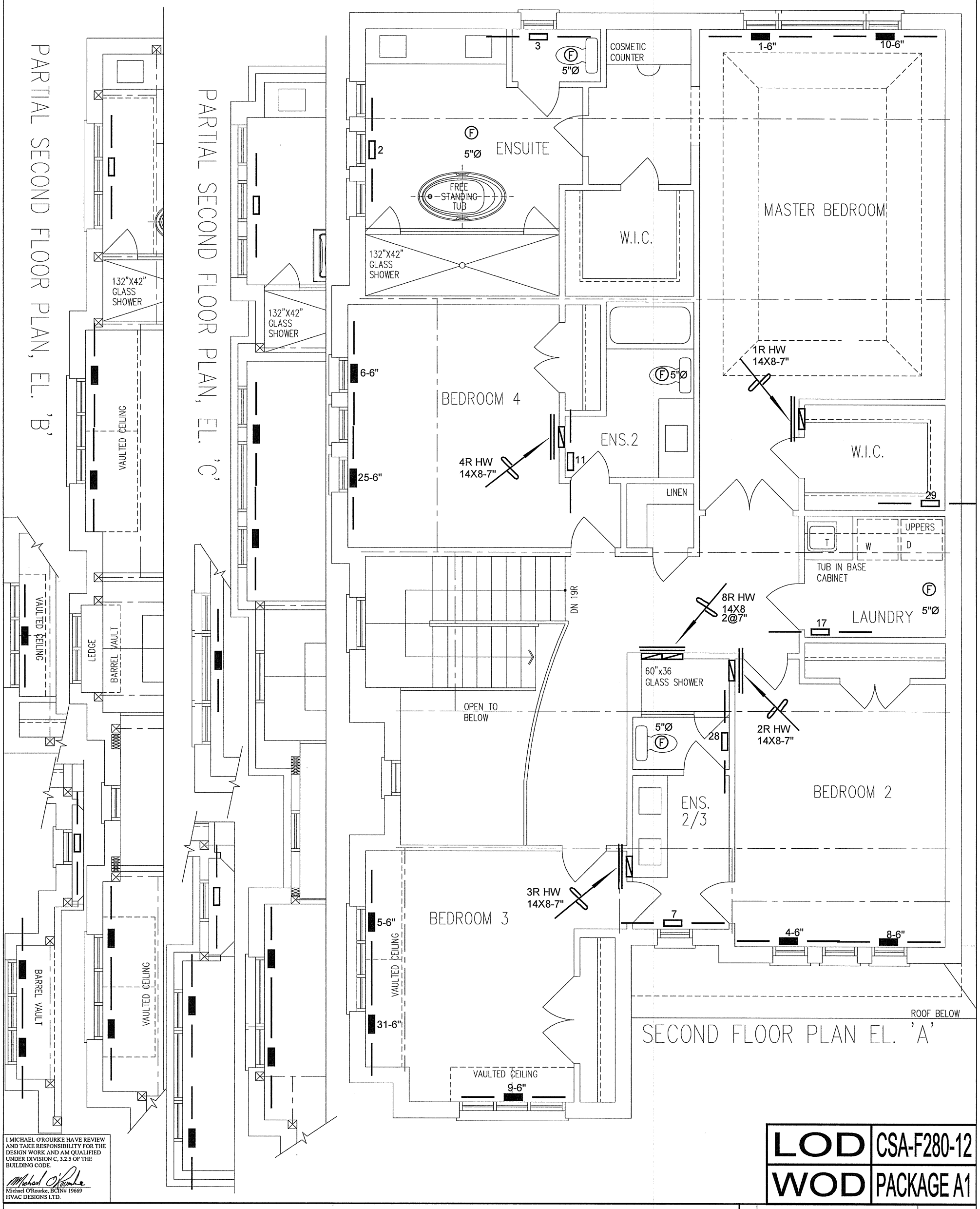
Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

Sheet Title
FIRST FLOOR HEATING LAYOUT

Date MAY/2022
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 96510



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

LOD	CSA-F280-12
WOD	PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
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— ▬ —	SUPPLY AIR GRILLE 6" BOOT	⊘	SUPPLY AIR STACK FROM 2nd FLOOR	▨	30"x8" RETURN AIR GRILLE	⊠	RETURN AIR STACK 2nd FLOOR
▨	SUPPLY AIR BOOT ABOVE	●	6" SUPPLY AIR STACK 2nd FLOOR	▤	FRA- FLOOR RETURN AIR GRILLE	⧗	REDUCER

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GOLD PARK HOMES

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VAUGHAN, ONTARIO

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4204 3646 sqft

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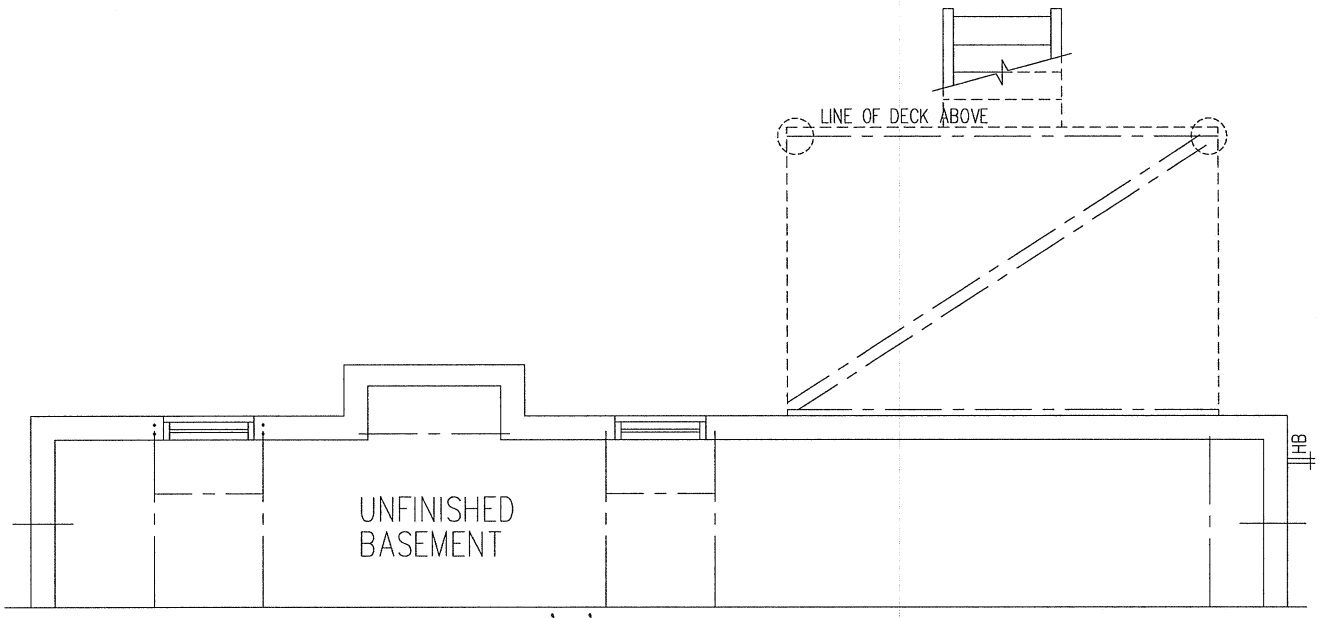
Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

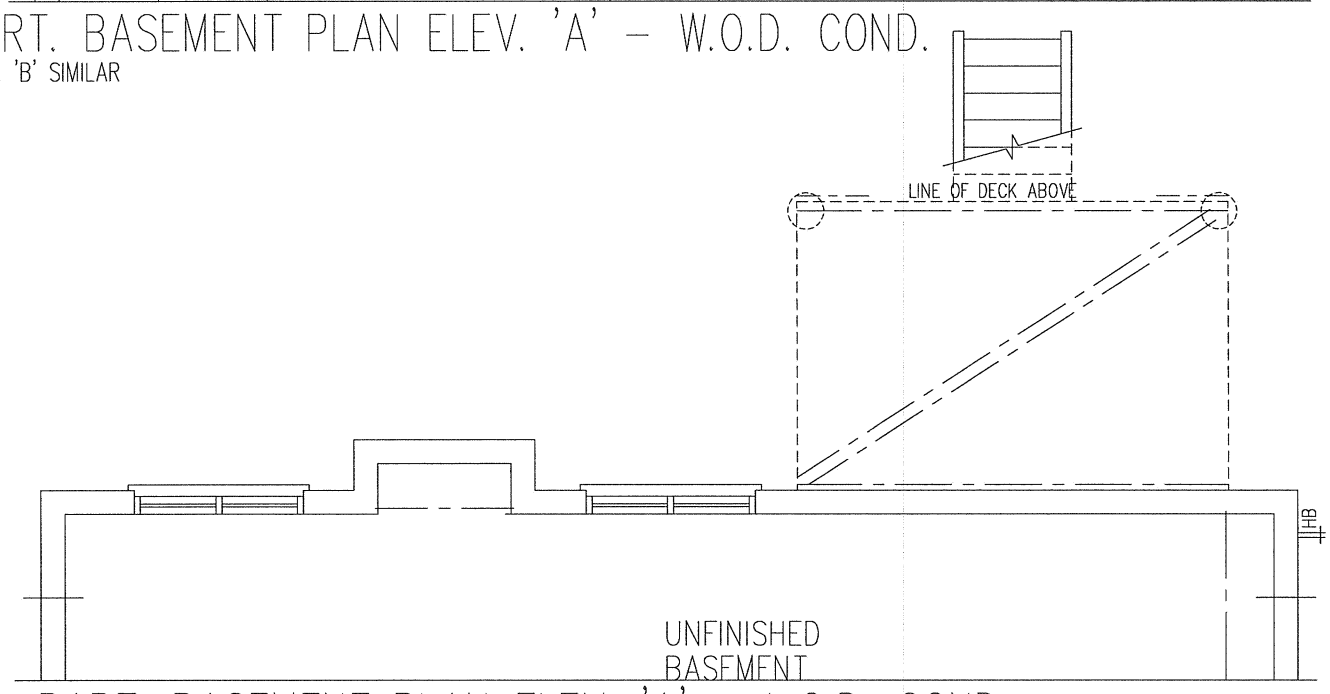
Sheet Title
SECOND FLOOR HEATING LAYOUT

Date MAY/2022
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 96510



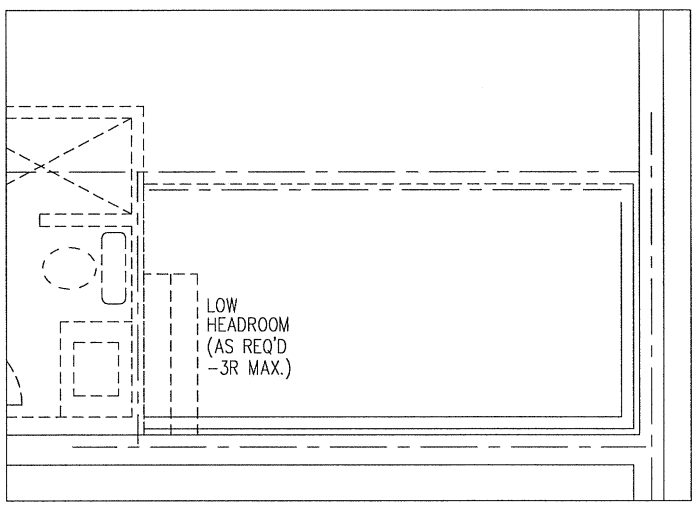
PART. BASEMENT PLAN ELEV. 'A' – W.O.D. COND.

ELEV. 'B' SIMILAR

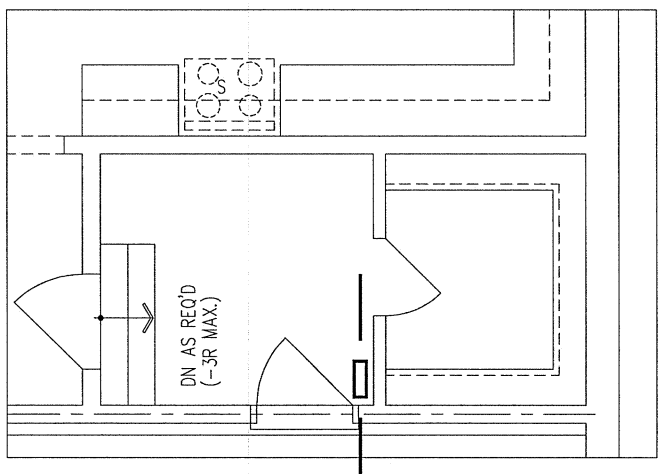


PART. BASEMENT PLAN ELEV. 'A' – L.O.D. COND.

ELEV. 'B' SIMILAR



PART. BASEMENT PLAN EL. 'A' FOR –2R/3R SUNKEN MUDROOM



PART. GROUND FLOOR PLAN EL. 'A' FOR –2R/3R SUNKEN MUDROOM

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
HVAC DESIGNS LTD.

LOD CSA-F280-12
WOD PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
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	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER

No.	Description	Date
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REVISIONS

Client
GOLD PARK HOMES

Project Name
PINE VALLEY PH 2
VAUGHAN, ONTARIO

BROOKVALLEY
4204 3646 sqft

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Sheet Title
STRIP PLAN
HEATING
LAYOUT

Date MAY/2022
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 96510